

## Hamline University DigitalCommons@Hamline

---

School of Education Student Capstone Theses and  
Dissertations

School of Education

---

Fall 12-14-2016

# HOW CAN SCIENCE AND LITERACY BE INTEGRATED IN A FIFTH GRADE CIRRICULUM?

Kathryn J. Hellen  
*Hamline University*

Follow this and additional works at: [https://digitalcommons.hamline.edu/hse\\_all](https://digitalcommons.hamline.edu/hse_all)

 Part of the [Education Commons](#)

---

### Recommended Citation

Hellen, Kathryn J., "HOW CAN SCIENCE AND LITERACY BE INTEGRATED IN A FIFTH GRADE CIRRICULUM?" (2016).  
*School of Education Student Capstone Theses and Dissertations*. 4240.  
[https://digitalcommons.hamline.edu/hse\\_all/4240](https://digitalcommons.hamline.edu/hse_all/4240)

This Thesis is brought to you for free and open access by the School of Education at DigitalCommons@Hamline. It has been accepted for inclusion in School of Education Student Capstone Theses and Dissertations by an authorized administrator of DigitalCommons@Hamline. For more information, please contact [digitalcommons@hamline.edu](mailto:digitalcommons@hamline.edu), [lterveer01@hamline.edu](mailto:lterveer01@hamline.edu).

HOW CAN SCIENCE AND LITERACY BE INTEGRATED IN A FIFTH GRADE  
CURRICULUM?

by

Kathryn J. Hellen

A capstone submitted in partial fulfillment of the requirements for the degree of Master  
of Arts in Literacy Education

Hamline University

Saint Paul, Minnesota

December 2016

Primary Advisor: Bill Lindquist  
Secondary Advisor: Katherine Vinje Stark  
Peer Reviewer: Kevin McGee

To my mom, dad, and fiancé for your continuous support and encouragement. Thank you to my Capstone Committee for guidance in completing this project.

## TABLE OF CONTENTS

CHAPTER ONE: Introduction.....	1
Beginnings.....	1
New Job, New Stressors.....	3
Failed First Attempts.....	4
A Model for Others.....	6
Conclusion.....	6
CHAPTER TWO: Literature Review.....	8
Introduction.....	8
Science Education.....	9
Scientific literacy.....	9
Inquiry-based science instruction.....	10
Minnesota academic standards in science.....	12
Science education summary.....	13
Reading Motivation & Reading Engagement.....	14
Reading motivation.....	14
Reading engagement.....	17
Classroom implications.....	18
Reading motivation and reading engagement summary.....	22
Science and Literacy Connection.....	22
Science is an authentic context for reading and writing strategies.....	23

Integrating science and literacy maximizes instructional time.....	24
Information texts support science explorations.....	25
Unit Plan Model: CORI.....	27
CORI reading goals.....	28
CORI science goals.....	29
CORI motivational goals.....	29
CORI reading-science integration goals .....	30
The four CORI stages .....	31
CORI summary .....	35
Conclusion.....	36
CHAPTER THREE: Methods.....	38
Introduction.....	38
Setting.....	38
Table 1. District and school demographics.....	39
Participants.....	41
Academic Standards.....	42
Methodology.....	42
Set reading goals.....	44
Identify a theme in content area.....	44
Support the theme with concepts .....	44
Choose information books.....	44
Choose books from other genres.....	45

Build a concept map .....	45
Set motivation goals.....	46
Identify science formative assessments.....	46
Develop a culminating activity.....	47
Complete an overall framework.....	47
Table 2. Weekly Planning Chart.....	48
Plan daily instruction.....	49
Table 3. Daily Lesson Plan Template.....	49
Teacher reflection.....	51
Conclusion.....	51
CHAPTER FOUR: Results .....	53
Introduction.....	53
Review of CORI Framework.....	53
Unit Theme and Academic Goals.....	54
Book List.....	54
Concept Map.....	55
Motivation Goals.....	56
Culminating Activity.....	56
Overall Framework.....	57
Science Formative Assessments.....	57
Daily Lesson Plan Sequence.....	58
Science or shared reading.....	58
Whole group reading instruction.....	58

Small group instruction .....	59
Extended writing.....	59
Independent reading.....	59
Share.....	59
Conclusion.....	60
CHAPTER FIVE: Conclusions.....	61
Major Findings.....	61
Science education.....	62
Reading motivation.....	62
Science and literacy integration.....	63
CORI framework.....	65
Curriculum Implications.....	65
Limitations.....	66
Future Areas of Study.....	67
Professional Growth.....	69
Final Thoughts.....	70
APPENDECIES.....	72
Appendix A: Standards and Themes Addressed in CORI Unit.....	73
Appendix B: CORI Book List.....	76
Appendix C: Concept Map.....	80
Appendix D: Motivation Goals.....	82
Appendix E: Overall Framework.....	84

Appendix F: CORI Workshop Model.....	94
Appendix G: Celebration of Learning.....	96
Appendix H: Formative Assessments.....	98
Appendix I: Lessons 1-12 (Subtopic 1) .....	100
Appendix J: Lessons 13-24 (Subtopic 2) .....	147
Appendix K: Lessons 25-33 (Subtopic 3) .....	198
Appendix L: Student Worksheets for Subtopic 1.....	233
Appendix M: Student Worksheets for Subtopic 2.....	254
Appendix N: Student Worksheets for Subtopic 3.....	266
REFERENCES.....	270



## CHAPTER ONE

### Introduction

I took an untraditional path to becoming an elementary school teacher. This has blessed me with an untraditional lens through which to view the profession. This lens has helped me identify ways in which elementary school teachers can be better at our craft and question prevailing practices in education. I am referring to the way we provide reading and content-area instruction. This is best illustrated by my early days as an elementary educator. I can recall my disappointment in my early career when I realized my language arts lessons were leaving students down-right bored. Students were not making academic gains, and they were unexcited about reading. The opposite was true, however, during the science block. Students were talkative, excited and bounded out of their chairs to get the materials for the day's science investigation. This is where the seed for my capstone was planted. As an educator I understood the immense responsibility I had to teach students to read well. I also knew I had a desire to make learning engaging for students. Wrestling with this idea left me seeking a way to engage students in reading so much so that they bound out of their seats, just like they do during the science block. In this capstone I seek to discover: *How can science and literacy be integrated in a 5th grade curriculum?*

#### Beginnings

When I entered college I was determined to be a high school social studies teacher. Shortly after move-in day, but before classes had begun, groups of students had lunch with the professor who would be their advisor during their four-year stay. I

excitedly met with Dr. Bob McClure, a professor in the Education department with years of wisdom and experience.

“I want to be a Social studies teacher,” I declared.

“Are you willing to move to Arizona or Texas?” he replied. I hesitated.

“Not really, I mean, maybe...” I said sheepishly.

“Because there is no way you will find a job in Minnesota or Wisconsin as a social studies teacher. There are just too many social studies teachers out there.”

Bob was only trying to advise me the best he could by being honest, but I was thrown off guard by his bluntness.

“I see you’re taking Spanish this semester. There is a need for Spanish teachers. You should consider that.”

I was only taking Spanish this semester because it was required. In fact, in high school I struggled to feign interest in those classes. I ignored Bob’s advice for the first two and half years of college. After studying abroad in Spain, I fell in love with the language and culture and changed my major to Spanish Education. Bob was right after all. I graduated in May 2008 with a license to teach K-12 Spanish. If someone would have told me as a recent high school graduate that this would be my undergraduate degree, I would have laughed and said they were crazy. This was the first of many positive, yet unforeseen, changes in my career path.

After college I had a wonderful opportunity to teach English as a foreign language in Costa Rica. During that year I worked hard, made many life-long friends, and perfected my Spanish. Upon returning to the states I was offered a job in at a metro-area middle school as one of their Spanish teachers. I was ecstatic. However, this job turned

out to be a dead-end. My administrators warned me that the school district would likely cut funding, forcing me to be laid off at the end of the year. Thankfully, this forewarning allowed me time to search for other jobs in the metro area.

To my dismay, the only jobs posted for Spanish teachers were part-time. There was an abundance, however, of districts looking for Spanish immersion teachers. I ignored most of these postings but began to wonder what Spanish immersion was all about. In April I attended an education job fair. I handed my resume to a human resources officer and said I was interested in the part-time position at their metro-area high school. She glanced at my qualifications and said, "Would you be interested in interviewing today for a Spanish immersion position?" I was shocked. "Sure," I responded. After meeting with the principal, I was offered a position as a fifth grade Spanish immersion teacher. I had very little idea of what this new position entailed, but I was excited for a new challenge.

This new challenge meant that I had to go back to school at night and earn an additional elementary teaching license. So, here I was two years out of college: laid-off from my first job, going back to school at night and starting a new career path. Five years later I do not regret this choice one bit.

### New Job, New Stressors

I put my heart and soul into my new job. I loved using my Spanish all day long and was impressed by what my immersion students were able to do in their second language. I immediately learned, however, of the intense workload placed on elementary school teachers. Prepping for five content areas left me working until the wee hours of the morning, not to mention the responsibilities of parent communication, committee

meetings and new technologies that I needed to learn. How was I supposed to do all these things well and give my students the best education possible? This is really when the seed for my capstone was planted. I knew there had to be a more efficient way to meet all the academic standards placed before teachers. If I did not have time in the day to teach all these content areas separately, I would have to find a way to teach them in tandem. But, how? I would later learn that this is called content area literacy.

Learning to read is undoubtedly one of the most important things students must acquire in elementary school. However, one could spend the entire school day trying to tackle the language arts standards stipulated to teachers. And what about teaching math, science, social studies, technology and health? Those are important content areas, too. I began to notice how my language arts instruction put most fifth graders to sleep. On the contrary, I remarked about how engaged, on-task and excited those same kids were when I taught science. So I began to wonder: how could I combine the two domains of literacy and science? How could I covertly reinforce reading in the science block?

### Failed First Attempts

I quickly learned that integrating literacy and science was not as easy as it seemed. I first tried using the *FOSS Readers* that came with our science curriculum. These magazines included about 20 pages of informational text related to the experiments we conducted in class. The problem with these readers, however, was that the text was way too advanced for many students. Students were turned-off by reading these science related texts because they were too hard. More importantly, students were not learning because they could not access the information in the text.

Next, I tried science notebooks. This was not a complete failure, but neither was it a huge success. Students were sloppy with their writing and drawings. It required a lot of direct instruction and revising to get students to support their claims with evidence. Integrating science and literacy was exhausting, and I wondered if the kids were getting anything out of it.

During my graduate coursework I took a class called “Rethinking Literacies Across the Curriculum.” In this course we talked about the value of using children’s literature in content areas. I was blown away by this idea. I had never considered the use of “kids books” with students in upper elementary, let alone using them outside of the language arts block. When I began to experiment with this idea I immediately noticed that the kids loved it. Each year, without fail, students are mesmerized when being read a book aloud. They shoot their hands in the air to make comments or connections. The boys would even stop roughhousing to learn how the story will end. Using children’s literature across the curriculum was clearly a great and engaging way to bring literacy into other content areas.

I know I still have much to learn about integrating science and literacy. I have learned first hand that doing so is not easy. It requires teachers to think about learning and teaching in a new way. I owe it to students and myself to learn how to bundle these two subject areas. I know that when I begin to bring the two subject areas together students will be inspired and grow as readers and scientists; students will be engaged in their learning. I also know my colleagues and I need some way to alleviate the pressure of teaching the mountain of academic standards. Weaving science and literacy together is important for students and teachers, alike.

### A Model for Others

Another reason I am interested in teaching science and literacy in tandem is the opportunity to incorporate more nonfiction text into the curriculum. I learned early in my graduate coursework that students must be exposed to more nonfiction text. I see this same need reflected in my students' standardized test scores. In fact, most students score lower on their ability to work with nonfiction texts as opposed to fiction texts. Upon reflecting on my school's fifth grade language arts curriculum, I noticed that only one of the six units is centered on reading non-fiction. That is only one and half months of instruction dedicated to nonfiction reading. This is simply not enough and I feel charged to model a change for other teachers. This need has inspired an important aspect of my capstone: incorporating a variety of texts in the science block.

I hope that this capstone will also serve my Spanish immersion colleagues. Many teachers realize that there are opportunities to teach literacy all day long, but do not know where to start. Even more exciting is that content area literacy reinforces both new content learning and literacy at the same time. It is a golden opportunity to help struggling readers catch up to their peers. It is a way to continue to teach and reinforce literacy and deep thinking outside of the ninety-minute literacy block.

### Conclusion

As students move from learning-to-read to reading-to-learn, explicitly integrating the use of text and comprehension strategies in the learning of science content offers a promising approach to supporting students' achievement. Perhaps what is most exciting about content area literacy is that the same best-practice strategies teachers use in the language arts block are equally as powerful in other content areas. For example, students

may keep track of their predictions and metacognition during a science experiment or pick out the main idea and supporting details of animal adaptations. Content area literacy is not a new technique, but the implementations of purposeful planning to braid literacy and content area learning are. For the purposes of this capstone I will explore the question: *How can science and literacy be integrated in a 5th grade curriculum?*

We know that students need a host of experiences with a variety of texts to become strong readers. In an increasingly challenging education system filled with academic standards, high-stakes testing and technology, teachers often feel they cannot take the time to teach science, social studies or health. The fact is, however, that teaching these subject areas using content area literacy strategies can reinforce both new content learning and literacy.

Chapter Two will provide a review of the current research needed as background knowledge in order to successfully integrate science and literacy instruction. The literature review will highlight science education in elementary schools, reading motivation, and the connection between science and literacy. Finally, I will overview a framework to teach science and literacy in tandem. Chapter Three will describe the setting and participants for which this curriculum is intended. It will also provide a methodology for the unit I have created. Chapter Four will present the joint science and language arts unit developed for Spanish immersion students that is intended to be used during the Spanish language arts and science block. Finally, Chapter Five will provide a conclusion for this capstone project. It will discuss what I have learned through my research and curriculum writing, the limitations of my study, as well as next steps and future recommendations for this project.

## CHAPTER TWO

### Literature Review

#### Introduction

In Chapter One I discussed my path to becoming a fifth grade teacher. The experiences along the way have shaped how I view my profession and how I teach my students. As I stated in the previous chapter, I am awestruck by students' interest in science and how dissimilarly they sometimes feel about language arts. In my recent professional studies I learned about content area literacy and began experimenting with practices like interactive read-alouds to merge content knowledge with literacy. Experimenting with this practice in my classroom showed the viability of using short texts such as interactive read-alouds to build students' content knowledge. Overtime my aspirations of content area literacy have evolved to include more overarching practices. Specifically, I see the need to design entire units that unify new content learning and literacy. My aim in this capstone is to find an effective and efficient way engage students in language arts skills via science instruction. Through such a framework I aspire to provide my students with deep, inspiring and authentic learning in both content areas.

To better understand my question: *How can science and literacy be integrated in a 5th grade curriculum?*, I reviewed research from authors in the areas of science education, literacy education and reading motivation. Throughout this research, I noticed common themes that supported my capstone. I will discuss those themes in this literature review.

The first major section in this literature review will explore the current themes in science education and science education academic standards. This will help drive the next



section regarding reading motivation and engagement. In this section I will connect reading motivation to student performance and outline several classroom implications. Lastly, I will discuss the Content-Oriented Reading Instruction (CORI) framework that will inform the later chapters of my capstone.

### Science Education

This capstone looks to find ways integrate science and literacy education. As such, I will start by defining two terms essential to understanding science education. These two concepts are scientific inquiry and scientific literacy. Next, I will describe the academic standards in science that will inform this capstone.

Scientific literacy. The term scientific literacy is central to understanding science education. Scientific literacy refers to core understandings and a set of practices and dispositions students should hold at the end of their high school years (National Research Council, 1996; Rutherford & Ahlgren, 1990; American Association for the Advancement of Science, 1993). The National Science Education Standards (1990), define scientific literacy in more detail:

Scientific literacy means that a person can ask, find, or determine answers to questions derived from curiosity about everyday experiences. It means that a person has the ability to describe, explain, and predict natural phenomena. Scientific literacy entails being able to read with understanding articles about science in the popular press and to engage in social conversation about the validity of the conclusions. Scientific literacy implies that a person can identify scientific issues underlying national and local decisions and express positions that are scientifically and technologically informed. A literate citizen should be able to

evaluate the quality of scientific information on the basis of its source and the methods used to generate it. Scientific literacy also implies the capacity to pose and evaluate arguments based on evidence and to apply conclusions from such arguments appropriately. (p. 22)

As is detailed in the examples above, scientific literacy includes how a person applies the knowledge and practices learned in the classroom to real life situations and knowledge of the science fields. My students will see scientific and technological changes we cannot imagine today. So, how can today's educators prepare them to make sense of how the world works, to think critically and independently? Research in the field of science education asserts that scientific literacy will help prepare students for their lifetime (National Research Council, 1996; Rutherford & Ahlgren, 1990; American Association for the Advancement of Science, 1993).

Inquiry-based science instruction. Like the term scientific literacy, the idea of inquiry in science education permeates many publications in the field. The term “inquiry” has two different meanings in science education publications (Center for Science, Mathematics, and Engineering Education, 2000). First, it refers to the ability to ask questions, design and conduct investigations, and draw conclusions from the results. Second, it refers to the teaching and learning strategies for mastering scientific concepts. Inquiry is a thread that connects students through three distinct steps: learning science, learning to do science, and learning about science (Center for Science, Mathematics, and Engineering Education, 2000).

Teaching science through inquiry has gained popularity because it engages students and is an effective way for students to understand and retain concepts. Inquiry-

based science instruction allows students to be challenged and also rewarded with the joy of solving a problem. In this way, students are empowered to tackle harder problems (Center for Science, Mathematics, and Engineering Education, 2000).

The inquiry approach also mirrors children's natural curiosity about the world around them (Center for Science, Mathematics, and Engineering Education, 2000; National Science Teachers Association, 2004). According to a 2004 position statement from the National Science Teachers Association:

Scientific inquiry reflects how scientists come to understand the natural world, and it is at the heart of how students learn. From a very early age, children interact with their environment, ask questions, and seek ways to answer those questions. Understanding science content is significantly enhanced when ideas are anchored to inquiry experiences. (p. 1)

The same publication recommends that all teachers, beginning in kindergarten and through high school, adopt scientific inquiry as a focal point of the science classroom.

The National Science Education Standards, written in 1996, highlight the differences between classrooms who use the inquiry approach and those that do not. A classroom that does not use the inquiry approach emphasizes knowing scientific facts and information, separates science knowledge and science process, covers many science topics, and implements inquiry as a set of processes. By contrast, a classroom that uses the inquiry approach stresses understanding scientific concepts and developing abilities of inquiry, integrates all aspects of science content, studies only a few fundamental

science concepts, and implements inquiry as instructional strategies, abilities, and ideas to be learned (National Research Council).

Minnesota academic standards in science. The *Minnesota Academic Standards in Science* will inform this capstone and outline the expectations for students in science and engineering in grades K-12. These academic standards are meant to inform science teachers' curriculum, instruction, assessment and professional development. Student learning towards these expectations are assessed with the Minnesota Comprehensive Assessments (MCA II) at grades 5, 8 and high school (SciMathMN, 2016; Minnesota Department of Education).

The Minnesota K-12 Academic Standards in Science have four content strands: the nature of science and engineering, physical science, earth and space science, and life science. The document details the following:

Each strand has three to four *substrands*. Each substrand contains two or more *standards* and one or more *benchmarks*. The benchmarks supplement the standards by specifying the academic knowledge and skills that schools must offer and students must achieve to satisfactorily complete a standard. Not all standards are found at every grade level. (Minnesota K-12 Academic Standards in Science, 2009, p. 1)

The Minnesota K-12 Academic Standards in Science (2009) goes on to state that the overarching goal is for all high school graduates to be scientifically literate enough to use scientific concepts to make personal choices, to participate in dialogue, and to debate scientific issues that affect their community.

The current Minnesota K-12 Academic Standards in Science were written in 2004, revised in 2009 and are scheduled for the next revision in the 2017-2018 school year. New academic standards for nation-wide, voluntary implementation have been written to serve as models for state science academic standards. These new academic standards are called the Next Generation Science Standards (States, N. L., 2013). According the SciMathMN.org (2016), a non-profit partnership with the Minnesota Department of Education, “Minnesota is very interested in these Next Generation Science Standards (NGSS) and is serving as a lead state in their development” (“Standards”, 2016, retrieved from scimathmn.org). In Chapter Five I will outline how this capstone closely aligns with the NGSS objectives and how it may be integrated for future studies.

Science education summary. In this section I defined and described two essential ideas in science education: inquiry and scientific literacy. Next, I illustrated how the current state academic standards will guide this capstone. I also referenced the Next Generation Science Standards, which our state will consider for adoption in the coming school years.

In sum, the main objective of science education is scientific literacy (National Research Council, 1996; Rutherford & Ahlgren, 1990; American Association for the Advancement of Science, 1993). This means that students will have the scientific knowledge and skills to make decisions and participate productively in society. These concepts will guide me as I write my methodology in Chapter Three and ultimately seek to answer the question: *How can science and literacy be integrated in a 5th grade curriculum?*

## Reading Motivation & Reading Engagement

This capstone aims to find ways to integrate science and literacy instruction. For this reason, the previous section outlined current themes in science education. This section addresses a sampling of current research in reading motivation and engagement. My capstone aims to solve the problem of unmotivated readers in the traditional literacy block by fusing it with science instruction. For this reason it is important to understand how and why to motivate students to read. This section will help inform the third section regarding the science and literacy connection.

Reading motivation. Wigfield (2000) defines motivation as why people do or not do things. That is, *why do we make certain choices, persist or give up, and put forth effort?* Motivation is directly linked to reading and cognition because it is an effortful activity that involves choice. Additionally, motivation is linked to reading achievement making it an important topic for educators. Research has shown that many young children come to school excited to learn, yet these feelings change for many during the first years of elementary school. Students begin to doubt their ability to read and perform in other academic areas and lose their excitement for school (Wigfield, 2000). This has triggered extensive research on reading motivation and engagement.

Cambria & Guthrie (2010) explain that students who are motivated to read have beliefs, behaviors and values that enable them to be motivated readers. Good readers are those who have both “skill and will to read” (Cambria & Guthrie, 2010, p. 16). Reading skills are defined as decoding, phonics, vocabulary and comprehension. The will to read is defined as children's’ attitudes and behaviors surrounding reading. For example, “A student with skill may be capable [of reading], but without will, she cannot become a

reader. It is her willpower that determines whether she reads widely and frequently and grows into a student who enjoys and benefits from literacy” (Cambria & Guthrie, 2010, p. 16). In sum, it is not only important to know how to read, but to be motivated to read (Cambria & Guthrie, 2010).

Wigfield (2000) summarizes that reading motivation has three domains: intrinsic and extrinsic motivation, competence and efficacy beliefs, and social motivation. To begin, when a student is intrinsically motivated they do activities, such as reading, out of their own interest. Intrinsically motivated students have a built-in curiosity about a topic. On the other hand, students who are extrinsically motivated are propelled by something external, such as a reward or prize. Research on the topic reports that “although many children are motivated for both extrinsic and intrinsic reasons, many motivation researchers argue that intrinsic motivation is more beneficial to long-term learning than is extrinsic motivation” (Wigfield, 2000, p. 141). Likewise, Guthrie, Alao & Rinehart (1997) have found that reading motivation is not created in a day. A student does not suddenly possess the desire to read widely and deeply. Such an attribute expands over time with experiences and a supportive environment (Guthrie et al., 1997).

The second domain in reading motivation is competence and efficacy beliefs (Wigfield, 2000). Competence and efficacy beliefs refer to how students perceive their own academic abilities. Wigfield (2000) has shown that students’ competence beliefs predict and correspond to their achievement. This is true in school subjects such as reading and math. For example, a student with a positive competence belief will continue to pursue his or her reading interests despite unknown words. A student with a negative competence belief will not stick with a difficult text or finish their reading work

(Wigfield, 2000). In their 2009 research, Ladd & Dinella studied whether there was a connection between young children's engagement at the beginning of their school career and the amount of academic success they had over the long term. In their research, they found that students who became increasingly resistant, or unengaged, during primary grades displayed lesser growth. On the other hand, students who were engaged behaviorally and emotionally made greater academic progress than those who displayed lower levels of these two forms of engagement (Ladd & Dinella, 2009).

The third domain in reading motivation is social motivation (Wigfield, 2000). Social motivation refers to students' motivation to relate to others. Reading together in class, reading with family members at home, and sharing good books with peers are all examples of fostering social motivation to read (Wigfield, 2000). Gambrell, Mazzoni & Almasi (2000) point out that Vygotsky's (1978) theory that social interaction shapes intellectual growth has been reinforced and supported in recent motivation research. The same authors suggest that:

Collaborative literacy experiences promote peer interaction and engagement in learning. The type of interaction that occurs during collaborative literacy experiences may play an important role in shaping students' perceptions of the purposes and goals of reading and writing. Collaborative literacy experiences provide opportunities for students to engage in the construction of meaning as they share ideas about text. (Gambrell, Mazzoni & Almasi, 2000, p. 119)

Collaborative literacy experiences can promote and model advanced reading and thinking. This may lead to deeper literacy skills than what students could perform as individuals (Gambrell et al., 2000).



Reading engagement. Now that I have outlined the major ideas in reading motivation, I will turn to reading engagement, since the two terms differ. According to Guthrie et al. (1997), “Engaged readers have deep-seated motivational goals, which include being committed to the subject matter, wanting to learn the content, believing in one’s own ability, and wanting to share understandings for learning” (p. 439). In other words, engaged readers are excited about learning and have a genuine interest in the content area. Baker, Dreher, & Guthrie (2000) illustrate an engaged reader this way:

Students are engaged readers when they read frequently for interest, enjoyment and learning. The heart of engagement is the desire to gain new knowledge of a topic, to follow the excitement of a narrative, to expand one’s experience through print. Engaged readers can find books of personal significance and make time for reading them. The investment of time is rewarded by the experience of immersion in the text itself. Engaged readers draw on knowledge gained from previous experiences to construct new understandings, and they use cognitive strategies to regulate comprehension so that goals are met and interests are satisfied. Benefits to readers may also occur through their satisfaction in possessing valued information about a topic that plays a central role in their sense of self. Engaged readers are curious and involved in a literate lifestyle. (Baker et al., 2000, p. 2)

Understanding reading motivation and reading engagement gives educators language for what successful readers do. Engaged and motivated readers want to learn and take satisfaction in successful reading. Building reading engagement and motivation in students is the primary pathway toward success in reading and achievement (Guthrie et al., 2000).

Classroom implications. Pintrich (2003) and Guthrie, Wigfield & Perencevich (2004) found that motivation, engagement and learning are deeply connected. The same researchers propose that in addition to teaching reading skills, teachers must create a motivating context for strategy instruction. This is because persistence and sustained attention are required to learn these reading strategies, so building the right context is crucial. A review of the research suggests that there are several practices educators can adopt to motivate students. For the purposes of this capstone, I will highlight five classroom practices to motivate students in reading. They include clearly defined knowledge goals, hands-on activities, student choices, interesting texts, and collaboration support (Swan, 2003; Guthrie et al., 2004; Pintrich, 2003).

Clearly defined knowledge goals. Guthrie & Davis (2003) explain that clearly defined knowledge goals are the core concepts students will learn in a unit of study. For example, a teacher employing knowledge goals to motivate students teaches with thematic units, uses student questions as learning goals, structures new learning as big ideas and supporting concepts, and practices concept-oriented reading. Knowledge goals will help students with self-questioning, using background knowledge, searching for information, and synthesizing multiple texts. A substantial amount of research on engagement shows that classroom goals that emphasize students' understanding of meaningful materials are essential to motivation and learning (Guthrie & Davis, 2003).

Swan (2003) demonstrates that when planning instruction, teachers must begin with the end in mind. This information will help identify a conceptual theme that will encompass the unit of study. Conceptual themes are broad ideas in science or other content areas. In addition, conceptual themes are expansive enough that it may be studied

for 16 to 18 weeks. For example, the conceptual theme of weather combines the topics of water, air, and seasons. Teachers then support students' individual goals for learning by encouraging them to ask their own questions, collaborate with peers, and design their own projects (Swan, 2003).

Hands-on activities. Another way to promote reading motivation is by means of hands-on activities (Guthrie et al., 2000; Swan, 2003). Hands-on activities denote real world experiences such as observations and experiments. Real-world interactions consist of sensory experiences such as looking at, touching, feeling, tasting, smelling, and listening to an object or phenomenon. This is important for several reasons. Primarily, it gets the students excited. Even if students have prior knowledge and experiences with what is being studied, students will discover new ways to interact with that phenomena resulting in new observations and deductions. "Real-world interaction is a desirable starting point because it is intrinsically motivating. However, it is crucial to link texts to the real-world interactions" (Guthrie & Davis, 2003, p. 74).

Swan (2003), noted that one teacher linked texts and real-world interactions through a thematic unit on hurricanes. Shortly after a hurricane had occurred and was featured in the news, the teacher brought in several newspaper articles for students to read and discuss. The discussions got students interested in the relief effort because so many people were homeless and not receiving help. The teacher then planned an eight-week unit on hurricanes, weather, and earth sciences integrating reading, writing and math. The teacher and students identified texts and reading skills they needed to work on for this project. These included: letter writing, determining unknown words in a technical texts, conducting library research, understanding expository text structure, and writing reports

with complete sentences. Using this methodology, the texts and reading skills were contextualized and embedded within the learning goals. Essential to the effectiveness of real-world interactions is linking texts to reading skills (Guthrie & Davis, 2003). Students need opportunities to experience what they are learning in a direct way. This affords students time to think and make sense of what they are learning. Only then can students apply these new ideas and concepts by reading, writing, and talking about them with others (Guthrie et al., 2000; Swan, 2003).

Autonomy support. Autonomy support refers to student choice and is another way to motivate students to read. Swan (2003) clarifies that, “autonomy support is *not* simply allowing students to do whatever they want and hope they learn something. Rather, it is teachers guiding students to make meaningful choices within limits based on the knowledge that learning goals are relevant to the conceptual theme” (p. 58). Pintrich (2003) expands on this idea by explaining that students who believe they have more personal control over their learning are more likely to do well and have better learning outcomes than students who do not feel in control. Therefore, “higher levels of perceived control are positively related to a host of positive cognitive, motivational, affective, and academic achievement outcomes” (Pintrich, 2003, p. 673). Pintrich (2003) illustrates that teachers can foster this quality in students by providing feedback that stresses the process of learning, including the importance of effort and strategies. Teachers should provide some opportunities for students to make choices and exercise their control. Lastly, Pintrich (2003) found that teachers build on student motivation when they have supportive and caring personal relationships with their students.

Interesting texts. Guthrie et al., (2000) found that another way to motivate students to read is with interesting texts. Interesting texts are the print or electronic materials that will help students answer their questions. After having real-world experiences with the topic students will study, students will be genuinely interested in the topic. This will lead to students who are eager to read more about the topic and learn further facts, ideas and concepts. This deeper-level learning, consisting of complex ideas and questions, results in a growth in conceptual knowledge (Swan, 2003; Guthrie et al., 2000).

Swan (2003) demonstrates that creating interest in a topic or theme is important, but so are the books teachers provide for further study: “There is a powerful, dynamic relationship when students observed something real and then read more about it in interesting, informative books” (p. 50). Swan (2003) also suggests that interesting texts include informational trade books that have at least several of the following characteristics: table of contents, index, glossary, content bound to a specific topic, engaging illustrations and photographs, and relatively brief length. These may include books, field guides, magazines, literature, and electronic sources and can be used for shared reading, shared writing, and reading aloud. All texts would connect back to the conceptual theme. These characteristics help reinforce literacy skills and place it within a science context.

Collaboration support. According to Swan (2003), when literacy experiences are collaborative, peer interaction and engagement in learning are enhanced. The term collaboration support refers to teaching students to work together productively and is a crucial component of reading engagement. Examples of collaboration support

include: talking to one another, sharing ideas, solving problems, making decisions, and working together to meet common goals. These activities are successful when students build competence and feel supported. During work-time on a project, some students may disagree or become confused. Swan (2003) and Guthrie et al. (2000) both assert that this is exactly what students need to force them to think and debate an issue until understanding is achieved. Through these interactions, meaning is mediated, thinking is extended, and conceptual learning takes place (Swan, 2003; Guthrie et al., 2000).

Reading motivation & reading engagement summary. In this section I outlined reading motivation and engagement. Researchers have found that good readers are those who have both the “skill and will to read” (Cambria & Guthrie, 2010, p. 16). Therefore, it is not only important to know how to read, but to be motivated to read (Cambria & Guthrie, 2010). Guthrie et al. (2004) found that building reading engagement and motivation in students is the primary pathway toward success in reading and achievement, making the topic an important one for this capstone. I completed this section by detailing five classroom implications to foster engaged and motivated readers. These include: clearly defined knowledge goals, hands on activities, autonomy support, interesting texts and collaboration support.

### Science and Literacy Connection

In this literature review I have outlined the current Minnesota State Academic Standards in Science, inquiry science and scientific literacy. Together, these ideas encompass current priorities in science education. Next, I defined reading motivation and reading engagement and discussed how they correspond to reading achievement. In the following section, I will draw parallels between the content areas of science and literacy.

Together, these three subsections will help me answer my question: *How can science and literacy be integrated in a 5th grade curriculum?*

Throughout my first seven years as a fifth grade teacher I have seen, first hand, how students light up on “science days”. These days are filled with experimentation, animated discussion and laughter. Conversely, when we have “language arts days” full of reading, writing and grammar students are low energy and less engaged. My aim in this capstone is to fuse together science and language arts education so that students are engaged in literacy practices, just as they are on “science days”.

Until now, many students have been taught science as solitary discipline, one that does not cross over into other content areas (Pearson, Moje, & Greenleaf, 2010). Research shows that integration can be accomplished and, additionally, it can fortify content learning and language development (Miller, Januszyk & Lee, 2015; Guthrie, 2004). Science and literacy education are a natural pair. In fact, they are deeply in service of one another.

Integrating science education and literacy instruction is an opportunity to enhance science learning by making it better contextualized and more informed. It also situates literacy instruction in a powerful knowledge-building domain (Cervetti, Barber, Dorph, Pearson and Goldschmidt, 2012). Efforts to integrate instruction show promise of increasing student learning in both literacy and science (Pearson et al., 2010). In the section below I will outline four ways science and literacy can be combined with integrity.

Science is an authentic context for reading and writing strategies. We often think about reading and writing as essential life skills, but these abilities are also indispensable

in the formation of scientists (Ebbers, 2002). Varelas, Pappas, & Arsenault (2013) note that all scientific activity somehow involves reading, writing, drawing and talking. In addition, Worth (2009) explains that both reading and science are acts of inquiry. At the core of both science and literacy lies a challenging reasoning process. In each, students talk, write, and read to better understand a text or a phenomena. Combining hands-on activities with text opens many doors for deeper understanding (Cervetti, 2012).

When teachers combine science and literacy instruction they are providing an authentic context for reading and writing (Cervetti et al, 2012; Guthrie, 2004; Romance & Vitale, 1992). Additionally, text-based experiences deepen students' involvement in first-hand investigations, enhance students' conceptualized understanding, and support their ability to navigate science texts (Cervetti et al, 2012; Guthrie, 2004). Cervetti and his colleagues stated, "explicit attention to literacy in the context of science is supportive of students' conceptual growth and literacy skills" (Cervetti et al, 2012, p. 652). Providing this explicit attention allows students to develop literacy skills including reading comprehension, vocabulary knowledge and writing (Cervetti et al, 2012).

Integrating science and literacy maximizes instructional time. State and federal policies have given precedence to literacy teaching and learning, thus inadvertently marginalizing disciplinary curricula such as science (Douglas, 2006). As a result, many teachers are beginning to wonder how they could think differently about instructional time (Douglas, 2006). Nyberg & McCloskey (2008) say the key is to maximize instructional time and integrate with integrity. By clustering overlapping science and literacy skills students can simultaneously meet multiple learning targets in an integrated



unit or lesson (Douglas, 2006; Everett & Moyer, 2009; Miller, Januszyk & Lee, 2015). More specifically,

Science provides a setting in which students are intellectually obligated to make sense of data, draw inferences, construct arguments based on evidence, infer word meanings, and, of course, construct meaning from text - the very dispositions required as good readers and writers. (Pearson et al., 2010, p. 460)

For this reason teaching science and literacy in tandem allows each content area to reinforce the other and maximize instructional time (Douglas, 2006; Ebbers, 2002; Everett & Moyer, 2009).

Nyberg & McCloskey (2008) suggest constructing a series of lessons based on books and other resources that couple language arts skills with the science skills of observation, comparison, categorization, application, analysis, and communication. Guthrie et al. (2004) developed Concept-Oriented Reading Instruction (CORI) as a framework for teaching science content, improving reading comprehension and motivating students to become lifelong learners. Using his expertise in reading engagement and motivation, Guthrie suggests that successful reading instruction paired with science content develops engaged learners. This method, further detailed later in this chapter, is appropriate for upper elementary teachers looking to link curriculum content and reading instruction in a meaningful, systematic manner (Swan, 2003; Guthrie et al., 2004).

Information texts support science explorations. Information books have an important role in supporting science explorations. When it comes to teaching science in the elementary school, books play a vital role (Pappas, 2006). Not only do information

books help explain phenomena, they also help students acquire scientific language (Pappas, 2006). Hoffman, Colins & Schickedanz (2015), report that nonfiction texts nor experiments alone will lead to effective science instruction. The key is to use both texts and experiments together, to reinforce and complement one another (Hoffman & et al., 2015). Cereviti et al. demonstrated this in their 2012 study comparing classrooms using an integrated science-literacy unit to classrooms using a science-only approach. In their study the integrated science–literacy unit engaged students in reading text, writing notes and reports, conducting first hand investigations, developing inquiry skills, and increasing knowledge about science concepts. The other half of the teachers taught a content-comparable science-only unit and provided their regular literacy instruction. Students who received instruction via the science–literacy unit made significantly greater gains on measures of science understanding, science vocabulary, and science writing. Students in both groups made comparable gains in science reading comprehension.

Everett & Moyer (2009) have had success incorporating science trade books within the 5E learning cycle inquiry teaching/learning model. They assert that trade books can be used in all phases of the learning cycle to support effective teaching and learning. Romance & Vitale (1992) found that texts and other nonfiction science books could be effective tools for teaching reading, as the science activities give learners a purpose for their reading. The integration of science and literacy allows students to fine tune their literacy skills because so many meaning-making skills of science are consistent with those of literacy. This allows for additional practice and refinement that can improve students' reading and writing (Pearson et al., 2010).

Current reform in science education has stressed the role of inquiry science, however, this emphasis has sometimes resulted in unbalanced instruction (Douglas, 2006). For example, in reform oriented classrooms texts are often deemphasized to avoid the common practice of reading about science in textbooks in lieu of doing science (Douglas, 2006). However, work of many researchers tells us that “when science literacy is conceptualized as a form of inquiry, reading and writing activities can be used to advance scientific inquiry rather than substitute it” (Pearson et al., 2010, p. 459). When literacy activities are driven by inquiry the benefits are threefold: students learn to read, write science texts, and learn to do science. Pearson et al., (2010) proposes that these two practices, science inquiry and reading, should be equally represented in teaching and learning (Pearson et al., 2010).

In summary, research supports teaching science and literacy synergistically. As presented in this literature review, there is much evidence that the two subjects areas build upon one another. In my investigation I did not find any dissenting opinions on this topic. By identifying desired outcomes in the science and language arts curriculum, educators will notice opportunity for integration. For these reasons, both teachers and students benefit when science and literacy are taught in tandem.

#### Unit Plan Model: CORI

Now that I have reviewed research in the field of science education, reading motivation and engagement, and the science and literacy connection, I will turn to explaining the framework I will use to answer the question: *How can science and literacy be integrated in a 5th grade curriculum?* I will begin by explaining Content-Oriented Reading Instruction (CORI). Then, I will outline the four goals of this framework. Lastly,

I will describe the four phases of this framework and what it looks like in the classroom. This framework will be further detailed in Chapter Three, Methodology.

Guthrie's (2003) curriculum design approach known as Content-Oriented Reading Instruction (CORI) guided in my planning of this unit. I chose this approach because CORI integrates reading and science instruction, using science activities to engage children in reading (Guthrie, 2003). The goal of CORI is to create lifelong learners via reading engagement and text comprehension (Swan, 2003). The CORI model is a way of linking curriculum content and instruction in a coherent, cohesive way. In short, the CORI framework merges reading strategy instruction, conceptual knowledge in science and support for student motivation. The elements within this framework are not necessarily new, but arranged in a way that is new to many teachers (Swan, 2003; Guthrie et al., 2004).

The name "Concept-Oriented Reading Instruction" reflects the central position of conceptual knowledge in teaching reading comprehension (Guthrie et al., 2004). As mentioned, the framework has three overall instructional objectives: motivate students to read independently; teach cognitive strategies for reading comprehension; provide deep knowledge base in science (McPeake & Guthrie, 2007). In the sections below I will further explain these three objectives.

CORI reading goals. At the center of CORI is the process of fostering competence in reading comprehension. Guthrie & Taboda (2004) explains that the CORI model uses several strategies outlined in the 2000 National Reading Panel Report. These strategies include: activating background knowledge, questioning in reading, searching for information, summarizing, and organizing graphically. In fact, "five out of the six

strategies in CORI were rated as being among the seven best and most well established strategies in experimental research literature” (Guthrie & Taboda, 2004, p. 89).

It is important to note that reading strategies for comprehension cannot easily be taught in isolation. Children must be immersed in rich content to learn comprehension strategies easily. For this reason, CORI is rooted in inquiry which allows students to practice the reading strategies listed above. In many ways, the context of CORI and reading strategy instruction depend on each other (Guthrie & Taboda, 2004).

CORI science goals. In a CORI unit, science goals fall into two categories: science process goals and science content goals (McPeake & Guthrie, 2007). Science process goals are skills scientists use to effectively conduct investigations. Examples of science process goals include: gathering and comparing information, asking relevant questions, and observing scientific phenomena. On the other hand, science content goals refer to the understanding of science. An example of this is asking students to explain how birds survive using the concepts of feeding, locomotion and predation. In a CORI unit, students participate in hands-on and observational activities. These activities are paired with relevant books and other reading materials to reinforce the two content areas of science and literacy (McPeake & Guthrie, 2007). CORI science goals align with the existing state academic standards in science, making a CORI unit very accessible for teachers and students.

CORI motivational goals. John T. Guthrie is a leading researcher in reading motivation and is also the scholar who developed the CORI framework. This emphasis on reading motivation and engagement makes the The CORI framework unique. Guthrie’s work has underscored the fact that persistence and sustained attention

are required to become a strong reader. Therefore, building the right learning environment for reading motivation is crucial. “The fundamental motivational goal of CORI is to increase students’ reading engagement and motivation to read, with an emphasis on interest, ownership, social interaction, confidence and mastery goals” (McPeake & Guthrie, 2007).

CORI units motivate students by using five instructional practices: relevance, choice, collaboration, success and conceptual theme (Guthrie et al, 2004). First, relevance increases students’ intrinsic motivation to read through interest building activities. Second, choice gives students ownership over their reading, leading to independence in the classroom. Third, collaboration in reading generates enthusiasm of the text and its contents. Fourth, success builds students’ confidence in their ability to read well. Lastly, a conceptual theme structures the content of reading activities thematically so that students are reading for deep understanding of content rather than reading for a score or reward. (McPeake & Guthrie, 2007).

#### CORI reading-science integration goals.

As elaborated earlier in this chapter, science and literacy have much in common.

Guthrie’s (2016) research supports this claim because:

Gaining conceptual knowledge is a main purpose for both reading and inquiry-science. When the knowledge domain is richly elaborated and learned in depth, the cognitive processes for reading and science are most fully acquired.

Consequently, linking the content of learning for reading and science will accelerate the development of basic cognitive and motivational processes for both. (<http://www.cori.umd.edu/>)

The Reading-Science Integration Goals in a CORI aim to develop students' abilities to: relate, compare and contrast, connect interests, contrast domain learning, and combine conceptual learning. Integrating reading and science entails coordinating aspects of both domains into a cohesive structure for teaching and learning (Guthrie, 2016). In sum, CORI students increase the integration of reading and science as they: "(a) use cognitive strategies common to both domains more effectively, (b) develop motivational goals that link learning in reading and science, (c) combine knowledge or experience gained in the two disciplines of reading and science, and (d) coordinate their reading and science activities" (Guthrie, 2016).

The four CORI stages. I outlined above the four instructional objectives of CORI: reading, science, motivation and reading and science integration. These goals are continually present in each of the four phases of a CORI unit (Swan, 2003). These goals are accomplished throughout the different phases of a CORI unit. The four phases of a CORI unit are: Observe and personalize; Search and Retrieve; Comprehend and Integrate; and Communicating to Others (Guthrie et al., 1997). These four stages are particularly important for my capstone because they will guide my unit writing. I will outline each phase below and how reading, science and motivation learning goals are present in each phase. I will also explain the methodology of each phase.

Phase one: observe and personalize. According to Guthrie et al. (1997), the first step in engaging students in literacy is to provide opportunities to observe objects and events in their natural environment. This engages students because "after experiencing an initial fascination with tangible, concrete objects, students began to wonder and ask questions that led to conceptual interests" (Guthrie et al., 1997, p. 312).

An important part of this phase is student-generated questions. After observation, students brainstorm and identify questions they want to explore. These questions will guide their future observations, data collection, reading and writing. Guthrie et.al (1997) describes this phase as a “point of departure for extended literacy” (p. 312). In other words, initial observations and question generation provide a point of reference for future personalized learning within this unit.

Perencevich (2003) detailed what the observing and personalizing stage looked like in one third-grade classroom. The conceptual theme in this unit is “birds around the world”. During the first few weeks of the unit, students observed birds in their natural habitats, personalized their learning by asking questions about birds, and searched for answers to their questions. Inquiry-science activities launched students into questioning. The inquiry-science activities included: a walk in the local woodlands, multiple observations and mini-experiments with bird feathers, and owl pellet dissection. The reading and science connection is clear here because inquiry-science activities, when linked to reading material in class, help students gain conceptual knowledge from both reading and experimentation. According to Perencevich (2003), “It is crucial that students begin to realize that reading is the fundamental connection between their curiosities and their conceptual knowledge growth” (p. 26). In CORI units and classrooms students have access to at least five class or team sets of books and five individual books on the topic being studied. In the classroom profiled above, the books were about owls and birds. This connects students’ curiosities and hypotheses about owl pellet dissection to learning conceptual knowledge from reading (Perencevich, 2003).



Phase two: search and retrieve. After students have identified their interests within the conceptual theme, it is essential to teach students how to search and retrieve information from books (Guthrie et al., 1997). Without these skills, students will not be able to pursue their interests and answer questions generated from observational activities. Students are encouraged to choose subtopics within their area of interest. Students are taught to search for books, resources, references, pictures and explanations of the topics they choose. In this phase of a CORI unit strategies for searching for information are taught explicitly through teacher modeling, peer modeling, teacher scaffolding, guided practice and teamwork (Guthrie et al, 2004).

Swan (2003) explained how the Search and Retrieve phase might look in a classroom. Swan notes that teachers directly teach students how to use expository texts through scaffolded instruction. The teacher begins by telling the students the purpose of the lesson and how it will help them become better readers. She then models or demonstrates her own thinking, explains terminology and clarifies questions students may have. Then the teacher gradually turns over the assignment to the students. Lessons in the Search and Retrieve phase many include: forming questions or goals for reading, understanding the organization of resources, finding critical details, note taking, synthesizing knowledge, determining what is important versus what is interesting. During this phase of a CORI unit, the teacher will emphasize several reading goals or skills but only one or two science content goals. This is because in this phase instruction is emphasizing how to retrieve information from texts. (Swan, 2003).

Phase three: comprehend and integrate. Since the beginning of a CORI unit students have followed their interests, generated research questions and identified a

range of relevant text resources. The Search and Retrieve phase yielded interesting material, but the students now face the challenge of comprehending and using those texts for learning. Thus begins the Comprehend and Integrate phase (Guthrie et al., 1997).

Swan (2003) explains that in this phase students learn to comprehend what they are reading from multiple sources. Different text types are featured throughout the unit with class sets of books, group-sets, and read-aloud books. Swan (2003) says that teachers must:

- Teach and scaffold summarizing and questioning strategies;
- Teach students how to strengthen and develop vocabulary;
- Teach students how to use an outline or concept map to write a paragraph;
- Teach and scaffold how to synthesize information from multiple texts; and
- Teach and scaffold comprehension strategies such as: activating background knowledge, making connection with the text, monitoring comprehension, using fix-up strategies, determining important information, making inferences and creating visual imagery when reading.

Perencevich (2003) notes that this stage is especially important for reading motivation because there is a reciprocal relationship between understanding and enjoying text. It is obvious that students who struggle with understanding the meaning of what they read cannot enjoy the nuances of the text meanings. In this phase students' goals are to pursue new knowledge, which requires that a change takes place in their stances towards reading. For example, The goal is no longer to satisfy the teacher or compete with classmates. Rather, the goal is to become curious about the text information and to

extend their personal knowledge, which requires students to express their knowledge in socially satisfying ways (Perencevich, 2003).

Phase four: communicating to others. During a CORI unit students become experts about a topic that interests them. Guthrie et al., (1997) found that “as [students] gained knowledge, students wanted to express their understandings to others” (p. 313). Swan (2003) explains that the educational goals for this phase come from the state or national academic standards for reading and language arts. The content goals are specific ideas students should demonstrate knowledge about. To foster this self-expression, teachers provide instruction to present their understanding in many forms such as posters, reports, dioramas, concept maps, books, videos and murals (Guthrie et al., 1997; Perencevich, 2003). To arrive at such products teachers coached students in identifying an audience, adapting their message to the audience, identifying critical details, and elaborating their writing (Guthrie et al., 1997).

It is important to highlight that students will be reporting to others in numerous ways throughout the unit, not just as a culminating project (Perencevich, 2003; Swan, 2003). For this reason teachers will provide instruction for topics such as: working in a group, contributing relevant ideas, listening to others’ ideas. When writing students will learn the process of drafting, revising, peer and teaching conferencing, editing and publishing. Swan (2003) states “these steps prepare students of all grade levels to succeed in school and in their future lives in the workplace” (p.100).

CORI summary. In this section I described the CORI framework. I began by detailing the four goals of the framework: reading comprehension, science knowledge, motivation, and reading and science integration. Next, I illustrated how the four phases of

a CORI unit build on one another. The four phases include: observe and personalize; search and retrieve; comprehend and integrate; and communicating to others. The main objective of a CORI unit is to create lifelong learners via reading engagement and text comprehension (Swan, 2003). To do this teachers merge reading strategy instruction, conceptual knowledge in science and support for student motivation (Swan, 2003; Guthrie et.al, 2004). The CORI framework will guide me as I write chapters three and four and ultimately seek to answer the question: *How can science and literacy be integrated in a 5th grade curriculum?*

### Conclusion

In this capstone project my research was driven by my question: *How can science and literacy be integrated in a 5th grade curriculum?* First, I outlined science education and two of its major themes: scientific inquiry and scientific literacy. I then discussed the academic standards that will guide this capstone. Next, I explored the idea of reading engagement and motivation. These topics are essential in my study to explore how science and literacy education can be integrated. Subsequently, I reviewed the literature that suggests that teaching science and literacy together yields excellent academic outcomes. Not only will students build and expand on their science understanding, this practice will also reinforce essential language arts skills. Lastly, I described the CORI framework and how it will unit science education, literacy education and student motivation to help me answer my research question.

In the next chapter, I will discuss the setting and participants that will drive the development of my Content-Oriented Reading Instruction (CORI) unit. I will also describe the methods I will use to create the curriculum accompanying student rubric, and

student self- assessment. In Chapter Four, I will share my CORI curriculum and describe aspects of its development. Finally, in Chapter Five I will reflect on the capstone process and share implications and limitations of my study. I will also explain ideas for potential future studies.

## CHAPTER THREE

### Methods

#### Introduction

As a science and reading teacher in an elementary school, I am compelled to design engaging, purposeful and efficient ways to integrate science and language arts studies. In this chapter, I examine the methodology and rationale behind how I explored the answer to my research question *How can science and literacy be integrated in a 5th grade curriculum?* To best answer this question, I decided to focus on developing a unit based on science and literacy practices. I considered the environment in which I teach, the students I am trying to reach, and the required learning outcomes of state science and language art academic standards. I follow with the an explanation of the academic standards that will guide this capstone. Finally, I will close with the methodology I will use to create a Content-Oriented Reading Instruction (CORI) unit.

#### Setting

I teach in a second tier, suburban district in the Midwest. The school district serves 60,797 residents. There are six elementary schools, one middle school, one high school, an early childhood center and a community center. The district enrolls 9,017 students. The school where I teach is a Spanish immersion K-6 elementary enrolling 813 students and is less diverse than overall district averages. The demographics of both my district and school are listed in Table 1.

Table 1

*District and School Demographics*

<u>Demographic</u>	<u>District Percentage</u>	<u>School Percentage</u>	<u>My Class Percentage</u>
White	66.8%	80.1%	70%
Black	13.9%	4.7%	5%
Hispanic	5.3%	8.2%	5%
Asian/Pacific Islander	13.5%	6.8%	16%
American Indian/Alaskan Native	0.5%	0.2%	0%
Receive special education services	12.4%	7.5%	9%
Receive free or reduced priced lunch	20%	8.9%	n/a*
English Learners	7.1%	0%	2%

\*Teachers are not permitted to know students' free or reduced price lunch status.

This year my school offers full day kindergarten to all of their students. Until now, we have offered the choice of half day or full day kindergarten. Our school has four specialist classes that include: physical education, music, art and Spanish. We provide Spanish as a specialist class to improve and enrich students' Spanish grammar. Since the vast majority of our students are non-native speakers of Spanish, this extra, direct-instruction of Spanish is necessary.

In addition, it should be noted that my school is a choice school. Since English instruction is minimal, we are not a good fit for some English-learning (EL) families. Also, sending children to a Spanish Immersion school is still a new choice for families. For example, the 90-10 model we use favors Spanish language learning over English language learning. This means that our students receive instruction in Spanish 90% of the day and English instruction the other 10% of the day. This makes us different from dual-immersion models where instructional time in each language is split 50-50. Therefore, EL students who speak Spanish as their first language have historically not enrolled in our school because of the limited English instruction time. These factors play into our demographics.

My school uses the Responsive Classroom approach for classroom management. For the past year and a half our school's professional development has focused on implementing Positive Behavioral Interventions and Supports (PBIS) to foster a healthy social, emotional and academic environment.

Our district continues to focus on reading achievement and increasing students' reading abilities. In the 2015-2016 school year my school district introduced Comprehensive Balanced Literacy (CBL). The focus was on the components of teaching reading in a literacy workshop model. CBL is a methodology for teaching the Minnesota English Language Arts standards empowering each teacher to be an instructional decision maker working to meet each learner's needs to become readers and writers (Werlinger, 2016). Spiegel (1998) found that "In this decision making approach, the teacher makes thoughtful choices each day about the best way to help each child become a better reader and writer". CBL is a reflective practice centered around reading, writing, speaking,



listening, and viewing. In this model students' understanding is represented through a variety of pathways (Werlinger, 2016). My aim in this capstone is to teach literacy and science in tandem while still following my district's CBL model.

We have one international intern who works with our students to support instruction and learning each day. We also have an interventionist who pushes into our classrooms and works with us for approximately three hours, one day a week. As was previously described, we are a Spanish immersion school and many of our students speak English at home. Additionally, we have two special education teachers, a speech pathologist, a social worker and a psychologist that work together to serve students at our school.

This is my eighth year teaching overall, and sixth year teaching fifth grade at this school. My grade level consists of four grade-five classrooms with a total of 121 students. I am responsible for teaching science and Spanish language arts to sixty-one of those students. Students then spend one hour in math class taught in Spanish, and one hour in social studies class taught in English. My role as the Spanish language arts and science teacher has been challenging as I try to find effective ways to integrate science and language arts. This challenge has a silver lining because it has proved inspirational and motivational for my capstone. My purpose in developing this fifth grade unit was two fold: to help myself and other teachers within my school move toward integrating science and literacy curriculum, and to create an engaging science and literacy unit for students.

### Participants

For this capstone project, I developed a unit of study that integrates science and language arts instruction. Currently, I have a total of sixty-one students. The demographic makeup of these students is listed in Table 1.

### Academic Standards

For the purposes of this capstone I drew on two sets of academic standards. They included the Minnesota K-12 Academic Standards in Science and the Minnesota K-12 Academic Standards in English Language Arts. The state science academic standards, detailed also in Chapter Two, guided the content learning of this CORI unit. Similarly, the state English language arts academic standards drove the reading, writing and speaking goals of this unit. The Minnesota K-12 Academic Standards in English Language Arts are closely related to the Common Core Standards for English language arts (Minnesota Department of Education, n.d.). In 2010, Minnesota adopted the Common Core English Language Standards in their entirety and added some ancillary content (Minnesota Department of Education, n.d.). Because this curriculum will be implemented in Minnesota and because Minnesota's K-12 Academic Standards in English Language Arts meet or exceed common core standards, the Minnesota K-12 Academic Standards in English Language Arts guided the curriculum writing for this capstone. In the methodology portion of this chapter, I detail how I chose the specific science and language arts academic standards to be incorporated in this capstone.

### Methodology

By bridging science and language arts instruction using this CORI framework, I hoped to give students a deep, authentic learning experience in the two content areas that my current curriculum lacks. I believe our current curriculum provides meaningful

information that complies with the majority of our Minnesota science and language art academic standards. The shortcoming is that our current curriculum does so teaching the two domains in silos, independent of one another. As I discovered in Chapter Two, science and literacy are deeply in service of one another, and students benefit greatly when the content areas are taught in tandem. I used the CORI unit I created for the purposes of this capstone as a way to enrich and deepen my current teaching practices. I believe this will lead to a more personalized, effective learning experience for my students.

This CORI unit invites students to dig deeper into science concepts while practicing literacy skills. It addresses seven fifth-grade language arts academic standards surrounding reading, writing and speaking, along with four fifth-grade life science academic standards. Students will be asked to investigate questions that are meaningful to them, search for information in a variety of texts, make meaning of this learning, and ultimately share it with others in an authentic way. My aim was that this unit ultimately leads students to discover their own power as scientists, readers and thinkers.

Educators can develop a CORI unit multiple ways. I used two books to guide my unit writing. They are *Concept-Oriented Reading Instruction: Engaging Classrooms, Lifelong Learners* by Emily Anderson Swan (2004), and *Concept-Oriented Reading Instruction (CORI) Teacher Training Module Grades 3-5* by Jennifer A. McPeake & John T. Guthrie (2007). Both books set science and literacy learning goals at the forefront of planning. Swan's (2004) approach is more overarching, while McPeake & Guthrie's Training Module (2007) is very detailed. I combined elements of the two approaches to meet the needs of my students and this capstone.

Set reading goals. I began this process by setting reading goals. First, I reviewed my students' overall reading needs and competencies. Guthrie & McPeake (2007) advise listing three needs and three competencies of students. Then, I looked at my state's language arts academic standards that I am required to teach. To meet these academic standards, I chose three to five specific reading strategies to implement in this unit. Swan (2004) advised that if a learning goal can be completed in one day, it is too specific. Therefore, reading and content goals should be broad enough that it might take weeks to fully accomplish them.

Identify a theme in a content area. As previously stated, a conceptual theme guided this unit. Swan (2004) instructs teachers to determine a conceptual theme by looking at the curriculum standards in science. After looking at the state academic standards for science, I listed the major topics I am required to address with students. With this information I searched for broader themes that will cover several of these topics. When I finished these steps I had arrived at the conceptual theme for the unit.

Support the theme with concepts. After choosing a conceptual theme identified five "big ideas" that support the larger theme (McPeake & Guthrie, 2007). The main ideas and concepts come primarily from the state academic standards in science. I supplement these concepts with ideas from resource books, websites and informational books related to the theme.

Choose information books. Different from Swan's (2004) emphasis on the four instructional phases, McPeake & Guthrie (2007) stress book selection as an integral part of planning for a CORI unit. Taking their advice, I began by writing a list of eight to ten

information books related to the theme. Next, I listed the topics these books are related to. Before moving on, I previewed the books on the list. I selected one or two books that embrace the conceptual theme that could be used as class sets. Finally, I designated books to be used as team sets, or in small groups. These team sets were separated into three levels of text difficulty: on grade level, above grade level, and below grade level. To acquire books for this CORI unit I called upon the support of my principal, reading specialist, media specialist, special educators and colleagues, trade book publishers, and grants (McPeake & Guthrie, 2007).

Choose books from other genres. In order to create a well rounded and diverse text set and engaged readers, I included books from other genres. First, I brainstormed other genres of books I wanted to include. I wrote a list of six to eight books from other genres that complement the information books. Subsequently, I chose one or two books that embraced the conceptual theme that could be used as class sets. Next, I designated books to be used as team sets by text difficulty which are on grade level, above grade level and below grade level. In order to make these books purposeful, I identified how the books I had chosen could be used within this conceptual theme (McPeake & Guthrie, 2007).

Build a concept map. Recalling the unit theme, I listed the concepts or ideas that support the theme and listed the corresponding books I have chosen. This process allowed me to verify that all books and concepts are addressed and supported by the theme. Once this is complete, I built a concept map to illustrate the concepts of the theme. This is an important piece of CORI curriculum development because it holds everything together under a cohesive whole. McPeake & Guthrie (2007) explain that:

Building a concept map for your theme allows you to develop a specific body of understanding about your theme prior to implementation. With a concept map, you can see how related concepts and ideas fit into the overall theme. Successful planning and implementation of CORI requires a solid understanding of the content knowledge for your unit. (“Step F: Build a concept map,” para. 6)

Set motivation goals. As described in Chapter Two, motivation is a fundamental aspect of the CORI framework. I brainstormed ways to provide support for each of the motivational practices described in Chapter Two, including:

- relevance
- choice
- collaboration
- success
- conceptual theme (McPeake & Guthrie, 2007).

The final steps of creating a CORI Unit, the weekly and daily planning charts, also stress purposeful planning of student motivators. Establishing motivational goals and verifying them later in the process ensured that this important element of CORI is not missed.

#### Identify science formative assessments

In order to tailor science instruction to my students’ needs and background knowledge, I used formative assessments before introducing new topics. This information helped me identify student’s misconceptions and prior knowledge about science themes. For example, what students know or assume about how animals are affected by habitat

change determined content for small group reading instruction and influence which hands-on experiences are used.

Develop a culminating activity. The culminating activity is both an assessment forum for the teacher and a strong instructional student for students. I brainstormed one or two activities for students to complete at the end of the unit that will demonstrate their learning. I asked myself the following questions, adapted from McPeake & Guthrie (2007):

- What type of project would work best?
- What are specific components of the project?
- How will students be grouped?
- What length of time is needed?
- How will students communicate their knowledge to others?
- What motivational factors are at play for students?
- Is student choice incorporated in the project?
- Is the project culturally relevant to students?

As Swan (2004) advises, the methods for evaluation are closely aligned with the educational goals established at the beginning. The goals determined which kinds of assessment I used and how often I assessed students.

Complete an overall framework. I created a planning chart that combines ideas from McPeake & Guthrie (2007), Swan (2004), and my district's initiatives around Comprehensive Balanced Literacy. Putting their ideas together, I created a Weekly Planning Chart, Table 2. The elements in the Weekly Planning Chart helped me include

and be conscientious of each element of a CORI unit: reading strategy instruction, science content knowledge, writing integration and motivation support.

The reading and science goals I selected for the framework were based on state academic standards. Writing integration was also be driven by state academic standards and student observations. Motivation support was determined using the research established in Chapter Two and strategies outlined McPeake & Guthrie's (2007) *Teacher Training Module*. Finally, the books were selected in the steps previously mentioned, "Choose information books" and "Choose books from other genres".

Table 2

*Weekly Planning Chart*

**Weekly Planning Chart**

Week # \_\_\_\_ of 8.      Subtopic # \_\_\_\_      Science concept: \_\_\_\_\_      Literacy concept: \_\_\_\_\_

	Day 1	Day 2	Day 3	Day 4	Day 5
<b>Shared Reading Or Science</b>					
<b>Comprehension Instruction (whole class)</b>					
<b>Small Group Instruction</b>					
<b>Extended Writing</b>					
<b>Independent Reading</b>					
<b>Homework</b>					

*Note.* Adapted from *Concept-Oriented Reading Instruction (CORI) Teacher Training Module Grades 3-5*, "Step J: Complete an Overall Framework", by McPeake & Guthrie, 2007, Publisher: Author and *Concept-Oriented Reading Instruction: Engaging Classrooms, Lifelong Learners*, p. 128-131, by Swan, 2003, New York: Guilford Press



Plan daily instruction. Since my Weekly Planning Chart is quite detailed, I modified the daily lesson plan template provided by McPeake & Guthrie (2007) to guide my daily instruction. My plan for daily instruction was influenced by my district's model for Comprehensive Balanced Literacy. I used Table 3 to plan the multiple elements of daily instruction. The categories in the Weekly Planning Chart and Daily Planning Chart are identical. This helped me be conscientious to include each CORI element.

Table 3

*Daily Lesson Plan Template***Daily Lesson Plan Template**

Week \_\_, Day \_\_

<b>Science or Shared Reading</b>
<b>Emphasis:</b> <b>Science Standard:</b> <b>Benchmark:</b>
<b>Motivation:</b>
<b>Texts:</b>
<b>Additional Materials Needed:</b>
<b>Overall Plan ( __ mins):</b>
<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b>
<b>Motivation:</b>
<b>Texts:</b>
<b>Additional Materials Needed:</b>
<b>Overall Plan ( __ mins):</b>
<b>Small Group Instruction</b>

<b>Emphasis:</b>
<b>Motivation:</b>
<b>Texts:</b>
<b>Additional Materials Needed:</b>
<b>Overall Plan ( ___ mins/group):</b>

<b>Extended Writing (Station while teacher does small group instruction)</b>
<b>Emphasis:</b>
<b>Motivation:</b>
<b>Texts:</b>
<b>Additional Materials Needed:</b>
<b>Overall Plan ( ___ mins):</b>

<b>Independent Reading (Station while teacher does small group instruction)</b>
<b>Emphasis:</b>
<b>Motivation:</b>
<b>Texts:</b> Above Grade Level: Grade Level: Below Grade Level:
<b>Additional Materials Needed:</b>
<b>Overall Plan ( 30 mins):</b>

<b>Share</b>

<b>Homework</b>

*Note.* Adapted from *Concept-Oriented Reading Instruction (CORI) Teacher Training Module Grades 3-5*, “Step J: Complete an Overall Framework”, by McPeake & Guthrie, 2007, Publisher: Author

Teacher reflection The final step in my methodology was reflecting on the effectiveness of this unit as well as my insights and thoughts as a curriculum developer. McPeake & Guthrie (2007) suggest keeping a reflection journal to help with the CORI experience. The book *Concept-Oriented Reading Instruction (CORI Teacher Training Module Grades 3-5)* provides reflection questions to enable teachers to gain a deeper understanding of CORI. The questions provided focus on different aspects of a CORI unit such as reading strategies, books, motivation, science content, and grading and assessment. When I implement this unit later this school year I plan to meet with my colleague, who will also teach this unit, to discuss our responses and ideas collaboratively. At that time I will write an entry in reflectional journal every other day (McPeake & Guthrie, 2007).

I modified the reflection questions in the aforementioned *Training Module* to serve as a reflective journal as I draft this CORI unit. The purpose of this journal is to help me process what I am learning as I write this unit. Journaling will help me intentionally identify the science and literacy connection, crystalize my thoughts as a curriculum writer, and aid my thinking as a scholar. After the unit writing and journaling is complete, this information will help me identify new areas I want to learn more about and provide clarity as I implement this unit in my classroom.

### Conclusion

In this chapter I described the setting for this capstone at the district, school, and classroom level. I also characterized the demographics of students and school environment. In the methods section, I discussed what and how I developed a CORI unit to help me answer the question: *How can science and literacy be integrated in a 5th*

*grade curriculum?*

Looking ahead to Chapter Four, I will present the CORI unit and the weekly and daily lesson plans used to meet the educational goals in science and literacy. In the final chapter of this capstone, I will reflect on the processes that brought this unit together. I will also discuss the considerations and limitations that may present themselves when trying to implement this unit.

## CHAPTER FOUR

### Results

#### Introduction

The previous chapters have described my own experiences, the research, and the methods of how I will address a need in my classroom. My passion and desire to learn about and science and literacy is what drives my curriculum design in Chapter Four. Here, I will present the Content-Oriented Reading Instruction unit, it's complete overall framework that integrates science and literacy in a 5th grade classroom.

#### Review of CORI Framework

Through the consultation of Guthrie (2004); McPeake & Guthrie (2007); and Swan (2004), the foundations of this curriculum was built on a Concept-Oriented Reading Instruction (CORI) framework. The objective of CORI is to increase engaged reading. Engaged reading means that students read strategically and are motivated to read. Specifically, students desire to learn from the text, interact with other students to learn and gain science knowledge through reading (Guthrie & McPeake, 2007). By using this framework, students will:

- Be motivated to read independently via interesting hands-on activities, an abundance of readable science-themed books, and using students' questions to drive reading instruction.
- Utilize reading comprehension strategies effectively via direct reading strategy instruction embedded in science texts, extended text interaction

with information books, and a combination of complementary strategy instruction.

- Gain deep knowledge base in science via integration of reading and science content, and hands-on science instruction (Guthrie, 2004; Guthrie & McPeake, 2007; Swan, 2004)

### Unit Theme and Academic Goals

As I outlined in my Methodology in Chapter 3, coming to a theme and setting academic goals for the unit required a great deal of reflection and creativity. I started by listing student strengths, areas for improvement and reviewing state academic standards. The overarching themes I found in this portion of unit development set the tone for all learning activities that follow. In this step I experimented with how I could intertwine science and literacy instruction in a motivating way for students. In Appendix A I combined the first three steps in developing a CORI unit: set reading goals, identify a theme in a content area, and support theme with concepts. In this appendix, I list the seven language arts standards and four science standards that will be taught in this unit. Additionally, I state the theme and subtopics for the unit.

The overarching theme of this CORI unit is “Interdependence among living things”. The three subtopics of “plant and animal adaptations”, “ecosystems” and “changes in ecosystems” are taught in two-week chunks, or mini-units. Each of these mini-units builds on one another and incorporates more complex skills of the CORI framework. The separation of three subtopics is further outlined in the CORI Book List, Concept Map and Complete Overall Framework.

### Book List

The fourth and fifth steps in building a CORI unit are choosing information books and books from other genres. Now that my unit theme and subtopics were clear, I scoured the internet and my school's Spanish library books for resources to support this learning. The book list in Appendix B is organized by unit theme, corresponding state science standards and benchmarks, complementary fiction, and nonfiction titles. I made a special effort to include books that were at an expected fifth grade reading level, above fifth grade reading level, and below fifth grade reading level so that all student would be able to access the new learning. Each of the books listed are available in Spanish and most are also available in English. I limited myself to books only available in Spanish since I teach in a Spanish immersion setting. All books listed in the nonfiction column will be used in small group instruction. Alternately, books listed in the fiction column will be available for students to select from for independent reading.

### Concept Map

An important piece of in CORI curriculum development is having something firmly in place that holds everything together in a cohesive whole. The concept map in Appendix C serves that role. As stated at the top of Appendix C, the overarching theme of this CORI unit is "Interdependence among living systems". This theme will help me combine science and literacy instruction in a motivating and cohesive way. The three columns underneath the overarching theme represent the three supporting themes in this unit: Plant and animal adaptations, ecosystems, and changes in ecosystems. Just as there are three science supporting themes, there are also three literacy supporting themes. The supporting literacy themes are: questioning, reading across texts, and organizing graphically. I chose these literacy supporting themes based on state academic standards

and the skills outlined by John T. Guthrie in his book *Motivating reading comprehension: concept-oriented reading instruction* (2004).

In order to further unify my instruction, I have labeled science and literacy facts, traits and features in the concept map. This helped me see how related concepts and ideas fit into the overall theme. This is important because successful planning and implementation of CORI requires a solid understanding of the content knowledge for the unit (Guthrie & McPeake, 2007).

### Motivation Goals

One of the cornerstones of CORI instruction is student motivation (Guthrie, 2004). For this reason, tracking how I will design motivating lessons for students was key. In Appendix E I list the major learning activities of the unit and which student motivators they incorporate. All learning activities revolved around the conceptual theme. Making learning relevant and engaging was also a high priority of mine while planning. Since I know collaboration and choice are important to students, I integrated these two motivators into each of the smaller projects at the end of each “mini-unit” or sub-theme. The smaller projects include an animal adaptations project, habitat design project and invasive species jigsaw project.

### Culminating Activity

The culminating activity at the end of this unit is a review and celebration of what students have learned throughout the unit. The culminating activity is closely tied to the academic standards and themes I initially set forth for this unit. Keeping student motivation in mind, I designed a culminating activity in which the students will create a



classroom diorama of a Minnesota ecosystem. Appendix G further details what students will do and how they will demonstrate their learning.

### Overall Framework

The overall framework in Appendix E is a chart that shows the elements of the CORI unit one week at a time. Similar to the concept map, the overall framework shows how the different CORI elements will be held together as a cohesive whole. I have modified the Guthrie & McPeake (2007) framework to align with my district's Comprehensive Balanced Literacy (CBL) model.

Each day during this CORI unit, the two-hour class will start with a shared reading or hands-on science lesson. Then, the teacher will instruct a brief, whole-class reading comprehension lesson. For the remainder of class time, students will rotate among three different stations: small group instruction with the teacher, independent extended writing, or independent reading. These stations will be further detailed in the Daily Lesson Plan description.

With the overall framework teachers can see how science and reading instruction will build over the two-week supporting theme. Additionally, it illustrates how each element of the CORI unit works together to create an engaging experience for students.

### Science Formative Assessments

As Swan (2003) suggests, goals in a CORI unit should be closely aligned with the goals of instruction. Appendix H includes short formative assessments to be given before each of the three mini-unit, or subtopics. The information on these assessments addresses science knowledge such as why animals have adapted over time. These are important tools for the teacher as they show what student understandings or misconceptions they

may already have. With this information, the CORI teacher will refine their teaching to meet students' needs.

### Daily Lesson Plan Sequence

In this unit, the daily flow of activities consists of 6 phases:

- 1) Shared reading or science lesson (25-45 minutes)
- 2) Whole group reading instruction (10-15 minutes)
- 3) Small group reading instruction (15-20 minutes)
- 4) Extended writing (15-20 minutes)
- 5) Independent reading (15-20 minutes)
- 6) Sharing (5 minutes)

This daily routine is combination of Guthrie & McPeake's plan for daily instruction (2007) and my district's model for Comprehensive Balanced Literacy.

Appendix F shows a visual representation of how this would work in a classroom setting.

Science or shared reading. In order to balance science instruction and literacy instruction, the first daily learning activity is either a hands-on science lesson or a shared reading activity. The purpose of hand-on science lesson is to motivate and engage students in new learning. The purpose of shared reading activities is to practice reading fluency and Spanish grammar. All shared reading texts were purposefully chosen to match the science topic studied. In this way, students are continuing to reflect on science topics while practice literacy skill such as reading fluency or grammar. This portion of the two-hour class will take 25-55 minutes depending on the activity.

Whole group reading instruction. During whole group reading instruction the teacher will introduce the strategy for the week via direct instruction and modeling the

strategy. This mini-lesson lasts no-longer than 15 minutes and serves as an introduction to the skill students will practice in small group instruction time. After whole group reading instruction, students will rotate between three stations: small group instruction, extended writing and independent reading.

Small group instruction. During small group instruction students practice the reading comprehension skill taught during whole group instruction, such as questioning. The teacher provides guided reading support for each group, focusing on the strategy of the day. Small group instruction lasts 15-20 minutes per group.

Extended writing. Writing integration is the major difference between my daily lesson plan and what Guthrie & McPeake (2007) prescribe. When I began to plan the unit I noticed I didn't have enough time to teach writing with fidelity. For this reason, there is not much creative or expository writing done during this time. Instead, students will work mostly on vocabulary development. For example, students will choose new words from their reading to post and define in a Word Log. Students will then extend vocabulary in writing activities and share new vocabulary with the class. Extended writing lasts 15-20 minutes.

Independent reading. During this time students select fiction or nonfiction texts from a curated list of books that are related to the topic being studied. These books are noted on the CORI Book List. Several times a week, students will write personal responses to the text or share reactions with classmates. Independent reading lasts 15-20 minutes.

Share. The last five minutes of the CORI lesson serve as a conclusion to what students have practiced that day. It also gives teachers data to use a formative assessment

tool. For example, at the end of the lesson, students may be asked to define an ecosystem in pairs or share one interesting aquarium observation from their notebooks. This closing activity lasts 5 minutes.

To review, the CORI daily lesson as I have adapted it has many parts. These parts work together to ignite interest in science content and build reading strategies and reading engagement. Each component is balanced and carefully timed to meet students' needs. In a given day students will do a hands-on science task or shared reading, participate in a whole group reading lesson, receive small group reading instruction, practice writing and read independently. A catalog of all thirty-three daily lesson plans for this CORI unit is found in Appendices I, J and K.

### Conclusion

In this chapter and the appendices, I have detailed the various elements included in the CORI curriculum created to answer the question: *How can science and literacy be integrated in a 5th grade curriculum?* I have also disclosed a rationale for unit components and the considerations made while creating them. All lessons and activities presented were directly related to the research conducted and reviewed in Chapter Two, and were built using the framework discussed in Chapter Three. By incorporating these activities, texts and science experiences in a 5th grade classroom, one can begin to increase students' reading motivation and shape inquiring, young scientists. In Chapter Five, I will conclude this capstone by reflecting on what I have learned throughout this experience. I will also discuss the limitations I anticipate for implementing this curriculum into my fifth-grade class, and will make recommendations for future research on integrating science and literacy instruction.

## CHAPTER 5

### Conclusions

I took an untraditional path to teaching, one that has helped me look at the craft of teaching in a different way. One thing I noticed as newcomer was how the workload of preparing five content areas left me working until the wee hours of the morning. The responsibilities of parent communication, committee meetings and learning new technology were intense. What was most concerning to me, however, is that my language arts instruction was not engaging for students. I was putting them to sleep and losing precious opportunities to help them grow. Although this felt like a failure, it actually planted the seed for this capstone study. Henry Ford once said, “failure is only the opportunity to begin again, only this time more wisely”. I used my “failure” to motivate students to read as a catalyst to improve my teaching practices, specifically improving my literacy instruction. My capstone is centered around the question: *How can science and literacy be integrated in a 5th grade curriculum?* This question drove me to write a Content-Oriented Reading Instruction (CORI) unit to integrate science and reading instruction in an engaging way. In this closing chapter, I will reflect on what has been learned from developing curriculum using the CORI, the limitations of implementing this unit and recommendations for future studies.

#### Major Findings

After writing this unit to integrate science and literacy instruction, I was able to reflect upon the importance of the various components required for a successful

unit. These components include: science instruction, reading motivation, science and literacy integration, and the Content-Oriented Reading Instruction (CORI) framework.

Science education. Two terms essential to understanding science education are scientific inquiry and scientific literacy. Scientific literacy includes how a person applies the knowledge and practices learned in the classroom to real life situations. Research in the field of science education asserts that scientific literacy will help prepare students for their lifetime (National Research Council, 1996; Rutherford & Ahlgren, 1990; American Association for the Advancement of Science, 1993). This includes being able to ask, find, or determine answers to questions derived from curiosity about everyday experiences; the capability to read with understanding articles about science in the popular press; and the capacity engage in social conversation about science-related issues facing our society.

The second essential term to science education is scientific inquiry. Scientific inquiry is to the ability to ask questions, design and conduct investigations, and draw conclusions from the results. Second, it refers to the teaching and learning strategies for mastering scientific concepts. Inquiry is a thread that connects students through three distinct steps: learning science, learning to do science, and learning about science (Center for Science, Mathematics, and Engineering Education, 2000). According to a 2004 position statement from the National Science Teachers Association, “Scientific inquiry reflects how scientists come to understand the natural world, and it is at the heart of how students learn...Understanding science content is significantly enhanced when ideas are anchored to inquiry experiences” (p. 1).

Reading motivation. Engaged and motivated readers want to learn and take satisfaction in successful reading. Building reading engagement and motivation in

students is the primary pathway toward success in reading and achievement (Guthrie, 2000). Researchers Cambria & Guthrie (2010) explain that students who are motivated to read have beliefs, behaviors, and values that enable them to be motivated readers. Good readers are those who have both “skill and will to read” (Cambria & Guthrie, 2010, p. 16). Therefore, it is not only important to know how to read, but to be motivated to read. Wigfield (2000) summarizes that reading motivation has three domains: intrinsic and extrinsic motivation, competence and efficacy beliefs, and social motivation. Understanding reading motivation and reading engagement gives educators language for what successful readers do.

Science and literacy integration. In this section, I drew parallels between the content areas of science and literacy, respectively. Together, these three subsections will helped me answer my question: *How can science and literacy be integrated in a 5th grade curriculum?* Science and literacy education are a natural pair. In fact, they are deeply in service of one another. Research shows that integration can be accomplished and, additionally, it can fortify content learning and language development (Miller, Januszyk & Lee, 2015; Guthrie, 2004). Integrating science education and literacy instruction is an opportunity to enhance science learning by making it better contextualized and more informed. It also situates literacy instruction in a powerful knowledge-building domain (Cervetti, Barber, Dorph, Pearson and Goldschmidt, 2012). Efforts to integrate instruction show promise of increasing student learning in both literacy and science (Pearson et al., 2010). In my research I found several ways science and literacy can be combined with integrity. The first is that inquiry-based science and literacy share skills, strategies and goals that can be capitalized on as the central features

of integrated instruction. Some overlapping skills include: comprehend and evaluate complex texts across a range of types and disciplines, construct effective arguments, and become self-directed learners.

The second way science and literacy can be combined is through information books. When it comes to teaching science in the elementary school, books play a vital role (Pappas, 2006). Not only do information books help explain phenomena, they also help students acquire scientific language (Pappas, 2006). Hoffman, Collins & Schickedanz (2015), report that nonfiction texts nor experiments alone will lead to effective science instruction. The key is to use both texts and experiments together, to reinforce and complement one another (Hoffman & et al., 2015)

The third way science and literacy build on one another is by providing authentic contexts for reading and writing strategies embedded a science unit. Varelas, Pappas, & Arsenault (2013) note that all scientific activity somehow involves reading, writing, drawing and talking. In addition, Worth (2009) explains that both reading and science are acts of inquiry. At the core of both science and literacy lies a challenging reasoning process. In each, students talk, write, and read to better understand a text or a phenomena. Combining hands-on activities with text opens many doors for deeper understanding (Cervetti, 2012).

Lastly, Integrating science and literacy maximizes instructional time. State and federal policies have given precedence to literacy teaching and learning, thus inadvertently marginalizing disciplinary curricula such as science (Douglas, 2006). Nyberg & McCloskey (2008) say the key is to maximize instructional time and integrate with integrity. By clustering overlapping science and literacy skills students can



simultaneously meet multiple learning targets in an integrated unit or lesson (Douglas, 2006; Everett & Moyer, 2009; Miller, Januszyk & Lee, 2015).

CORI framework. Guthrie's (2003) curriculum design approach known as Content-Oriented Reading Instruction (CORI) guided in my planning of this unit. I chose this approach because CORI integrates reading and science instruction, using science activities to engage children in reading (Guthrie, 2003). The goal of CORI is to create lifelong learners via reading engagement and text comprehension (Swan, 2003). The CORI model is a way of linking curriculum content and instruction in a coherent, cohesive way. In short, the CORI framework merges reading strategy instruction, conceptual knowledge in science and support for student motivation. The elements within this framework are not necessarily new, but arranged in a way that is new to many teachers (Swan, 2003; Guthrie et al, 2004).

The name "Concept-Oriented Reading Instruction" reflects the central position of conceptual knowledge in teaching reading comprehension (Guthrie, 2004). The framework has three overall instructional objectives: motivate students to read independently; teach cognitive strategies for reading comprehension; provide deep knowledge base in science (McPeake & Guthrie, 2007).

### Curriculum Implications

This research and CORI unit I developed have positive implications for both students and teachers. Students benefit because they grow in reading motivation, reading skills and science content knowledge. Similarly, teachers benefit because it maximizes instructional time and is engaging for students. As students participate in CORI practices they gain a deeper understanding of science content and literacy skills. They are

motivated by what they read because it was designed with their interests and science themes in mind. This CORI Unit is a tool to be used in the classroom that takes students beyond basic participation in science experiments or a reading passage. It and allows them to dig deeper so that science and literacy skills are not simply taught once and forgotten.

The CORI framework requires teachers to think deeply about student motivation, text selection and science and literacy practices. The teacher's role shifts from teaching science and literacy in silos to motivating students to read via science topics. As teachers work collaboratively with students, their science inquiries and reading skills will grow. This will increase students' ability to read and learn about the world through science.

### Limitations

This curriculum, though beneficial to my growth as a teacher, does have some limitations. This unit was designed specifically for the fifth grade students currently in my classroom, thus I focused curriculum development around life science and designing lessons and assessments that would meet their needs. If this CORI unit were used in different grade levels, assessments and learning activities may need to be adjusted to make them appropriate for application.

Due to the fact that I teach in a Spanish immersion setting, the availability of texts was limiting. I only allowed myself to chose books that were available in Spanish because I wanted this unit to be useful in my own classroom. This meant that many worthy books, only published in English, were not included in this unit. Additionally, finding available titles in Spanish took many more hours searching library catalogs and

online retailers. If another teacher in an English-speaking classroom were to use this unit, they could expand the texts that go with it.

While writing this unit I noticed that CORI is a very open framework, sometimes making it hard to use. Swan's (2004) interpretation of how to lay out a CORI unit was significantly different than the way McGuthrie and McPeake (2007) described it in their teacher training manual. This freedom for teachers creates flexibility, but as a writer I found it to be too vague. There were no complete CORI units available online to use as a reference, making it harder to know if I was "doing it right". After having written the unit, I know my students will become stronger readers and scientists as an outcome.

One component the Guthrie and McPeake (2007) described for a CORI unit was daily writing time. After reflecting on this component, I decided not to put a heavy emphasis on writing because I didn't feel I had enough time to teach writing and give feedback in a meaningful way for students. Doing so would have been too time consuming among the many other CORI components. I know I need to provide better writing instruction for my students, but I did not see how it could fit in this unit in a realistic way, thus making it a limitation in my study.

Finally, this unit has not been tested. This is due in part to the timing of the project. If I had been able to implement this curriculum, there would be a chance to make changes and examine any issues students encountered. I would be able to provide further insight into time needed per lesson, adjustments needed to assessments, and overall implementation.

Future Areas of Study

As I researched the question, *How can science and literacy be integrated in a 5th grade curriculum?* Other ideas for expanding this project came to mind. My curriculum focused specifically on the Guthrie's (2003) curriculum design approach known as Content-Oriented Reading Instruction (CORI). While this is one way to deepen science and literacy practices, there are other important facets of these domains. For example, in the future I would expand on this curriculum by adding science notebooks and direct writing instruction.

This curriculum was designed for 5th graders in my state which has not yet adopted the Next Generation Science Standards (NGSS). The Next Generation Science Standards is a multi-state effort to create new science standards across science disciplines and grade levels (States, 2013). The standards were developed by a representatives of 26 states and by the National Science Teachers Association, the American Association for the Advancement of Science, the National Research Council, and Achieve, a nonprofit organization involved in developing math and English standards. The biggest shift with the NGSS is the integration and simultaneous focus on practice, content and connection (States, 2013). NGSS focuses on deeper understanding and application of specific disciplinary core ideas. This shift connects with my capstone project because students will use scientific study to employ their reading, writing and critical thinking skills. Teachers who use this CORI unit in the future may need or want to comply with NGSS standards rather than my state's standards. For this reason, future study would include how to make this CORI unit NGSS compliant.

Now that I have written a CORI unit for life sciences, I am interested to see how I could use this approach with other topics I teach, such as simple machines or

programming. Guthrie (2004) suggests that CORI lends itself best to life science and social studies due to the many hands-on experiences. Since I also teach about other science topics in addition life science, I would like to study how I can motivate students to read via these other science topics.

Finally, this capstone has highlighted my passion for content area literacy, especially in a language-learning environment. It is clear that the CORI approach motivates students to read, but I believe it also has power to build vocabulary and further language acquisition in the Spanish immersion environment. Further study would include how the CORI framework could be used in a language learning context to boost language acquisition as well as reading and science skills.

### Professional Growth

Over the course of this capstone I have grown significantly as a professional. The process of creating a CORI unit that integrated science and literacy helped me feel much less daunted by the idea. When I began, I was completely overwhelmed by all the academic standards I need to teach my students. I was frantically looking for a way to economize time and maximize instructional effectiveness. Through my literature review I noticed that the most effective and engaging strategies were “easy” ones. For example, selecting interesting texts and using hands-on activities were repeatedly mentioned. I was surprised to realize that the “magic bullet” was not some expensive science kit or complicated algorithm. The answer to integrating science and literacy was to get kids motivated to read and do science with every-day, accessible things. I put these new ideas into practice when I wrote Chapter Four. Upon completion of this capstone integrating science and literacy seems notably more obtainable than before.

Learning about the importance of reading engagement and motivation was an unexpected and important learning for me during this capstone journey. I spent a lot of time wondering why students were so animated on “science days” and so apathetic on “language arts days”. I was trying to figure out how to create a “spark” in students that would engage them equally in both content areas. With the guidance of my capstone advisor, I learned that there was a name for this phenomenon. It is called reading engagement and motivation. This was not a subtopic I had anticipated studying, but I learned that it was central to the work of CORI. It was also essential to student learning. As a professional, this learning is invaluable as I apply it to the rest of my practice.

This capstone process has also opened my eyes to new professional opportunities in the future. I greatly enjoyed writing the CORI unit, especially using my creativity to search for interesting texts and find overarching themes. I loved digging for resources to incorporate real-world experiences in science with reading strategies. I found myself thinking, “I wish I could help other people do this, too!” For this reason, I am now empowered to show my colleagues how to integrate science and literacy and help them write CORI units. I know that many teachers feel overwhelmed with responsibilities, as I did, but now I have the knowledge to help them with content integration now.

### Final Thoughts

My aim in this capstone is to integrate science and literacy for students so they they are engaged in learning and become better readers because of it. I also hope that this CORI unit lightens teacher’s load and shows teachers an approach to integrate the two content areas. By teaching science and literacy in tandem, the two content areas build on

each other's strengths. Through science study, students will organize, write, read and communicate their ideas effectively. By weaving these two content areas together, students will be stronger, more interdisciplinary students. As I look ahead to this school year, I feel a growing excitement to continue on this path. With the strong foundation this capstone project has provided me, I will continue to weave these goals into the classroom.

## APPENDECIES

Appendix A: Standards and Themes Addressed in CORI Unit.....	73
Appendix B: CORI Book List.....	76
Appendix C: Concept Map.....	80
Appendix D: Motivation Goals.....	82
Appendix E: Overall Framework.....	84
Appendix F: CORI Workshop Model.....	94
Appendix G: Celebration of Learning.....	96
Appendix H: Formative Assessments.....	98
Appendix I: Lessons 1-12 (Subtopic 1) .....	100
Appendix J: Lessons 13-24 (Subtopic 2) .....	147
Appendix K: Lessons 25-33 (Subtopic 3) .....	198
Appendix L: Student Worksheets for Subtopic 1.....	233
Appendix M: Student Worksheets for Subtopic 2.....	254
Appendix N: Student Worksheets for Subtopic 3.....	266



## APPENDIX A

### Academic Standards and Themes Addressed in CORI Unit

## Academic Standards and Themes Addressed in CORI Unit

### Minnesota Language Arts academic standards addressed:

**5.2.1.1** Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.

**5.2.3.3** Explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

**5.2.4.4** Determine the meaning of general academic and domain-specific words and phrases in a text relevant to a grade 5 topic or subject area.

**5.2.7.7** Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.

**5.2.10.10** By the end of the year, read and comprehend informational texts, including history/social studies, science, and technical texts, at the high end of the grades 4–5 text complexity band independently and proficiently. a. Self-select texts for personal enjoyment

**5.6.4.4** Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)

**5.6.7.7** Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

### Minnesota Science academic standards addressed:

**Standard 5.4.1.1** Living things are diverse with many different characteristics that enable them to grow, reproduce and survive.

**Benchmark 5.4.1.1.1:** Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system. For example: Compare the physical characteristics of plants or animals from widely different environments, such as desert verses tropical, and explore how each has adapted to its environment.

**Standard 5.4.2.1** Natural systems have many components that interact to maintain the living system

**Benchmark 5.4.2.1.1:** Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs. For example: Design and construct a habitat for a living organism that meets its need for food, air and water.

**Standard 5.4.2.1** Natural systems have many parts that interact to maintain the living system

**Benchmark 5.4.2.1.2** Explain what would happen to a system such as a wetland, prairie or garden if one of its parts were changed. For example: Investigate how road salt runoff affects plants, insects and other parts of

**Standard 5.3.4.1** In order to maintain and improve their existence humans interact with and influence Earth systems.

**Benchmark 5.3.4.1.1:** Identify renewable and non-renewable energy and material resources that are found in Minnesota and describe how they are used. For example: Water, iron ore, granite, sand and gravel, wind, and forests.

**Standard 5.4.4.1** Humans change environments in ways that can be either beneficial or harmful to themselves and other organisms.

**Benchmark 5.4.4.1.1:** Give examples of beneficial and harmful human interaction with natural systems. For example: Recreation, pollution, wildlife management.

Based on the information above, I arrived at the following theme and subtheme for this CORI unit.

**CORI Unit Theme:**

Interdependence among living systems

**Theme Subtopics:**

Plant and Animal Adaptations

Ecosystems

Changes in ecosystems

APPENDIX B

CORI Book List

## CORI Book List

THEME	STANDARD	BENCH-MARK	NON-FICTION	FICTION
Plant and Animal Adaptations	5.4.1.1. Living things are diverse with many different characteristics that enable them to grow, reproduce and survive.	Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.	<p><i>Cómo se adaptan los animales (How Animals Adapt) - Bobbie Kallman</i></p> <p><i>¿Por qué hay osos polares en la nieve y no hay flamencos? (Why Polar Bears Like Snow... And Flamingos Don't) - Nancy White</i></p>	<p><i>¿Qué harías con una cola como ésta? (What do you do with a tail like this?) -Steve Jenkins</i></p> <p><i>Abran paso a los patitos (Make way for ducklings - Robert McCloskey</i></p> <p><i>El único e incomparable Iván (The One and Only Ivan) - Katherine Applegate</i></p> <p><i>El grillo en Times Square (The Cricket in Times Square)-George Selden</i></p> <p><i>Minusa (Runt)- Marion Dane Bauer</i></p> <p><i>Stone Fox (Stone Fox) -John Reynolds Gardiner</i></p> <p><i>El árbol mágico (Magic Tree House series) - Mary Pope Osborne</i></p> <p><i>Cachoritos (Puppy Palace) - Ellen Miles</i></p>
Ecosystems	5.4.2.1 Natural systems have many components that interact to maintain the living system	Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the	<i>Cómo funcionan los ecosistemas (How ecosystems work)- Julie K Lundgren</i>	<i>El guardián de los pantanos (Keeper of the Swamp) - Ann Garrett</i>

		relationships among its living and nonliving parts, as well as inputs and outputs.	<p><i>Cadenas alimentarias de los pantanos (Wetlands Food Chains)</i> - Bobbie Kallman</p> <p><i>Los pantanos (Wetlands)</i> - Yvonne Franklin</p> <p><i>Las cadenas alimentarias y tú (Food Chains and You)</i> -Bobbie Kallman</p> <p><i>Cadenas y redes alimentarias: La lucha por la supervivencia (Food Chains and Webs: The Struggle to Survive)</i>- Andrew Solway</p> <p><i>Historias de ciencias de FOSS: Ambientes (Foss Science Stories: Environments)</i> - Delta Education</p>	<p><i>Mi rincón en la montaña (My Side of the Mountain)</i> -Jean Craighead George</p> <p><i>Julie y los lobos (Julie of the Wolves)</i> -Jean Craighead George</p> <p><i>El Graznido Del Cuervo(The Cry of the Crow)</i>- Jean Craighead George</p> <p><i>Isla de los delfines azules (Island of the Blue dolphins)</i> - Scott O'dell</p> <p><i>El signo del castor (The Sign of the Beaver)</i> - Elizabeth George Speare</p>
Changes in ecosystems	5.4.2.1 Natural systems have many components that interact to maintain the living system	Explain what would happen to a system such as a wetland, prairie or garden if one of its parts were changed.	<p><i>Animales invasores (Animal Invaders)</i> by Amanda Doering Tourville</p> <p><i>Plantas fuera de lugar (Plants Out of Place)</i> by Courtney Farrell</p> <p><i>Por qué se extinguen las plantas (Why Plants Become Extinct)</i> by Julie K. Lundgren</p>	<p><i>El gran capoquero (The Great Kapok Tree)</i>- Lynne Cherry</p> <p><i>La niña de los gorriones (The sparrow girl)</i>- Sara Pennypacker</p>

## APPENDIX C

### Concept Map

### Concept Map

Main theme: Interdependence among living systems		
Science Supporting Theme #1	Science Supporting Theme #2	Science Supporting Theme #3
Adaptations	Ecosystems	Changes in ecosystems
Science Facts, Traits, Features	Science Facts, Traits, Features	Science Facts, Traits, Features
Habitat walk to forest	Habitat walk to wetlands	Earthworm observatories
Plant and animal adaptations	Living and nonliving things	Controls and variable
Types of adaptations: behavioral, structural, physiological	Class aquarium	Scientific method
Animal adaptation drawing	Relationships among different parts in a wetland	Invasive species
Animal Watching Chart	Recording observations	Recording observations
Beak adaptation simulation	Food chains and energy flow	Consequences of removing an animal from an ecosystem
M&M and Skittles adaptation simulation	Consumers, producers and decomposers	Invasive species simulation
Animal adaptations research project	Food chain simulation	Invasion of exotic worm simulation
Using field guides	Habitat design project	Jigsaw peer teaching about invasive plants and/or animals
Literacy Supporting Theme # 1	Literacy Supporting Theme # 2	Literacy Supporting Theme # 3
Questioning	Reading Across Texts	Organizing graphically
Literacy Facts, Traits, Features	Literacy Facts, Traits, Features	Literacy Facts, Traits, Features



Writing inquiry questions	Writing inquiry questions	Writing inquiry questions
Text features to activate background knowledge	Searching for information across texts	Circle map to define
Asking questions before reading	Notetaking	Using keywords to search for information
Level 1 and 2 questioning	Determining importance when reading	Notetaking
Searching in texts for answers to questions	Summarize and synthesize information	Paragraph writing
Skype project with students in Peru	Habitat design project	Multi-flow map to show cause and effect
Animal adaptations research project		Summarize and synthesize information
Key Word Notes		Jigsaw peer teaching about invasive plants and/or animals
Topic sentence and supporting details		

## APPENDIX D

### Motivation Goals

### Motivation Goals

The table below shows ways I will provide support for each of the motivational practices outlined by Jennifer A. McPeake and John T. Guthrie (2007).

	Relevance	Choice	Collaboration	Success	Conceptual theme
<b>Habitat walks</b>	x				x
<b>Simulations</b>	x		x		x
<b>Class aquarium</b>	x		x		x
<b>Writing and researching inquiry questions</b>	x	x		x	x
<b>Earthworm terrarium</b>	x		x		x
<b>Animal observations</b>	x				x
<b>Invasive species jigsaw</b>	x	x	x	x	x
<b>Selecting independent reading texts</b>	x				x
<b>Animal adaptations project</b>	x	x	x	x	x
<b>Habitat design project</b>	x	x	x	x	x
<b>Small group reading instruction</b>			x	x	
<b>Shared Reading</b>	x		x	x	x
<b>Vocabulary Log</b>		x		x	x
<b>Unit culminating activity</b>	x	x	x	x	x

## APPENDIX E

### Overall Framework

### Overall Framework

Subtopic #1: Adaptations & Questioning	Day 1	Day 2	Day 3	Day 4	Day 5
<b>Shared Reading Or Science</b>	Science -My habitat walk -Write questions	Fluency -Review ideas from yesterday's formative assessment. -Read aloud <i>¿Qué harías con una cola como ésta?</i> -Intro Word Log	Science -Intro plant and animal adaptations: behavioral, structural, physiological	Fluency -Review expression and pausing at commas. -Students practice in pairs -Word Log	Fluency -Review importance of correct stress on words like "ésta" and "está". -Students share Word Log
<b>Comprehension Instruction (whole class)</b>	-Intro book: <i>Supervivencia</i> -Write questions about adaptations	-Use text features to activate background knowledge and write questions for reading. -Questions before reading help guide reading, set a goal.	-Review the importance of asking questions before reading -Use background knowledge and text features to formulate new questions about adaptations.	-Explain level 1 and 2 questions	-Share animal watching chart -As a class, discuss new knowledge about animals in relation to behavioral, physiological, and structural adaptations
<b>Small Group Instruction</b>	-Book walk new text -Use text features to activate background knowledge -Write questions using text features	-Use text features to activate background knowledge and write questions for reading.	-In pairs, choose a type of adaptation, review background knowledge, write questions, read to find answers	-In partners write level 2 questions about each type of adaptation and find answers.	-Continuation from yesterday's small group lesson
<b>Extended Writing</b>	-Complete formative assessment -Use field guides to learn more about an interesting animal or plant they observed on nature walk	-Use field guides to learn more about an interesting animal or plant they observed on nature walk	-My Animal Adaptation Drawing (due day 6)	-My Animal Adaptation Drawing (due day 6)	-My Animal Adaptation Drawing (due day 6)
<b>Independent Reading</b>	-Read for enjoyment <i>Abran paso a los patitos</i> or <i>¿Qué harías con una cola como ésta?</i>	-Choose novel -Fill out independent reading log.	-Continue reading novel for enjoyment. -Ind. Reading Log	-Continue reading novel for enjoyment. -Ind. Reading Log	-Continue reading novel for enjoyment. -Ind. Reading Log

			-Reading Response Journal		
<b>Homework*</b>	-My Animal Watching Chart due Friday	---->	---->	---->	X

\*Note: Homework was only built into this capstone for Week One.

Subtopic #1: Adaptations & Questioning	Day 6	Day 7	Day 8	Day 9	Day 10
<b>Shared Reading Or Science</b>	Science -Students share animal adaptation drawing -Beak simulation	Fluency -Circle punctuation, notice how commas are used to separate a series and in -Practice reading in pairs/clauses.	Fluency -Students fill in missing punctuation; review answers -Practice reading in pairs	Science -M&M and Skittles adaptation simulation	Science -Practice Skype with partners for final project
<b>Comprehension Instruction (whole class)</b>	-Skype w/ other class -Intro project, rubric -Choose animal to research	-Intro paraphrasing -Teach “Key Word Notes”	-Teach Review key word notes, this time adding “Integrating features and running text”	-Topic sentence and supporting details	-Teach transitional words
<b>Small Group Instruction</b>	-Book walk with new text <i>Cómo se adaptan los animales</i> -Mark information with post it.	-Students work in pairs to finish reading using Key Word notes	-Students work in pairs to read and take notes, especially noting the information given by text features	-Students work to write first draft of their paragraphs based on notes	-Work time for students to finish 3 paragraphs and note taking sheet
<b>Extended Writing</b>	-Vocabulary Log -Explore books for animal research project	-Vocabulary Log -Continue reading and note taking MN animal research	-Vocabulary Log -Continue reading and note taking MN animal research	-Vocabulary Log -Continue writing draft of 3 paragraphs about MN animal adaptations	-Continue writing draft -Revise writing -Begin creating electronic “poster” to share.

<b>Independent Reading</b>	-Continue reading novel for enjoyment. -Ind. Reading Log -Reading Response Journal	-Continue reading novel for enjoyment. -Ind. Reading Log	-Continue reading novel for enjoyment. -Ind. Reading Log -Reading Response Journal	-Continue reading novel for enjoyment. -Ind. Reading Log	-Continue reading novel for enjoyment. -Ind. Reading Log -Reading Response Journal
----------------------------	--	---	--	---	--

Subtopic #1: Adaptations & Questioning	Day 11	Day 12			
<b>Shared Reading Or Science</b>	Fluency -Practice fluency needed for communicating via Skype	Science -Students skype with Peruvian partners about animal adaptations. -Complete double bubble map comparing two animals			
<b>Comprehension Instruction (whole class)</b>	-Teach how to create and use visuals to support ideas in Skype project	-Large group reflection about how Skype presentation went.	This is the end of lessons on subtopic #1: Adaptations and questioning. The next page will pick up with lessons regarding subtopic #2: Ecosystems and reading across texts.		
<b>Small Group Instruction</b>	-Guide students in annotating and highlighting their writing to look up at camera, pause	-Share double bubble maps about animals			
<b>Extended Writing</b>	-Create visual for Skype project	-Vocabulary Log -Formative assessment about animal adaptations			
<b>Independent Reading</b>	-Continue reading novel for enjoyment. -Ind. Reading Log -Reading Response Journal	-Continue reading novel for enjoyment. -Ind. Reading Log			

Subtopic #2: Ecosystems & Reading across texts			<b>Day 13</b>	<b>Day 14</b>	<b>Day 15</b>
<b>Shared Reading Or Science</b>			Science -Habitat Walk to Wetlands (Starring Lake) -Use chart: living/non-living -Write questions	Science -Set up aquariums -Foss Environments, Inv 4, part 1	Science & Shared Rdg -Record aquarium obs -Read aloud: <i>El guardián del pantano</i>
<b>Comprehension Instruction (whole class)</b>	This grey area represents learning on the previous subtopic detailed above.		-Book: <i>Ecosistemas</i> -Write Questions -Intro new skill “searching across texts”	-Teach procedure to read across texts (scan, key words) -Model using student handout format and text #1	-Review “searching across texts” -Model using student handout format and text #2
<b>Small Group Instruction</b>			-Book walk 3 texts -chose a student generated question and search for that information across the three texts	-Start by reading text 1 <i>-What are the relationships between the different parts of a wetland?</i> -Use note-taking sheet “Reading Across Texts”	-Read text 2 -Use note- taking sheet “Reading Across Texts”
<b>Extended Writing</b>			-Vocab Log	-Vocab Log -Finish Reading and taking notes from text 1.	-Vocab Log -Finish Reading and taking notes from text 2.
<b>Independent Reading</b>			-Intro NEW books -Continue reading novel for enjoyment. -Ind. Reading Log -Reading Response Journal	-Continue reading novel for enjoyment. -Ind. Reading Log	-Continue reading novel for enjoyment. -Ind. Reading Log -Reading Response Journal

Subtopic #2: Ecosystems & Reading across texts	<b>Day 16</b>	<b>Day 17</b>	<b>Day 18</b>	<b>Day 19</b>	<b>Day 20</b>
<b>Shared Reading Or</b>	Science & Shared Rdg	Science & Shared Rdg	Science	Science	Science & Shared Rdg



<b>Science</b>	-Record aquarium observations -Shared reading of <i>El guardian</i> -Intro: los verbos: principales, auxiliares y copulativos -Practice fluency	-Record aquarium observations - Review living and nonliving factors -Practice: los verbos: principales, auxiliares y copulativos -Practice fluency	-Review food chain concept -Food chain simulation -Discuss how it might relate to aquariums	-Add new organisms to aquarium -Foss Environments, Inv 4, part 3	-Record aquarium observations - Review living and nonliving factors -Practice: los verbos: principales, auxiliares y copulativos -Use <i>El guardian</i> as mentor text to practice grammar skill
<b>Comprehension Instruction (whole class)</b>	-Use the fiction text <i>El guardián de los pantanos</i> to learn more about wetlands	-Introduce sentence frame	-Book walk Cadenas y redes alimentarias -Read aloud pgs.8-11 in Cadenas y redes alimentarias	-Model how to determine importance when searching across texts	-Model how to summarize and synthesize information when searching across texts
<b>Small Group Instruction</b>	-Students re-read text 3 (El guardián) Use note-taking sheet "Reading Across Texts"	-Edit and share sentence frames	-Students generate questions they'd like to answer about food chains and energy flow	-Review and share out information students found yesterday -Time to work with text #2	-Review and share out information students found yesterday -Time to work with text #3.
<b>Extended Writing</b>	-Vocab Log -Finish Reading and taking notes from book 3.	-Vocab Log -Watch food chain video, add comment to online discussion	-Read text #1 and and take notes -Handout Reading Across Multiple Texts - <i>Energy Flow</i> .	-Vocab Log -Finish reading and notetaking w/ text #2	-Vocab Log -Finish reading and notetaking w/ text #3
<b>Independent Reading</b>	-Continue reading novel for enjoyment. -Ind. Reading Log	-Continue reading novel for enjoyment. -Ind. Reading Log	-Continue reading novel for enjoyment. -Ind. Reading Log	-Continue reading novel for enjoyment. -Ind. Reading Log	-Continue reading novel for enjoyment. -Ind. Reading Log

	-Reading Response Journal		-Reading Response Journal		-Reading Response Journal
--	---------------------------	--	---------------------------	--	---------------------------

Subtopic #2: Ecosystems & Reading across texts	Day 21	Day 22	Day 23	Day 24	
<b>Shared Reading Or Science</b>	Science -Play “Food Chain Game” to review core concept of consumer, producers and decomposers	Science -Record aquarium observations -Carousel walk to share learning from reading across texts	Science & Shared Rdg -Record aquarium observations -Shared reading of <i>The Great Kapok Tree</i>	Science -Record aquarium observations (last day) -Time to finish habitat projects and rehearse for presentation	
<b>Comprehension Instruction (whole class)</b>	-Review sentence frame	-Introduce habitat design project -Go over rubric and planning sheet	-Show an example of completed habitat design project -Use rubric to evaluate example -Discuss what makes it a quality project	-Time to finish habitat projects and rehearse for presentation	This is the end of lessons on subtopic #2: Ecosystems & Reading across texts. The next page will pick up with lessons regarding subtopic #3: : Changes in ecosystems & Organizing graphically
<b>Small Group Instruction</b>	-Edit and share sentence frames	-Review group planning sheet -Time to work on habitat design project in small groups	-Review group planning sheet -Time to work on habitat design project in small groups	-Time to finish habitat projects and rehearse for presentation	
<b>Extended Writing</b>	-Vocab Log -Create poster for tomorrow’s carousel walk to share learning from	-Vocab Log -Time to work on habitat design	-Vocab Log -Time to work on habitat design	-Habitat Presentations	

	research question. Will share in tomorrow's science time	project in small groups	project in small groups		
<b>Independent Reading</b>	-Continue reading novel for enjoyment. -Ind. Reading Log -Reading Response Journal	-Continue reading novel for enjoyment. -Ind. Reading Log	-Continue reading novel for enjoyment. -Ind. Reading Log -Reading Response Journal	-Habitat Presentations	

Subtopic #3: Changes in ecosystems & Organizing graphically					<b>Day 25</b>
<b>Shared Reading Or Science</b>					Science -Set up earthworm observatories -Talk about control and variable -Make hypothesis
<b>Comprehension Instruction (whole class)</b>	This grey area represents learning on the previous subtopic detailed above.				-Read aloud: <i>Animales invasores</i> p.4-9 -Students write questions they want to learn about -Review importance of reading about observations and discoveries
<b>Small Group Instruction</b>					-Book walk 3 texts -Locate key words to define "invasive species"
<b>Extended Writing</b>					-Vocab Log -Watch invasive species video
<b>Independent Reading</b>					-Intro "NEW" books -Student book promotion -Ind. Reading Log -Reading Response Journal

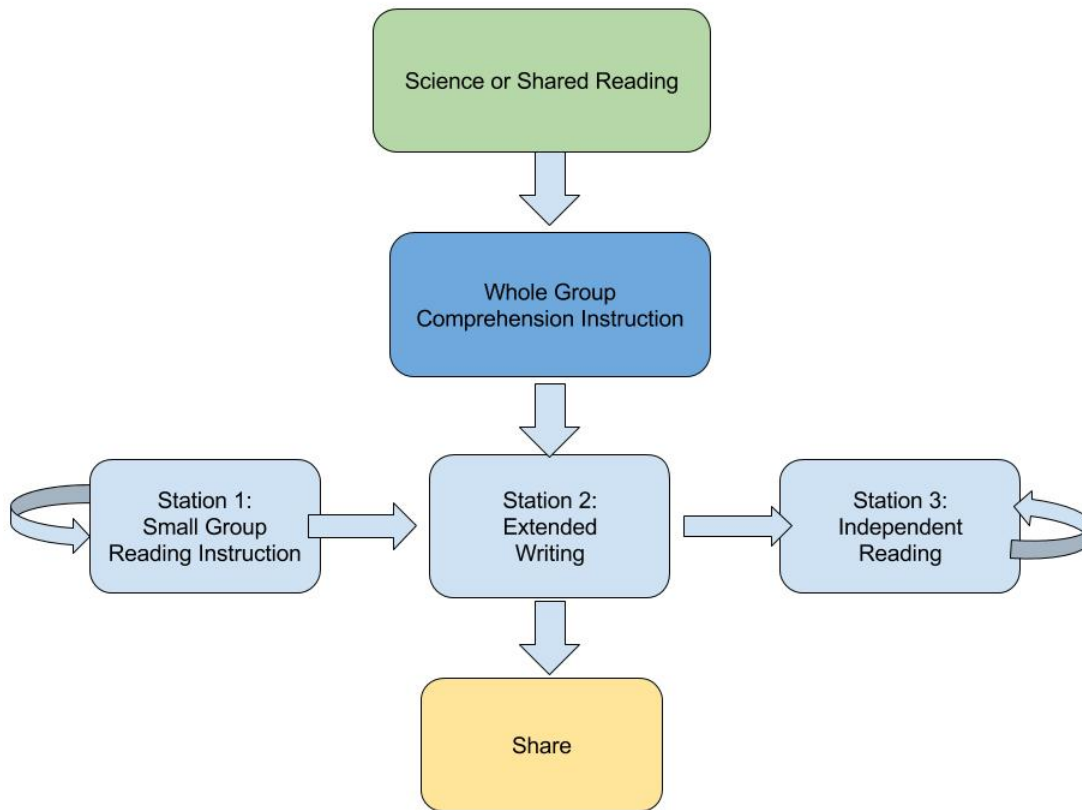
Subtopic #3: Changes in ecosystems & Organizing graphically	<b>Day 26</b>	<b>Day 27</b>	<b>Day 28</b>	<b>Day 29</b>	<b>Day 30</b>
---	---------------	---------------	---------------	---------------	---------------

<b>Shared Reading Or Science</b>	Science & Shared Rdg -Record earthworm observations -Shared reading of <i>The Great Kapok Tree</i> -Direct object song -Practice fluency	Science -Record earthworm observations -Read “The Woods that Got Worms” -Show images for forest	Science & Shared Rdg -Record earthworm observations -Shared reading of <i>The Great Kapok Tree</i> -Direct object practice (rearrange sentences)	Science -Record earthworm observations -Invasive species game	Science & Shared Rdg -Record earthworm observations -Shared reading of <i>The Great Kapok Tree</i> -Use <i>The Great Kapok Tree</i> as mentor text to practice direct object
<b>Comprehension Instruction (whole class)</b>	-Intro circle map to define	-Teach how to write definition/topic sentence from circle map	-Continue w/ circle maps for defining -New question: What effects to invasive species have on a ecosystem?	-Intro multi-flow map -Intro small section to read for multi-flow notes	-Introduce jigsaw project -Students select topic for project -Review rubric
<b>Small Group Instruction</b>	-Use circle map and 3 texts to find keywords to define invasive species	-Teach how to write paragraph from circle map	-Share paragraph students wrote yesterday -Read and take notes for new circle map	-Share paragraph students wrote yesterday -Read and take notes for new multi-flow map	-Share paragraph students wrote yesterday -Begin multi-flow map for project
<b>Extended Writing</b>	-Vocab Log -Continue reading and notetaking in circle map	-Vocab Log -Write paragraph from circle map	-Vocab Log -Write paragraph from circle map	-Vocab Log -Write paragraph from multi-flow map	-Vocab Log -Finish reading and notetaking on multi-flow map
<b>Independent Reading</b>	-Continue reading novel for enjoyment. -Ind. Reading Log -Reading Response Journal	-Continue reading novel for enjoyment. -Ind. Reading Log	-Continue reading novel for enjoyment. -Ind. Reading Log -Reading Response Journal	-Continue reading novel for enjoyment. -Ind. Reading Log	-Continue reading novel for enjoyment. -Ind. Reading Log -Reading Response Journal

Subtopic #3: Changes in ecosystems & Organizing graphically	Day 31	Day 32	Day 33	Day 34 +	
<b>Shared Reading Or Science</b>	Science & Shared Rdg -Record earthworm observations -Shared reading of <i>The Great Kapok Tree</i> -Practice fluency	Science -Record earthworm observations -Invasion of exotic worm game	Science & Shared Rdg -Read <i>Sparrow girl</i> -Answer question: What happens when we take a species out of an ecosystem?		
<b>Comprehension Instruction (whole class)</b>	-Use multi- flow map to write summary -Add transition words	-Explain how jigsaw activity will work -Review note- taking sheet	-Use multi- flow map to show cause and effect in <i>Sparrow girl</i>	This is the end of lessons on subtopic #3: Changes in ecosystems & Organizing graphically. This unit will end with a celebration of learning. This is student directed and may take 3-6 days to complete.	
<b>Small Group Instruction</b>	-Share paragraph students wrote yesterday -Time to write summary paragraph from multi- flow map	-Students practice for jigsaw activity	-Finish multi- flow maps -Compare multi-flow maps with peers		
<b>Extended Writing</b>	-Vocab Log -Finish writing paragraph from multi- flow map	-Jigsaw activity	-Vocab Log  -Write paragraph summary from multi-flow map		
<b>Independent Reading</b>	-Continue reading novel for enjoyment. -Ind. Reading Log -Reading Response Journal	-Jigsaw activity continued	-Continue reading novel for enjoyment. -Ind. Reading Log -Reading Response Journal		

APPENDIX F:  
CORI Workshop Model

### CORI Workshop Model



APPENDIX G  
Celebration of Learning



## Celebration of Learning

As a culminating activity for this CORI unit, students will create a classroom diorama of a Minnesota ecosystem. Students will transform the classroom with life-size decorations and posters. We will invite Spanish-speaking community members to “tour” our ecosystem. Similar to a museum, guests will be guided to approximately 10 “points of interest” in our room where students will share their learning on different topics covered in this unit.

Student ownership is central to this celebration of learning. To begin, the teacher will guide students as they decide what key learnings from this unit they will represent. The teacher will ask students to decide what mastery and quality looks like in each of these key learnings that will later become “points of interest”. Therefore students will determine the topics and expectations of the final product. Students will choose which one of these points of interest they will work on in small groups. Additionally, students will decide how they will represent their learning (ie: digitally, poster, play).

Another element of this culminating activity is students will present the final product to others in Spanish. An authentic audience is important for student engagement and for students’ Spanish development. In this way, students will have a sense that some else (besides teachers and parents) care about their work and Spanish development. Students will apply knowledge and skills in creating a product that will teach members of the community.

Since this culminating activity is driven by students, no further outline will be included in this capstone. Teachers should ensure that the following elements are included and let the students lead the rest.

- Student ownership in what is being presented
- Teacher guidance to ensure all/many topics which were studied are included in the final product
- Student driven expectations of what a quality final product looks like (this may involve them making a rubric or list of some sort)
- Student choice in the topic they will study
- Student choice in how they will represent their learning
- Authentic audience

APPENDIX H  
Formative Assessments

## **Formative Assessments**

### **Formative Assessment for subtopic 1:**

Keeley, P. (2011). Changing Environment. In *Uncovering student ideas in life science* (pp.109). Arlington, Va: NSTA Press.

### **Formative Assessment for subtopic 2:**

Keeley, P. (2011). Ecosystem Cycles. In *Uncovering student ideas in life science* (pp.97).  
Arlington, Va: NSTA Press.

### **Formative Assessment for subtopic 3:**

Keeley, P. (2005). Habitat Change. In *Uncovering student ideas in science*. Arlington,  
Va: NSTA Press.

APPENDIX I:  
Lessons 1-12. Subtopic 1

## Lesson 1

Science or Shared Reading
<p><b>Emphasis:</b> Habitat walk; observe and question</p> <p><b>Science Standard:</b> 5.4.1.1. Living things are diverse with many different characteristics that enable them to grow, reproduce and survive.  <b>Benchmark 5.4.1.1.1:</b> Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.</p>
<p><b>Motivation:</b> Relevance -- Students build interest through experience or observation</p>
<p><b>Texts:</b> Selection of CORI books; woodland field guide</p>
<p><b>Additional Materials needed:</b>  Handout -<a href="#">My Habitat Walk</a> (All handouts and worksheets for subtopic 1 are located in Appendix M)  <a href="#">Curiosity Chart</a>  Sentence strips</p>
<p><b>Overall Plan (55 mins):</b></p> <ol style="list-style-type: none"> <li>1. Group students in teams of 4. Provide each team with a selection of 4-5 CORI books to preview and browse. Student teams discuss interesting illustrations with each other and share background knowledge about woodland animals to prepare for a schoolyard habitat walk. Ask students to share interesting things they know about woodland animals with the class.</li> <li>2. Before walk (5 min): Introduce chart <a href="#">My Habitat Walk</a> and discuss the three columns for recording animal observations. Model how to use the chart by providing an example for each column.</li> <li>3. During Walk (35 min): Students will walk to the nature preserve located one-half mile from our school. Students observe animals in teams, discussing what they see. Each student completes chart My Habitat Walk, writing two questions they have about woodland animals on the bottom of chart. Students use field guides to help identify animals. With iPad, have teams take pictures and/or video of animals and evidence of animal life such as nests, feathers, seeds, etc to chronicle in the classroom.</li> <li>4. After walk (15 min): Students discuss animal observations in small groups. Ask students to share questions they have about woodland animals from the bottom of <a href="#">My Habitat Walk</a> chart. Write 2 or 3 good question on sentence strips and posts on class <a href="#">Curiosity Chart</a>.</li> <li>5. Ask students to name the woodland animals they saw during the habitat walk. List the names of the animals on the board under the heading <i>Animals We Saw</i>. Students use field guides to tell one interesting fact about the animal they saw. Ask students to name the animals they did not see on the habitat walk (<i>What animals do you see in the books that you did not see outside?</i>). Record students' responses under the heading <i>Animals We Didn't See</i>.</li> </ol>

<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b> Questioning
<b>Motivation:</b> Relevance -- Students build interest by relating reading to background knowledge
<b>Texts:</b> <i>Supervivencia: ¡Opeñer: Supervivencia: Adapaciones de los animales (¡Opeñer: Survival: Animal Adaptations)</i> by Alice Cary
<b>Additional Materials needed:</b> <a href="#">Curiosity Chart</a> Sentence Strips
<p><b>Overall Plan (15 mins):</b>            Introduce the text <i>Supervivencia: adaptaciones de los animales</i>. Together with and students, discuss the cover illustration together. In groups, students take a book walk and discuss interesting illustrations. Students share what they know about animal adaptations with the whole class. Asks students if any of these animals on the cover were seen on the habitat walk. As a class, discuss why these animals (camel and polar bear) were not seen (ie: not the correct climate).</p> <p>Read pgs 4-5 from <i>Supervivencia: adaptaciones de los animales</i> as students read along quietly. Together with students, discuss the connections they can make between the animals they saw on the nature walk and animal adaptation.</p> <p>Ask students what questions they have about animal adaptations. Post one or two good questions on class <a href="#">Curiosity Chart</a>.</p> <p>Guide students in contrasting questions that are derived from observation with questions that are derived from reading (ie: identify questions on the curiosity chart that came from today’s real world observations and questions that came from today’s reading).</p>
<b>Guided Reading</b>
<b>Emphasis:</b> Questioning
<b>Motivation:</b> Relevance -- Students build interest by relating reading to background knowledge
<b>Texts:</b> <b>Grade Level:</b> <i>¿Cómo se adaptan los animales? (How do Animals Adapt?)</i> by Bobbie Kalman

<p><b>Below Grade Level:</b> <i>¿Por qué hay osos polares en la nieve y no hay flamencos? (Why Polar Bears Like Snow.. And Flamingos Don't)</i> by Nancy White</p>
<p><b>Additional Materials needed:</b>  <a href="#">My Questions/KWL</a></p>
<p><b>Overall Plan (20 mins/group):</b>          Introduce new text <i>¿Cómo se adaptan los animales?</i> Point out text features such as chapter headings, illustrations and captions. Students take a book walk and use text features to activate background knowledge with a partner. Each student writes background knowledge on chart <a href="#">My Questions/KWL</a>. Introduce new chapter for students to read (pp.4-5 <i>¿Por qué se adaptan los animales?</i>). Guide and support students' reading. Students write new knowledge on chart. Students discuss questions they have after reading to write two new questions on chart. Provide support in formulating good questions.</p>

<p><b>Extended Writing (Station while teacher does guided reading groups)</b></p>
<p><b>Emphasis:</b> Questioning</p>
<p><b>Motivation:</b> Relevance -- Students write their own questions based on interest.</p>
<p><b>Texts:</b> Field Guide</p>
<p><b>Additional Materials needed:</b> <a href="#">Animal adaptations</a> <a href="#">formative assessment</a>          Student's science notebooks</p>
<p><b>Overall Plan (15 mins):</b></p> <ol style="list-style-type: none"> <li>1. Students will complete the <a href="#">formative assessment</a> about animal adaptations and turn in.</li> <li>2. Students use the <i>Animals We Saw</i> list and field guides to read and learn more about an interesting animal or plant they observed. Students draw and label the plant or animal and write a caption with interesting facts about the bird.</li> </ol>

<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative Reading
<b>Motivation:</b> Relevance -- Students build interest by linking background knowledge with texts that are appealing and interesting.
<b>Texts:</b> <b>Grade Level:</b> <i>Abran paso a los patitos (Make Way For Ducklings)</i> by Robert McCloskey <b>Below Grade Level:</b> <i>¿Qué harías con una cola como ésta?</i> (What Do You Do With a Tail Like This?) Steve Jenkins and Robin Page
<b>Additional Materials needed:</b> X
<b>Overall Plan (20 mins):</b>  Students Read <i>Abran paso a los patitos</i> or <i>¿Qué harías con una cola como ésta?</i> for their own enjoyment. Students share something interesting about the book with a peer.

<b>Share</b>
(5 mins) In pairs, students will share what learned during writing time about an animal they observed on the nature walk. I few students can share in whole group.

<b>Homework</b>
Introduce <a href="#">My Animal Watching Chart</a> . Students make observations at home and school for five days to complete the chart. Students can also collect evidence of animal life (feathers, nests, seeds, etc.) while animal watching. Homework and observations will be shared on Day 5.

**This lesson adapted from:**

McPeake, J. A., & Guthrie, J.T. (2007). Concept-Oriented Reading Instruction (CORI) Teacher Training Module Grades 3-5. College Park: Ellen Kaplan



## Leson 2

Science or Shared Reading
<b>Emphasis:</b> Vocabulary
<b>Motivation:</b> Conceptual theme -- connecting concepts or ideas within a theme. Choice-- students increase ownership by selecting words for Word Log.
<b>Texts:</b> <i>¿Qué harías con una cola como ésta?</i> ( <i>What do you do with a tail like this?</i> ) by Steve Jenkins and Robin Page
<b>Additional Materials Needed:</b> Student copies of a portion of the text <a href="#"><i>¿Qué harías con una cola como ésta?</i></a> <a href="#">Text to Science Connection chart</a>
<p><b>Overall Plan (35 mins):</b></p> <p>(5 mins) Begin by asking students to recall what they learned yesterday on the habitat walk, during the whole group lesson and during guided reading (we observed animals in our school environment, we learned about animal adaptations).</p> <p>(10 mins) Introduce book, <i>¿Qué harías con una cola como ésta?</i> (<i>What do you do with a tail like this?</i>) by Steve Jenkins and Robin Page and ask students to listen and try to make connections between what we learned yesterday and this new book. Begin read-aloud. This text will be used later in the week to study fluency, punctuation and grammar. Today serves as an introduction to the text.</p> <p>(10 mins) Think-Pair-Share. Give students at least 30 seconds to think about connections they can draw between the book and yesterday’s learning. Prompt students to share with an elbow partner. Give at least 2 minutes for students to share and listen to partner. Then, ask students to share in whole group what stuck out to them. Chart comments on Chart “Text to science connections”</p> <p>(15 mins )Vocabulary Log. Introduce <a href="#">Word Log</a> for vocabulary development. Students re-read familiar sections of text from any book read and enter five new words per week (student choice) in the <a href="#">Word Log</a> . Students use dictionary (or glossary, text features, etc.) to complete the first column of the chart. Students write the meaning in their own words in the second column. Students write a sentence using a word in the last column. Model completion of the word log chart using a word from the text <i>¿Qué harías con una cola como ésta?</i> Students enter at least one world in their <a href="#">Word Log</a> today.</p>

Whole Group Reading Comprehension Instruction
<b>Emphasis:</b> Questions, Background Knowledge
<b>Motivation:</b> Choice- Students increase control of reading by forming own questions.
<b>Texts:</b> <i>iOpener: Supervivencia: Adapaciones de los animales (iOpener: Survival: Animal Adaptations)</i> by Alice Cary
<p><b>Additional Materials Needed:</b></p> <p><a href="#">My Background Knowledge and Questions</a></p> <p><a href="#">Anchor chart: Text features</a></p> <p><a href="#">Anchor chart: What makes a good question?</a></p>
<p><b>Overall Plan ( 15 mins):</b></p> <p>Ask students to locate chapter “Adaptación en el desierto” (pp.9-12) in <i>iOpener: Supervivencia</i>. Ask students to name different text features in the chapter (headings, captions, bold print, large print, side bars, etc). Use anchor chart to briefly review types of text features. Model using text features to activate background knowledge for this section of text (ie: “I can see in the side box “Plantas del desierto” and I am thinking about images I’ve see of the desert like cactuses and tumbleweeds”). Chart background knowledge. Continue to model using text features to activate background knowledge.</p> <p>Model formulating questions before reading using posted background knowledge. Use the same format as will be used in <a href="#">My Background Knowledge and Questions</a>. Write 2 or 3 good questions using posted background knowledge (ie: “I knew Arabian Camels have one hump to conserve water, but what else does it do to survive in the desert?) With students, write additional questions together. Point out good questions (ie: the text feature indicates the answer will be found in the text; the text features alone don’t answer the question.) Discuss how writing questions before reading sets a goal for reading and helps in understanding the information in a book.</p> <p>Read chapter aloud as students read along quietly. Ask if posted questions can be answered. Students give answers to the questions, or share new knowledge they learned.</p>

Small Group Instruction
<b>Emphasis:</b> Questions, Background Knowledge
<b>Motivation:</b> Choice- Students increase control of reading by forming own questions.
<p><b>Texts:</b>  <b>Grade Level:</b> <i>¿Cómo se adaptan los animales? (How do Animals Adapt?)</i> by Bobbie Kalman  <b>Below Grade Level:</b> <i>¿Por qué hay osos polares en la nieve y no hay flamencos? (Why Polar Bears Like Snow.. And Flamingos Don't)</i> by Nancy White</p>
<p><b>Additional Materials Needed:</b>  <a href="#">My Background Knowledge and Questions</a>  Anchor Chart: <a href="#">List of question words or question starters to help students generate questions.</a></p>
<p><b>Overall Plan (20 mins/group):</b>  Introduce new chapter for students to read in <i>¿Cómo se adaptan los animales?</i> (pp. 6-7 <i>Cuerpos que cambian</i>). For struggling readers use <i>¿Por qué hay osos polares en la nieve y no hay flamencos?</i> (pp. 4-8 El artículo: ¡Qué lugar tan frío!) Support student pairs in using text features in chapter to activate background knowledge and write questions for reading on student sheet <a href="#">My Background Knowledge and Questions</a>.</p> <p>Scaffold as students write two questions using background knowledge before reading. For example, post half questions (ie: Why do birds...?) or question words (ie: How, Why, Does...) to prompt questioning. Student pairs read chapter aloud together, discuss new knowledge and answers to questions.</p>
Extended Writing (Station while teacher does guided reading groups)
<b>Emphasis:</b> Write answers to questions after reading
<b>Motivation:</b> Choice - students increase ownership of reading by selecting question to answer
<b>Texts:</b> Field Guide
<b>Additional Materials Needed:</b> X
<p><b>Overall Plan ( 20 mins):</b>  Students continue to use field guides to read and learn more about an interesting bird they observed on their habitat walk. Students draw and label the animal and write a caption with interesting facts about the bird. Students share knowledge with a peer.</p>

<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative Reading
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
<p>Suggested Fiction Texts:</p> <p style="padding-left: 40px;"><u>Above Grade Level:</u>  <i>El único e incomparable Iván (The One and Only Ivan)</i>  <i>El grillo en Times Square (The Cricket in Times Square)</i></p> <p style="padding-left: 40px;"><u>Grade Level:</u>  <i>Minusa (Runt),</i>  <i>Stone Fox (Stone Fox)</i></p> <p style="padding-left: 40px;"><u>Below Grade Level:</u>  <i>El árbol mágico (Magic Tree House series)</i>  <i>Cachorritos (Puppy Palace series)</i></p> <p>Students may also:</p> <ul style="list-style-type: none"> <li>Read the CORI books</li> <li>Read other nonfiction books of interest</li> <li>Choose another text of their interest</li> </ul>
<b>Additional Materials Needed:</b> <a href="#">Independent Reading Log</a>
<p><b>Overall Plan ( 20 mins):</b>  Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment. Students should fill out independent <a href="#">Reading Log</a> when finished.</p>
<b>Share</b>
(5 mins) In pairs, students will share a word they added to their Word Log during work time.
<b>Homework</b>
Students continue working on <a href="#">My Animal Watching Chart</a> and collecting evidence of animal life in their backyard and schoolyard habitat. Homework and observations will be shared on Day 5.

Adapted from McPeake, J. A., & Guthrie, J.T. (2007). Concept-Oriented Reading Instruction (CORI) Teacher Training Module Grades 3-5. College Park: Ellen Kaplan

### Lesson 3

Science or Shared Reading
<p><b>Emphasis:</b> Introduce core concepts: behavioral, physiological and structural adaptations</p> <p><b>Science Standard:</b> 5.4.1.1. Living things are diverse with many different characteristics that enable them to grow, reproduce and survive.  <b>Benchmark:</b> Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.</p>
<p><b>Motivation:</b> Collaboration -- Students interact socially by exchanging ideas.</p>
<p><b>Texts:</b> X</p>
<p><b>Additional Materials Needed:</b>  <a href="#">Plant and Animal Adaptation anchor chart</a> (same format as <a href="#">Types of Adaptations</a>).  <a href="#">Adaptation Formative Assessment</a></p>
<p><b>Overall Plan ( 30 mins):</b></p> <p>(15 mins) Review ideas presented in formative assessment. Show formative assessment options. Have students discuss what they answered and why. Share how their thinking may have already changed. Depending on students’ answers, plan more time for instruction or find support for the correct answer in class texts.</p> <p>(15 mins) Designate an area of the classroom for <a href="#">Plant and Animal Adaptation anchor chart</a>. Write “Plant and Animal Adaptations” at the top of the anchor chart. Introduce the core concepts of: behavioral, physiological and structural adaptations. Ask students to define each of the concepts (or provides definition if needed) and asks students to give a synonym, or key word, to help them remember each of the concepts (ie: a synonym for behavioral adaptations is “A behavior the plant/animal does”). Add the concept words to the <a href="#">Plant and Animal Adaptation anchor chart</a>.</p> <p>Ask students to connect the information they learned about animals (while observing or while reading) with each of the concepts. For example, as a class students discuss what they know about structural adaptations of plants and animals. Chart students’ knowledge about structural adaptations. Together with students, students choose important ideas and keywords to add to the concept map with student input. (Note: the class concept map will continue to build throughout weeks one and two as students gain new knowledge about each of the concepts.</p>

<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b> Asking questions about concepts
<b>Motivation:</b> Collaboration -- Students interact socially by reading in pairs
<b>Texts:</b> <i>iOpener: Supervivencia: Adaptaciones de los animales (iOpener: Survival: Animal Adaptations)</i> by Alice Cary
<b>Additional Materials Needed:</b> Plant and Animal Adaptation anchor chart (same format as <a href="#">Types of Adaptations</a> ).
<p><b>Overall Plan ( 15 mins):</b> Ask students to locate chapter “<i>Adaptación en el ártico: el oso polar</i>” in <i>iOpener: Supervivencia: Adaptaciones de los animales</i>. In groups, students use text features in chapter to activate background knowledge.</p> <p>Review the importance of asking questions before reading. Refer to Plant and Animal Adaptations anchor chart and reviews what students know about adaptations. As a class, students use background knowledge and text features in book to formulate new questions but plant and animal adaptations. Post two or three good questions that are likely to be answered in the section of the text.</p> <p>Read chapter “<i>Adaptación en el ártico: el oso polar</i>” aloud as students read quietly to themselves. Students discuss answers to posted questions about plant and animal adaptations. Students add new knowledge to concept map under the headings behavioral, physiological or structural adaptations.</p>
<b>Small Group Instruction</b>
<b>Emphasis:</b> Asking questions about concepts
<b>Motivation:</b> Collaboration -- teacher emphasizes reading together aloud in pairs
<p><b>Texts:</b>  <b>Grade Level:</b> <i>¿Cómo se adaptan los animales? (How do Animals Adapt?)</i> - Bobbie Kalman  <b>Below Grade Level:</b> <i>¿Por qué hay osos polares en la nieve y no hay flamencos? (Why Polar Bears Like Snow.. And Flamingos Don't)</i> -Nancy White</p>
<b>Additional Materials Needed:</b> <a href="#">My Questions about Plant and Animal Adaptations</a> .
<p><b>Overall Plan ( 20 mins/group):</b> Students work in pairs. Each pair chooses one concept (behavioral, physiological or structural adaptations). Student pairs activate background knowledge about plant and</p>

animal traits related to the concept (ie: structural - I know that animals have different fur depending on climate, I know that leopards have black stripes near their eyes to help shield from bright sun). Students use text features from the entire book *¿Cómo se adaptan los animales?* Or *¿Por qué hay osos polares en la nieve y no hay flamencos?* to help activate background knowledge about chose concept, if needed. Scaffold as student pairs formulate three new questions about plant and animal adaptations and their chosen concept (ie: How do plants and animals adapt to changing seasons? ) Students write questions on chart [My Questions about Plant and Animal Adaptations](#).

Pairs preview the rest of the book *¿Cómo se adaptan los animales?* Or *¿Por qué hay osos polares en la nieve y no hay flamencos?* and choose a chapter that would be useful for answering their questions. Student pairs read chapter together and discuss new knowledge and answers to questions.

### Extended Writing (Station while teacher does guided reading groups)

**Emphasis:** Expository Writing

**Motivation:** Choice -- self-selection of books  
Collaboration -- students will exchange ideas when product is finished  
Conceptual Theme -- connecting concepts or ideas within the theme

**Texts:** Raz Kids texts

**Additional Materials Needed:**  
[My Animal Adaptation Drawing](#)

**Overall Plan ( 20 mins):**  
Introduce [My Animal Adaptation Drawing](#). Students choose an animal of interest, read the corresponding book on Raz-Kids, and draw and label showing how the parts of the animal (structural adaptations) help it live. Final product will be shared in class on day 6.

### Independent Reading (Station while teacher does guided reading groups)

**Emphasis:** Narrative Reading

**Motivation:** Choice - Students increase ownership of reading by selecting text.

Suggested Fiction Texts:

Above Grade Level:

*El único e incomparable Iván (The One and Only Ivan)*

*El grillo en Times Square (The Cricket in Times Square)*

Grade Level:

<p style="text-align: center;"><i>Minusa (Runt),</i> <i>Stone Fox (Stone Fox)</i></p> <p><u>Below Grade Level:</u> <i>El árbol mágico (Magic Tree House series)</i> <i>Cachorritos (Puppy Palace series)</i></p> <p>Students may also: Read the CORI books Read other nonfiction books of interest Choose another text of their interest</p>
<p><b>Additional Materials Needed:</b> <a href="#">Independent Reading Log</a> <a href="#">Reading Log</a></p>
<p><b>Overall Plan ( 20 mins):</b> Introduce the <a href="#">Reading Response Journal</a>. This will be completed three days a week (Monday, Wednesday, Friday). Students meet with peers reading the same novel and share responses with each other the designated days.</p> <p>In addition, students will fill out independent <a href="#">Reading Log</a> when finished. This is something students complete each day.</p>

### Share

(5 mins) Share the animal chosen for Animal Adaptations Drawing and an interesting fact.

### Homework

Students continue working on [My Animal Watching Chart](#) and collecting evidence of animal life in their backyard and schoolyard habitat. Homework and observations will be shared on Day 5.

Adapted from McPeake, J. A., & Guthrie, J.T. (2007). Concept-Oriented Reading Instruction (CORI) Teacher Training Module Grades 3-5. College Park: Ellen Kaplan



## Lesson 4

<b>Science or Shared Reading</b>
<b>Emphasis:</b> Vocabulary, Fluency
<b>Motivation:</b> Conceptual theme -- connecting concepts or ideas within a theme. Choice-- students increase ownership by selecting words for Word Log.
<b>Texts:</b> <i>¿Qué harías con una cola como ésta?</i> (What do you do with a tail like this?) by Steve Jenkins and Robin Page
<b>Additional Materials Needed:</b> Student copies of a portion of the text <a href="#"><i>¿Qué harías con una cola como ésta?</i></a> <a href="#">Anchor Chart: Reading Fluently</a> <a href="#">Word Log</a>
<b>Overall Plan ( 35 mins):</b> (10 mins) Hand out portion of the text <a href="#"><i>¿Qué harías con una cola como ésta?</i></a> Read poem aloud to demonstrate expressive from non-expressive reading. Ask students to contrast the two readings. Introduce concept of intonation (rise and fall of pitch), how voice fluctuates when reading a question, and how expressive readers pause at a comma and period. Practice reading the poem expressively together. Emphasize the use of changing pitch with questions and to convey meaning.  (10 mins) Students work in pairs and choose a new poem of interest for expressive reading. Student pairs practice reading and rereading the poem with expression and attention to punctuation.  (15 mins) <a href="#">Word Log</a> . Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.
<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b> Asking higher level questions about concepts
<b>Motivation:</b> Success -- Students build confidence by sharing success in reading.
<b>Texts:</b> <i>Supervivencia: Adapaciones de los animales (iOpener: Survival: Animal Adaptations)</i> - Alice Cary
<b>Additional Materials Needed:</b> <a href="#">My Adaptations Notes</a> <a href="#">Anchor Chart: Level 1 and 2 Questions</a>
<b>Overall Plan ( 15 mins):</b>

Introduce [My Adaptations Notes](#). Goal is for students to complete chart by asking higher level questions about concepts. Introduce question Levels 1 and 2. Level 1 questions ask about simple facts and can be answered in one word. A Level 1 question would ask *Do all birds migrate in the winter?* Ask students to locate one or two examples of Level 1 questions posted in the classroom. Emphasize that these questions ask for a simple one word answer.

In contrast, Level 2 questions ask about concepts and are answered with an explanation. A Level 2 question asks *How do birds know where to migrate?* Point out that level 2 questions can be elaborated or extended with further explanations. Ask students to locate one or two examples of Level 2 questions in the classroom. Choose one question and model using several sections of text to answer question, show how answers can be extended. Emphasize that Level 2 question are answered with an explanation.

Note: If questions on class Curiosity Chart are written on sentence strips, students can remove questions and sort them on board under the headings Level 1 (facts) and Level 2 (concepts).

### Small Group Instruction

**Emphasis:** Asking higher level questions about concepts

**Motivation:** Success -- Students build confidence by sharing success in reading; teacher emphasizes using strategies to read well

**Texts:**

**Grade Level:** ¿Cómo se adaptan los animales? (How do Animals Adapt?) - Bobbie Kalman

**Below Grade Level:** ¿Por qué hay osos polares en la nieve y no hay flamencos? (Why Polar Bears Like Snow.. And Flamingos Don't) -Nancy White

**Additional Materials Needed:**

[My Adaptations Notes](#)

**Overall Plan ( 20 mins/group):**

**Grade level:** Students work in partners on days 4 and 5 to complete [My Adaptations Notes](#). Rotate and provides support in formulating Level 2 questions (ie: teacher supports students in re-writing Level 1 questions to Level 2 questions). Student pairs locate sections of text to answer their questions. Encourage students to locate additional sections of text to extend and elaborate answers. Student pairs read sections together and discuss new knowledge learned and answers to questions.

**Struggling Readers:** Students work together on days 4 and 5 to complete [My Adaptations Notes](#). As a group, support students as they write one Level 2 question

about structural adaptations and one Level 2 question about behavioral adaptations and add it to the chart. Help students locate sections of text to answer each question.

Guide and supports students as they read each section in pairs, or independently. Students discuss new knowledge learned from reading and answers to questions. Praise students for using strategies to learn “big ideas” about plant and animal adaptation.

### Extended Writing (Station while teacher does small group instruction)

**Emphasis:** Expository Writing

**Motivation:** Choice -- self-selection of books  
 Collaboration -- students will exchange ideas when product is finished  
 Conceptual Theme -- connecting concepts or ideas within the theme

**Texts:** Raz Kids texts

**Additional Materials Needed:**  
[My Animal Adaptation Drawing](#)

**Overall Plan (10 mins):**  
 Students continue [My Animal Adaptation Drawing](#) for Monday. Provide support and feedback.

### Independent Reading (Station while teacher does guided reading groups)

**Emphasis:** Narrative Reading

**Motivation:** Choice - Students increase ownership of reading by selecting text.

Suggested Fiction Texts:

Above Grade Level:

*El único e incomparable Iván (The One and Only Ivan)*

*El grillo en Times Square (The Cricket in Times Square)*

Grade Level:

*Minusa (Runt),*

*Stone Fox (Stone Fox)*

Below Grade Level:

*El árbol mágico (Magic Tree House series)*

*Cachorritos (Puppy Palace series)*

Students may also:

Read the CORI books

Read other nonfiction books of interest

Choose another text of their interest

**Additional Materials Needed:**

[Independent Reading Log](#)

[Reading Response Journal](#)

**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

**Share**

(5 mins) Students share what they've been reading for independent reading and whether they'd recommend it to a friend.

**Homework**

Reminds students to bring homework tomorrow (day 5).

Adapted from McPeake, J. A., & Guthrie, J.T. (2007). Concept-Oriented Reading Instruction (CORI) Teacher Training Module Grades 3-5. College Park: Ellen Kaplan

## Lesson 5

Science or Shared Reading
<b>Emphasis:</b> Vocabulary, Fluency, Grammar
<b>Motivation:</b> Conceptual theme -- connecting concepts or ideas within a theme. Choice-- students increase ownership by selecting words for Word Log.
<b>Texts:</b> <i>¿Qué harías con una cola como ésta?</i> ( <i>What do you do with a tail like this?</i> ) by Steve Jenkins and Robin Page
<b>Additional Materials Needed:</b> Student copies of a portion of the text <i>¿Qué harías con una cola como ésta?</i> Reading Fluency anchor chart Word Log
<p><b>Overall Plan ( 35 mins):</b> Model expressive reading in pairs using a portion of the text <i>¿Qué harías con una cola como ésta?</i> (teacher chooses one student in the class to be a “partner while reading”).</p> <p>(5 mins) Review anchor chart about reading fluency. Add to the anchor chart “emphasis on accent marks”. Model the difference between words like “ésta” and “está”, “harias” and “harías”. Briefly explains the importance of accent marks in Spanish.</p> <p>(5 mins) Teacher and student model together:</p> <ol style="list-style-type: none"> <li>1. Partners read the text expressively together (at same time).</li> <li>2. One person in the pair reads text aloud. Goal is for the reader to make the text sound interesting through use of expression, pause and accenting words.</li> <li>3. Listening partner tells reading partner one or two words in the text that were read most expressively. Goal for listening partner is to actively listen for words that were read with interesting expressing and used correct accented sound.</li> <li>4. Reading partner and listening partner switch roles</li> <li>5. Partners read text expressively together for a second time (at same time)</li> </ol> <p>(10 mins) Students work with partners to practice expressive reading in pairs as modeled and described above. Rotate to provide support.</p> <p>(15 mins) <b>Word Log.</b> Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.</p>

<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b> Asking higher level questions about concepts.
<b>Motivation:</b> Conceptual theme -- Students learn content by building a concept map to represent big ideas.
<b>Texts:</b> X
<b>Additional Materials Needed:</b> <a href="#">Plant and Animal Adaptations anchor chart</a> <a href="#">My Animal Watching Chart</a>
<b>Overall Plan (15 mins):</b> Students share homework assignment <a href="#">My Animal Watching Chart</a> . Students discuss interesting observations in groups. Explain that observing animals and reading information books help us to discover special traits animals have for survival in their habitat.  Briefly orient students to day's activities (students work on completing <a href="#">My Adaption Notes</a> ).
<b>Guided Reading &amp; Struggling Readers</b>
<b>Emphasis:</b> Asking higher level questions about concepts
<b>Motivation:</b> Success -- Students build confidence by sharing success in reading; Teacher emphasizes using strategies to read well
<b>Texts:</b> <b>Grade Level:</b> <i>¿Cómo se adaptan los animales? (How do Animals Adapt?)</i> - Bobbie Kalman <b>Below Grade Level:</b> <i>¿Por qué hay osos polares en la nieve y no hay flamencos? (Why Polar Bears Like Snow... And Flamingos Don't)</i> -Nancy White
<b>Additional Materials Needed:</b> <a href="#">My Adaptations Notes</a>
<b>Overall Plan ( 20 mins/group):</b> Students work in groups to complete <a href="#">My Adaptations Notes</a> . Rotate to provide support in formulating level 2 questions about behavioral and structural adaptations. Student pairs locate and read sections of text to answer questions.

<b>Extended Writing (Station while teacher does small group instruction)</b>
<b>Emphasis:</b> Expository Writing
<b>Motivation:</b> Choice -- self-selection of books Collaboration -- students will exchange ideas when product is finished Conceptual Theme -- connecting concepts or ideas within the theme
<b>Texts:</b> Raz Kids texts
<b>Additional Materials Needed:</b> <a href="#">My Animal Adaptation Drawing</a>
<b>Overall Plan (10 mins):</b> Students continue <a href="#">My Animal Adaptation Drawing</a> for Monday. Provide support and feedback.
<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative Reading
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
Suggested Fiction Texts: <u>Above Grade Level:</u> <i>El único e incomparable Iván (The One and Only Ivan)</i> <i>El grillo en Times Square (The Cricket in Times Square)</i> <u>Grade Level:</u> <i>Minusa (Runt),</i> <i>Stone Fox (Stone Fox)</i> <u>Below Grade Level:</u> <i>El árbol mágico (Magic Tree House series)</i> <i>Cachorritos (Puppy Palace series)</i> Students may also: Read the CORI books Read other nonfiction books of interest Choose another text of their interest
<b>Additional Materials Needed:</b> <a href="#">Independent Reading Log</a> <a href="#">Reading Response Journal</a>
<b>Overall Plan ( 20 mins):</b> Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

### Share

(5 mins) Students share a new idea they learned this week. Students may use notes to help them reflect.

### Homework

X

Adapted from McPeake, J. A., & Guthrie, J.T. (2007). *Concept-Oriented Reading Instruction (CORI) Teacher Training Module Grades 3-5*. College Park: Ellen Kaplan



## Lesson 6

Science Goals
<p><b>Emphasis:</b> Core concepts - Animal adaptations</p> <p><b>Science Standard:</b> 5.4.1.1. Living things are diverse with many different characteristics that enable them to grow, reproduce and survive.  <b>Benchmark:</b> Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.</p>
<p><b>Motivation:</b> Relevance -- hands-on or observational activities</p>
<p><b>Texts:</b> Raz-kids book, level R: <a href="#">Picos de aves extraños</a> (Strange Bird Beaks)</p>
<p><b>Additional Materials Needed:</b> Foods for birds to eat, beaks for kids to use (listed below)</p>
<p><b>Overall Plan (50 mins):</b>  Students will bring their <a href="#">My Animal Adaptation Drawing</a> to the carpet to share what they learned last week about plant and animal adaptations. Add new knowledge <a href="#">Plant and Animal Adaptation anchor chart</a>.</p> <p>Tell students that today we will be simulating some types of plant and animal adaptations with an exercise called bird beaks.</p> <p>Science simulation: Bird Beaks:</p> <ul style="list-style-type: none"> <li>• Create a bucket of "bird food". Dump all kinds of "food" into bucket - include a wide variety of shapes sizes and textures such as: sand, oats, rice, marshmallows, gummy worms, cereal, pasta, coconut, small candy.</li> <li>• Then provide each student with a beak tool. Ideas include: tongs, chopsticks, eye droppers, forks, pliers, tweezers, toothpicks, clothespins</li> <li>• With groups of 3-4 students at a time, let the students try to "eat" from the bucket of food with their respective beaks. They should try to gather as much food as they can in 1 minute. After the set amount of time has passed, spend some time looking around to see which beaks were able to pick up which foods. Continue until all students have had a chance to participate.</li> <li>• Guide student reflection; ask students why the eye dropper beak wasn't able to pick up the oatmeal, why the tongs weren't able to pick up the sand.</li> </ul> <p>Using a think-pair-share, ask student how they connect this simulation to what we are learning about animal adaptations.</p> <p>If time permits, finish by reading the portion of <a href="#">Picos de aves extraños</a> (Strange Bird Beaks)</p> <p>This idea was modified from:</p>

Hickland, K., (2011, February 2). *Adaptations: Bird Beaks - Version 1*. Retrieved from <http://science-mattersblog.blogspot.com/2011/02/adaptations-bird-beaks-version-1.html>

### Whole Group Reading Comprehension Instruction

**Emphasis:** Introduce project

**Motivation:** Collaboration -- arranging for productive and successful social interactions

**Texts:** X

**Additional Materials Needed:**

[Minnesota-Peru Adaptations Project](#) and [Notes for MN-Peru Project](#)

**Overall Plan (60 mins):**

Working with Peruvian school via Fulbright-Hays program, I will set up this time for the two classrooms to meet via Skype. We will explain that both classrooms have been studying plants and animal adaptations and ecosystems. As a culminating activity, Minnesota student pairs will be matched up with another pair of students from the classroom in Peru. Minnesota students will research and write about a Minnesota animal and its features that help it survive in this environment. Peruvian students will do the same with an animal that is native to their environment. After six days of preparation, students will present information they've learned about a Minnesota animal to their Peruvian counterparts. After listening to both presentations, students will make a double bubble map comparing and contrasting the two animals from the different environments.

After the Skype meeting, go over the expectations for the project using [Minnesota-Peru Adaptations Project](#) and [Notes for MN-Peru Project](#)

Students will pick from a list of Minnesota Animals they can research. Small groups this week will be by Minnesota animals to allow for collaboration and support.

This idea was modified from:

SciMathMN (n.d.). *5.4.1.1 Diversity: Vignette*. Retrieved from: <http://www.scimathmn.org/stemtc/frameworks/5411-diversity>

Small Group Instruction
<b>Emphasis:</b> Locating relevant information in text
<b>Motivation:</b> Conceptual theme; Collaboration
<b>Texts:</b> <b>According to animal being researched:</b> <ul style="list-style-type: none"> <li>• Ants, bats (available via Raz kids)</li> <li>• Hawks, bald eagle, frog, wolf, pig, bunnies, bear, ducks (School library)</li> </ul>
<b>Additional Materials Needed:</b> Post-its
<b>Overall Plan (20 mins/group):</b> Using the <a href="#">Notes for MN-Peru Project</a> , students will do a book walk with the book they'll use for this project. Students will mark with post its where information may be that will help them. The focus today is to read the materials and locate information, not necessarily to fill out the graphic organizer. Students will share-out information they found and where it is located.

Extended Writing (Station while teacher does guided reading groups)
<b>Emphasis:</b> Vocabulary
<b>Motivation:</b> Choice -- self-selection of books and vocabulary words Collaboration -- students will exchange ideas when product is finished Conceptual Theme -- connecting concepts or ideas within the theme
<b>Texts:</b> Student selected
<b>Additional Materials Needed:</b> <span style="color: red;">Word Log</span>
<b>Overall Plan (20 mins):</b> <span style="color: red;">Word Log.</span> Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.  Additionally, students will use this time to explore books for Minnesota animal research project so that tomorrow they can begin writing.

<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative Reading
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
<p>Suggested Fiction Texts:</p> <p style="padding-left: 40px;"><u>Above Grade Level:</u>  <i>El único e incomparable Iván (The One and Only Ivan)</i>  <i>El grillo en Times Square (The Cricket in Times Square)</i></p> <p style="padding-left: 40px;"><u>Grade Level:</u>  <i>Minusa (Runt),</i>  <i>Stone Fox (Stone Fox)</i></p> <p style="padding-left: 40px;"><u>Below Grade Level:</u>  <i>El árbol mágico (Magic Tree House series)</i>  <i>Cachorritos (Puppy Palace series)</i></p> <p>Students may also:</p> <ul style="list-style-type: none"> <li>Read the CORI books</li> <li>Read other nonfiction books of interest</li> <li>Choose another text of their interest</li> </ul>
<p><b>Additional Materials Needed:</b></p> <p><a href="#">Independent Reading Log</a>  <a href="#">Reading Response Journal</a></p>
<p><b>Overall Plan ( 20 mins):</b></p> <p>Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.</p> <p>Each day students will fill out independent <a href="#">Reading Log</a> when finished.</p> <p>In addition on Monday, Wednesday and Friday, students will complete a <a href="#">Reading Response Journal</a>. Students meet with peers reading the same novel and share responses with each other the designated days.</p>
<b>Share</b>
(5 mins) Students will share which Minnesota animal they will research and one interesting fact they've learned so far.

## Lesson 7

<b>Science or Shared Reading</b>
<b>Emphasis:</b> Vocabulary, Fluency, Grammar
<b>Motivation:</b> Conceptual theme -- connecting concepts or ideas within a theme. Choice-- students increase ownership by selecting words for Word Log. Success- realistic goal setting for texts
<b>Additional Materials Needed:</b> Student copies of a portion of the text <i>¿Qué harías con una cola como ésta?</i> <a href="#">Reading Fluency anchor chart</a> <a href="#">Word Log</a>
<b>Overall Plan (35 mins):</b> Model expressive reading in pairs using a portion of the text <i>¿Qué harías con una cola como ésta?</i>  (5 mins) Review anchor chart about reading fluency. Add to the anchor chart “pause at commas”. With students, circle commas in shared text. Explain how commas are used in a series and after a dependent clause.  (10 mins) Give students a copy of the shared text without commas. Students work alone or in pairs to place commas in series and after a dependent clause.  (5 mins) Students work with partners to practice expressive reading in pairs as modeled and described above. Rotate to provide support. Remind students to pause at commas.  (15 mins) <b>Word Log.</b> Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.
<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b> Paraphrasing, Summarizing
<b>Motivation:</b> Success -- realistic goal setting or texts and tasks
<b>Texts:</b> <i>Cómo se adaptan los animales</i> (How Animals Adapt) - B.Kallman
<b>Additional Materials Needed:</b> <a href="#">Key Word Notes anchor chart</a> <a href="#">Key Word Notes</a>
<b>Overall Plan (15 mins):</b>

Explain to students that today we will learn about paraphrasing. Explain what paraphrasing means. Ask students why it is important.

One way we can ensure we are plagiarizing is by taking notes that don't copy directly from the text. One strategy is called "Key Word Notes". The Key Word Notes come from the National Urban Alliance and this strategy allows students to restate information from readings and lectures in their own words to increase comprehension and retention.

Model the following steps. They are also listed on [Key Word Notes anchor chart](#).

Students make a chart of boxes (see [Key Word Notes](#) student sheet) in their notebooks.

- The teacher divides the reading into four sections.
- Students read the first section of text and then stop to reflect. Ask the question, "Which word/s will help you remember this information?" Modeling of how to determine "most important ideas" is crucial for all students.
- During reflection, students discuss the reading with a partner or base group.
- After reflection and/or discussion, students write just a few words in the appropriate box. Each student selects 1–2 words as memory aides, and writes them in box 1. Alternatively, students could write the keywords first and then discuss with a partner about why they wrote those specific words.
- Students repeat the process with the next three sections until the top four boxes all have key words noted in them.
- Then in the bottom box students write a summary sentence (two at the most) about what they learned in the reading. Students may or may not incorporate the keywords from the top boxes in this sentence.

Adapted from: National Urban Alliance. (n.d.). Retrieved from [http://nuatc.org/old\\_site/projects/greene\\_county/institute\\_files/STRATEGY%20-%20Key%20Word%20Notes.pdf](http://nuatc.org/old_site/projects/greene_county/institute_files/STRATEGY%20-%20Key%20Word%20Notes.pdf)

### Small Group Instruction

**Emphasis:** Paraphrasing, Summarizing

**Motivation:** Success -- realistic goal setting or texts and tasks  
 Collaboration -- reading in partners or small groups  
 Choice -- student input into topics

**Texts:**

**According to animal being researched:**

- Ants, bats (available via Raz kids)
- Hawks, bald eagle, frog, wolf, pig, bunny, bear, ducks (School library)

**Additional Materials Needed:**[Key Word Notes anchor chart](#)[Key Word Notes](#)**Overall Plan (15 mins/group):**

Students will use the Key Word Notes strategy to read about one type of adaptation of the chosen MN animal.

Review the strategy with students, help divide the selection in four parts and guide students as they reach the end of the first section and negotiate the key words. Provide additional support as needed. Today students may feel most comfortable doing this in pairs.

**Extended Writing (Station while teacher does small group instruction)**

**Emphasis:** Paraphrasing, Summarizing, Vocabulary

**Motivation:** Success -- realistic goal setting or texts and tasks

Collaboration -- reading in partners or small groups

Choice -- student input into topics

**Texts:****According to animal being researched:**

- Ants, bats (available via Raz kids)
- Hawks, bald eagle, frog, wolf, pig, bunny, bear, ducks (School library)

**Additional Materials Needed:**[Key Word Notes](#)[Word Log](#)**Overall Plan (20mins):**

**Word Log.** Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.

Students will continue key word notes to research Minnesota animal. This information will be used to write paragraphs for the Skype project with Peruvian partners. Students should finish reading and notetaking about at least one animal adaptation today (behavioral, physiological, structural)

<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative Reading
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
<p>Suggested Fiction Texts:</p> <p style="padding-left: 40px;"><u>Above Grade Level:</u>  <i>El único e incomparable Iván (The One and Only Ivan)</i>  <i>El grillo en Times Square (The Cricket in Times Square)</i></p> <p style="padding-left: 40px;"><u>Grade Level:</u>  <i>Minusa (Runt),</i>  <i>Stone Fox (Stone Fox)</i></p> <p style="padding-left: 40px;"><u>Below Grade Level:</u>  <i>El árbol mágico (Magic Tree House series)</i>  <i>Cachorritos (Puppy Palace series)</i></p> <p>Students may also:</p> <ul style="list-style-type: none"> <li>Read the CORI books</li> <li>Read other nonfiction books of interest</li> <li>Choose another text of their interest</li> </ul>
<p><b>Additional Materials Needed:</b>  <a href="#">Independent Reading Log</a>  <a href="#">Reading Response Journal</a></p>
<p><b>Overall Plan ( 20 mins):</b>  Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.</p> <p>Each day students will fill out independent <a href="#">Reading Log</a> when finished.</p> <p>In addition on Monday, Wednesday and Friday, students will complete a <a href="#">Reading Response Journal</a>. Students meet with peers reading the same novel and share responses with each other the designated days.</p>
<b>Share</b>
(5 mins) In pairs or trios, students share what it was like to use Key Word Notes. What was successful? What was difficult?



## Lesson 8

<b>Science or Shared Reading</b>
<b>Emphasis:</b> Vocabulary, Fluency, Grammar
<b>Motivation:</b> Conceptual theme -- connecting concepts or ideas within a theme. Choice-- students increase ownership by selecting words for Word Log. Success- realistic goal setting for texts
<b>Additional Materials Needed:</b> Student copies of a portion of the text <i>¿Qué harías con una cola como ésta?</i> <a href="#">Reading Fluency anchor chart</a> <a href="#">Word Log</a>
<b>Overall Plan (35 mins):</b> Model expressive reading in pairs using a portion of the text <i>¿Qué harías con una cola como ésta?</i>  (5 mins) Review anchor chart about reading fluency. Add to the anchor chart “annunciate written accent marks”. With students circle words with written accent marks like <i>árbol, murciélago, hipopótamo</i> in shared text. Explain how written accent marks should always be annunciated and are imperative to proper Spanish pronunciation.  (10 mins) Students work with partners to practice expressive reading in pairs as modeled and described above. Rotate to provide support. Remind students to incorporate all the skills reviewed so far: correct stress on words like “ésta” and “está”, pause at commas, annunciate accent marks.  (15 mins) <b>Word Log.</b> Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.
<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b> Paraphrasing, Summarizing
<b>Motivation:</b> Success -- realistic goal setting or texts and tasks
<b>Texts:</b> <i>Cómo se adaptan los animales</i> (How Animals Adapt) - B.Kallman
<b>Additional Materials Needed:</b> <a href="#">Key Word Notes anchor chart</a> <a href="#">Key Word Notes</a>

**Overall Plan (15 mins):**

Today we are going to continue with the idea of paraphrasing and taking notes, but I want to point on one very important source of information we often overlook: text features. I want you to put the information from the running text together with the information from the various features you encounter - photographs, captions, diagrams, etc.

First, scan to see what's included on the page. Go from left to right studying all the features to make sure you understand what they're showing.

Then, read and study all the features. Use one of your boxes on the keyword notes sheet to remember important information you've learned from the text features.

It is important to study these text features because they reinforce big ideas in the running text. They often rephrase those same big ideas in ways that are easier to understand. For this reason, we want to include these ideas in our Key Word Notes.

To review, today we are going to continue with Key Word Notes, this time including text features. We will use one of the four boxes to remember important information you've learned from the text features.

Model this strategy with pages from *Cómo se adaptan los animales* (How Animals Adapt)

Adapted from:

Seravallo, J. (2015). Integrate features and running text. *The Reading Strategies Book: Your everything guide to developing skilled readers* (p. 286). Portsmouth, Heinemann

### Small Group Instruction

**Emphasis:** Paraphrasing, Summarizing

**Motivation:** Success -- realistic goal setting or texts and tasks  
 Collaboration -- reading in partners or small groups  
 Choice -- student input into topics

**Texts:**

**According to animal being researched:**

- Ants, bats (available via Raz kids)
- Hawks, bald eagle, frog, wolf, pig, bunny, bear, ducks (School library)

**Additional Materials Needed:**

[Key Word Notes anchor chart](#)

[Key Word Notes](#)

**Overall Plan (15 mins/group):**

Students will use the Key Word Notes strategy to read about one type of adaptation of the chosen MN animal. This is a continuation of yesterday's lesson, this time being conscientious of the information we can use from text features.

Review the strategy with students, help divide the selection in four parts (text feature and three other parts) and guide students as they reach the end of the first section and negotiate the key words. Provide additional support as needed. Today students may feel most comfortable doing this in pairs.

**Extended Writing (Station while teacher does small group instruction)**

**Emphasis:** Paraphrasing, Summarizing

**Motivation:** Success -- realistic goal setting or texts and tasks  
 Collaboration -- reading in partners or small groups  
 Choice -- student input into topics

**Texts:****According to animal being researched:**

- Ants, bats (available via Raz kids)
- Hawks, bald eagle, frog, wolf, pig, bunny, bear, ducks (School library)

**Additional Materials Needed:**

[Key Word Notes](#)

[Word Log](#)

**Overall Plan (20mins):**

**Word Log.** Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.

Students will continue key word notes to research Minnesota animal. This information will be used to write paragraphs for the Skype project with Peruvian partners. Students should finish reading and notetaking about the second animal adaptation today (behavioral, physiological, structural)

<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative Reading
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
<p>Suggested Fiction Texts:</p> <p style="padding-left: 40px;"><u>Above Grade Level:</u>  <i>El único e incomparable Iván (The One and Only Ivan)</i>  <i>El grillo en Times Square (The Cricket in Times Square)</i></p> <p style="padding-left: 40px;"><u>Grade Level:</u>  <i>Minusa (Runt),</i>  <i>Stone Fox (Stone Fox)</i></p> <p style="padding-left: 40px;"><u>Below Grade Level:</u>  <i>El árbol mágico (Magic Tree House series)</i>  <i>Cachorritos (Puppy Palace series)</i></p> <p>Students may also:</p> <ul style="list-style-type: none"> <li>Read the CORI books</li> <li>Read other nonfiction books of interest</li> <li>Choose another text of their interest</li> </ul>
<p><b>Additional Materials Needed:</b></p> <p><a href="#">Independent Reading Log</a>  <a href="#">Reading Response Journal</a></p>
<p><b>Overall Plan ( 20 mins):</b></p> <p>Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.</p> <p>Each day students will fill out independent <a href="#">Reading Log</a> when finished.</p> <p>In addition on Monday, Wednesday and Friday, students will complete a <a href="#">Reading Response Journal</a>. Students meet with peers reading the same novel and share responses with each other the designated days.</p>

<b>Share</b>
(5 mins) Whole class conversation about what students learned from text features. Any ah-ha moments? What was difficult? What as helpful?

## Lesson 9

Science or Shared Reading
<p><b>Emphasis:</b> Core concept - adaptations, camouflage</p> <p><b>Science Standard:</b> 5.4.1.1. Living things are diverse with many different characteristics that enable them to grow, reproduce and survive.</p> <p><b>Benchmark:</b> Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.</p>
<p><b>Motivation:</b> Relevance -- hands-on or observational activities</p>
<p><b>Texts:</b> X</p>
<p><b>Additional Materials Needed:</b>            Teacher guide: Science Buddies (2013, November 7). <i>Survival Science: Hunting M&amp;Ms Candies</i>. Retrieved from <a href="http://www.scientificamerican.com/article/bring-science-home-hunting-candy/">http://www.scientificamerican.com/article/bring-science-home-hunting-candy/</a></p>
<p><b>Overall Plan (50 mins):</b></p> <p><u>Opener:</u> Find pictures of different camouflaged animals, such as a katydid that looks like a leaf on a tree branch or an octopus that is blending in with its surroundings. After finding several pictures of different camouflaged animals, show them to some volunteers and time how long it takes the volunteers to spot each animal. Do some camouflage techniques work better than others, causing the volunteers to take longer to spot the animal?</p> <p><u>Explanation:</u> A common way that animals can avoid being eaten by a predator is by using an adaptation called camouflage, which is a set of colorings or markings on an animal that help it to blend in with its surroundings, or habitat, and prevent it from being recognized as potential prey. This increases its chance for survival. Different animals need to adapt to different habitats, and animals adapt in all kinds of interesting ways using camouflage.</p> <p><u>Materials</u></p> <ul style="list-style-type: none"> <li>• Six plastic bags</li> <li>• Plain M&amp;Ms, at least 10 of each color (At least two 1.69-ounce packages may be needed.)</li> <li>• Skittles, at least 60 of each color (At least one 16-ounce package may be needed.)</li> <li>• Metal pie tin or sturdy paper plate</li> <li>• Timer or stopwatch</li> <li>• Two to four volunteer "predators" who are up for devouring some M&amp;Ms</li> </ul>

### Preparation

- Count and place 10 M&Ms of each color into a plastic bag. This means you should have one plastic bag with 10 yellow, 10 blue, 10 green, 10 brown, 10 red and 10 orange M&Ms candies in it (making a total of 60 candies in the bag).
- Count and place 60 Skittles of each color into their own bags (making five separate bags each containing a separate color). This means you should have one plastic bag with 60 orange Skittles, one with 60 yellow candies, one with 60 green candies, one with 60 red candies and one with 60 purple Skittles. If you are short on time, you can skip preparing one or two of these bags.

### Procedure

- Explain to your two to four volunteer "predators" that they should pretend to be hungry M&Ms-feasting birds. They should make a "beak" using their pointer finger and thumb for collecting M&Ms. Explain that they'll have 20 seconds to use their beaks to quickly pick up M&Ms and put them in their other hand. To encourage the volunteers to be fast, tell them that when they are done with the activity, they can eat the same number of candies as they picked up. But they should not eat the candies until you are done with the activity.
- Also tell the volunteers that they should avoid picking up any Skittles candies, because Skittles make the M&Ms birds sick. The M&Ms are their prey, and the Skittles represent the habitat in which the M&Ms live—and try to use as camouflage. How do you think the Skittles habitat will work to camouflage the different colored M&Ms prey?
- After explaining these rules, pour one prepared bag of Skittles into a metal pie tin or sturdy paper plate. Mix in the prepared bag of M&Ms. Put the pie tin in the middle of your group of M&Ms bird volunteers. Make sure everyone can reach the pie tin. Which M&Ms are the best camouflaged in your pie tin?
- Set your timer for 20 seconds. Say "Go!" and start the timer. When the timer beeps, make sure everyone stops picking up M&Ms.
- Count the number of each M&Ms color that each person collected. Also count any Skittles that were picked up. Which M&M color was the least-picked one? What do you think this has to do with camouflage?
- Put all of the M&Ms back in the bag you prepared them in (including M&Ms that people picked). Remove the Skittles you used for the habitat (by pouring them off the pie tin).
- Repeat the 20-second M&M hunt with the other prepared bags of Skittles until you have tested each Skittles habitat (separately) with the M&Ms.

Whole group reflection: Can you explain what this has to do with camouflage? Animal adaptations? How difficult was it as a predator? What were you feeling when you were in the moment trying to catch your prey? Were you surprised by the results?

This idea is from:

Science Buddies (2013, November 7). *Survival Science: Hunting M&Ms Candies*.

Retrieved from <http://www.scientificamerican.com/article/bring-science-home-hunting-candy/>

Whole Group Reading Comprehension Instruction
<b>Emphasis:</b> Paragraph writing
<b>Motivation:</b> Success --students' recognition of their own content knowledge and expertise
<b>Texts:</b> <i>Cómo se adaptan los animales</i> (How Animals Adapt) - B.Kallman
<b>Additional Materials Needed:</b> <a href="#">Paragraph Writing anchor chart</a>
<p><b>Overall Plan (20 mins):</b> Today we are going to take our keyword notes and use them to write paragraphs. Let's begin by reviewing what you know about paragraphs. Facilitate a think-pair-share about paragraphs.</p> <p>Review <a href="#">Paragraph Writing anchor chart</a> to outline expectations. Introduce the idea of a topic sentence and concluding sentences (this will likely be new), and reviews supporting sentences.</p> <p>Show an example of a well-written paragraph with the elements outlined above. Together with students, label the topic sentence, supporting sentences and concluding sentences.</p> <p>Give students another example of a well-written paragraph. This time, by themselves, they have to label the topic sentence, supporting sentences and concluding sentences.</p>
Small Group Instruction
<b>Emphasis:</b> Paragraph writing
<b>Motivation:</b> Success -- realistic goal setting for texts and tasks.
<p><b>Texts:</b></p> <p><b>According to animal being researched:</b></p> <ul style="list-style-type: none"> <li>• Ants, bats (available via Raz kids)</li> <li>• Hawks, bald eagle, frog, wolf, pig, bunnies, bear, ducks (School library)</li> </ul>
<b>Additional Materials Needed:</b> <a href="#">Key Word Notes</a> <a href="#">Paragraph Writing anchor chart</a>
<b>Overall Plan (15 mins/group):</b>

Using the information collected on key word notes, guide students to write a paragraph that includes a topic sentences, supporting sentences and concluding sentences. This paragraph will be used for the Skype project.

### Extended Writing (Station while teacher does small group instruction)

**Emphasis:** Paragraph writing

**Motivation:** Success -- realistic goal setting for texts and tasks.

**Texts:**

**According to animal being researched:**

- Ants, bats (available via Raz kids)
- Hawks, bald eagle, frog, wolf, pig, bunnies, bear, ducks (School library)

**Additional Materials Needed:**

[Key Word Notes](#)

[Paragraph Writing anchor chart](#)

[Word Log](#)

**Overall Plan (20 mins):**

[Word Log](#). Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.

Using the information collected on key word notes, students will write the second paragraph for their Minnesota Animal Adaptations project. The students will use the same process taught during small group instruction. Students will share their paragraph during tomorrow's small group instruction.

### Independent Reading (Station while teacher does guided reading groups)

**Emphasis:** Narrative Reading

**Motivation:** Choice - Students increase ownership of reading by selecting text.

Suggested Fiction Texts:

Above Grade Level:

*El único e incomparable Iván (The One and Only Ivan)*

*El grillo en Times Square (The Cricket in Times Square)*

Grade Level:

*Minusa (Runt),*

*Stone Fox (Stone Fox)*



**Below Grade Level:**

*El árbol mágico (Magic Tree House series)*

*Cachorritos (Puppy Palace series)*

Students may also:

Read the CORI books

Read other nonfiction books of interest

Choose another text of their interest

**Additional Materials Needed:**

[Independent Reading Log](#)

[Reading Response Journal](#)

**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

**Share**

(5 mins) Whole class conversation about paragraph writing. What was difficult? What as helpful?

## Lesson 10

<b>Science or Shared Reading</b>
<b>Emphasis:</b> Communication, Technology tools
<b>Motivation:</b> Relevance -- setting real world purposes for reading and writing Collaboration -- Reading and writing in partners or small groups.
<b>Texts:</b> X
<b>Additional Materials Needed:</b> Skype, iPads, Internet connection
<p><b>Overall Plan (30-40 mins):</b> Students will receive their assignment of who they will be Skyping with from our Peruvian partner classroom.</p> <p>Today, students will practice connecting with their partners via Skype as a way to troubleshoot in advance of the final project. Students will also get acquainted with their partner by asking them questions about their family and interests. Rotate and assist students during this time.</p> <p>Conduct a large-group de-brief of questions and comments.</p>
<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b> Paragraph writing, transition words
<b>Motivation:</b> Success --students' recognition of their own content knowledge and expertise
<b>Texts:</b> <i>Cómo se adaptan los animales</i> (How Animals Adapt) - B.Kallman
<b>Additional Materials Needed:</b> <a href="#">Paragraph Writing anchor chart</a>
<p><b>Overall Plan ( 15 mins):</b> Today we are going to continue talking about paragraph writing. In addition to topic sentence, supporting sentences and concluding sentences we need to use transitional words. The use of transitional words to help the reader follow the ideas. What are some transitional words you know of? Add a list of transitional words to <a href="#">Paragraph Writing anchor chart</a>.</p> <p>Model how transition words can be added to an existing paragraph. Remind students that they should not over use transition words nor repeat the same transition word more than once.</p>

Give students another example of a well-written paragraph. This time, by themselves, students should add 1-2 transition words. Share out ideas in large group.

### Small Group Instruction

**Emphasis:** Paragraph writing

**Motivation:** Success -- realistic goal setting for texts and tasks.

**Texts:**

**According to animal being researched:**

- Ants, bats (available via Raz kids)
- Hawks, bald eagle, frog, wolf, pig, bunnies, bear, ducks (School library)

**Additional Materials Needed:**

[Key Word Notes](#)

[Paragraph Writing anchor chart](#)

**Overall Plan ( 15 mins/group):**

Students will share the paragraph written yesterday during independent writing time. Highlight good writing techniques. Students are encouraged to include these elements in their own paragraphs.

After editing their second paragraph, students will add in transition words. Students should share where they placed transition words and what transition words they used.

### Extended Writing (Station while teacher does small group instruction)

**Emphasis:** Paragraph writing

**Motivation:** Success -- realistic goal setting for texts and tasks.

**Texts:**

**According to animal being researched:**

- Ants, bats (available via Raz kids)
- Hawks, bald eagle, frog, wolf, pig, bunnies, bear, ducks (School library)

**Additional Materials Needed:**

[Key Word Notes](#)

[Paragraph Writing anchor chart](#)

**Overall Plan (20 mins):**

Using the information collected on key word notes, students will write the third paragraph for their Minnesota Animal Adaptations project. The students will use the

same process taught during small group instruction, along with transition words. Students will share their paragraph during tomorrow's small group instruction.

### Independent Reading (Station while teacher does guided reading groups)

**Emphasis:** Narrative Reading

**Motivation:** Choice - Students increase ownership of reading by selecting text.

Suggested Fiction Texts:

Above Grade Level:

*El único e incomparable Iván (The One and Only Ivan)*

*El grillo en Times Square (The Cricket in Times Square)*

Grade Level:

*Minusa (Runt),*

*Stone Fox (Stone Fox)*

Below Grade Level:

*El árbol mágico (Magic Tree House series)*

*Cachorritos (Puppy Palace series)*

Students may also:

Read the CORI books

Read other nonfiction books of interest

Choose another text of their interest

**Additional Materials Needed:**

[Independent Reading Log](#)

[Reading Response Journal](#)

**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

### Share

(5 mins) Students share in pairs and whole group about how they feel about Skyping with their Peruvian partner. How does this excitement affect the research and writing their doing in preparation?

## Lesson 11

<b>Science or Shared Reading</b>
<b>Emphasis:</b> Vocabulary, Fluency, Grammar
<b>Motivation:</b> Success -- realistic goal setting for texts Collaboration -- reading in partners or small groups
<b>Additional Materials Needed:</b> Student copies of a portion of the text <i>¿Qué harías con una cola como ésta?</i> <a href="#">Reading Fluency anchor chart</a>
<b>Additional Materials Needed:</b> Skype, iPads, Internet connection
<b>Overall Plan (30 mins):</b> Since the students will be communicating via Skype in their second language to native Spanish speakers, it is important that students do their best to communicate clearly and slowly.  We will begin by talking about being empathic listeners to our partners who will likely give their report to us in English, their second language. If we can't understand them, what can we do to politely and specifically ask them to communicate more clearly? (speak slowly, enunciate, get closer to the microphone, etc). Tell students that these are the same things that we need to practice.  In partners, students will practice talking to each other via Skype employing those strategies: speak slowly, enunciate, get closer to the microphone. Students should practice using the shared reading <i>¿Qué harías con una cola como ésta?</i>
<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b> Reading from an outline, using visuals to support ideas
<b>Motivation:</b> Relevance - connecting reading and writing to experience
<b>Texts:</b> X
<b>Additional Materials Needed:</b> X
<b>Overall Plan ( 15 mins):</b> When students Skype with their partner tomorrow, they should support their research with a visual of the animal and animal adaptations they are describing. Guide students to brainstorm what they might use as a visual support. Students will have time to prepare this during independent writing time today.

Additionally, remind students that they should not read word-for-word from their 3 paragraphs when presenting their research tomorrow. Show students how to annotate their writing using highlighters to remind themselves to look up at the camera, and pause so their partner can take notes on their double bubble map.

If possible students should create an outline of the major ideas so they're reading minimally from their paragraphs.

### Small Group Instruction

**Emphasis:** Reading from an outline, using visuals to support ideas

**Motivation:** Relevance - connecting reading and writing to experience

**Texts:**

**According to animal being researched:**

- Ants, bats (available via Raz kids)
- Hawks, bald eagle, frog, wolf, pig, bunnies, bear, ducks (School library)

**Additional Materials Needed:**

Students' 3 paragraphs about Minnesota Animal Adaptations  
Highlighters

**Overall Plan (15 mins/group):**

Guide students in annotating and highlighting their writing to remind themselves to look up at the camera, and pause so their partner can take notes on their double bubble map.

Show students how to pause and highlight key words in first paragraph. In pairs, students determine where to pause and keywords in second paragraph. Individually, students will determine where to pause and keywords in third paragraph.

### Extended Writing (Station while teacher does small group instruction)

**Emphasis:** Using visuals to support ideas

**Motivation:** Relevance - connecting reading and writing to experience

**Texts:** X

**Additional Materials Needed:** X

**Overall Plan ( 20 mins):**

Students use an iPad application or art supplies to create a visual of the animal and animal adaptations they are describing.

### Independent Reading (Station while teacher does guided reading groups)

**Emphasis:** Narrative Reading

**Motivation:** Choice - Students increase ownership of reading by selecting text.

Suggested Fiction Texts:

Above Grade Level:

*El único e incomparable Iván (The One and Only Ivan)*

*El grillo en Times Square (The Cricket in Times Square)*

Grade Level:

*Minusa (Runt),*

*Stone Fox (Stone Fox)*

Below Grade Level:

*El árbol mágico (Magic Tree House series)*

*Cachorritos (Puppy Palace series)*

Students may also:

Read the CORI books

Read other nonfiction books of interest

Choose another text of their interest

**Additional Materials Needed:**

[Independent Reading Log](#)

[Reading Response Journal](#)

**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

**Share**

(5 mins) In pairs and whole group, students will share the visual they will use for tomorrow's Skype activity.

## Lesson 12

<b>Science or Shared Reading</b>
<p><b>Emphasis:</b> Core concept- animal adaptations</p> <p><b>Science Standard:</b> 5.4.1.1. Living things are diverse with many different characteristics that enable them to grow, reproduce and survive.  <b>Benchmark:</b> Describe how plant and animal structures and their functions provide an advantage for survival in a given natural system.</p>
<p><b>Motivation:</b> Relevance -- hands-on or observational activities  Conceptual theme -- connecting concepts or ideas within the theme</p>
<p><b>Texts:</b> X</p>
<p><b>Additional Materials Needed:</b>  Students' 3 paragraphs on Minnesota Animal Adaptations  Students' visual representation of Minnesota animal  Skype  iPads  Internet connection</p>
<p><b>Overall Plan ( 50 mins):</b>  Students will skype with their Peruvian partners about animal adaptations. While their partner is presenting, students will take notes on double bubble map. With extra time, students will complete the rest of the double bubble map about their MN animal and its commonalities with a Peruvian animal.</p>
<b>Whole Group Reading Comprehension Instruction</b>
<p><b>Emphasis:</b> Animal Adaptations Skype project</p>
<p><b>Motivation:</b> Relevance -- hands-on or observational activities  Conceptual theme -- connecting concepts or ideas within the theme  Collaboration -- arranging for productive and successful social interactions</p>
<p><b>Texts:</b> X</p>
<p><b>Additional Materials Needed:</b> X</p>
<p><b>Overall Plan ( 15 mins):</b>  Lead a large-group discussion about how Skype presentation went.</p>



<b>Small Group Instruction</b>
<b>Emphasis:</b>
<b>Motivation:</b> Relevance -- hands-on or observational activities Conceptual theme -- connecting concepts or ideas within the theme Collaboration -- reading in partners or small groups
<b>Texts:</b> X
<b>Additional Materials Needed:</b> Students' double bubble maps
<b>Overall Plan ( 15 mins/group):</b> Students will share their double bubble maps and their learnings about animals from Peru with group-mates.

<b>Extended Writing (Station while teacher does small group instruction)</b>
<b>Emphasis:</b> Vocabulary, Formative assessment
<b>Motivation:</b> Choice -- student selection of vocabulary words Conceptual Theme -- connecting concepts within the theme
<b>Texts:</b> X
<b>Additional Materials Needed:</b> <b>Word Log</b>
<b>Overall Plan (25 mins):</b>  (15 mins) <b>Word Log.</b> Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.  (10 mins) Formative assessment about animal adaptations. In your notebook, answer the following question: <i>How do plant and animal structures and their functions provide an advantage for survival?</i>

<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative Reading
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
Suggested Fiction Texts:

Above Grade Level:

*El único e incomparable Iván (The One and Only Ivan)*  
*El grillo en Times Square (The Cricket in Times Square)*

Grade Level:

*Minusa (Runt),*  
*Stone Fox (Stone Fox)*

Below Grade Level:

*El árbol mágico (Magic Tree House series)*  
*Cachorritos (Puppy Palace series)*

Students may also:

- Read the CORI books
- Read other nonfiction books of interest
- Choose another text of their interest

**Additional Materials Needed:**

[Independent Reading Log](#)  
[Reading Response Journal](#)

**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

**Share**

(5 mins) In large group, students share something they learned about animal adaptations from today's Skype activity.

APPENDIX J  
Lessons 13-24. Subtopic 2

## Lesson 13

Science or Shared Reading
<p><b>Emphasis:</b> Habitat walk, observations, questioning</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p><b>Benchmark:</b> Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs.</p>
<p><b>Motivation:</b> Relevance -- Students build interest through experience or observation</p>
<p><b>Texts:</b> Selection of CORI books on subtopic of ecosystems</p>
<p><b>Additional Materials needed:</b>            Handout - <a href="#">Wetlands: Living and Nonliving Parts of an Ecosystem</a> (All handouts and worksheets for subtopic 2 are located in Appendix K)  <a href="#">Curiosity Chart</a>            Sentence strips</p>
<p><b>Overall Plan (55 mins):</b></p> <ol style="list-style-type: none"> <li>1. Group students in teams of 4. Provide each team with a selection of 4-5 CORI books to preview and browse about the new subtopic of ecosystems. Student teams discuss interesting illustrations with each other and share background knowledge about wetland animals to prepare for a walk to Staring Lake, near the school grounds. Ask students to share interesting things they know about wetland animals with the class.</li> <li>2. Before walk (5 min): Introduce hand out <a href="#">Wetlands: Living and Nonliving Parts of an Ecosystem</a> and discuss the two columns for recording observations. Model how to use the chart by providing an example for each column.</li> <li>3. During Walk (35 min): Students observe the ecosystem in teams, discussing what they see. Each student completes the handout <a href="#">Wetlands: Living and Nonliving Parts of an Ecosystem</a>, writing two questions they have about wetland animals on the bottom of chart. With iPad, have teams take pictures and/or video of living and nonliving parts of the ecosystem.</li> <li>4. After walk (15 min): Students discuss observations in small groups. Ask students to share questions they have about wetland animals from the bottom of <a href="#">Wetlands: Living and Nonliving Parts of an Ecosystem</a> handout. Write 2 or 3 good questions on sentence strips and adds to class <a href="#">Curiosity Chart</a>.</li> <li>5. Ask students to name living things they saw during the habitat walk. List the names of the living things on the board under the heading <i>Living parts of Staring Lake Ecosystem</i>. Students use field guides to tell one interesting fact about the animal they saw. Ask students to name non-living things they saw on the habitat walk. Record students' responses under the heading <i>Non-living parts of Staring Lake Ecosystem</i>.</li> </ol>

<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b> Searching for information across texts
<b>Motivation:</b> Relevance -- Connecting reading to an experience or observation
<b>Texts:</b> <i>Cómo funcionan los ecosistemas (How Do Ecosystems Work?)</i> -Julie K. Lundgren
<b>Additional Materials Needed:</b> Handout - <a href="#">Wetlands: Living and Nonliving Parts of an Ecosystem</a> <a href="#">Curiosity Chart</a> Sentence Strips
<b>Overall Plan ( 15 mins):</b>  Introduce the text <i>Cómo funcionan los ecosistemas</i> . Discuss the cover illustration with students. In groups, students take a book walk and discuss interesting illustrations. Students share what they know about ecosystems with the whole class. Ask students if any of these animals in the first were seen on the habitat walk (swan, owl, bunny, turtle). Why do you think the author chose to depict these animals when talking about ecosystems?  Read pgs 4-8 from <i>Cómo funcionan los ecosistemas</i> as students read along quietly. Discuss the connections they can make between the animals they saw on the nature walk and Staring Lake as an ecosystem.  Briefly introduce the new skill they'll be working on: Searching for information across texts. Explain that we'll be using information from 3-4 books to answer our questions. This helps us because we can find information in some books and not others. Additionally, when we see information repeated by various authors we can we can trust that information as fact.
<b>Small Group Instruction</b>
<b>Emphasis:</b> Searching for information across texts
<b>Motivation:</b> Relevance -- setting real word purposes for reading Conceptual Theme -- concepts or ideas within the theme Success -- providing multiple texts about a topic to secure knowledge about it
<b>Texts:</b> Text 1: <i>Cadenas alimentarias de los pantanos (Wetlands Food Chains)</i> -Bobbie Kallman

Text 2: *Los pantanos* (Wetlands) - Yvonne Franklin

Text 3: *El guardián de los pantanos* (Keeper of the Swamp) -Ann Garrett

**Additional Materials Needed:** X

**Overall Plan ( 15 mins/group):**

Begin by explaining that this week we'll be taking our reading a step further and learning to read for information across multiple texts.

Next give students copies of the three texts they'll be using. Give them 10 minutes to explore all the books. Have students share out what they saw as interesting and what sparked their prior knowledge.

Tomorrow the present the steps for "Scanning for Information". Today serves as practice. Students will chose a student generated question about ecosystems and search for that information across the three texts. Divide the small group into three subgroups. Each subgroup will search for answers to the question selected. They will report back after 10 minutes.

Help students reflect on the following:

Did the three subgroups find different information?

The same information?

What strategies did you use to find this information?

How did your strategies change with the 10 minute time cap?

**Extended Writing (Station while teacher does small group instruction)**

**Emphasis:** Vocabulary

**Motivation:**

Choice -- self-selection of vocabulary words

**Texts:** X

**Additional Materials Needed:**

Word Log

**Overall Plan (20 mins):**

Word Log. Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.

Additional time can be spent exploring new fiction books described below

<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Introduce <b>NEW BOOKS</b> that have a theme of “ecosystems”
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
<p>Suggested Fiction Texts:</p> <p style="padding-left: 40px;"><u>Above Grade Level:</u>  <i>Julie y los lobos (Julie of the Wolves)</i> -Jean Craighead George  <i>El signo del castor (The Sign of the Beaver)</i> - Elizabeth George Speare</p> <p style="padding-left: 40px;"><u>Grade Level:</u>  <i>Mi rincón en la montaña (My Side of the Mountain)</i> -Jean Craighead George  <i>Isla de los delfines azules (Island of the Blue dolphins)</i> - Scott O’dell  <i>El Graznido Del Cuervo(The Cry of the Crow)</i>- Jean Craighead George</p> <p style="padding-left: 40px;"><u>Below Grade Level:</u>  TBD</p> <p>Students may also:  Read the CORI books  Read other nonfiction books of interest  Choose another text of their interest</p>
<p><b>Additional Materials Needed:</b>  <a href="#">Independent Reading Log</a>  <a href="#">Reading Response Journal</a></p>
<p><b>Overall Plan ( 20 mins):</b>  Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.</p> <p>Each day students will fill out independent <a href="#">Reading Log</a> when finished.</p> <p>In addition on Monday, Wednesday and Friday, students will complete a <a href="#">Reading Response Journal</a>. Students meet with peers reading the same novel and share responses with each other the designated days.</p>
<b>Share</b>
(5 mins) In pairs and then in large group, students should try to define an “ecosystem”.

**This lesson adapted from:**

McPeake, J. A., & Guthrie, J.T. (2007). Concept-Oriented Reading Instruction (CORI) Teacher Training Module Grades 3-5. College Park: Ellen Kaplan

## Lesson 14

Science or Shared Reading
<p><b>Emphasis:</b> Core concept - Ecosystems</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p style="padding-left: 40px;"><b>Benchmark:</b> Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs.</p>
<p><b>Motivation:</b> Relevance -- hands-on or observational activities Collaboration -- team projects</p>
<p><b>Texts:</b> X</p>
<p><b>Additional Materials Needed:</b> Full Option Science System -- <i>Environments: Aquatic environments</i>. FOSS teacher guide Student aquariums, goldfish, treated water, nets, fish food <a href="#">Aquarium Log</a></p>
<p><b>Overall Plan ( 40-50 mins):</b> Using the Full Option Science System (FOSS), <i>Environments: Aquatic environments, part 1</i>, students assemble freshwater aquariums and observe them over a period of time. In this part they observe environmental factors of water and temperature.</p> <p>The steps are as follows:</p> <ol style="list-style-type: none"> <li>1. Discuss aquatic environments</li> <li>2. Introduce the aquariums</li> <li>3. Distribute the aquariums</li> <li>4. Observe the goldfish</li> <li>5. Discuss the goldfish environment</li> <li>6. Introduce the <a href="#">Aquarium Log</a></li> <li>7. Store the aquariums</li> </ol> <p>This lesson comes from: Full Option Science System (2003). <i>Environments: Aquatic environments</i>. Nashua: Delta Education</p>
Whole Group Reading Comprehension Instruction
<p><b>Emphasis:</b> Reading across multiple texts</p>
<p><b>Motivation:</b> Relevance -- setting real world purposes for reading</p>



Conceptual Theme -- Using a guiding question for several days of instruction
<b>Texts:</b> <i>Cómo funcionan los ecosistemas (How Do Ecosystems Work?)</i> -Julie K. Lundgren
<b>Additional Materials Needed:</b> Scanning for Information anchor chart <a href="#">Reading Across Texts 1</a>
<p><b>Overall Plan ( 20 mins):</b> Tell students that they will learn to look for answers to class questions by using a strategy called “Scanning for Information”. To scan for information, you move your eyes quickly down the page looking for specific words and phrases that are a part of the question and answer. Follow these steps:</p> <ol style="list-style-type: none"> <li>1. Read the selection</li> <li>2. Read each question completely. In our case, <i>What is the relationship between the different parts of a wetland?</i></li> <li>3. Choose one or more keywords or important words from the question itself. Create an image of the keyword in your mind. In our case, <i>relationship, parts of a wetland</i></li> <li>4. Use your pointer finger to move down the page until you find the word or phrase you want.</li> <li>5. When your eye catches your keyword, read the surrounding sentences carefully to see if they help answer the question.</li> <li>6. Reread the question to see if the information you found answers the question.</li> </ol> <p>Remind students to start in the table of contents and index. They will also find lots of information in headings, pictures, captions and graphs.</p> <p>As students find information they should write answers on the student hand out next to the source they find the information from.</p> <p>Model this skill using the question: <i>What is the relationship between the different parts of a wetland?</i> and the text <i>Cómo funcionan los ecosistemas</i>.</p> <p>This teaching strategy comes from: Dole, J. A., Donaldson, B. E., &amp; Donaldson, R. S. (2014). <i>Reading across multiple texts in the common core classroom, K-5</i>. New York: Teachers College Press.</p>

### Small Group Instruction

**Emphasis:** Searching for information across texts

**Motivation:** Relevance -- setting real word purposes for reading  
Conceptual Theme -- concepts or ideas within the theme

Success -- providing multiple texts about a topic to secure knowledge about it
<p><b>Texts:</b>  Text 1: <i>Cadenas alimentarias de los pantanos</i> (Wetlands Food Chains) -Bobbie Kallman  Text 2: <i>Los pantanos</i> (Wetlands) - Yvonne Franklin  Text 3: <i>El guardián de los pantanos</i> (Keeper of the Swamp) -Ann Garrett</p>
<p><b>Additional Materials Needed:</b>  <a href="#">Reading Across Texts 1</a></p>
<p><b>Overall Plan (15 mins/group):</b>  Review the procedure for “Scanning for Information”. Tell students that they will work through the three texts, one each day. Today they will start with Text 1: <i>Cadenas alimentarias de los pantanos</i> (Wetlands Food Chains) by Bobbie Kallman. The question they are trying to answer is <i>What is the relationship between the different parts of a wetland?</i> Scaffold the search process this way:</p> <ol style="list-style-type: none"> <li>1. Together the teacher and students make a list of pages in the book that will help answer the question.</li> <li>2. Teacher and students go to the first page listed and complete the “Scanning for Information” procedure.</li> <li>3. In pairs, students go to the second page listed and complete the “Scanning for Information” procedure.</li> <li>4. Then, student pairs will share the information found in whole group. This is an opportunity for students to learn from their peers, compare information found between groups and ask questions.</li> <li>5. Students will continue this process individually during independent writing time.</li> </ol>

<b>Extended Writing (Station while teacher does small group instruction)</b>
<b>Emphasis:</b> Note-taking
<p><b>Motivation:</b> Conceptual Theme -- concepts or ideas within the theme  Success -- providing multiple texts about a topic to secure knowledge about it  Choice -- self-selection of vocabulary words</p>
<p><b>Texts:</b> Text 1: <i>Cadenas alimentarias de los pantanos</i> (Wetlands Food Chains) -Bobbie Kallman  Text 2: <i>Los pantanos</i> (Wetlands) - Yvonne Franklin  Text 3: <i>El guardián de los pantanos</i> (Keeper of the Swamp) -Ann Garrett</p>
<p><b>Additional Materials Needed:</b>  <a href="#">Word Log</a>  <a href="#">Reading Across Texts 1</a></p>

**Overall Plan (20 mins):**

**Word Log.** Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.

Additionally, Students will finish reading text 1 and taking notes from it to answer the question *What is the relationship between the different parts of a wetland?* Students will write notes on [Reading Across Texts 1](#). Students will share what they found tomorrow during small group time.

**Independent Reading (Station while teacher does guided reading groups)**

**Emphasis:** Narrative Reading

**Motivation:** Choice - Students increase ownership of reading by selecting text.

Suggested Fiction Texts:

Above Grade Level:

*Julie y los lobos (Julie of the Wolves)* -Jean Craighead George

*El signo del castor (The Sign of the Beaver)* - Elizabeth George Speare

Grade Level:

*Mi rincón en la montaña (My Side of the Mountain)* -Jean Craighead George

*Isla de los delfines azules (Island of the Blue dolphins)* - Scott O'dell

*El Graznido Del Cuervo(The Cry of the Crow)*- Jean Craighead George

Below Grade Level:

TBD

Students may also:

Read the CORI books

Read other nonfiction books of interest

Choose another text of their interest

**Additional Materials Needed:**

[Independent Reading Log](#)

[Reading Response Journal](#)

**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

**Share**

(5 mins) In pairs and then in large group, students will share one interesting thing they observed about the goldfish. How can they connect the goldfish to our study of ecosystems?

## Lesson 15

<b>Science or Shared Reading</b>
<p><b>Emphasis:</b> Aquarium observations; Introduce next Shared Reading text</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p style="padding-left: 40px;"><b>Benchmark:</b> Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs.</p>
<p><b>Motivation:</b> Conceptual Theme</p>
<p><b>Texts:</b> <i>El guardián de los pantanos</i> (Keeper of the Swamp) -Ann Garrett</p>
<p><b>Additional Materials Needed:</b> <a href="#">Aquarium Log</a></p>
<p><b>Overall Plan (30 mins):</b></p> <p>(10 minutes) Aquarium observations ---group members will share the responsibility of caring for the aquarium: daily feeding, checking the temperature, and monitoring the water conditions. All observations are to be recorded on their individual <a href="#">Aquarium Log</a>.</p> <p>(20 minutes) Read aloud the text <i>El guardián de los pantanos</i> (Keeper of the Swamp) by Ann Garrett. Today's reading to for enjoyment. Ask students what connections they can make between this fictional text and our study of ecosystems.</p>
<b>Whole Group Reading Comprehension Instruction</b>
<p><b>Emphasis:</b> Reading across multiple texts</p>
<p><b>Motivation:</b> Relevance -- setting real world purposes for reading Conceptual Theme -- Using a guiding question for several days of instruction</p>
<p><b>Texts:</b> <i>Cómo funcionan los ecosistemas</i> (How Do Ecosystems Work?) -Julie K. Lundgren</p>
<p><b>Additional Materials Needed:</b> Scanning for Information anchor chart <a href="#">Reading Across Texts 1</a></p>
<p><b>Overall Plan ( 15 mins):</b> Review the strategy "Scanning for Information".</p>

Model this skill using the next section in the text *Cómo funcionan los ecosistemas*. Students are still trying to find the answer to the question: *What is the relationship between the different parts of a wetland?*

This teaching strategy comes from:

Dole, J. A., Donaldson, B. E., & Donaldson, R. S. (2014). *Reading across multiple texts in the common core classroom, K-5*. New York: Teachers College Press.

### Small Group Instruction

**Emphasis:** Searching for information across texts

**Motivation:** Relevance -- setting real word purposes for reading

Conceptual Theme -- concepts or ideas within the theme

Success -- providing multiple texts about a topic to secure knowledge about it

**Texts:**

Text 1: *Cadenas alimentarias de los pantanos* (Wetlands Food Chains) -Bobbie Kallman

Text 2: *Los pantanos* (Wetlands) - Yvonne Franklin

Text 3: *El guardián de los pantanos* (Keeper of the Swamp) -Ann Garrett

**Additional Materials Needed:**

[Reading Across Texts 1](#)

**Overall Plan (15 mins/group):**

Begin by having students share the note they gathered from yesterday's text 1: *Cadenas alimentarias de los pantanos*. This is an opportunity for students to learn from their peers, compare information found between groups and ask questions.

Tell students that they will work through the second text today, Text 2: *Los pantanos* (Wetlands) by Yvonne Franklin. The question they are trying to answer by reading across these three texts is *What is the relationship between the different parts of a wetland?* Follow the same scaffolding process from yesterday:

1. Together the teacher and students make a list of pages in the book that will help answer the question.
2. Teacher and students go to the first page listed and complete the "Scanning for Information" procedure.
3. In pairs, students go the the second page listed and complete the "Scanning for Information" procedure.
4. Then, student pairs will share the information found in whole group.
5. Students will continue this process individually during independent writing time.

<b>Extended Writing (Station while teacher does small group instruction)</b>
<b>Emphasis:</b> Note-taking
<b>Motivation:</b> Conceptual Theme -- concepts or ideas within the theme Success -- providing multiple texts about a topic to secure knowledge about it Choice -- self-selection of vocabulary words
<b>Texts:</b> Text 1: <i>Cadenas alimentarias de los pantanos</i> (Wetlands Food Chains) -Bobbie Kallman Text 2: <i>Los pantanos</i> (Wetlands) - Yvonne Franklin Text 3: <i>El guardián de los pantanos</i> (Keeper of the Swamp) -Ann Garrett
<b>Additional Materials Needed:</b> <a href="#">Word Log</a> <a href="#">Reading Across Texts 1</a>
<b>Overall Plan (20 mins):</b>  <b>Word Log.</b> Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.  Additionally, Students will finish reading text 2 and taking notes from it to answer the question <i>What is the relationship between the different parts of a wetland?</i> Students will write notes on <a href="#">Reading Across Texts 1</a> . Students will share what they found tomorrow during small group time.
<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative Reading
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
Suggested Fiction Texts: <u>Above Grade Level:</u> <i>Julie y los lobos (Julie of the Wolves)</i> -Jean Craighead George <i>El signo del castor (The Sign of the Beaver)</i> - Elizabeth George Speare <u>Grade Level:</u> <i>Mi rincón en la montaña (My Side of the Mountain)</i> -Jean Craighead George <i>Isla de los delfines azules (Island of the Blue dolphins)</i> - Scott O'dell <i>El Graznido Del Cuervo(The Cry of the Crow)</i> - Jean Craighead George <u>Below Grade Level:</u> TBD Students may also: Read the CORI books

Read other nonfiction books of interest  
Choose another text of their interest

**Additional Materials Needed:**

[Independent Reading Log](#)

[Reading Response Journal](#)

**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

**Share**

(5 mins) In pairs and then in large group, share what it was like to read a second text about the same topic. Did they find the same information? Different information?



## Lesson 16

Science or Shared Reading
<p><b>Emphasis:</b> Shared reading; Three types of Spanish verbs: principales, auxiliares, copulativos (main, helping, linking)</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p style="padding-left: 40px;"><b>Benchmark:</b> Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs.</p>
<p><b>Motivation:</b> Relevance -- providing texts that are appealing and fascinating; hands-on or observational activities; connecting reading to experience or observation.</p>
<p><b>Texts:</b> <i>El guardián de los pantanos</i> (Keeper of the Swamp) -Ann Garrett</p>
<p><b>Additional Materials Needed:</b> <a href="#">Aquarium Log</a> <a href="#">Verbos Principales, Auxiliares y Copulativos anchor chart</a></p>
<p><b>Overall Plan (30 mins):</b></p> <p>(10 minutes) Aquarium observations ---group members will share the responsibility of caring for the aquarium: daily feeding, checking the temperature, and monitoring the water conditions. All observations are to be recorded on their individual <a href="#">Aquarium Log</a>.</p> <p>(20 minutes) Reads aloud portion of the text <a href="#">El guardián de los pantanos</a>. Ask students to silently re-read the text and identify the verbs. As the you read aloud the text a second time, students should raise their hand every time a verb is read. After this reading, circle verbs in the portion of text being used. Help students identify verbs they may have missed. Uses the <a href="#">Verbos Principales, Auxiliares y Copulativos anchor chart</a> to explain the difference between the three types of verbs represented.</p> <p>Teach a hand signal for each type of verb to help students remember the difference. Today when students are sent off to read and practice fluency with partners, they should employ the hand signals for each verb when they read it aloud.</p> <p><u>Hand signals:</u></p> <ol style="list-style-type: none"> <li>1. Verbos principales (main verbs): Raise index finger (the number 1)</li> <li>2. Verbos auxiliares (helping verbs): Use sign language sign for "help". The sign for "help" is made by closing your left hand into an "A." Place the outstretched palm of your right hand under the left "A" hand and raise both hands.</li> <li>3. Verbos copulativos (linking verbs): Make the connection signal by making a circle with each finger and thumb and the linking them like a chain. Link fingers to main a chain or connection signal.</li> </ol>

### Whole Group Reading Comprehension Instruction

**Emphasis:** Reading across multiple texts

**Motivation:** Relevance -- providing texts that are appealing and fascinating; connecting reading to experience or observation.

Conceptual Theme -- Using a guiding question for several days of instruction

**Texts:** *El guardián de los pantanos* (Keeper of the Swamp) -Ann Garrett

**Additional Materials Needed:**

Scanning for Information anchor chart

[Reading Across Texts 1](#)

**Overall Plan (15 mins):**

Tell students that today they are going to use the fiction text *El guardián de los pantanos* to learn more about wetlands. As they remember from the read-aloud, in this story the character and his grandfather have a connection to the swamp. Tell students that this story was not written to provide facts about wetlands, however, we can read it analytically to answer questions such as the one they've been studying this week, *What is the relationship between the different parts of a wetland?*

Model how to modify the “Scanning for Information” strategy to find additional insights about the relationship between different parts of a wetland. Since there are no text features, student should scan the text and illustrations. Then, use the process described below:

1. Read each question completely. In our case, *What is the relationship between the different parts of a wetland?*
2. Choose one or more keywords or important words from the question itself. Create an image of the keyword in your mind. In our case, *relationship, parts of a wetland*
3. Use your pointer finger to move down the page, or illustration, until you find the word phrase, or image you want.
4. When your eye catches your keyword or image, read the surrounding sentences or images carefully to see if they help answer the question.
5. Reread the question to see if the information you found answers the question.

Discuss how the experiences of the characters help students better understand the relationship between the different parts of a wetland.

- How do the personal experiences of the characters help us better understand \_\_\_?
- How does this help us develop empathy for \_\_\_? For example, what will happen if \_\_\_ does not take care of the swamp?
- How did the characters' knowledge of and previous experiences with swamps affect their actions and responses to the situation?

- Compare the actions of the grandfather and grandson. Why do they behave differently? How are their motivations similar and different?
- How do states in which swamps like these are very common adjust their lifestyles? How does this differ from our culture in Minnesota?

### Small Group Instruction

**Emphasis:** Searching for information across texts

**Motivation:** Relevance -- setting real word purposes for reading  
 Conceptual Theme -- concepts or ideas within the theme  
 Success -- providing multiple texts about a topic to secure knowledge about it

**Texts:**

Text 1: *Cadenas alimentarias de los pantanos* (Wetlands Food Chains) -Bobbie Kallman

Text 2: *Los pantanos* (Wetlands) - Yvonne Franklin

Text 3: *El guardián de los pantanos* (Keeper of the Swamp) -Ann Garrett

**Additional Materials Needed:**

[Reading Across Texts 1](#)

**Overall Plan (15 mins/group):**

Begin by having students share the note they gathered from yesterday's text 2: *Los pantanos*. This is an opportunity for students to learn from their peers, compare information found between groups and ask questions.

Tell students that they will work through the second third today, Text3: *El guardián de los pantanos* (Keeper of the Swamp) by Ann Garrett. The question they are trying to answer by reading across these three texts is *What is the relationship between the different parts of a wetland?* Follow the same scaffolding process from yesterday, keeping in mind they will search text and illustrations in this fiction text:

1. Together the teacher and students make a list of pages in the book that will help answer the question.
2. Teacher and students go to the first page listed and complete the "Scanning for Information" procedure.
3. In pairs, students go the the second page listed and complete the "Scanning for Information" procedure.
4. Then, student pairs will share the information found in whole group.
5. Students will continue this process individually during independent writing time.

<b>Extended Writing (Station while teacher does small group instruction)</b>
<b>Emphasis:</b> Note-taking
<b>Motivation:</b> Conceptual Theme -- concepts or ideas within the theme Success -- providing multiple texts about a topic to secure knowledge about it Choice -- self-selection of vocabulary words
<b>Texts:</b> Text 1: <i>Cadenas alimentarias de los pantanos</i> (Wetlands Food Chains) -Bobbie Kallman Text 2: <i>Los pantanos</i> (Wetlands) - Yvonne Franklin Text 3: <i>El guardián de los pantanos</i> (Keeper of the Swamp) -Ann Garrett
<b>Additional Materials Needed:</b> <a href="#">Word Log</a> <a href="#">Reading Across Texts 1</a>
<b>Overall Plan (20 mins):</b>  <b>Word Log.</b> Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.  Additionally, Students will finish reading text 3 and taking notes from it to answer the question <i>What is the relationship between the different parts of a wetland?</i> Students will write notes on <a href="#">Reading Across Texts 1</a> . Students will share what they found tomorrow during small group time.
<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative Reading
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
Suggested Fiction Texts: <u>Above Grade Level:</u> <i>Julie y los lobos (Julie of the Wolves)</i> -Jean Craighead George <i>El signo del castor (The Sign of the Beaver)</i> - Elizabeth George Speare <u>Grade Level:</u> <i>Mi rincón en la montaña (My Side of the Mountain)</i> -Jean Craighead George <i>Isla de los delfines azules (Island of the Blue dolphins)</i> - Scott O'dell <i>El Graznido Del Cuervo(The Cry of the Crow)</i> - Jean Craighead George <u>Below Grade Level:</u> TBD Students may also: Read the CORI books

Read other nonfiction books of interest  
Choose another text of their interest

**Additional Materials Needed:**

[Independent Reading Log](#)

[Reading Response Journal](#)

**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

**Share**

(5 mins) In pairs and then in large group: What different information do we learn from reading multiple texts about wetlands?

## Lesson 17

Science or Shared Reading
<p><b>Emphasis:</b> Shared reading; three types of Spanish verbs: principales, auxiliares, copulativos (main, helping, linking)</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p style="padding-left: 40px;"><b>Benchmark:</b> Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs.</p>
<p><b>Motivation:</b> Relevance -- providing texts that are appealing and fascinating; hands-on or observational activities; connecting reading to experience or observation.</p>
<p><b>Texts:</b> <i>El guardián de los pantanos</i> (Keeper of the Swamp) -Ann Garrett</p>
<p><b>Additional Materials Needed:</b> <a href="#">Aquarium Log</a> <a href="#">Verbos Principales, Auxiliares y Copulativos anchor chart</a></p>
<p><b>Overall Plan (30 mins):</b> (10 minutes) Aquarium observations ---group members will share the responsibility of caring for the aquarium: daily feeding, checking the temperature, and monitoring the water conditions. All observations are to be recorded on their individual Aquarium Logs.</p> <p>Review the concept of living and nonliving factors in the goldfish aquarium. Students can reference their notes from Starring Lake habitat walk. Is air on that list? Temperature? Water?</p> <p>(20 minutes) Lead a choral reading of a portion of the text <i>El guardián de los pantanos</i>. Review <a href="#">Verbos Principales, Auxiliares y Copulativos anchor chart</a> to explain the difference between the three types of verbs represented. Review the hand signals for each type of verb.</p> <p>Tell students they will get an envelope with all the verbs written on slips of paper. Students will work in pairs to sort the verbs into each of the three categories. Circulate to help students. When students have finished, review the answers. Ask students to analyze the categories to find patterns, what unique characteristics does each type of verb have?</p> <p>When students are sent off to read and practice fluency with partners, they should employ the hand signals for each verb when they read it aloud.</p> <p><u>Hand signals:</u></p>

1. Verbos principales (main verbs): Raise index finger (the number 1)
2. Verbos auxiliares (helping verbs): Use sign language sign for "help". The sign for "help" is made by closing your left hand into an "A." Place the outstretched palm of your right hand under the left "A" hand and raise both hands.
3. Verbos copulativos (linking verbs): Make the connection signal by making a circle with each finger and thumb and the linking them like a chain. Link fingers to main a chain or connection signal.

### Whole Group Reading Comprehension Instruction

**Emphasis:** Reading across multiple texts

**Motivation:** Relevance -- providing texts that are appealing and fascinating; connecting reading to experience or observation.  
Conceptual Theme -- Using a guiding question for several days of instruction

**Texts:**

Text 1: *Cadenas alimentarias de los pantanos* (Wetlands Food Chains) -Bobbie Kallman

Text 2: *Los pantanos* (Wetlands) - Yvonne Franklin

Text 3: *El guardián de los pantanos* (Keeper of the Swamp) -Ann Garrett

**Additional Materials Needed:**

Scanning for Information anchor chart

[Reading Across Texts 1](#)

**Overall Plan (15 mins):**

Tell students that now we've read across three texts to find deep answers to our question *What is the relationship between the different parts of a wetland?* Now, we need to reflect and communicate what we've learned. We will do this by using a sentence frame. It is on the bottom of the hand out [Reading Across Texts 1](#)

Read the sentence frame aloud as students follow along:

We learned a lot about wetlands from reading several texts. From the first book, *Cadenas alimentarias de los pantanos*, we learned \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. In addition to this, we read another book called *Los pantanos* and learned \_\_\_\_\_ and \_\_\_\_\_. This helped us read the fiction text, *El guardián de los pantanos*. For example, when we read *El guardián de los pantanos* it helped to know that \_\_\_\_\_. It helped us better understand wetlands because \_\_\_\_\_.

Model how to refer back to the notes to pick out the most important ideas and place them in the sentence frame.

Small Group Instruction
<b>Emphasis:</b> Searching for information across texts
<b>Motivation:</b> Relevance -- setting real word purposes for reading Conceptual Theme -- concepts or ideas within the theme Success -- providing multiple texts about a topic to secure knowledge about it
<b>Texts:</b> Text 1: <i>Cadenas alimentarias de los pantanos</i> (Wetlands Food Chains) -Bobbie Kallman Text 2: <i>Los pantanos</i> (Wetlands) - Yvonne Franklin Text 3: <i>El guardián de los pantanos</i> (Keeper of the Swamp) -Ann Garrett
<b>Additional Materials Needed:</b> <a href="#">Reading Across Texts 1</a>
<b>Overall Plan ( 15 mins/group):</b>  Review the sentence frame with students. Give students time to re-read their notes and complete the sentence frame. After 10 minutes of work time, students will share their sentence frames by reading them aloud to the group.

Extended Writing (Station while teacher does small group instruction)
<b>Emphasis:</b> Vocabulary
<b>Motivation:</b> Conceptual Theme -- connecting concepts or ideas within the theme Choice -- self-selection of vocabulary words
<b>Texts:</b> X
<b>Additional Materials Needed:</b> <a href="#">Word Log</a> Brain Pop video: Cadenas alimentarias (Food chains)
<b>Overall Plan (20 mins):</b>  <a href="#">Word Log</a> . Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.  Additionally, Students will watch the Brain Pop video on Food Chains. Then, they will comment on Schoology discussion forum about something they learned from the video.



<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative Reading
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
<p>Suggested Fiction Texts:</p> <p style="padding-left: 40px;"><u>Above Grade Level:</u>  <i>Julie y los lobos (Julie of the Wolves)</i> -Jean Craighead George  <i>El signo del castor (The Sign of the Beaver)</i> - Elizabeth George Speare</p> <p style="padding-left: 40px;"><u>Grade Level:</u>  <i>Mi rincón en la montaña (My Side of the Mountain)</i> -Jean Craighead George  <i>Isla de los delfines azules (Island of the Blue dolphins)</i> - Scott O'dell  <i>El Graznido Del Cuervo(The Cry of the Crow)</i>- Jean Craighead George</p> <p style="padding-left: 40px;"><u>Below Grade Level:</u>  TBD</p> <p>Students may also:  Read the CORI books  Read other nonfiction books of interest  Choose another text of their interest</p>
<p><b>Additional Materials Needed:</b>  <a href="#">Independent Reading Log</a>  <a href="#">Reading Response Journal</a></p>
<p><b>Overall Plan ( 20 mins):</b>  Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.</p> <p>Each day students will fill out independent <a href="#">Reading Log</a> when finished.</p> <p>In addition on Monday, Wednesday and Friday, students will complete a <a href="#">Reading Response Journal</a>. Students meet with peers reading the same novel and share responses with each other the designated days.</p>

<b>Share</b>
(5 mins) In partners and then in whole group, give an example of the three types of Spanish verbs: principales, auxiliares, copulativos (main, helping, linking).

## Lesson 18

Science or Shared Reading
<p><b>Emphasis:</b> Core concept - Food chains</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p><b>Benchmark:</b> Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs.</p>
<p><b>Motivation:</b> Relevance - hands-on or observational activity Collaboration - team projects</p>
<p><b>Texts:</b> X</p>
<p><b>Additional Materials Needed:</b> Weaving the Web teacher activity guide from <a href="http://forces.si.edu/ltop/pdfs/2-5-WeavingTheWeb.pdf">http://forces.si.edu/ltop/pdfs/2-5-WeavingTheWeb.pdf</a></p>
<p><b>Overall Plan ( 30-40 mins):</b></p> <p>Materials</p> <ol style="list-style-type: none"> <li>1. Ball of yarn</li> <li>2. Activity Sheets 1- 8 (pictures of prairie plants and animals)</li> <li>3. Tape to attach pictures to clothing</li> <li>4. Space for the class to form a large circle</li> </ol> <p>Procedure:</p> <ol style="list-style-type: none"> <li>1. Begin by reviewing the Schoology discussion forum that students posted today after yesterday's lesson. They should recall the information they learned about food chains.</li> <li>2. Tell the students that in today's activity they will make a food web. Have them stand in a circle and introduce themselves as the plant or animal they represent. The student with the sun picture should stand in the center. They should look around and ask themselves:             <ul style="list-style-type: none"> <li>Who in the circle could I give my energy to? (Who might eat me?)</li> <li>Who in the circle could give me energy? (Whom could I eat?)</li> </ul> </li> <li>3. Explain that the ball of yarn represents sunbeams, or energy from the sun. Ask the student representing the sun to hold the end of the yarn tightly and toss the ball to someone who can use that energy (a green plant). When a student representing the green plant catches the ball of yarn, he or she should hold a piece of the yarn and throw the ball to someone else who could use the energy. For example, the sun might throw the yarn to the grass, the grass to the grasshopper, and the grasshopper to the</li> </ol>

meadowlark. After the yarn reaches a carnivore, cut it off to represent one food chain. (Explain that humans, bears, raccoons, etc. are omnivores and can end a food chain, or they could be eaten by a carnivore.)

4. Ask: How can all these other plants and animals get the energy they need? (Through different food chains). Return the yarn to the sun to start another chain. This time the sun might throw its energy to the grass, the grass to the field mouse, and the field mouse to a great horned owl. Again, cut the yarn, throw it back to the sun, and have the sun start another chain. Continue making chains until every student holds at least one strand of yarn.

5. Ask:

- Have we made food chains? (Yes, lots of them!)
- What do all of our food chains together look like? (A food web.)
- What is the difference between a food chain and food web? (A food web is made up of several food chains. A web is more complicated than a chain because it has connections among the chains.)
- Who is holding the most pieces of yarn? (The sun.)
- Why? (Because each food chain starts with the sun.)
- Who else is part of many food chains? (Green plants)
- What would happen if all the green plants died? (Nothing else in the food web could survive.)
- How could we show what could happen if one kind of plant, such as all the clover died? (The student representing clover could pull out his or her pieces of yarn and sit down.)
- If all the clover is gone, who may have trouble getting enough food?(Identify all the animals that were in food chains that included clover. Whoever had yarn pulled out of their hands might have trouble getting enough food without the clover.)
- What happened to our food web? (It is much thinner, less complex, and less strong.)
- Why should we be concerned about each kind of plant or animal? (Because other plants and animals in the food web may depend on it.)

6. Close by doing a think-pair-share about what students learned from this activity and how they can connect it to what we're learning about our aquariums and/or ecosystems.

This lesson is from:

United States Department of Agriculture (n.d.). *Ag in the classroom: Weaving the web*. Retrieved from: <http://forces.si.edu/ltop/pdfs/2-5-WeavingTheWeb.pdf>

<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b> Reading across multiple texts
<b>Motivation:</b> Relevance - connecting reading to experience or observation Conceptual theme - connecting concepts or ideas within the theme
<b>Texts:</b> Text 1: <i>Las cadenas alimentarias y tú</i> (Food Chains and You) -Bobbie Kallman Text 2: <i>Cadenas y redes alimentarias: La lucha por la supervivencia</i> (Food Chains and Webs: The Struggle to Survive)- Andrew Solway Text 3: <i>Historias de ciencias de FOSS: Ambientes</i> (Foss Science Stories: Environments) -Delta Education
<b>Additional Materials Needed:</b> <a href="#">Curiosity Chart</a>
<b>Overall Plan (15 mins):</b>  Introduce the book <i>Cadenas y redes alimentarias: La lucha por la supervivencia</i> by Andrew Solway. Discuss the cover illustration with students. In groups, students take a book walk and discuss interesting illustrations. Students share what they know about food chains. Ask students if any of these animals on the cover were seen in our simulation.  Read pgs 8-11 from <i>Cadenas y redes alimentarias: La lucha por la supervivencia</i> as students read along quietly. Discuss the connections students can make between the simulation and information on these pages.  Ask students to think about questions they have about food webs. Using a think-pair-share, students share their questions orally. Post one or two good questions on class <a href="#">Curiosity Chart</a> .

<b>Small Group Instruction</b>
<b>Emphasis:</b> Reading across multiple texts
<b>Motivation:</b> Choice -- student input into topics or the sequence of books Collaboration -- exchanging ideas Success -- providing multiple texts to secure knowledge about it Conceptual theme -- using a guiding question for several days of instruction
<b>Texts:</b> Text 1: <i>Las cadenas alimentarias y tú</i> (Food Chains and You) -Bobbie Kallman Text 2: <i>Cadenas y redes alimentarias: La lucha por la supervivencia</i> (Food Chains and Webs: The Struggle to Survive)- Andrew Solway

Text 3: *Historias de ciencias de FOSS: Ambientes* (Foss Science Stories: Environments) -Delta Education

**Additional Materials Needed:**

[Reading Across Multiple Texts - Energy Flow](#)

**Overall Plan ( 15 mins/group):**

The purpose of small group instruction today is to generate questions and determine the question they will research for the next few days.

Tell the students that we are introducing three new books and we will use them to investigate questions we have about food webs and energy flow. We will continue to work on the skill “Searching for information across texts”, this time with two questions: one of which is of the student's’ own choosing. Introduce student hand out [Reading Across Multiple Texts - Energy Flow](#).

In order to generate questions, start by having students do a book walk with all three texts. Give students plenty of time to do this, then bring the group back together to share questions.

Tell students that during independent writing time, their job is to start reading text #1 and and take notes on student handout [Reading Across Multiple Texts - Energy Flow](#).

**Extended Writing (Station while teacher does small group instruction)**

**Emphasis:** Note-taking, Vocabulary

**Motivation:** Conceptual Theme -- concepts or ideas within the theme  
Success -- providing multiple texts about a topic to secure knowledge about it  
Choice -- self-selection of vocabulary words

**Texts:** Text 1: *Las cadenas alimentarias y tú* (Food Chains and You) -Bobbie Kallman

**Additional Materials Needed:**

**Word Log**

[Reading Across Multiple Texts - Energy Flow](#)

**Overall Plan (20 mins):**

**Word Log.** Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.

Additionally, Students will finish reading text 1 and taking notes from it to answer the question the two questions on student hand-out [Reading Across Multiple Texts - Energy Flow](#). Students will share what they found tomorrow during small group time.

### Independent Reading (Station while teacher does guided reading groups)

**Emphasis:** Narrative Reading

**Motivation:** Choice - Students increase ownership of reading by selecting text.

Suggested Fiction Texts:

Above Grade Level:

*Julie y los lobos (Julie of the Wolves)* -Jean Craighead George

*El signo del castor (The Sign of the Beaver)* - Elizabeth George Speare

Grade Level:

*Mi rincón en la montaña (My Side of the Mountain)* -Jean Craighead George

*Isla de los delfines azules (Island of the Blue dolphins)* - Scott O'dell

*El Graznido Del Cuervo(The Cry of the Crow)*- Jean Craighead George

Below Grade Level:

TBD

Students may also:

Read the CORI books

Read other nonfiction books of interest

Choose another text of their interest

**Additional Materials Needed:**

[Independent Reading Log](#)

[Reading Response Journal](#)

**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

**Share**

(5 mins) In pairs and in small group, students will share the question they are investigating in small group time.

**This lesson adapted from:**

McPeake, J. A., & Guthrie, J.T. (2007). Concept-Oriented Reading Instruction (CORI)  
Teacher Training Module Grades 3-5. College Park: Ellen Kaplan

## Lesson 19

Science or Shared Reading
<p><b>Emphasis:</b> Core concept - Ecosystems</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p style="padding-left: 40px;"><b>Benchmark:</b> Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs.</p>
<p><b>Motivation:</b> Relevance -- hands-on or observational activities Collaboration -- team projects</p>
<p><b>Texts:</b> X</p>
<p><b>Additional Materials Needed:</b> Full Option Science System -- <i>Environments: Aquatic environments</i>. FOSS Teacher's Guide</p>
<p><b>Overall Plan ( 40-50 mins):</b> Using the Full Option Science System (FOSS), <i>Environments: Aquatic environments, part 3</i>, students create a more diverse aquarium by introducing pond snails and plants into the goldfish aquarium.</p> <p>The steps are as follows:</p> <ol style="list-style-type: none"> <li>1) Discuss other organisms       <ol style="list-style-type: none"> <li>a) What could we do to the goldfish aquarium to make it more diverse and interesting?</li> </ol> </li> <li>2) Enrich the aquatic environment       <ol style="list-style-type: none"> <li>a) Add organisms to the aquariums (snails, elodea, lemna)</li> </ol> </li> <li>3) Add crustaceans (gammarus)</li> <li>4) Make journal entries</li> <li>5) Have a class discussion       <ol style="list-style-type: none"> <li>a) What is a natural freshwater environment like?</li> <li>b) How is an aquarium similar to a natural freshwater environment? How is it different?</li> <li>c) What organism (plant or animal) is your favorite one in this investigation and why?</li> <li>d) If you were to set up an aquarium again, what would you do differently and why?</li> </ol> </li> </ol> <p>This lesson comes from: Full Option Science System (2003). <i>Environments: Aquatic environments</i>. Nashua: Delta Education</p>



<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b> Reading across multiple texts
<b>Motivation:</b> Success -- providing multiple texts to secure knowledge about it Conceptual theme -- using a guiding question for several days of instruction
<b>Texts:</b> Text 1: <i>Las cadenas alimentarias y tú</i> (Food Chains and You) -Bobbie Kallman Text 2: <i>Cadenas y redes alimentarias: La lucha por la supervivencia</i> (Food Chains and Webs: The Struggle to Survive)- Andrew Solway Text 3: <i>Historias de ciencias de FOSS: Ambientes</i> (Foss Science Stories: Environments) -Delta Education
<b>Additional Materials Needed:</b> <a href="#">Reading Across Multiple Texts - Energy Flow</a> <a href="#">Determining Importance When Reading anchor chart</a>
<b>Overall Plan ( 15 mins):</b>  Today we're going to talk about how we decide what to put in our note-taking sheet. We want to remember the important things about our topic and not get caught up in exciting, small details.  Let's try reading a paragraph and think about what information is most important. There's a big difference between significant information that focuses our attention on the big ideas of the text and interesting details which engage us, but really aren't very important.  Model this strategy with pages 8 and 9 from <i>Cadenas y redes alimentarias: La lucha por la supervivencia</i> .  This idea comes from: Harvey, S., & Goudvis, A. (2005). <i>The comprehension toolkit</i> . Firsthand.

<b>Small Group Instruction</b>
<b>Emphasis:</b> Reading across multiple texts
<b>Motivation:</b> Choice -- student input into topics or the sequence of books Collaboration -- exchanging ideas Success -- providing multiple texts to secure knowledge about it Conceptual theme -- using a guiding question for several days of instruction

**Texts:**

Text 1: *Las cadenas alimentarias y tú* (Food Chains and You) -Bobbie Kallman

Text 2: *Cadenas y redes alimentarias: La lucha por la supervivencia* (Food Chains and Webs: The Struggle to Survive)- Andrew Solway

Text 3: *Historias de ciencias de FOSS: Ambientes* (Foss Science Stories: Environments) -Delta Education

**Additional Materials Needed:**

[Reading Across Multiple Texts - Energy Flow](#)

**Overall Plan ( 15 mins):**

Begin by students sharing the questions they are investigating. With the person next to them, they should share the information they found while reading and note-taking yesterday with text #1.

Review how to determine importance when searching across texts.

Give students time to work on reading and note-taking with text # 2, *Cadenas y redes alimentarias: La lucha por la supervivencia*. Assist students as needed.

**Extended Writing (Station while teacher does small group instruction)**

**Emphasis:** Vocabulary; Note-taking

**Motivation:** Choice -- self-selection of vocabulary words

Conceptual Theme -- concepts or ideas within the theme

Success -- providing multiple texts about a topic to secure knowledge about it

**Texts:** Text 2: *Cadenas y redes alimentarias: La lucha por la supervivencia* (Food Chains and Webs: The Struggle to Survive)- Andrew Solway

**Additional Materials Needed:**

[Word Log](#)

[Reading Across Multiple Texts - Energy Flow](#)

**Overall Plan ( 20 mins):**

[Word Log](#). Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.

Additionally, Students will finish reading text 2 and taking notes from it to answer the question the two questions on student hand-out [Reading Across Multiple Texts - Energy Flow](#). Students will share what they found tomorrow during small group time.

<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative Reading
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
<p>Suggested Fiction Texts:</p> <p style="padding-left: 40px;"><u>Above Grade Level:</u>  <i>Julie y los lobos (Julie of the Wolves)</i> -Jean Craighead George  <i>El signo del castor (The Sign of the Beaver)</i> - Elizabeth George Speare</p> <p style="padding-left: 40px;"><u>Grade Level:</u>  <i>Mi rincón en la montaña (My Side of the Mountain)</i> -Jean Craighead George  <i>Isla de los delfines azules (Island of the Blue dolphins)</i> - Scott O'dell  <i>El Graznido Del Cuervo(The Cry of the Crow)</i>- Jean Craighead George</p> <p style="padding-left: 40px;"><u>Below Grade Level:</u>  TBD</p> <p>Students may also:  Read the CORI books  Read other nonfiction books of interest  Choose another text of their interest</p>
<p><b>Additional Materials Needed:</b>  <a href="#">Independent Reading Log</a>  <a href="#">Reading Response Journal</a></p>
<p><b>Overall Plan ( 20 mins):</b>  Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.</p> <p>Each day students will fill out independent <a href="#">Reading Log</a> when finished.</p> <p>In addition on Monday, Wednesday and Friday, students will complete a <a href="#">Reading Response Journal</a>. Students meet with peers reading the same novel and share responses with each other the designated days.</p>
<b>Share</b>
(5 mins) In pairs and the in large group discuss: Now that we've added more organisms to the aquariums, how will energy travel through the ecosystem differently?

## Lesson 20

<b>Science or Shared Reading</b>
<p><b>Emphasis:</b> Shared reading; three types of Spanish verbs: principales, auxiliares, copulativos (main, helping, linking)</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p style="padding-left: 40px;"><b>Benchmark:</b> Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs.</p>
<p><b>Motivation:</b> Relevance -- providing texts that are appealing and fascinating; hands-on or observational activities; connecting reading to experience or observation.</p>
<p><b>Texts:</b> <i>El guardián de los pantanos</i> (Keeper of the Swamp) -Ann Garrett</p>
<p><b>Additional Materials Needed:</b> <a href="#">Aquarium Log</a> <a href="#">Verbos Principales, Auxiliares y Copulativos anchor chart</a></p>
<p><b>Overall Plan (30 mins):</b></p> <p>(10 minutes) Aquarium observations ---group members will share the responsibility of caring for the aquarium: daily feeding, checking the temperature, and monitoring the water conditions. All observations are to be recorded on their individual <a href="#">Aquarium Log</a>.</p> <p>(20 minutes) Lead a choral reading of a portion of the text <i>El guardián de los pantanos</i>. Review <a href="#">Verbos Principales, Auxiliares y Copulativos anchor chart</a> to explain the difference between the three types of verbs represented. Review the hand signals for each type of verb.</p> <p>Tell students they will be using this portion of <i>El guardián de los pantanos</i> as a mentor text. With their partner, students will write a short poem or paragraph about their goldfish aquarium using the three types of verbs. Students will have work time and will share out at the end. The final product should be written neatly and clearly identify the three types of verbs by underlining and labeling them correctly.</p>
<b>Whole Group Reading Comprehension Instruction</b>
<p><b>Emphasis:</b> Reading across multiple texts</p>
<p><b>Motivation:</b> Success -- providing multiple texts to secure knowledge about it</p>

Conceptual theme -- using a guiding question for several days of instruction
<p><b>Texts:</b>  Text 1: <i>Las cadenas alimentarias y tú</i> (Food Chains and You) -Bobbie Kallman  Text 2: <i>Cadenas y redes alimentarias: La lucha por la supervivencia</i> (Food Chains and Webs: The Struggle to Survive)- Andrew Solway  Text 3: <i>Historias de ciencias de FOSS: Ambientes</i> (Foss Science Stories: Environments) -Delta Education</p>
<p><b>Additional Materials Needed:</b>  <a href="#">Reading Across Multiple Texts - Energy Flow</a>  <a href="#">Synthesizing When Reading anchor chart</a></p>
<p><b>Overall Plan ( 15 mins):</b></p> <p>Today we’re going to talk about synthesizing our thinking and learning as we read. You know how hard it can be to remember all of the information we read. When good readers read nonfiction, they read for “the gist” - the most essential information, the bigger ideas. To do this, they have to synthesize the information. When we synthesize, we pare down the information, delete some of the less important details, and come up with the bigger picture.</p> <p>A synthesis of “Goldilocks and the Three Bears” might be” a girl wandered into an empty house and caused a lot of mischief. When the owners, a family of bears, found her, she learned the hard way not go to into a stranger’s house when no one is home.</p> <p>Let’s practice getting the gist of one of our texts about food webs. Remember when we synthesize, we pare down the information, delete some of the less important details, and come up with the bigger picture.</p> <p>Use pages 40, paragraphs 1-4 in book Foss Science Stories:Environments to model this skill.</p> <p>This idea comes from:  Harvey, S., &amp; Goudvis, A. (2005). <i>The comprehension toolkit</i>. Firsthand.</p>

<b>Small Group Instruction</b>
<b>Emphasis:</b> Reading across multiple texts
<p><b>Motivation:</b> Choice -- student input into topics or the sequence of books  Collaboration -- exchanging ideas  Success -- providing multiple texts to secure knowledge about it</p>

Conceptual theme -- using a guiding question for several days of instruction
<p><b>Texts:</b>  Text 1: <i>Las cadenas alimentarias y tú</i> (Food Chains and You) -Bobbie Kallman  Text 2: <i>Cadenas y redes alimentarias: La lucha por la supervivencia</i> (Food Chains and Webs: The Struggle to Survive)- Andrew Solway  Text 3: <i>Historias de ciencias de FOSS: Ambientes</i> (Foss Science Stories: Environments) -Delta Education</p>
<p><b>Additional Materials Needed:</b>  <a href="#">Reading Across Multiple Texts - Energy Flow</a></p>
<p><b>Overall Plan ( 15 mins):</b>  With the person next to them, they should share the information they found while reading and note-taking yesterday with text #2.</p> <p>Review how to synthesize ideas when searching across texts.</p> <p>Give students time to work on reading and note-taking with text # 3, <i>Historias de ciencias de FOSS: Ambientes</i>. Assist students as needed.</p>

<b>Extended Writing (Station while teacher does small group instruction)</b>
<b>Emphasis:</b> Vocabulary; Note-taking
<b>Motivation:</b> Choice -- self-selection of vocabulary words
<b>Texts:</b> Text 3: <i>Historias de ciencias de FOSS: Ambientes</i> (Foss Science Stories: Environments) -Delta Education
<p><b>Additional Materials Needed:</b>  Word Log  <a href="#">Reading Across Multiple Texts - Energy Flow</a></p>
<p><b>Overall Plan (20 mins):</b></p> <p><b>Word Log.</b> Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.</p> <p>Additionally, Students will finish reading text 3 and taking notes from it to answer the question the two questions on student hand-out <a href="#">Reading Across Multiple Texts - Energy Flow</a>. Students will share what they found tomorrow during small group time.</p>

<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative Reading
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
<p>Suggested Fiction Texts:</p> <p style="padding-left: 40px;"><u>Above Grade Level:</u>  <i>Julie y los lobos (Julie of the Wolves)</i> -Jean Craighead George  <i>El signo del castor (The Sign of the Beaver)</i> - Elizabeth George Speare</p> <p style="padding-left: 40px;"><u>Grade Level:</u>  <i>Mi rincón en la montaña (My Side of the Mountain)</i> -Jean Craighead George  <i>Isla de los delfines azules (Island of the Blue dolphins)</i> - Scott O'dell  <i>El Graznido Del Cuervo(The Cry of the Crow)</i>- Jean Craighead George</p> <p style="padding-left: 40px;"><u>Below Grade Level:</u>  TBD</p> <p>Students may also:  Read the CORI books  Read other nonfiction books of interest  Choose another text of their interest</p>
<p><b>Additional Materials Needed:</b>  <a href="#">Independent Reading Log</a>  <a href="#">Reading Response Journal</a></p>
<p><b>Overall Plan ( 20 mins):</b>  Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.</p> <p>Each day students will fill out independent <a href="#">Reading Log</a> when finished.</p> <p>In addition on Monday, Wednesday and Friday, students will complete a <a href="#">Reading Response Journal</a>. Students meet with peers reading the same novel and share responses with each other the designated days.</p>
<b>Share</b>
(5 mins) Share a vocabulary word they have written in their vocabulary log and share its definition with a partner.

## Lesson 21

Science or Shared Reading
<p><b>Emphasis:</b> Core concept - Food webs</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p style="padding-left: 40px;"><b>Benchmark:</b> Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs.</p>
<p><b>Motivation:</b> Relevance -- hands-on or observational activities Collaboration -- Team projects</p>
<p><b>Texts:</b> X</p>
<p><b>Additional Materials Needed:</b> Teachers guide to activity: <a href="http://cpaws-southernalberta.org/upload/Animal_Game.pdf">http://cpaws-southernalberta.org/upload/Animal_Game.pdf</a></p>
<p><b>Overall Plan ( 30-40 mins):</b></p> <ol style="list-style-type: none"> <li>1. Introduce the characters one at a time: producer, herbivore, carnivore, decomposer. Refer to Table 1 in teacher’s guide as you describe the goals of each organism (character) and who they chase and are chased by in the game. Show each of the four cards types to the group, and emphasize that they must collect as many cards as possible to survive. After you’ve described the roles, hand out character cards. As in most ecosystems, there are far more producers than herbivores, far more herbivores than carnivores, etc.</li> <li>2. As teacher you will play the role of sun - ‘the giver of all life’. Rather than having a steadily growing pile of “dead” students, you can give these students a second lease on life by issuing them another card.</li> <li>3. Answer any questions, tell students approximately how long the game will last (10-20 minutes). Give the producers a 10 second head start, followed by herbivores, etc.</li> <li>4. Discussion: to begin, ask students to count the cards that they have. You may wish to establish a cutoff point (i.e. any surviving herbivores with less than 5 producer cards is deemed to have died of starvation). <ul style="list-style-type: none"> <li>• What did you feel when you played the game. Is this how a wild animal might feel?</li> <li>• What strategies did you use to avoid being caught? Do plants or animals use these strategies?</li> <li>• What strategies did you use to catch other students? Do plants or animals use these strategies?</li> <li>• If humans were introduced to this game, what rules would you give them? What about disease? What about famine?</li> </ul> </li> </ol>



### Whole Group Reading Comprehension Instruction

**Emphasis:** Reading across multiple texts

**Motivation:**

Success -- providing multiple texts to secure knowledge about it  
 Conceptual theme -- using a guiding question for several days of instruction

**Texts:**

Text 1: *Las cadenas alimentarias y tú* (Food Chains and You) -Bobbie Kallman  
 Text 2: *Cadenas y redes alimentarias: La lucha por la supervivencia* (Food Chains and Webs: The Struggle to Survive)- Andrew Solway  
 Text 3: *Historias de ciencias de FOSS: Ambientes* (Foss Science Stories: Environments) -Delta Education

**Additional Materials Needed:**

[Reading Across Multiple Texts - Energy Flow](#)

**Overall Plan ( 15 mins):**

Tell students that now that they've read across multiple texts to find the answers to their questions, they need to communicate those answers to others using a sentence frame. It is on the bottom of the hand out [Reading Across Multiple Texts - Energy Flow](#)

Read the sentence frame aloud as students follow along:

We learned a lot about energy flow in an ecosystem by reading several texts. From the first book, *Las cadenas alimentarias y tú*, we learned \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. In addition to this, we read another book called *Cadenas y redes alimentarias: La lucha por la supervivencia* and learned \_\_\_\_\_ and \_\_\_\_\_. This helped us read a more challenging text, *Foss Science Stories: Environments*. For example, when we read *Foss Science Stories: Environments* it helped to know that \_\_\_\_\_. It helped better understand energy flow in an ecosystem because \_\_\_\_\_.

Model how to refer back to the notes to pick out the most important ideas and place them in the sentence frame.

### Small Group Instruction

**Emphasis:** Reading across multiple texts

**Motivation:** Choice -- student input into topics or the sequence of books

Collaboration -- exchanging ideas

Success -- providing multiple texts to secure knowledge about it

Conceptual theme -- using a guiding question for several days of instruction
<p><b>Texts:</b>  Text 1: <i>Las cadenas alimentarias y tú</i> (Food Chains and You) -Bobbie Kallman  Text 2: <i>Cadenas y redes alimentarias: La lucha por la supervivencia</i> (Food Chains and Webs: The Struggle to Survive)- Andrew Solway  Text 3: <i>Historias de ciencias de FOSS: Ambientes</i> (Foss Science Stories: Environments) -Delta Education</p>
<p><b>Additional Materials Needed:</b>  <a href="#">Reading Across Multiple Texts - Energy Flow</a></p>
<p><b>Overall Plan ( 15 mins/group):</b>  Review the sentence frame with students. Give students time to re-read their notes and complete the sentence frame for both questions. After 10 minutes of work time, students will share their sentence frames by reading them aloud to the group.</p>

<b>Extended Writing (Station while teacher does small group instruction)</b>
<b>Emphasis:</b> Vocabulary; Poster presentation
<b>Motivation:</b> Choice -- self-selection of vocabulary words
<b>Texts:</b> X
<p><b>Additional Materials Needed:</b>  Word Log  Poster Board</p>
<p><b>Overall Plan ( 20 mins):</b></p> <p><b>Word Log.</b> Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.</p> <p>Tomorrow, students will share their learning around the question they investigated this week. We will share this information in the form of a carousel walk. This is a structured discussion in which small groups rotate around the room reading information posted by peers. Students interact with the posters by leaving questions or comments. During independent writing time today, students need to prepare their <b>poster</b> for the carousel walk.</p>

<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative Reading
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
<p>Suggested Fiction Texts:</p> <p style="padding-left: 40px;"><u>Above Grade Level:</u>  <i>Julie y los lobos (Julie of the Wolves)</i> -Jean Craighead George  <i>El signo del castor (The Sign of the Beaver)</i> - Elizabeth George Speare</p> <p style="padding-left: 40px;"><u>Grade Level:</u>  <i>Mi rincón en la montaña (My Side of the Mountain)</i> -Jean Craighead George  <i>Isla de los delfines azules (Island of the Blue dolphins)</i> - Scott O'dell  <i>El Graznido Del Cuervo(The Cry of the Crow)</i>- Jean Craighead George</p> <p style="padding-left: 40px;"><u>Below Grade Level:</u>  TBD</p> <p>Students may also:  Read the CORI books  Read other nonfiction books of interest  Choose another text of their interest</p>
<p><b>Additional Materials Needed:</b>  <a href="#">Independent Reading Log</a>  <a href="#">Reading Response Journal</a></p>
<p><b>Overall Plan ( 20 mins):</b>  Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.</p> <p>Each day students will fill out independent <a href="#">Reading Log</a> when finished.</p> <p>In addition on Monday, Wednesday and Friday, students will complete a <a href="#">Reading Response Journal</a>. Students meet with peers reading the same novel and share responses with each other the designated days.</p>
<b>Share</b>
(5 mins) In pairs and then in large group, define and give an example of a producer, herbivore, carnivore or decomposer.

## Lesson 22

Science or Shared Reading
<p><b>Emphasis:</b> Sharing learning about core concepts</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p style="padding-left: 40px;"><b>Benchmark:</b> Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs.</p>
<p><b>Motivation:</b> Relevance -- Matching text and task to student interest Choice -- self selection of topic Success-- peer and teacher feedback regarding success Conceptual theme -- connecting concepts or ideas within a theme</p>
<p><b>Texts:</b> X</p>
<p><b>Additional Materials Needed:</b> Students' posters for carousel walk Post-its</p>
<p><b>Overall Plan (50 mins):</b> (10 minutes) Aquarium observations ---group members will share the responsibility of caring for the aquarium: daily feeding, checking the temperature, and monitoring the water conditions. All observations are to be recorded on their individual Aquarium Logs.</p> <p>(40 minutes) Today students will share what they learned from reading across multiple texts to answer their questions related to ecosystems and food chains.</p> <ol style="list-style-type: none"> <li>1. Students post their poster around the room.</li> <li>2. Assign each student to a starting point in front of a poster. students to small groups.</li> <li>3. Allow students a structured amount of time to read and respond to the poster with sticky notes. After the designated time, have students walk to the next poster and allow the same amount of time to respond.</li> <li>4. Continue until each student has read each poster.</li> <li>5. Conclude the carousel walk by discussing student learning as a whole class.</li> </ol>

<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b> Animal habitats, food chain, ecosystems
<b>Motivation:</b> Choice -- self-selection of books and topic Collaboration -- team project
<b>Texts:</b> Depending on the animal and habitat being studied.
<b>Additional Materials Needed:</b> <a href="#">Habitat Design project</a>
<b>Overall Plan (15 mins):</b>  Tell to students that I'll be giving them a group challenge to show what they know about ecosystems and food chains.  Use the <a href="#">Habitat Design project</a> hand out to explain the scenario and expectations. Students will work in groups of 3-4 determined by the teacher.
<b>Small Group Instruction</b>
<b>Emphasis:</b> Animal habitats, food chain, ecosystems
<b>Motivation:</b> Choice -- self-selection of books and topic Collaboration -- team project
<b>Texts:</b> Depending on the animal and habitat being studied.
<b>Additional Materials Needed:</b> <a href="#">Habitat Design project hand out</a>
<b>Overall Plan ( 15 mins/group):</b>  Show students the Group Planning Sheet which is part of the hand out <a href="#">Habitat Design project</a> . As a group, read through the elements of the planning sheet. Tell students that before they can make their diorama or poster, this sheet must be completed by all team members.  Students should use this time to complete the basic information on the Group Planning Sheet and assign roles for the other elements that require research.  With remaining time, students should identify the books that will help them complete this project.

<b>Extended Writing (Station while teacher does small group instruction)</b>
<b>Emphasis:</b> Vocabulary; animal habitats, food chain, ecosystems
<b>Motivation:</b> Choice -- self-selection of vocabulary words; self-selection of books and topic Collaboration -- team project
<b>Texts:</b> Depending on the animal and habitat being studied.
<b>Additional Materials Needed:</b> <a href="#">Word Log</a> <a href="#">Habitat Design project hand out</a>
<b>Overall Plan (20 mins):</b>  <a href="#">Word Log</a> . Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.  With their small group, students will continue reading and note-taking on their habitat design project.

<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative Reading
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
Suggested Fiction Texts: <u>Above Grade Level:</u> <i>Julie y los lobos (Julie of the Wolves)</i> -Jean Craighead George <i>El signo del castor (The Sign of the Beaver)</i> - Elizabeth George Speare <u>Grade Level:</u> <i>Mi rincón en la montaña (My Side of the Mountain)</i> -Jean Craighead George <i>Isla de los delfines azules (Island of the Blue dolphins)</i> - Scott O'dell <i>El Graznido Del Cuervo(The Cry of the Crow)</i> - Jean Craighead George <u>Below Grade Level:</u> TBD Students may also: Read the CORI books Read other nonfiction books of interest Choose another text of their interest

**Additional Materials Needed:**

[Independent Reading Log](#)

[Reading Response Journal](#)

**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

**Share**

(5 mins) Share the animal habitat you are designing and something interesting you've learned about that animal today.

## Lesson 23

<b>Science or Shared Reading</b>
<p><b>Emphasis:</b> Aquarium observations; Introduce next Shared Reading text</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p style="padding-left: 40px;"><b>Benchmark:</b> Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs.</p>
<p><b>Motivation:</b> Conceptual Theme</p>
<p><b>Texts:</b> <i>El Gran Capoquero</i> (The Great Kapok Tree) -Lynn Cherry</p>
<p><b>Additional Materials Needed:</b> <a href="#">Aquarium Log</a></p>
<p><b>Overall Plan (30 mins):</b></p> <p>(10 minutes) Aquarium observations ---group members will share the responsibility of caring for the aquarium: daily feeding, checking the temperature, and monitoring the water conditions. All observations are to be recorded on their individual Aquarium Logs.</p> <p>(20 minutes) Read aloud the text <i>El Gran Capoquero</i> (The Great Kapok Tree) by Lynn Cherry. Today's reading to for enjoyment. Ask students what connections they can make between this fictional text and our study of ecosystems.</p>
<b>Whole Group Reading Comprehension Instruction</b>
<p><b>Emphasis:</b> Animal habitats, food chain, ecosystems</p>
<p><b>Motivation:</b> Choice -- self-selection of books and topic Collaboration -- team project</p>
<p><b>Texts:</b> Depending on the animal and habitat being studied.</p>
<p><b>Additional Materials Needed:</b> <a href="#">Habitat Design project</a></p>
<p><b>Overall Plan (15 mins):</b> Begin by showing an example of what a quality habitat project might look like. In pairs, students should use the rubric in the <a href="#">Habitat Design project</a> hand out to give this project a grade. Then, lead a discussion about what make this project a quality project.</p>



<b>Small Group Instruction</b>
<b>Emphasis:</b> Animal habitats, food chain, ecosystems
<b>Motivation:</b> Choice -- self-selection of books and topic Collaboration -- team project
<b>Texts:</b> Depending on the animal and habitat being studied.
<b>Additional Materials Needed:</b> <a href="#">Habitat Design project hand out</a>
<b>Overall Plan ( 15 mins/group):</b> Begin by having students share the information they have in their Group Planning Sheet ( <a href="#">Habitat Design project</a> ) so far. This is an opportunity for students to ask questions, see what their peers are doing and get feedback. With the remaining time, students will continue working on their research. Assist as needed.
<b>Extended Writing (Station while teacher does small group instruction)</b>
<b>Emphasis:</b> Vocabulary; animal habitats, food chain, ecosystems
<b>Motivation:</b> Choice -- self-selection of vocabulary words; self-selection of books and topic Collaboration -- team project
<b>Texts:</b> Depending on the animal and habitat being studied.
<b>Additional Materials Needed:</b> <a href="#">Word Log</a> <a href="#">Habitat Design project hand out</a>
<b>Overall Plan ( 20 mins):</b>  <a href="#">Word Log</a> . Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.  With their small group, students will continue reading and note-taking on their habitat design project.
<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative Reading
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.

**Suggested Fiction Texts:**Above Grade Level:*Julie y los lobos (Julie of the Wolves)* -Jean Craighead George*El signo del castor (The Sign of the Beaver)* - Elizabeth George SpeareGrade Level:*Mi rincón en la montaña (My Side of the Mountain)* -Jean Craighead George*Isla de los delfines azules (Island of the Blue dolphins)* - Scott O'dell*El Graznido Del Cuervo(The Cry of the Crow)*- Jean Craighead GeorgeBelow Grade Level:

TBD

Students may also:

Read the CORI books

Read other nonfiction books of interest

Choose another text of their interest

**Additional Materials Needed:**[Independent Reading Log](#)[Reading Response Journal](#)**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

**Share**

(5 mins) In pairs and in whole group, share your favorite part or a connection you can make to the book *El Gran Capoquero* (The Great Kapok Tree).

## Lesson 24

<b>Science or Shared Reading</b>
<p><b>Emphasis:</b> Aquarium observations; habitat project</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p style="padding-left: 40px;"><b>Benchmark:</b> Describe a natural system in Minnesota, such as a wetland, prairie, or garden, in terms of the relationships among its living and nonliving parts, as well as inputs and outputs.</p>
<p><b>Motivation:</b> Relevance -- hands-on or observational activities</p>
<p><b>Texts:</b> X</p>
<p><b>Additional Materials Needed:</b> <a href="#">Aquarium Log</a></p>
<p><b>Overall Plan (30 mins):</b>            (10 minutes) Aquarium observations ---group members will share the responsibility of caring for the aquarium: daily feeding, checking the temperature, and monitoring the water conditions. All observations are to be recorded on their individual Aquarium Logs. Today is the <u>last day</u> with the aquariums.</p> <p>(20 minutes) At the end of class today, students will present their habitat projects. During this time, whole group reading instruction time and guided reading, students will finish their poster or diorama projects. A museum-style presentation of the final project will take place in the last 40 minutes of class.</p>
<b>Whole Group Reading Comprehension Instruction</b>
<p><b>Emphasis:</b> Habitat project</p>
<p><b>Motivation:</b> Choice -- self-selection of books and topic            Collaboration -- team project</p>
<p><b>Texts:</b>            Depending on the animal and habitat being studied</p>
<p><b>Additional Materials Needed:</b>  <a href="#">Habitat Design project hand out</a></p>
<p><b>Overall Plan (15 mins):</b>            This is time for students to finish their habitat projects and rehearse for short, informal presentation of what they've created and learned.</p>

<b>Small Group Instruction</b>
<b>Emphasis:</b> Habitat project
<b>Motivation:</b> Choice -- self-selection of books and topic Collaboration -- team project
<b>Texts:</b> Depending on the animal and habitat being studied.
<b>Additional Materials Needed:</b> <a href="#">Habitat Design project hand out</a>
<b>Overall Plan (15 mins):</b> This is time for students to finish their habitat projects and rehearse for short, informal presentation of what they've created and learned.

<b>Extended Writing (Station while teacher does small group instruction)</b>
<b>Emphasis:</b> Habitat project
<b>Motivation:</b> Choice -- self-selection of books and topic Collaboration -- team project
<b>Texts:</b> Depending on the animal and habitat being studied.
<b>Additional Materials Needed:</b> <a href="#">Habitat Design project hand out</a>
<b>Overall Plan (15 mins):</b> This is time for students to <u>present</u> their habitat projects to the class. Groups will do a short, informal presentation of what they've created and learned. Then, posters and dioramas will be placed around the room for classmates to observe and learn from.

<b>Independent Reading (Station while teacher does small group instruction)</b>
<b>Emphasis:</b> Habitat project
<b>Motivation:</b> Choice -- self-selection of books and topic Collaboration -- team project
<b>Texts:</b> Depending on the animal and habitat being studied.
<b>Additional Materials Needed:</b>

### Habitat Design project hand out

**Overall Plan (15 mins):**

This is time for students to present their habitat projects to the class. Groups will do a short, informal presentation of what they've created and learned. Then, posters and dioramas will be placed around the room for classmates to observe and learn from.

**Share**

(5 mins) In pairs and then in whole group, share one thing you learned from a classmate's habitat project.

APPENDIX K:  
Lessons 25-33. Subtopic 3

## Lesson 25

Science or Shared Reading
<p><b>Emphasis:</b> Core concept- invasive species</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p><b>Benchmark:</b> Explain what would happen to a system such as a wetland, prairie or garden if one of its parts were changed.</p>
<p><b>Motivation:</b> Relevance -- hands-on or observational activities</p>
<p><b>Texts:</b> X</p>
<p><b>Additional Materials Needed:</b>  <a href="#">Earthworm Observation Log</a> (All handouts and worksheets for subtopic 3 are located in Appendix N)            Teacher's Guide to experiment:  <a href="http://www.nrri.umn.edu/worms/educator/activities_observatory.html">http://www.nrri.umn.edu/worms/educator/activities_observatory.html</a></p>
<p><b>Overall Plan ( 50 mins):</b>            The objective of this demonstration is to illustrate what earthworms do and how they affect soil conditions. Do this by setting up an experiment where we simulate a natural soil system and then add worms to one half but not the other. Then observe the demonstration for changes.</p> <p><u>Materials Needed</u></p> <ul style="list-style-type: none"> <li>• Two containers, approximately 2.5 gallons each. An aquarium works great.</li> <li>• The soil layers               <ul style="list-style-type: none"> <li>○ Sand – bottom 2 inches or so (solely for drainage)</li> <li>○ Soil – about a 4-6 inch layer of a light colored loamy soil (beige, red, any other color but black so the change to black earthworm cast material is evident)</li> <li>○ Leaf Litter – on top put about a 3 inch layer of crushed, dried leaves. Hardwood tree litter is best.</li> </ul> </li> <li>• The Worms, any kind of earthworm will work. For the fastest and most dramatic results, use either leaf worms (<i>Lumbricus rubellus</i>) or night crawlers (<i>Lumbricus terrestris</i>). Use enough worms to equal 200-400 individuals per square meter.</li> </ul> <p><u>Procedure</u></p> <ol style="list-style-type: none"> <li>1. Each group will receive two small aquarium containers, one for the control and one for the soil with earthworms.</li> <li>2. Build the layers of soil from the bottom up, smoothing each as you go so they are level and equal in both containers.           <ol style="list-style-type: none"> <li>a. Sand goes on the bottom. This is primarily for drainage so the upper layers do not get overly saturated.</li> </ol> </li> </ol>

- b. Loamy soil simulates the thickest and deepest layer of soil generally found in rich, mesic hardwood forests. This layer is often called the “mineral soil.” Leaf litter simulates the forest floor or “duff” layer of earthworm-free hardwood forests. In a natural forest, this layer would be full of insects, roots, fungal hyphae and hordes of other organisms. But for our purposes, this simulated duff layer does a great job.
- c. If the soil and litter are very dry, sprinkle water slowly over the whole demonstration to moisten the upper layers with a minimal amount of flow through to the sand. Maintain moisture levels throughout the run of the experiment since earthworms will become inactive when conditions are to extreme (to dry, hot or cold). They can live in saturated conditions but they do not prefer it.
3. Use tape or string to mark the top of each layer on the outside of the aquarium (these will change during the demonstration and if you don't mark them it's not as obvious).
  4. Add worms. They will find their way down, no need to bury them, just thrown them in on top of everything! Be sure to make note of how many you put in and the date.
  5. Wait, keep observations. If you used night crawlers, you should see obvious activity on that side within a few days or weeks. After a month or more, the differences between the earthworm-free and the earthworm populated sides will be obvious.

Before the earthworm observatories are put away, review the concepts of control and variable with students. Also, have students make and record hypotheses of what will happen in the earthworm observatory over time.

This lesson is from:

University of Minnesota Duluth (n.d.). *Games and activities: Making a worm observatory*. Retrieved from:

[http://www.nrri.umn.edu/worms/educator/activities\\_observatory.html](http://www.nrri.umn.edu/worms/educator/activities_observatory.html)

### Whole Group Reading Comprehension Instruction

**Emphasis:** Questioning, Core concept: Invasive species

**Motivation:** Relevance -- connecting reading to experience or observation

**Texts:**

*Animales invasores* (Animal Invaders) by Amanda Doering Tourville

**Additional Materials Needed:** X

**Overall Plan ( 20 mins):**

Introduce the text *Animales invasores*. Discuss the cover illustration together with students. In groups, students take a book walk and discuss interesting illustrations. Students share what they know about invasive species with the whole



class. Ask students if any of these animals on the cover were seen on the earthworm observatory. As a class, discuss what connection there might be between earthworms and invasive species.

Read pgs 4-9 from *Animales invasores* as students read along quietly. Discuss the connections they can make between students' personal experiences, what they may have seen on the news, our earthworm observatories and the information presented in *Animales invasores*.

Ask students what questions they about invasive species. Post one or two good questions on class [Curiosity Chart](#).

### Small Group Instruction

**Emphasis:** Organizing graphically

**Motivation:** Conceptual theme -- connecting concepts or ideas within a theme

**Texts:** *Animales invasores* (Animal Invaders) by Amanda Doering Tourville  
*Plantas fuera de lugar* (Plants Out of Place) by Courtney Farrell  
*Por qué se extinguen las plantas* (Why Plants Become Extinct) by Julie K. Lundgren

**Additional Materials Needed:** Blank anchor chart to write down keywords to define "invasive species"

#### Overall Plan ( 15 mins/group):

The purpose of small group today is for students to get familiar with the three texts related to invasive species and to start identifying key words or phrases to define "invasive species".

Tell students that this week when we're reading our skill is organizing graphically. This skill helps us organize and understand the information we're reading. We'll be using evidence from the text and a circle map to help us do this.

Start by giving students copies of the three books and time to explore them. After about 10 minutes, guide a discussion about what students saw and some keywords to define "invasive species" they came across. Write down these keywords and tell students you'll come back to them tomorrow.

### Extended Writing (Station while teacher does small group instruction)

**Emphasis:** Vocabulary; Core concept: invasive species

**Motivation:** Choice -- self-selection of vocabulary words  
 Relevance -- connecting reading to experience or observation

<b>Texts: x</b>
<b>Additional Materials Needed:</b> <a href="#">Word Log</a> <a href="https://www.youtube.com/watch?v=EqjJk8juGS">Youtube video about earthworms as invasive species:</a> <a href="https://www.youtube.com/watch?v=EqjJk8juGS">https://www.youtube.com/watch?v=EqjJk8juGS</a>
<b>Overall Plan ( __ mins):</b>  <p><b>Word Log.</b> Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.</p> <p>Additionally, Students will watch the Youtube video about earthworms as invasive species. Then, they will comment on Schoology discussion forum about something they learned from the video.</p>

<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Introduce “NEW” Books; Student book promotion.
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
<p>Suggested Fiction Texts:</p> <ul style="list-style-type: none"> <li>• Students are encouraged to go back to books listed in subtopics 1 and 2 and choose a book they have not yet read.</li> <li>• Time will be given for student promotion of books</li> </ul> <p>Students may also:</p> <ul style="list-style-type: none"> <li>Read the CORI books</li> <li>Read other nonfiction books of interest</li> <li>Choose another text of their interest</li> </ul>
<b>Additional Materials Needed:</b> <a href="#">Independent Reading Log</a> <a href="#">Reading Response Journal</a>
<b>Overall Plan ( 20 mins):</b> <p>Students choose a book from the list above for independent reading. Time will be given for student promotion of books. Students should talk briefly about a book they read and liked, who would enjoy this book and why they recommend it.</p> <p>Students read two or three chapters on their own for enjoyment.</p> <p>Each day students will fill out independent <a href="#">Reading Log</a> when finished.</p>

In addition on, Monday, Wednesday and Friday, students will complete a Reading Response Journal. Students meet with peers reading the same novel and share responses with each other the designated days.

### Share

(5 mins) In pairs and then in whole group, share something you learned about invasive species.

## Lesson 26

Science or Shared Reading
<p><b>Emphasis:</b> Shared reading; Objeto directo (Direct objects)</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p><b>Benchmark:</b> Explain what would happen to a system such as a wetland, prairie or garden if one of its parts were changed.</p>
<p><b>Motivation:</b> Relevance -- providing texts that are appealing and fascinating; hands-on or observational activities; connecting reading to experience or observation.</p>
<p><b>Texts:</b> <i>El gran capoquero</i> (The Great Kapok Tree) -Lynn Cherry</p>
<p><b>Additional Materials Needed:</b> <a href="#">Earthworm Observation Log</a> <a href="#">Objeto Directo anchor chart</a></p>
<p><b>Overall Plan (30 mins):</b> (10 minutes) Earthworm observations ---group members will share the responsibility of caring for the earthworm observatories. All observations are to be recorded on their individual Earthworm Logs.</p> <p>(20 minutes) Introduce the Direct Object Song, to the tune of this old man: <i>me, te, lo, nos, os, los</i></p> <p><i>son objetos indirectos</i></p> <p><i>significa: qué o para quien</i></p> <p><i>ubicado antes de los verbos</i></p> <p>Song adapted from: <a href="https://www.youtube.com/watch?v=xpNIPt5gDzg">https://www.youtube.com/watch?v=xpNIPt5gDzg</a></p> <p>Tell students that as they reread <i>El gran capoquero</i> they will be looking for these direct objects. Ask students to silently re-read the text and identify the pronouns (me, te, nos, os, lo, la, los las). As the you read aloud the text a second time, students should raise their hand every time a pronoun is read.</p> <p>Give the students a modified copy of the text <i>El gran capoquero</i>. Point out how the direct object pronouns replace the words in parenthesis. Today when students are sent off to read and practice fluency with partners, they should read the text and the word in</p>

parenthesis. The idea is to reinforce that words like (lo, la) mean something important in the text.

### Whole Group Reading Comprehension Instruction

**Emphasis:** Organizing Graphically, Core concept: Invasive species

**Motivation:** Relevance -- connecting reading to experience or observation

**Texts:**

*Animales invasores* (Animal Invaders) by Amanda Doering Tourville

**Additional Materials Needed:** X

**Overall Plan ( 15 mins):**

Show students the circle map. Ask them what they know about this map (students at my school have had lots of experience with this map). Tell students it is used to define concepts. Today the task is to find keywords in the text to define invasive species.

- Tell students to write invasive species in the middle of the map.
- Students individually generate what they know about invasive species through background knowledge, which is recorded in the outer circle.
- Students look at the information in the map to identify patterns of information, connections, questions and misconceptions.
- Students will use the information as a starting point for information gathering about invasive species
- Students should revise the Circle Map as they learn new information in small group today and refer to it when writing their definition of invasive species.
- Students will use a different color pencil to record the new information they learn. This way students can see what they had learned over time.

National Urban Alliance (n.d.) *STRATEGY: Thinking Map - Circle Map*. Retrieved from:

[http://www.nuatc.org/old\\_site/projects/greene\\_county/institute\\_files/STRATEGY-%20Thinking%20Maps%20all.pdf](http://www.nuatc.org/old_site/projects/greene_county/institute_files/STRATEGY-%20Thinking%20Maps%20all.pdf)

<b>Small Group Instruction</b>
<b>Emphasis:</b> Organizing graphically
<b>Motivation:</b> Conceptual theme -- connecting concepts or ideas within a theme
<b>Texts:</b> <i>Animales invasores</i> (Animal Invaders) by Amanda Doering Tourville <i>Plantas fuera de lugar</i> (Plants Out of Place) by Courtney Farrell <i>Por qué se extinguen las plantas</i> (Why Plants Become Extinct) by Julie K. Lundgren
<b>Additional Materials Needed:</b> Blank anchor chart to model circle map
<p><b>Overall Plan (15 mins/group):</b> Review keywords that students identified yesterday related to invasive species. Instruct students to add those to their circle map. Tell students that today they will use text features and their ability to scan for information to find more keywords to add to their circle map. These keywords will ultimately help us write a definition tomorrow.</p> <p>Have students generate a list of page numbers across the three books where information and/or definitions about invasive species are listed. Scaffold the process this way:</p> <ul style="list-style-type: none"> <li>• As a group, read through the first page, writing down keywords you all agree upon</li> <li>• Then, in pairs, students read through the second page and write down key words. Before moving on all student pairs share the information they wrote down. This is an opportunity to compare answers and learn from peers.</li> <li>• Now students are read to do this task on their own, working through each of the pages listed and writing own keywords.</li> </ul>
<b>Extended Writing (Station while teacher does small group instruction)</b>
<b>Emphasis:</b> Vocabulary; Core concept: invasive species
<b>Motivation:</b> Choice -- self-selection of vocabulary words Relevance -- connecting reading to experience or observation
<b>Texts:</b> <i>Animales invasores</i> (Animal Invaders) by Amanda Doering Tourville <i>Plantas fuera de lugar</i> (Plants Out of Place) by Courtney Farrell <i>Por qué se extinguen las plantas</i> (Why Plants Become Extinct) by Julie K. Lundgren
<b>Additional Materials Needed:</b> <b>Word Log</b> Student science notebook for Circle Map
<b>Overall Plan (20 mins):</b>

**Word Log.** Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.

Circle Map. Students will continue reading and notetaking to complete the circle map about invasive species.

### Independent Reading (Station while teacher does guided reading groups)

**Emphasis:** Narrative reading

**Motivation:** Choice - Students increase ownership of reading by selecting text.

Suggested Fiction Texts:

- Students are encouraged to go back to books listed in subtopics 1 and 2 and choose a book they have not yet read.
- Time will be given for student promotion of books

Students may also:

- Read the CORI books
- Read other nonfiction books of interest
- Choose another text of their interest

**Additional Materials Needed:**

[Independent Reading Log](#)  
[Reading Response Journal](#)

**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

### Share

(5 mins) In pairs and in large group, share something you learned about invasive species.

## Lesson 27

<b>Science or Shared Reading</b>
<p><b>Emphasis:</b> Core concept- Invasive species</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p><b>Benchmark:</b> Explain what would happen to a system such as a wetland, prairie or garden if one of its parts were changed.</p>
<p><b>Motivation:</b> Relevance -- hands-on or observational activities; providing texts that are appealing and fascinating.</p>
<p><b>Texts:</b> “The Woods that got Worms” By Andrew Gabel from <a href="http://www.nrri.umn.edu/worms/educator/activities_observatory.html">http://www.nrri.umn.edu/worms/educator/activities_observatory.html</a></p>
<p><b>Additional Materials Needed:</b> Student copies of the short story “The Woods that got Worms” PowerPoint from Great Lakes Watch</p>
<p><b>Overall Plan (40 mins):</b> (10 minutes) Earthworm observations ---group members will share the responsibility of caring for the earthworm observatories. All observations are to be recorded on their individual Earthworm Logs.</p> <p>(30 minutes) Introduce the short story “The Woods that got Worms”. Have students read it silently to themselves first. For the second reading, the teacher will read the narrator parts and students will act out one of the following roles: Sugar Maples, Trillium, forest trees, spiders, birds, frogs, and snakes, insects, worms and buckthorns.</p> <p>After the reading, direct a student discussion around these questions:</p> <ol style="list-style-type: none"> <li>a. What happened to the forest once earthworms were introduced?</li> <li>b. What are the relationships between the plants, animals, and everything else that lived in the forest?</li> <li>c. How do these relationships affect each other?</li> <li>d. Why are all of the members of the forest important?</li> </ol> <p>Conclude by showing students the images in the PowerPoint from Great Lakes Watch. Guide students in a think-pair-share about something they want to remember from the short story or powerpoint.</p>



<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b> Organizing Graphically, Core concept: invasive species
<b>Motivation:</b> Relevance -- connecting reading to experience or observation
<b>Texts:</b> <i>Animales invasores</i> (Animal Invaders) by Amanda Doering Tourville
<b>Additional Materials Needed:</b> X
<p><b>Overall Plan ( 15 mins):</b></p> <p>Tell students that today they will learn how to take the information from the circle map to create a definition.</p> <p>Show a completed example of a circle map. Model how to reread the keywords and find themes. Model how to use these repeating keywords to create a definition that includes the big ideas related to invasive species. In small group today, students will expand on this to write a paragraph about invasive species.</p>

<b>Small Group Instruction</b>
<b>Emphasis:</b> Organizing graphically
<b>Motivation:</b> Conceptual theme -- connecting concepts or ideas within a theme
<b>Texts:</b> <i>Animales invasores</i> (Animal Invaders) by Amanda Doering Tourville <i>Plantas fuera de lugar</i> (Plants Out of Place) by Courtney Farrell <i>Por qué se extinguen las plantas</i> (Why Plants Become Extinct) by Julie K. Lundgren
<b>Additional Materials Needed:</b> Paragraph Writing anchor chart
<p><b>Overall Plan (15 mins/group):</b></p> <p>Give students time to formulate their definition of invasive species based on their circle map. Show students how the definition they write will serve as a topic sentence and they can create supporting sentences with the other information left in the circle map. Students will need to write their supporting sentences during independent writing time. They will share their finished definition during tomorrow's small group lesson.</p>

<b>Extended Writing (Station while teacher does small group instruction)</b>
<b>Emphasis:</b> Vocabulary; Organizing graphically
<b>Motivation:</b> Choice -- self-selection of vocabulary words Conceptual theme -- connecting concepts or ideas within a theme
<b>Texts:</b> X
<b>Additional Materials Needed:</b> <a href="#">Word Log</a> Circle Map
<b>Overall Plan (20 mins):</b>  <a href="#">Word Log</a> . Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.  Additionally, students will finish writing their paragraph about invasive species using the topic sentence (definition) they wrote during small group and the ideas in their circle map.
<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative reading
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
Suggested Fiction Texts: <ul style="list-style-type: none"> <li>• Students are encouraged to go back to books listed in subtopics 1 and 2 and choose a book they have not yet read.</li> <li>• Time will be given for student promotion of books</li> </ul> Students may also: <ul style="list-style-type: none"> <li>Read the CORI books</li> <li>Read other nonfiction books of interest</li> <li>Choose another text of their interest</li> </ul>
<b>Additional Materials Needed:</b> <a href="#">Independent Reading Log</a> <a href="#">Reading Response Journal</a>
<b>Overall Plan ( 20 mins):</b> Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.  Each day students will fill out independent <a href="#">Reading Log</a> when finished.

In addition on Monday, Wednesday and Friday, students will complete a Reading Response Journal. Students meet with peers reading the same novel and share responses with each other the designated days.

### Share

(5 mins) In pairs and in small group, share something they liked about the short story "The Woods that got Worms".

## Lesson 28

Science or Shared Reading
<p><b>Emphasis:</b> Shared reading; Objeto directo (Direct objects)</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p><b>Benchmark:</b> Explain what would happen to a system such as a wetland, prairie or garden if one of its parts were changed.</p>
<p><b>Motivation:</b> Relevance -- providing texts that are appealing and fascinating; hands-on or observational activities; connecting reading to experience or observation.</p>
<p><b>Texts:</b> <i>El gran capoquero</i> (The Great Kapok Tree) -Lynn Cherry</p>
<p><b>Additional Materials Needed:</b> <a href="#">Earthworm Observation Log</a> <a href="#">Objeto Directo anchor chart</a></p>
<p><b>Overall Plan (30 mins):</b></p> <p>(10 minutes) Earthworm observations ---group members will share the responsibility of caring for the earthworm observatories. All observations are to be recorded on their individual Earthworm Logs.</p> <p>(20 minutes) Begin by reviewing the Direct Object Song (day 26). Remind students that the last time we read <i>El gran capoquero</i>, we identified the indirect object. Ask students to silently re-read the text and identify the pronouns (me, te, nos, os, lo, la, los las). After this reading, teacher and students circle the pronouns in the portion of text being used. Help students identify pronouns they may have missed. Use the <a href="#">Objeto Directo anchor chart</a> to explain how the pronouns replace the name of the direct object with a pronoun.</p> <p>Tell the students that we will do a small group activity to rearrange some works in the text <i>El gran capoquero</i>. Divide the class into small groups of three or four. Each group receives a sentence; each student receives one card. Each group takes a turn in front of the class, standing in a row to create a sentence in the order that you call them.</p> <p>For the sentence The mailman / brought / us / a package, begin by asking the student with the subject card to come up, then the student with the verb. Next ask, “What did the mailman bring?” and the direct object card goes up. Then ask, “Who did he bring it for?” The student with the indirect object card goes up, and stands in the correct place. Continue with each group.</p> <p>This lesson is modified from: BrainPop (n.d). “Object Pronouns Lesson Plan”. Retrieved from: <a href="https://educators.brainpop.com/lesson-plan/2-1-3-object-pronouns-lesson-plan/">https://educators.brainpop.com/lesson-plan/2-1-3-object-pronouns-lesson-plan/</a></p>

<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b> Organizing Graphically, Core concept: invasive species
<b>Motivation:</b> Relevance -- connecting reading to experience or observation
<b>Texts:</b> <i>Animales invasores</i> (Animal Invaders) by Amanda Doering Tourville
<b>Additional Materials Needed:</b> X
<p><b>Overall Plan ( 15 mins):</b></p> <p>Tell students that today we will continue with circle maps for defining, but with a new question. The new question is: <i>What effects do invasive species have on an ecosystem?</i></p> <p>Instruct students to set up a circle map in their notebooks and write the question in the middle. Read aloud pages 24-25 from the text <i>Animales invasores</i>. Tell the students that the first time you read this section, they should just listen (no note-taking). The second time you read this section they can take notes.</p> <p>After you have read the selection a second time, lead a pair-share with students to reveal the key ideas they wrote down.</p> <p>Tell students that in small group today they will add more keywords to their circle map. In independent writing time, they will formulate and answer in paragraph form like we did yesterday.</p>
<b>Small Group Instruction</b>
<b>Emphasis:</b> Organizing graphically
<b>Motivation:</b> Conceptual theme -- connecting concepts or ideas within a theme
<b>Texts:</b> <i>Animales invasores</i> (Animal Invaders) by Amanda Doering Tourville <i>Plantas fuera de lugar</i> (Plants Out of Place) by Courtney Farrell <i>Por qué se extinguen las plantas</i> (Why Plants Become Extinct) by Julie K. Lundgren
<b>Additional Materials Needed:</b> Paragraph Writing anchor chart
<p><b>Overall Plan ( 15 mins/group):</b></p> <p>Begin by having students share the paragraph they wrote yesterday during independent writing time. This is an opportunity to learn from peers and ask questions.</p> <p>With the remaining time, guide students in searching among the three books to find pages to answer the question <i>What effects do invasive species have on an ecosystem?</i></p>

Monitor and scaffold for students who need help finding keywords to put in the circle map.

### Extended Writing (Station while teacher does small group instruction)

**Emphasis:** Vocabulary; Organizing graphically

**Motivation:** Choice -- self-selection of vocabulary words  
Conceptual theme -- connecting concepts or ideas within a theme

**Texts:** X

**Additional Materials Needed:**

[Word Log](#)  
Circle Map

**Overall Plan (20mins):**

[Word Log](#). Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.

Additionally, students will write their paragraph answering the question *What effects do invasive species have on an ecosystem?* The paragraph should start with a brief answer (topic sentence) and follow with supporting sentences using the ideas in their circle map.

### Independent Reading (Station while teacher does guided reading groups)

**Emphasis:** Narrative reading

**Motivation:** Choice - Students increase ownership of reading by selecting text.

Suggested Fiction Texts:

- Students are encouraged to go back to books listed in subtopics 1 and 2 and choose a book they have not yet read.
- Time will be given for student promotion of books

Students may also:

- Read the CORI books
- Read other nonfiction books of interest
- Choose another text of their interest

**Additional Materials Needed:**

[Independent Reading Log](#)  
[Reading Response Journal](#)

**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

### Share

(5 mins) In pairs and then in large group, share one effect invasive species have on an ecosystem.

## Lesson 29

### Science or Shared Reading

**Emphasis:** Core concept- invasive species

**Science Standard:** 5.4.2.1 Natural systems have many components that interact to maintain the living system

**Benchmark:** Explain what would happen to a system such as a wetland, prairie or garden if one of its parts were changed.

**Motivation:** Relevance -- hands-on or observational activities  
Collaboration -- teamwork

**Texts:** X

**Additional Materials Needed:**

Invasive Species Game – Lesson Plan. Retrieved from:

[http://www.myips.org/cms/lib8/IN01906626/Centricity/Domain/8123/Invasive\\_Species\\_Game\\_Lesson.pdf](http://www.myips.org/cms/lib8/IN01906626/Centricity/Domain/8123/Invasive_Species_Game_Lesson.pdf)

**Overall Plan ( 40 mins):**

(10 minutes) Earthworm observations ---group members will share the responsibility of caring for the earthworm observatories. All observations are to be recorded on their individual Earthworm Logs.

(30 mins) In this game, students will be introduced to the effects an invasive species has on an ecosystem. The limit of food and other nutrients will cause stagnation of native species growth or even decline, depending on the behavior of the organism.

In this game, there are four native species;  
 one with a plastic spoon (perch),  
 one with two knives (bass) in one hand,  
 one with one fork (blue gill),  
 one with two forks (walleye) in one hand.

It is important to note that tools can only be held in ONE hand. So holding the two knives will take the dexterity of operating chopsticks. If this is too difficult for students, make changes as necessary.

Eating habits:

Perch eats only white pom-poms

Walleye eats only white and red pom-poms

Blue gill eats only black Bass eats black and red pom-poms

Gobies eat anything (using a binder clip), and are introduced after a few rounds so students can see how stable their ecosystems are before and after the Goby.

Instructions:

-Randomly distribute the pom-poms onto the felt.

-Each of the four native fish will have 30 seconds per round to collect food using one hand and their assigned tools.

-The native fish will play 3 rounds before the invasive (Goby) arrives.

-Play will continue with the goby now competing for resources for 3-5 more rounds.

- It should be made clear to the gobies that it is in their benefit to eliminate native species. Their tactics should include selective feeding to knock out other species, e.g., eating only white, so the species that can only eat white cannot get enough to reproduce.

Post-activity discussion questions:

- 1) Were you able to compete with the other native species for resources necessary to your survival and reproduction?
- 2) Were you able to compete with the invasive species for resources necessary to your survival and reproduction? Why? What made the Goby so successful?
- 3) What could be the consequences of organisms entering an ecosystem that have a competitive advantage over the native species?

Carol Stepien, C. (n.d.). Invasive Species Game – Lesson Plan. Retrieved from:

[http://www.myips.org/cms/lib8/IN01906626/Centricity/Domain/8123/Invasive\\_Species\\_Game\\_Lesson.pdf](http://www.myips.org/cms/lib8/IN01906626/Centricity/Domain/8123/Invasive_Species_Game_Lesson.pdf)

### Whole Group Reading Comprehension Instruction

**Emphasis:** Organizing Graphically



<p><b>Motivation:</b> Relevance -- connecting reading to experience or observation Conceptual Theme -- connecting concepts or ideas within a theme.</p>
<p><b>Texts:</b> <i>Animales invasores</i> (Animal Invaders) by Amanda Doering Tourville</p>
<p><b>Additional Materials Needed:</b> Flow Map anchor Chart</p>
<p><b>Overall Plan ( 15 mins):</b> Tell students that today they'll be learning to use a different graphic organizer to help them as they are reading. It is called the multi-flow map and it is used to show cause and effect.</p> <p>Since it is likely that students may be familiar with the multi-flow map, the purpose of this whole group time today is to practice using the map with out new learning attached.</p> <p>Model this flow map with the concept "bad breath". Guide students to add the causes and effects of bad breath.</p>

<p><b>Small Group Instruction</b></p>
<p><b>Emphasis:</b> Organizing graphically</p>
<p><b>Motivation:</b> Conceptual theme -- connecting concepts or ideas within a theme</p>
<p><b>Texts:</b> <i>Animales invasores</i> (Animal Invaders) by Amanda Doering Tourville</p>
<p><b>Additional Materials Needed:</b> Students notebooks to write multiflow maps</p>
<p><b>Overall Plan ( 15 mins/group):</b> Begin by having students share the paragraph they wrote yesterday during independent writing time to answer the question: <i>What effects do invasive species have on an ecosystem?</i></p> <p>Tell students that today you are just going to use one text, <i>Animales invasores</i>, to find the cause and effect relationship regarding invasive species.</p> <p>Instruct students to write invasive species in the center of the their piece of paper. Using pages 10-11 in <i>Animales invasores</i>, read the text aloud to students and guide them to find the causes and effects of invasive species and write them in the multi-flow map.</p> <p>Explain to students that during independent writing time they are going to write a paragraph (with a topic sentence and supporting details) using the multi-flow map. It</p>

may be useful to phrase the writing prompt as a question: *What are the causes and effects of invasive species?*

### Extended Writing (Station while teacher does small group instruction)

**Emphasis:** Vocabulary; Organizing graphically

**Motivation:** Choice -- self-selection of vocabulary words  
Conceptual theme -- connecting concepts or ideas within a theme

**Texts:** X

**Additional Materials Needed:**

[Word Log](#)

Multi-flow Map

**Overall Plan (20mins):**

[Word Log](#). Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.

Additionally, students will write their paragraph answering the question *What are the causes and effects of invasive species?* The paragraph should start with a brief answer (topic sentence) and follow with supporting sentences using the ideas in their circle map. Students will share this paragraph during guided reading tomorrow.

### Independent Reading (Station while teacher does guided reading groups)

**Emphasis:** Narrative reading

**Motivation:** Choice - Students increase ownership of reading by selecting text.

Suggested Fiction Texts:

- Students are encouraged to go back to books listed in subtopics 1 and 2 and choose a book they have not yet read.
- Time will be given for student promotion of books

Students may also:

- Read the CORI books
- Read other nonfiction books of interest
- Choose another text of their interest

**Additional Materials Needed:**

[Independent Reading Log](#)

[Reading Response Journal](#)

**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

**Share**

(5 mins) In pairs and then in large group, share one thing you learned from the invasive species game.

### Leson 30

Science or Shared Reading
<p><b>Emphasis:</b> Shared reading; Objeto directo (Direct objects)</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p><b>Benchmark:</b> Explain what would happen to a system such as a wetland, prairie or garden if one of its parts were changed.</p>
<p><b>Motivation:</b> Relevance -- providing texts that are appealing and fascinating; hands-on or observational activities; connecting reading to experience or observation.</p>
<p><b>Texts:</b> <i>El gran capoquero</i> (The Great Kapok Tree) -Lynn Cherry</p>
<p><b>Additional Materials Needed:</b> <a href="#">Earthworm Observation Log</a> <a href="#">Objeto Directo anchor chart</a></p>
<p><b>Overall Plan ( 30 mins):</b> (10 minutes) Earthworm observations ---group members will share the responsibility of caring for the earthworm observatories. All observations are to be recorded on their individual Earthworm Logs.</p> <p>(20 minutes) Lead a choral reading of a portion of the text <i>El gran capoquero</i>. Review <a href="#">Objeto Directo anchor chart</a> with students. Review Direct Object song</p> <p>Tell students they will be using this portion of <i>El gran capoquero</i> as a mentor text. With their partner, students will write a short poem or paragraph about the earthworm observatory using direct objects. Students will have work time and will share out at the end. The final product should be written neatly and clearly identify the direct objects by underlining and labeling them correctly.</p>

Whole Group Reading Comprehension Instruction
<p><b>Emphasis:</b> Introduce jigsaw project</p>
<p><b>Motivation:</b> Choice - self-selection of topic Collaboration -- exchanging ideas or expertise</p>
<p><b>Texts:</b> <i>Plantas fuera de lugar</i> (Plants Out of Place) by Courtney Farrell</p>
<p><b>Additional Materials Needed:</b> <a href="#">Jigsaw Project - Invasive Plants</a></p>

**Overall Plan ( 15 mins):**

Hand out student copies of [Jigsaw Project - Invasive Plants](#). Read through project description and rubric with students. Answer student questions.

Use the remaining time for students to sign up for the region they'd like to study. Guided reading groups will be by project topic for the remainder of this project.

**Small Group Instruction**

**Emphasis:** Organizing graphically

**Motivation:** Choice - self-selection of topic  
Collaboration -- exchanging ideas or expertise

**Texts:** *Plantas fuera de lugar* (Plants Out of Place) by Courtney Farrell

**Additional Materials Needed:** Students notebooks to write multiflow maps  
[Jigsaw Project - Invasive Plants](#)

**Overall Plan ( 15 mins/group):**

Begin by having students share the paragraph they wrote yesterday during independent writing time to answer the question: *What are the causes and effects of invasive species?*

Explain to students that the multi-flow map and paragraph they wrote yesterday are very similar to what they'll produce for the jigsaw project.

Use this time to help students set up the new multi-flow map. Read the first few paragraphs of the text together and add information to the multi-flow map as a group. Tell students they will complete this task (reading and adding information to multi-flow map) during independent writing time today.

**Extended Writing (Station while teacher does small group instruction)**

**Emphasis:** Vocabulary; Organizing graphically

**Motivation:** Choice -- self-selection of vocabulary words; self-selection of topic  
Collaboration -- exchanging ideas or expertise

**Texts:** *Plantas fuera de lugar* (Plants Out of Place) by Courtney Farrell

**Additional Materials Needed:** Students notebooks to write multiflow maps  
[Jigsaw Project - Invasive Plants](#)  
[Word Log](#)

**Overall Plan (20mins):**

**Word Log.** Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.

Additionally, students need to finish reading the selection from *Plantas fuera de lugar* and add information to multi-flow map. Students will share this tomorrow in small group instruction.

**Independent Reading (Station while teacher does guided reading groups)**

**Emphasis:** Narrative reading

**Motivation:** Choice - Students increase ownership of reading by selecting text.

Suggested Fiction Texts:

- Students are encouraged to go back to books listed in subtopics 1 and 2 and choose a book they have not yet read.
- Time will be given for student promotion of books

Students may also:

- Read the CORI books
- Read other nonfiction books of interest
- Choose another text of their interest

**Additional Materials Needed:**

[Independent Reading Log](#)

[Reading Response Journal](#)

**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

**Share**

(5 mins) In pairs and in large group, share one thing you learned about invasive plants in your region.

## Lesson 31

<b>Science or Shared Reading</b>
<p><b>Emphasis:</b> Shared reading; Objeto directo (Direct objects)</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system  <b>Benchmark:</b> Explain what would happen to a system such as a wetland, prairie or garden if one of its parts were changed.</p>
<p><b>Motivation:</b>  Relevance -- providing texts that are appealing and fascinating; hands-on or observational activities; connecting reading to experience or observation.</p>
<p><b>Texts:</b> <i>El gran capoquero</i> (The Great Kapok Tree) -Lynn Cherry</p>
<p><b>Additional Materials Needed:</b> <a href="#">Earthworm Observation Log</a>  <a href="#">Objeto Directo anchor chart</a></p>
<p><b>Overall Plan (30 mins):</b></p> <p>(10 minutes) Earthworm observations --group members will share the responsibility of caring for the earthworm observatories. All observations are to be recorded on their individual Earthworm Logs.</p> <p>(20 minutes) Lead a call and response reading of a portion of the text <i>El gran capoquero</i>. Review <a href="#">Objeto Directo anchor chart</a> with students.</p> <p>Today, student groups choose two interesting stanzas to read expressively. Groups practice reading the selections expressively to another group. Listening group tells reading group words that were read most expressively in each poem; groups switch roles - reading group because listening group, listening group becomes reading group. Groups read both poems together again, with expression.</p>

<b>Whole Group Reading Comprehension Instruction</b>
<p><b>Emphasis:</b> Organizing Graphically; Summarizing</p>
<p><b>Motivation:</b> Choice - self-selection of topic  Collaboration -- exchanging ideas or expertise</p>
<p><b>Texts:</b> <i>Plantas fuera de lugar</i> (Plants Out of Place) by Courtney Farrell</p>

**Additional Materials Needed:**[Jigsaw Project - Invasive Plants](#)[Transition words anchor chart](#)**Overall Plan ( 15 mins):**

Today students will use their multi-flow map to write a summary paragraph. Similar to the paragraphs students have written before, the paragraph will contain a topic sentence, supporting sentences and a concluding sentence.

Something new are the transitional words that students will employ to show cause and effect.

Use a completed multi-flow map to model writing the topic sentence, supporting sentences and a concluding sentence. Then, show how adding transition words makes the writing even more clear and smooth.

**Small Group Instruction****Emphasis:** Organizing graphically**Motivation:** Choice - self-selection of topic  
Collaboration -- exchanging ideas or expertise**Texts:** *Plantas fuera de lugar* (Plants Out of Place) by Courtney Farrell**Additional Materials Needed:** Students notebooks to write multiflow maps  
[Jigsaw Project - Invasive Plants](#)**Overall Plan ( 15 mins/group):**

Begin by having students share the multi-flow map they wrote yesterday during independent writing time.

Use the rest of the time to support students in writing the summary paragraph as modeled during large group instruction.

**Extended Writing (Station while teacher does small group instruction)****Emphasis:** Vocabulary; Organizing graphically**Motivation:** Choice -- self-selection of vocabulary words; self-selection of topic  
Collaboration -- exchanging ideas or expertise**Texts:** *Plantas fuera de lugar* (Plants Out of Place) by Courtney Farrell**Additional Materials Needed:** Students notebooks to write multiflow maps



[Jigsaw Project - Invasive Plants](#)

[Word Log](#)

**Overall Plan (20 mins):**

[Word Log](#). Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.

Additionally, students need to finish writing the summary paragraph using information to multi-flow map. Students will share this tomorrow in small group instruction.

**Independent Reading (Station while teacher does guided reading groups)**

**Emphasis:** Narrative reading

**Motivation:** Choice - Students increase ownership of reading by selecting text.

Suggested Fiction Texts:

- Students are encouraged to go back to books listed in subtopics 1 and 2 and choose a book they have not yet read.
- Time will be given for student promotion of books

Students may also:

- Read the CORI books
- Read other nonfiction books of interest
- Choose another text of their interest

**Additional Materials Needed:**

[Independent Reading Log](#)

[Reading Response Journal](#)

**Overall Plan ( 20 mins):**

Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.

Each day students will fill out independent [Reading Log](#) when finished.

In addition on Monday, Wednesday and Friday, students will complete a [Reading Response Journal](#). Students meet with peers reading the same novel and share responses with each other the designated days.

**Share**

(5 mins) Share a vocabulary word you wrote in your vocabulary log this week.

## Lesson 32

Science or Shared Reading
<p><b>Emphasis:</b> Core concept- invasive species</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p><b>Benchmark:</b> Explain what would happen to a system such as a wetland, prairie or garden if one of its parts were changed.</p>
<p><b>Motivation:</b> Relevance -- hands-on or observational activities Collaboration -- teamwork</p>
<p><b>Texts:</b> X</p>
<p><b>Additional Materials Needed:</b>  <a href="http://www.nrri.umn.edu/worms/downloads/educator/GameInstructions2009.pdf">Invasive Species Game – Lesson Plan</a>. Retrieved from:  <a href="http://www.nrri.umn.edu/worms/downloads/educator/GameInstructions2009.pdf">http://www.nrri.umn.edu/worms/downloads/educator/GameInstructions2009.pdf</a></p>
<p><b>Overall Plan (50 mins):</b></p> <p>(10 minutes) Earthworm observations --group members will share the responsibility of caring for the earthworm observatories. All observations are to be recorded on their individual Earthworm Logs.</p> <p>(40 minutes) Game: Invasion of the exotic worm</p> <p><u>Summary</u>  With a roll of the die, students simulate the movement of nutrients in a forest ecosystem both before and after earthworms invade to see how &amp; why change can occur in ecosystems as a result of exotic species invasion.</p> <p><u>Materials:</u></p> <ul style="list-style-type: none"> <li>• 5 large sheets of paper</li> <li>• copies of the “Forest Ecosystem Tables” and “Game Tiles”</li> <li>• markers, scissors &amp; tape</li> <li>• 9 boxes, about 4-6 inches on each side. (Boxes are used to make dice for the game. There will be 1 die (box) at each station. The labels for the sides of each die are listed in the “Forest Ecosystem Table” ( <a href="#">Invasive Species Game – Lesson Plan</a> ) . These labels represent the options for pathways that nutrients and energy can following in the ecosystem.</li> <li>• a bell or whistle</li> </ul> <p><u>Procedure</u>  <u>Warm-up:</u> Ask students to brainstorm and identify the different parts of a forested ecosystem and how nutrients and energy move through that system. Write their responses on the board.</p>

Activity

1. Tell students they are going to become a nutrient molecule moving through the forest ecosystem. They will start in a worm-free ecosystem and then change to a worm-invaded one to see how things change.
2. Categorize the places a nutrient can move through into 5 stations: Trees, Understory Plants, Animals, Forest Floor and Soil. Write these names on a large piece of paper put them around the room or field (students may illustrate station labels).
3. Assign an even number of students to each station. Have the students identify the different places their nutrient molecule can go from that station in the forest ecosystem. Discuss the conditions that cause or allow the nutrient to move.
4. Give the students the appropriate die for each worm-free station.
5. Students should discuss the form in which molecules move from one location to another.
6. Tell students they will be demonstrating nutrients movement from one location to another. In this game, a roll of the die determines where the nutrient molecule will go.
7. Students should keep track of their movements. This can be done by having them keep a journal or a notepad to record each move they make, including “stays” (when they do not move”.
8. Tell the students the game will begin and end at the sound of the bell (or buzzer or whistle). Begin the worm-free part of the game!
9. Let the students play the game for 15-20 minutes, or until you start to see patterns develop where students (nutrients) are beginning to cluster. Blow the whistle to stop the worm-free round. Ask the student to discuss when nutrients flow and what patterns they are seeing as they move through the game. Where do they (as nutrients) spend a lot of their time?

Switching to worm-invaded round:

10. Tell the students that now earthworms are going to invade this ecosystem and they will play the game just as they did in the worm-free round.
11. Ask students to brainstorm on how this might change how nutrients move through the ecosystem. Explain that earthworms eat the Forest Floor and mix it into the Soil compartment in the form of cast material (worm poop).
12. Replace the worm-free station dice with the worm-invaded station dice (only the “tree” dice remains the same).
13. Commence the worm-invaded round of the game. Have students continue to record their movements. Have them discuss how the patterns of nutrient flow changed as a result of worm invasion and how that might change what lives & grows in the ecosystem.

Wrap-Up

Have students use their travel record to write stories about the places the nutrient molecule has been. They should include a description of what conditions were necessary for the nutrient to move from one station to the next.

<b>Whole Group Reading Comprehension Instruction</b>
<b>Emphasis:</b> Preparation for jigsaw presentation
<b>Motivation:</b> Choice - self-selection of topic Collaboration -- exchanging ideas or expertise
<b>Texts:</b> X
<b>Additional Materials Needed:</b> <a href="#">Jigsaw Note-taking Sheet</a>
<b>Overall Plan (15 mins):</b> Use this time to review how a jigsaw is conducted. Explain where groups will meet and who will be in each group.  Introduce the <a href="#">Jigsaw Note-taking Sheet</a> . Explain that students will take notes from their peer's presentations to aide in their learning.
<b>Small Group Instruction</b>
<b>Emphasis:</b> Preparation for jigsaw presentation
<b>Motivation:</b> Choice - self-selection of topic Collaboration -- exchanging ideas or expertise
<b>Texts:</b> X
<b>Additional Materials Needed:</b> <a href="#">Jigsaw Note-taking Sheet</a>
<b>Overall Plan ( 15 mins/group):</b> Students will use this time to meet with their expert groups to review their presentations and practice for jigsaw activity.
<b>Extended Writing (Station while teacher does small group instruction)</b>
<b>Emphasis:</b> Jigsaw activity
<b>Motivation:</b> Choice - self-selection of topic Collaboration -- exchanging ideas or expertise
<b>Texts:</b> X
<b>Additional Materials Needed:</b> <a href="#">Jigsaw Note-taking Sheet</a>
<b>Overall Plan (20 mins):</b>

Students will use this time to conduct the jigsaw. Circulate to listen to presentations and evaluate students.

### Independent Reading (Station while teacher does small group instruction)

**Emphasis:** Jigsaw activity

**Motivation:** Choice - self-selection of topic  
Collaboration -- exchanging ideas or expertise

**Texts:** X

**Additional Materials Needed:**

[Jigsaw Note-taking Sheet](#)

**Overall Plan ( 30 mins):**

Students will use this time to conduct the jigsaw. Circulate to listen to presentations and evaluate students.

Use the remaining time to lead a reflection about how the jigsaw went and what students learned from their peers.

### Share

(5 mins) In pairs and in large group, share what it was like to be the teacher. How did it feel? Would you like to do it again? Is there anything you would do differently?

## Lesson 33

Science or Shared Reading
<p><b>Emphasis:</b> Core concept: Changes in an ecosystem</p> <p><b>Science Standard:</b> 5.4.2.1 Natural systems have many components that interact to maintain the living system</p> <p><b>Benchmark:</b> Explain what would happen to a system such as a wetland, prairie or garden if one of its parts were changed.</p>
<p><b>Motivation:</b> Relevance -- providing texts that are appealing and fascinating</p>
<p><b>Texts:</b> <i>La niña de los gorriones (The sparrow girl)</i> by Sara Pennypacker</p>
<p><b>Additional Materials Needed:</b> X</p>
<p><b>Overall Plan ( 30-40 mins):</b>            Tell students that today they are going to finish their study of how ecosystems change, not by looking at invasive species, but by looking at what happens when you take an animal out of the ecosystem. <i>La niña de los gorriones</i> is a true story that comes from China and shows what happened when the eliminated the sparrow.</p> <p>Read the book aloud. Encourage students to make connections to what we've been learning. Take student questions about the topic.</p>
Whole Group Reading Comprehension Instruction
<p><b>Emphasis:</b> Organizing graphically</p>
<p><b>Motivation:</b> Relevance -- providing texts that are appealing and fascinating</p>
<p><b>Texts:</b> <i>La niña de los gorriones (The sparrow girl)</i> by Sara Pennypacker</p>
<p><b>Additional Materials Needed:</b> <a href="#">Multi-flow map anchor chart</a></p>
<p><b>Overall Plan (15 mins):</b>            Tell students that this book is important to analyze because it looks at what the effects are when we take an animal or organism out of an ecosystem. Explain that again we will use the multi-flow map and search and scan skills to find the causes and effects of removing the sparrow from this part of China.</p> <p>Model how you would do this with the first few pages of the text. Show to you can use text, inferences and illustrations to find causes and effects.</p>

Small Group Instruction
<b>Emphasis:</b> Organizing graphically
<b>Motivation:</b> Relevance -- providing texts that are appealing and fascinating
<b>Texts:</b> <i>La niña de los gorriones (The sparrow girl)</i> by Sara Pennypacker
<b>Additional Materials Needed:</b> <a href="#">Multi-flow map anchor chart</a>
<p><b>Overall Plan (15 mins/group):</b>            During this time students will use copies of <i>La niña de los gorriones</i> to finish the multi-flow map. Support students as needed.</p> <p>Towards the end of small group time, have students compare their multi-flow maps. This is an opportunity for them to learn from others and verify where in the text they got their ideas.</p> <p>During independent writing time, students will write a paragraph summarizing the information in the multi-flow map. They may find it helpful to think of it as answering the question: What happens when an organism out of an ecosystem.</p>
Extended Writing (Station while teacher does small group instruction)
<b>Emphasis:</b> Vocabulary; Summarizing
<b>Motivation:</b> Choice -- self-selection of vocabulary words Relevance -- providing texts that are appealing and fascinating
<b>Texts:</b> <i>La niña de los gorriones (The sparrow girl)</i> by Sara Pennypacker
<p><b>Additional Materials Needed:</b>  <a href="#">Word Log</a>            Student's science notebooks</p>
<p><b>Overall Plan (20 mins):</b>  <a href="#">Word Log</a>. Students reread familiar text and enter new words from any book read into Word Log to work toward target of 5 words per week.</p> <p>Additionally, students will write a paragraph summarizing the information in the multi-flow map. They may find it helpful to think of it as answering the question: What happens when an organism out of an ecosystem.</p>

<b>Independent Reading (Station while teacher does guided reading groups)</b>
<b>Emphasis:</b> Narrative reading (Last Day)
<b>Motivation:</b> Choice - Students increase ownership of reading by selecting text.
<p>Suggested Fiction Texts:</p> <ul style="list-style-type: none"> <li>• Students are encouraged to go back to books listed in subtopics 1 and 2 and choose a book they have not yet read.</li> <li>• Time will be given for student promotion of books</li> </ul> <p>Students may also:</p> <ul style="list-style-type: none"> <li>Read the CORI books</li> <li>Read other nonfiction books of interest</li> <li>Choose another text of their interest</li> </ul>
<p><b>Additional Materials Needed:</b></p> <p><a href="#">Independent Reading Log</a>  <a href="#">Reading Response Journal</a></p>
<p><b>Overall Plan ( 20 mins):</b></p> <p>Students choose a book from the list above for independent reading. Students read two or three chapters on their own for enjoyment.</p> <p>Each day students will fill out independent <a href="#">Reading Log</a> when finished.</p> <p>In addition on Monday, Wednesday and Friday, students will complete a <a href="#">Reading Response Journal</a>. Students meet with peers reading the same novel and share responses with each other the designated days.</p>
<b>Share</b>
(5 mins) In pairs and then in large group, share something they want to remember from the text <i>La niña de los gorriones</i> .



APPENDIX L:  
Student Worksheets for subtopic 1



Name: \_\_\_\_\_

**Key Word Notes**

Topic: \_\_\_\_\_

1.	2.
3.	4.
Summary Sentence:	

**MN Adaptations - Note Taking Sheet****Name of Minnesota animal:** \_\_\_\_\_**Structural adaptation and function:**

1.	2.
3.	4.
Summary Sentence:	

**Physiological adaptation and function**

1.	2.
3.	4.
Summary Sentence:	

**Behavioral adaptation and function**

1.	2.
3.	4.
Summary Sentence:	

**Animal Shelter**

The \_\_\_\_\_ takes shelter in \_\_\_\_\_. They build it by / They find it \_\_\_\_\_. This helps \_\_\_\_\_ survive in Minnesota because \_\_\_\_\_.

For example, \_\_\_\_\_.

**Diet**

The \_\_\_\_\_ eats \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_. This helps \_\_\_\_\_ survive in Minnesota because \_\_\_\_\_.

For example, \_\_\_\_\_. Predators of \_\_\_\_\_ are \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.

**Description of habitat where animal lives**

Average temperature: Fall: \_\_\_\_\_ Winter: \_\_\_\_\_

Spring: \_\_\_\_\_ Summer: \_\_\_\_\_

Rainfall: Fall: \_\_\_\_\_ Winter: \_\_\_\_\_

Spring: \_\_\_\_\_ Summer: \_\_\_\_\_

Other plants that share the same habitat: \_\_\_\_\_, \_\_\_\_\_, and

\_\_\_\_\_.

Other animals that share the same habitat: \_\_\_\_\_, \_\_\_\_\_, and

\_\_\_\_\_.

### Minnesota-Peru Adaptations Project

Students will work in pairs on a shared Google-doc to complete a presentation about an **animal** and its adaptations from a Minnesota ecosystem. This student pair will become experts of their animal, its adaptations and ecosystem, ultimately sharing this information with their Peruvian counterparts at the end of the project. The project will culminate in a Skype session where Minnesota students will learn about Peruvian animals in their adaptations for survival, and Peruvian students will learn about Minnesota animals and their respective adaptations for survival.

- My Minnesota animal: \_\_\_\_\_
- My partner's name and animal from Peru: \_\_\_\_\_

In your presentation you will answer the following questions:

How have the animals in your two environments **adapted** to survive in its ecosystem? Name at least 2 behavioral, physiological or structural adaptations.

How do the animals in your two environments obtain **food**? Would the same method work in a different environment?

How do the animals in your two environments create **shelter**? Would the same method work in a different environment?

If your animals had to switch environments, what would they need to **survive**?

Name: \_\_\_\_\_

**My Adaptation Notes**

<b>Core concept</b>	<b>Questions I Have</b>	<b>Information I Learned</b>
Structural Adaptations	1.  2.	
Physiological Adaptations	1.  2.	
Behavioral Adaptations	1.  2.	



Name: \_\_\_\_\_

**My Adaptation Questions**

**My questions about plants, animals and \_\_\_\_\_ adaptations:  
(behavior, structural, physiological)**

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

My favorite question: \_\_\_\_\_

**Book I read:** \_\_\_\_\_ **Section:** \_\_\_\_\_

**Answer to my favorite question:** (if your question could not be answered, choose a different question to answer).

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



Name: \_\_\_\_\_

**My Animal Adaptations Story Organizer**

**Story or Title:** \_\_\_\_\_

**Characters**

Types of animals in story: \_\_\_\_\_

Animal features/characteristics: \_\_\_\_\_

**Setting**

Time and Place: \_\_\_\_\_

**Interesting Opening**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Major events or problems (include one fact about animal adaptations in each event)**

Event #1: \_\_\_\_\_

Survival fact: \_\_\_\_\_

Event #2: \_\_\_\_\_

Survival fact: \_\_\_\_\_

Event #3: \_\_\_\_\_

Survival fact: \_\_\_\_\_

**Solution or Ending**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Name: \_\_\_\_\_

**My Animal Watching Chart - Homework**

**Directions:** Observe animals in your backyard or neighborhood to fill in the chart. Observe for 10 continuous minutes.

What kind of animal did you see?	What did the animal look like?	What was the animal doing?	Where was the animal?	What was the time? Where were you?
Name:	Animal 1:	Activity:	Location:	Time: Place:
Name:	Animal 2:	Activity:	Location:	Time: Place:
Name:	Animal 3:	Activity:	Location:	Time: Place:
Name:	Animal 4:	Activity:	Location:	Time: Place:
Name:	Animal 5::	Activity:	Location:	Time: Place:

*List of possible animal activities:*

<i>singing</i>	<i>eating</i>	<i>wading</i>	<i>fighting</i>	<i>watching</i>	<i>running</i>
<i>pecking</i>	<i>flying</i>	<i>drinking</i>	<i>Cleaning itself</i>	<i>walking</i>	<i>hop</i>
<i>diving</i>	<i>swimming</i>	<i>sleeping</i>	<i>Looking for food</i>	<i>fishing</i>	<i>slither</i>

*List of possible locations:*

<i>In a bush</i>	<i>In a tree</i>	<i>On the ground</i>	<i>At a feeder</i>	<i>On a fence</i>	<i>Flying by</i>
<i>In water</i>	<i>In the woods</i>				

Name: \_\_\_\_\_

**My Background Knowledge and Questions**

Book Title: \_\_\_\_\_

Section  
Heading: \_\_\_\_\_

<b>Text feature I used:</b>	
<b>I know that:</b>	
<b>But my question is:</b>	

<b>Text feature I used:</b>	
<b>I know that:</b>	
<b>But my question is:</b>	

<b>Text feature I used:</b>	
<b>I know that:</b>	
<b>But my question is:</b>	

Write an answer to one question. Write one new idea you learned if your question cannot be answer.

---



---

Name: \_\_\_\_\_

**My Habitat Walk**

<b>Plant and Animal Appearance (What do the plants and animals look like?)</b>	<b>Plant and Animal Behavior (What are the plants and animals doing?)</b>	<b>Signs of Plant and Animal Life (feathers, nests, tracks, holes, sounds, etc.)</b>

**Questions I have about plants and animals:**

1. \_\_\_\_\_
2. \_\_\_\_\_

Name: \_\_\_\_\_

**My Questions/KWL Chart**

Title of the book: \_\_\_\_\_

<b>What I Know About This Topic</b>	<b>What I Want to Know About This Topic</b>	<b>What I Learned About This Topic</b>



### Notes for MN-Peru project

My MN animal: \_\_\_\_\_

My partner's Peruvian animal: \_\_\_\_\_

What I know	What I want to know	What I learned
	How have the animals in your two environments <b><u>adapted</u></b> to survive in its ecosystem?	
	How do the animals in your two ecosystems obtain <b><u>food?</u></b>	
	How do the animals in your two ecosystems create <b><u>shelter?</u></b>	
	If your animals had to switch ecosystems, what would they need to <b><u>survive?</u></b>	

Name: \_\_\_\_\_

### **Reading Response Journal**

Every other day you will write in your Reading Response Journal and share your response with classmates who are reading the same book. After reading you will complete one of the following tasks to help you reflect. These are the same roles we used during our Literature Circles.

- Illustrate
- Summarize
- Make Connections
- Mark the Text (symbols)
- Discussion Director (questions)

Name: \_\_\_\_\_

**Types of Animal and Plant Adaptations**

<p><b>Structural adaptations:</b> Special body parts of an organism that help it survive in its natural habitat (skin color, shape, body covering, etc)</p>	<p><b>Physiological adaptations:</b> Systems present in an organism that allow it to perform certain biochemical reactions. Hint: you cannot see it on the outside (making venom, secreting slime, being able to keep a constant body temperature, etc).</p>	<p><b>Behavioral adaptations:</b> Special ways a particular organism behaves to survive in its natural habitat (becoming active at night, taking a certain posture).</p>

\_\_\_\_\_’s Word Log

Week 1				
	Word	Definition ( dictionary, glossary or in- text)	In my own words it means...	This is how I can use it in a sentence...
Put a check mark if you use this word in your writing!	Sacudir (sacudirías)	Mover algo violentamente de un lado a otro.	Mover la cola o un objeto rápidamente.	El perro sacudió la cola porque estaba feliz.
1				
2				
3				
4				
5				

--	--	--	--	--

\*Note for teacher: Copy this chart for each week of the CORI unit. Listed above is the chart for week 1.

APPENDIX M  
Student Worksheets for Subtopic 2



## Habitat Design Project

November, 2016

Dear Aquarium Architects,

We are opening a new aquarium at \_\_\_\_\_ Elementary School. We plan to have a variety of animals for elementary students to visit.

Your job is to design a habitat for one of the animals, describe the living and nonliving elements of the habitat and describe the flow of energy to the survival of the animals.

The animals that need a habitat designed are:

- 6 penguins
- 6 stingrays
- 6 eels
- 6 sea lions
- 2 sea turtles

We look forward to seeing your habitat designs.

Sincerely,

Aquarium Committee



### **Habitat Design Project Tips**

1. Make sure you follow the rubric for the maximum possible score.
2. Research your animal carefully to know what living and nonliving elements should be included.
3. All pages must be neatly glued on your poster.
4. All group members' names must be on your poster.
5. All handwriting must be neat.
6. Use a ruler when drawing straight lines.
7. Do not use too much marker. It is often hard to read and looks messy.
8. Use the construction paper available to creatively assemble your poster.
9. You have two days to complete this project. That is a total of four hours.
10. Work together with your group to effectively complete the project.

### Habitat Design Project Rubric

Expectations	Beginning (1 point)	Developing (2 points)	Proficient (3 points)	Exceeds (4 points)
Habitat Design	The habitat design is too sloppy to understand or is incomplete.	The habitat design is complete. It may be missing labels, color, or measurements.	The habitat design is neatly completed with appropriate measurements labeled, all aspects of the habitat labeled, and nicely colored. It includes at least 3 living and 3 nonliving elements.	All requirements from a “proficient” score are met and something extra that goes above and beyond the expectations is included.
Living and Nonliving Elements	No nonliving or living elements are listed.	Some nonliving and living elements may be incorrect.	At least 3 nonliving and 3 living elements are neatly displayed in a T-Chart.	At least 4 nonliving and 4 living elements are neatly displayed in a T-Chart.
Flow of Energy	A simple food chain is included.	A simple food chain is included. A sentence that describes the food chain is included.	A detailed food chain including the source of energy, producers, and consumers is included and labeled. There is a paragraph that describes the food chain.	All requirements from a “proficient” score are met and something extra that goes above and beyond the expectations is included.

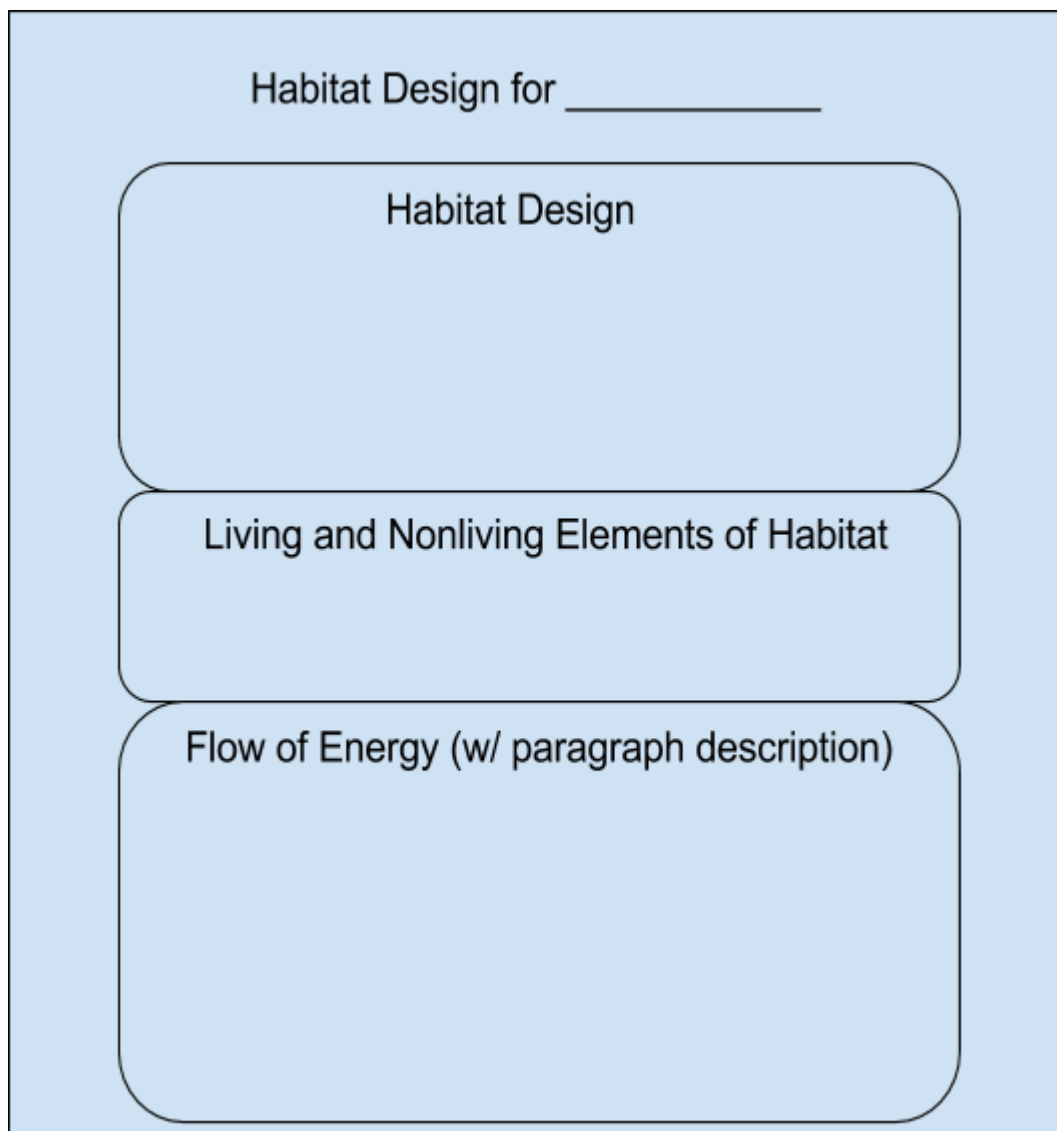
Group Work	The assignment was not complete or students had significant problems working together.	The assignment was turned in on time and complete. The group may have required teacher intervention to resolve problems.	The assignment was turned in on time and complete. The group worked well together.	The assignment was turned in on time and complete. The group did an EXCELLENT job working together and sharing responsibilities.
------------	--	--	--	--

### Habitat Design Project -- Group Planning Sheet

Tasks	Answers	Which group member will find this information?
What is the animal we are studying?		
What habitat does this animal live in?		All
What books will we use to find information for this project?	1. 2. 3.	All
What are the living and nonliving elements in this animal's habitat?	Living:  Nonliving:	
What is the source of energy in this food chain?		
Who/What are the producers in this food chain?		
Who/What are the consumers in this food chain?	Herbivores (primary):  Carnivores (secondary):	
Who/What are the decomposers in this food chain?		

Paragraph summarizing the food chain in this habitat		
--	--	--

**Example of how a poster might be organized:**



Name: \_\_\_\_\_

**Reading Across Texts - Energy Flow**

¿Cómo fluye la energía por un ecosistema?	Texto 1: Las cadenas alimentarias y tu -Bobbie Kallman	
	Texto 2: Cadenas y redes alimentarias: La lucha por la supervivencia - Andrew Solway	
	Texto 3: Foss Science Stories: Environments - Delta Education	

We learned a lot about energy flow in an ecosystem by reading several texts. From the first book, *Las cadenas alimentarias y tu*, we learned \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.

In addition to this, we read another book called *Cadenas y redes alimentarias: La lucha por la supervivencia* and learned \_\_\_\_\_ and \_\_\_\_\_. This helped us read a more challenging text, *Foss Science Stories: Environments*. For example, when we read *Foss Science Stories: Environments* it helped to know that \_\_\_\_\_. It helped better understand energy flow in an ecosystem because \_\_\_\_\_.

### Reading Across Texts - Energy Flow

¿ _____ _____ _____? _____	Texto 1: Las cadenas alimentarias y tu - Bobbie Kallman	
	Texto 2: Cadenas y redes alimentarias: La lucha por la supervivencia - Andrew Solway	
	Texto 3: Foss Science Stories: Environments -Delta Education	

We learned a lot about \_\_\_\_\_ by reading several texts. From the first book, *Las cadenas alimentarias y tu*, we learned \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. In addition to this, we read another book called *Cadenas y redes alimentarias: La lucha por la supervivencia* and learned \_\_\_\_\_ and \_\_\_\_\_. This helped us read a more challenging text, *Foss Science Stories: Environments*. For example, when we read *Foss Science Stories: Environments* it helped to know that \_\_\_\_\_. It helped better understand \_\_\_\_\_ because \_\_\_\_\_.

Adapted from: Dole, Janice A., Donaldson Brady E., Donaldson, Rebecca S., (2014). *Reading Across Multiple Texts in the Common Core Classroom, K-5*. New York, NY: Teachers College Press. Publisher City, State: Publisher.

Name: \_\_\_\_\_

**Reading Across Texts 1**

¿ _____ _____ _____?	Texto 1: Cadenas alimentarias de los pantanos -Bobbie Kallman	
	Texto 2: Los pantanos - Yvonne Franklin	
	Texto 3: El guardián de los pantanos -Ann Garrett	

We learned a lot about wetlands from reading several texts. From the first book, *Cadenas alimentarias de los pantanos*, we learned \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_. In addition to this, we read another book called *Los pantanos* and learned \_\_\_\_\_ and \_\_\_\_\_. This helped us read the fiction text, *El guardián de los pantanos*. For example, when we read *El guardián de los pantanos* it helped to know that \_\_\_\_\_. It helped me better understand wetlands because \_\_\_\_\_.

Adapted from: Dole, Janice A., Donaldson Brady E., Donaldson, Rebecca S., (2014). *Reading Across Multiple Texts in the Common Core Classroom, K-5*. New York, NY: Teachers College Press.



Name: \_\_\_\_\_

**Wetlands: Living and Nonliving Parts of an Ecosystem**

Living Parts	Non-living parts

**Questions I have about the living and nonliving parts of this ecosystem:**

1. \_\_\_\_\_

2. \_\_\_\_\_

APPENDIX N:  
Student Worksheets for subtheme 3

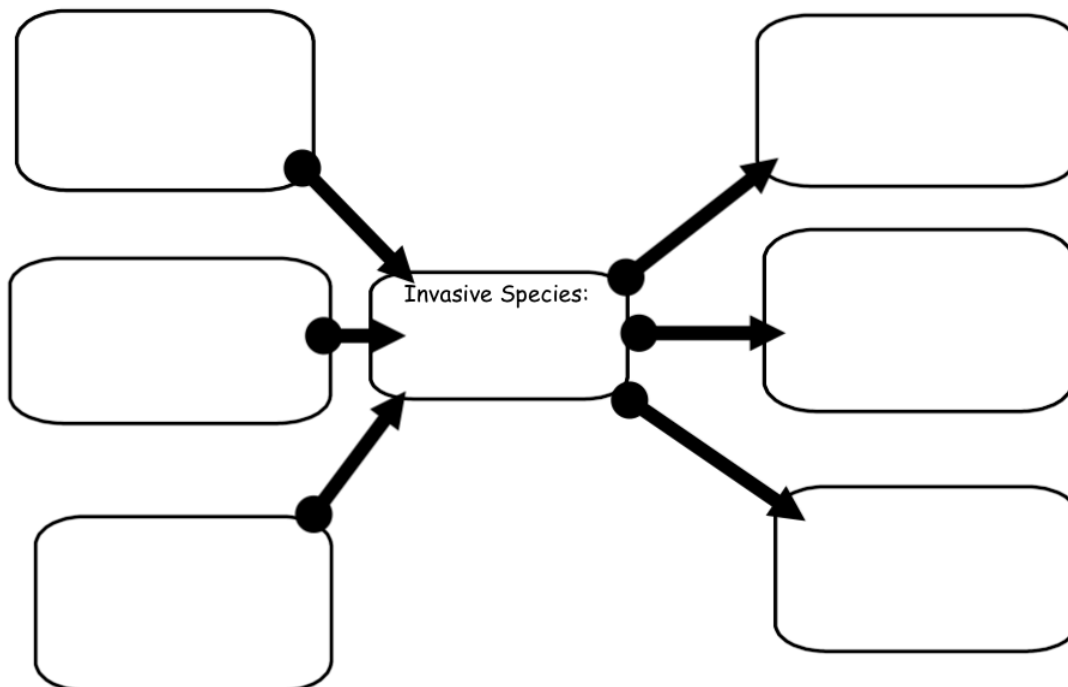
### Earthworms Observation Log

	Date: ____	Date: ____	Date: ____	Date: ____
Thickness of leaf filter layer (cm)				
Thickness of soil layer(cm)				
Thickness of sand layer (cm)				
Is there any evidence of worm cast material?				
Is there any evidence of soil darkened by leeching?				
Note changes in color or texture to each layer				
In which layers you see the earthworms?				
Other observations				

## Notetaking - Student Presentations - Invasive Species

Name: \_\_\_\_\_

**Instructions:** Take notes while your classmate is presenting. You will need to create a new multi-flow map for the other presentations.



### Jigsaw Project -- Invasive Plants

It's your turn to be the teacher! Students will take on the role of teacher regarding information about specific invasive plants in different regions of the United States and in our world.

Each student will be able to chose the topic they would like to research and teach using the book *Plantas fuera de lugar* (Plants Out of Place) by Courtney Farrell. Students will use a multi-flow map to teach the causes and effects of invasive species in their environment.

- Invasive plants in the western United States
- Invasive plants in the southern United States
- Invasive plants in the eastern United States
- Invasive plants around the world

The final presentation will be to a small group of peers. The grading rubric is below.

	Beginning	Developing	Proficient
Presentation	Student lost focus on at least once, <b>and</b> failed to use a modest voice volume. Student spoke too fast, preventing classmates from taking notes.	Student used time well and stayed focused on the task, but student failed to use a modest voice volume. Student a bit too fast, but classmates could take some notes.	Student used time well focusing attention on the task. Modest voice volume was used at all times. Student spoke slowly so classmates could take notes.
Multi-Flow Map	Information given was lacking key information.	<b>Most</b> information given was accurate and detailed in an easy to understand manner.	<b>All</b> information given was accurate and detailed in an easy to understand manner.
Paragraph	The paragraph summary omitted two or more the elements: a topic sentence, three supporting sentences, a concluding sentence and two transition words.	The paragraph summary omitted one the elements: a topic sentence, three supporting sentences, a concluding sentence and two transition words.	The paragraph summary included all of the elements: a topic sentence, three supporting sentences, a concluding sentence and two transition words.
Graphics	Graphic representation did not help convey new information. It was either messy <b>or</b> hard to understand.	Graphic representation partially helped convey new information. Graphic representation was mostly neat and easy to understand.	Graphic representation helped convey new information clearly. Graphic representation was neat and very pertinent to content.

## REFERENCES

- American Association for the Advancement of Science. (2013). *Science for all Americans: education for a changing future*. Retrieved from <http://www.project2061.org/publications/sfaa/>
- Baker, L., Dreher, M. J., & Guthrie, J. T., 1942. (2000). *Engaging young readers: Promoting achievement and motivation*. New York: Guilford Press.
- Beck, I. L., & McKeown, M. G. (2001). Text talk: Capturing the benefits of read-aloud experiences for young children. *Reading Teacher*, 55(1), 10-20. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=eft&AN=507704627&site=ehost-live>
- Calkins, L., 1951. (2006). *Units of study for teaching writing: Grades 3-5*. Portsmouth, NH: FirstHand.
- Cambria, J., & Guthrie, J. T. (2010). Motivating and engaging students in reading. *New England Reading Association Journal*, 46(1), 16-29. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=eft&AN=508130074&site=ehost-live>
- Center for Science, Mathematics, and Engineering Education. (2000). *Inquiry and the national science education standards: A guide for teaching and learning*. Washington, D.C: National Academy Press.
- Cervetti, G. N. 1., Barber, J., Dorph, R., Pearson, P. D., & Goldschmidt, P. G. 3. (2012). The impact of an integrated approach to science and literacy in elementary school classrooms. *Journal of Research in Science Teaching*, 49(5), 631-658.  
doi:10.1002/tea.21015

- Common Core State Standards Initiative. (2016). *Development process*. Retrieved from <http://www.corestandards.org/about-the-standards/development-process/>
- Douglas, R. (2006). *Linking science & literacy in the K-8 classroom (1st ed.)*. Arlington, VA: NSTA Press.
- Duke, N. K. (2003). Beyond once upon a time. *Instructor*, 113(4), 23-26. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=eft&AN=507864505&site=ehost-live>
- Duschl, Richard A. (Richard Alan), 1951, Schweingruber, H. A., Shouse, A. W., National Research Council (U.S.). Committee on Science Learning, Kindergarten Through Eighth Grade, National Research Council (U.S.). Board on Science Education, & National Research Council (U.S.). (2007). *Taking science to school: Learning and teaching science in grades K-8*. Washington, D.C: National Academies Press.
- Ebbers, M. (2002). Science text sets: Using various genres to promote literacy and inquiry. *Language Arts*, 80(1), 40-50. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=eft&AN=507782731&site=ehost-live>
- Everett, S., & Moyer, R. (2009). Literacy in the learning cycle. *Science & Children*, 47(2), 48-52. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=eft&AN=508091507&site=ehost-live>
- Fisher, D., Flood, J., & Lapp, D. (2004). Interactive read-alouds: Is there a common set of implementation practices? *Reading Teacher*, 58(1), 8-17. doi:10.1598/RT.58.1.1

- Fountas, I. C., & Pinnell, G. S. (2006). *Teaching for comprehending and fluency: Thinking, talking, and writing about reading, K-8*. Portsmouth, NH: Heinemann.
- Fries-Gaither, J., 1977, Shiverdecker, T., 1956, & Ebrary, I. (2013;2012;). *Inquiring scientists, inquiring readers: Using nonfiction to promote science literacy, grades 3-5*. Arlington, Virginia: NSTA Press, National Science Teachers Association.
- Gambrell, L., Mazzoni, S., & Almasi, J. (2000). Promoting collaboration, social interaction, and engagement with text. In L. Baker, M. J. Dreher & J. T. Guthrie (Eds.), *Engaging young readers: Promoting achievement and motivation* (pp. 119). New York: Guilford.
- Guthrie, J. T. (2016). *Reading-science integration goals*. Retrieved from <http://www.cori.umd.edu/what-is-cori/program-goals/integration.php>
- Guthrie, J. T., Alao, S., & Rinehart, J. M. (1997). Engagement in reading for young adolescents. *Journal of Adolescent & Adult Literacy*, 40, 438-446. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=eft&AN=507564758&site=ehost-live>
- Guthrie, J. T., & Davis, M. H. (2003). Motivating struggling readers in middle school through an engagement model of classroom practice. *Reading & Writing Quarterly*, 19(1), 59-85. doi:10.1080/10573560308203
- Guthrie, J. T., & Taboda, A. (2004). Fostering the cognitive strategies of reading comprehension. In Guthrie, J. T., Wigfield, A., & Perencevich, K. C. (Eds.), *Motivating reading comprehension: Concept-oriented reading instruction* (pp.87-112). Mahwah, N.J: L. Erlbaum Associates.



- Guthrie, J. T., Van Meter, P., McCann, A. D., Wigfield, A., Bennett, L., Poundstone, C. C., . . . Mitchell, A. M. (1996). Growth of literacy engagement: Changes in motivations and strategies during concept-oriented reading instruction. *Reading Research Quarterly, 31*(3), 306-332. doi:10.1598/RRQ.31.3.5
- Guthrie, J. T., Wigfield, A., Barbosa, P., Perencevich, K. C., Taboada, A., Davis, M. H., . . . Tonks, S. (2004). Increasing reading comprehension and engagement through concept-oriented reading instruction. *Journal of Educational Psychology, 96*(3), 403-423. doi:10.1037/0022-0663.96.3.403
- Guthrie, J. T., Wigfield, A., & Perencevich, K. C. (Eds.). (2004). *Motivating reading comprehension: Concept-oriented reading instruction*. Mahwah, N.J: L. Erlbaum Associates.
- Guthrie, J. T., Wigfield, A., & VonSecker, C. (2000). Effects of integrated instruction on motivation and strategy use in reading. *Journal of Educational Psychology, 92*(2), 331-341. doi:10.1037/0022-0663.92.2.331
- Heisey, N., & Kucan, L. (2010). Introducing science concepts to primary students through read-alouds: Interactions and multiple texts make the difference. *Reading Teacher, 63*(8), 666-676. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=eft&AN=508161156&site=ehost-live>
- Hoffman, J. L., Collins, M. F., & Schickedanz, J. A. (2015). Instructional challenges in developing young children's science concepts: Using informational text read-alouds. *The Reading Teacher, 68*(5), 363-372. doi:10.1002/trtr.1325
- Keeley, P. (2011). *Uncovering student ideas in life science*. Arlington, Va: NSTA Press.

- Krajcik, J. (2014). *How to select and design materials that align to the next generation science standards*. Retrieved from <http://nstacomunities.org/blog/2014/04/25/equip/>
- Ladd, G. W., & Dinella, L. M. (2009). Continuity and change in early school engagement: Predictive of children's achievement trajectories from first to eighth grade? *Journal of Educational Psychology, 101*(1), 190-206. doi:10.1037/a0013153
- Lane, H. B., & Wright, T. L. (2007). Maximizing the effectiveness of reading aloud. *Reading Teacher, 60*(7), 668-675. doi:10.1598/RT.60.7.7
- Lepper, M. R., Corpus, J. H., & Iyengar, S. S. (2005). Intrinsic and extrinsic motivational orientations in the classroom: Age differences and academic correlates. *Journal of Educational Psychology, 97*(2), 184-196. doi:10.1037/0022-0663.97.2.184
- McPeake, J. A. & Guthrie, J. T. (2007). *Concept-oriented reading instruction (CORI) teacher training module*. College Park: Lulu.
- Meece, J. L., Blumenfeld, P. C., & Hoyle, R. H. (1988). Students' goal orientations and cognitive engagement in classroom activities. *Journal of Educational Psychology, 80*(4), 514-523. doi:10.1037/0022-0663.80.4.514
- Miller, D. (2012). Creating a classroom where readers flourish. *The Reading Teacher, 66*(2), 88-92. doi:10.1002/TRTR.01109
- Miller, E., Januszyk, R., & Lee, O. (2015). NGSS in action. *Science and Children, 53*(2), 64.
- Minnesota Department of Education. *Standards, curriculum and instruction*. Retrieved from <http://education.state.mn.us/MDE/EdExc/StanCurri/>

- Minnesota Department of Education. *Testing information*. Retrieved from <http://education.state.mn.us/MDE/JustParent/TestReq/>
- Minnesota Department of Education. (2010). *Minnesota K-12 academic standards in science*. Retrieved from <http://www.education.state.mn.us/MDE/EdExc/StanCurri/K-12AcademicStandards/Science/index.htm>
- National Research Council. (1996). *National Science Education Standards*. Washington, DC: The National Academies Press.
- National Research Council. (1996). *National science education standards: Observe, interact, change, learn*. Washington, DC: National Academy Press.
- National Research Council. Committee on a Conceptual Framework for New K-12 Science Education Standards. (2012). *A framework for K-12 science education: Practices, crosscutting concepts, and core ideas*. Washington, D.C: The National Academies Press.
- National Science Teachers Association. (2004). *NSTA position statement: Scientific inquiry*. Retrieved from <http://www.nsta.org/about/positions/inquiry.aspx>
- Nyberg, L., & McCloskey, S. (2008). Integration with integrity. *Science & Children*, 46(3), 46-49. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=eft&AN=508011953&site=ehost-live>
- Olson, J. (2012). *What are the next generation science standards?* Retrieved from [http://scimathmn.org/stemtc/sites/default/files/downloads/ngss\\_mnsta\\_newsletter\\_jan\\_2012\\_pdf.pdf](http://scimathmn.org/stemtc/sites/default/files/downloads/ngss_mnsta_newsletter_jan_2012_pdf.pdf)

- Pearson, D. P., Moje, E., & Greenleaf, C. (2010). Literacy and science: Each in the service of the other. *Science*, 328, 459. doi: 10.1126/science.1182595
- Pintrich, P. R. (2003). A motivational science perspective on the role of student motivation in learning and teaching contexts. *Journal of Educational Psychology*, 95(4), 667-686. doi:10.1037/0022-0663.95.4.667
- Project 2061 (American Association for the Advancement of Science). (1993). *Benchmarks for science literacy*. New York: Oxford University Press.
- Reeve, J., & Lee, W. (2014). Students' classroom engagement produces longitudinal changes in classroom motivation. *Journal of Educational Psychology*, 106(2), 527-540. doi:10.1037/a0034934
- Robb, L. (2002). Multiple texts: Multiple opportunities for teaching and learning. *Voices from the Middle*, 9(4), 28-32. Retrieved from <http://search.ebscohost.com/login.aspx?direct=true&db=eft&AN=507764701&site=ehost-live>
- Romance, N. R., & Vitale, M. R. (1992). A curriculum strategy that expands time for in-depth elementary science instruction by using science-based reading strategies: Effects of a year-long study in grade four. *Journal of Research in Science Teaching*, 29, 545-554. doi:10.1002/tea.3660290604
- Rutherford, F. J., & Ahlgren, A. (1990). *Science for all Americans*. New York: Oxford University Press.
- Ryan, R. M., & Deci, E. L. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. *American Psychologist*, 55(1), 68-78. doi:10.1037/0003-066X.55.1.68

- Schmidtbauer, S. M. (2015). *Importance of content area reading in middle school science* (Doctor of Education). Available from Hamline School of Education.
- SciMathMN. (2012). *Minnesota and the next generation science standards*. Retrieved from <http://scimathmn.org/stemtc/standards/next-generation-science-standards-ngss>
- SciMathMN. (2016). *Frameworks for the Minnesota science & mathematics standards*. Retrieved from <http://scimathmn.org/stemtc/>
- Smolkin, L. B., & Donovan, C. A. (2001). The contexts of comprehension: The information book read aloud, comprehension acquisition, and comprehension instruction in a first-grade classroom. *Elementary School Journal, 102*(2), 97-122. doi:10.1086/499695
- Spiegel, D. L. (1998). Silver bullets, babies, and bath water: Literature response groups in a balanced literacy program. *The Reading Teacher, 52*(2), 114-124.
- States, N. L. (2013). *Next generation science standards: For states, by states*. Washington, District of Columbia: National Academies Press.
- Stead, T. (2014). Nurturing the inquiring mind through the nonfiction Read-Aloud. *The Reading Teacher, 67*(7), 488-495. doi:10.1002/trtr.1254
- Swan, E. A. (2003). *Concept-oriented reading instruction: Engaging classrooms, lifelong learners*. New York: The Guilford Press.
- Varelas, M., Pappas, C., & Arsenault, A. (2013). *Children's ways with science and literacy: Integrated multimodal enactments in urban elementary classrooms*. New York, NY: Routledge.
- Varelas, M., & Pappas, C. C. (2006). Intertextuality in read-alouds of integrated science-literacy units in urban primary classrooms: Opportunities for the development of

thought and language. *Cognition and Instruction*, 24(2), 211-259.

doi:10.1207/s1532690xci2402\_2

Vygotskii, L. S. & Cole, M. (1978). *Mind in society: The development of higher psychological processes*. Cambridge: Harvard University Press.

Wang, Z., Bergin, C., & Bergin, D. A. (2014). Measuring engagement in fourth to twelfth grade classrooms: The classroom engagement inventory. *School Psychology Quarterly*, 29(4), 517-535. doi:10.1037/spq0000050; 10.1037/spq0000050.supp (Supplemental)

Werlinger, T. (2016). *Fifth grade November 11, 2016 professional learning*. Unpublished manuscript.

Wigfield, A. (2000). Facilitating children's reading motivation. In L. Baker, M. J. Dreher & J. T. Guthrie (Eds.), *Engaging young readers: Promoting achievement and motivation* (pp. 140). New York: Guilford.

Worth, K. (2009). *The essentials of science and literacy: A guide for teachers*. Portsmouth, NH; Newton, MA: EDC.