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## Standard-Based Grading in Science: Taking Your Next Steps

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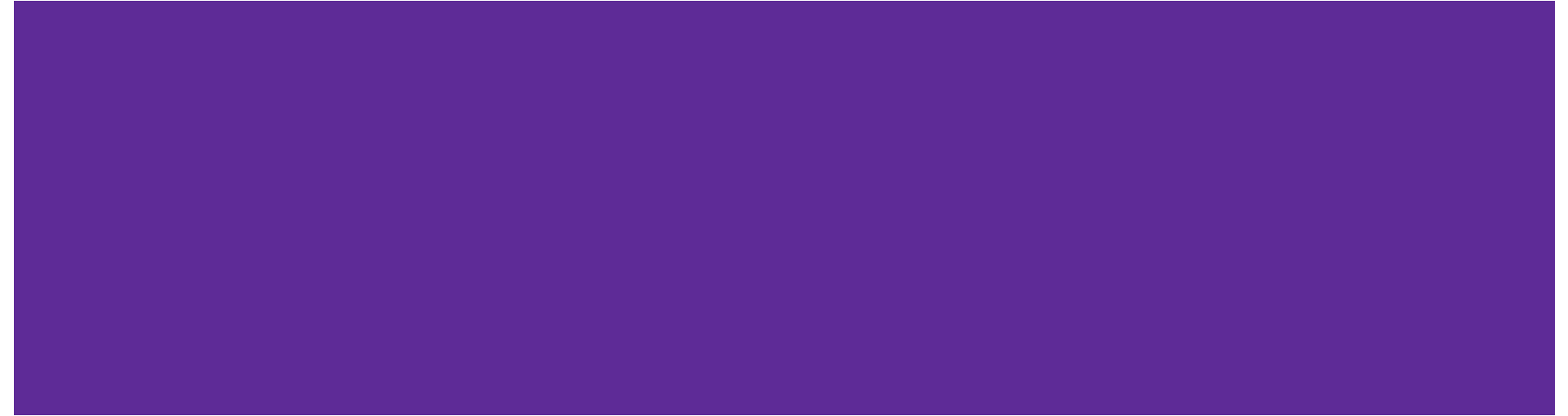
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# Standards-based grading in science: Taking your next steps

Dawn Posekany (Solon HS science teacher)

Matt Townsley (UNI ed. leadership professor)



# Who is Dawn Posekany?

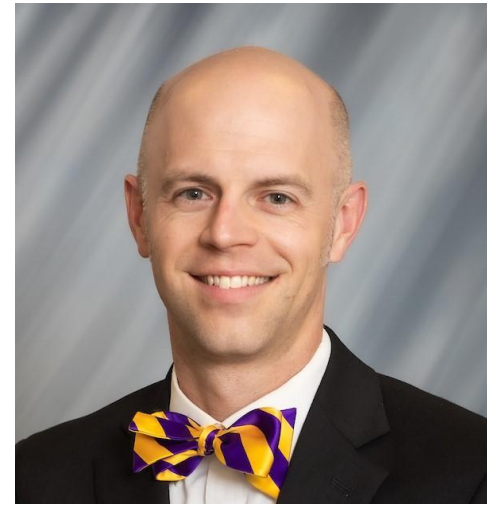
- Science teacher at Solon High School: Biology, Anatomy & Physiology, Zoology, Botany, Microbiology, and other classes as assigned (hahaha)
- Workaholic
- Volunteer at UIHC
- Dream is to be a park ranger at a National Park after retirement
- Adore the people I work alongside

[dposekany@solon.k12.ia.us](mailto:dposekany@solon.k12.ia.us)



# Who is Matt Townsley

- Classroom teacher (Solon, IA)
- Administrator (Solon, IA)
- Researcher and university professor (UNI)
- Author and consultant



# Three shifts in standards-based grading



# A bit of common language to consider

1. The purpose of grades is to communicate students' current levels of learning.
2. Points and percentages are not the best way to communicate learning.

For the purpose of this session:

**SBG = SRG = TBG = SBL**

# Three shifts in standards-based grading

1. Repurposing homework as ungraded practice
2. Providing students multiple opportunities to demonstrate their learning
3. Communicating current levels of learning in the grade book.

# Repurposing homework as ungraded practice

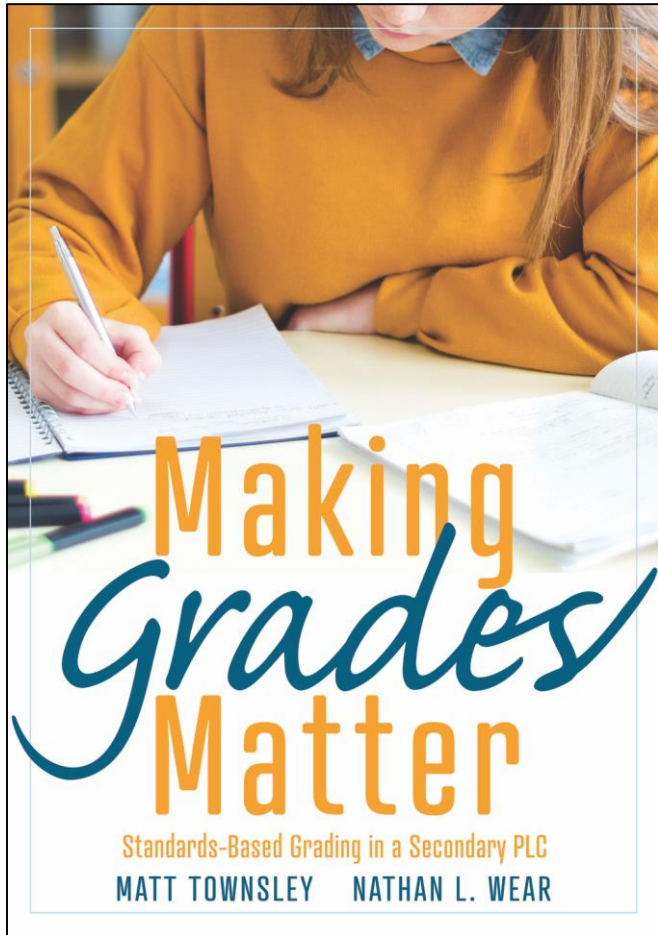
## **FROM POINTS:**

*“Each homework assignment is worth 5 points...and homework is 15% of your final grade”*

## **TOWARDS FEEDBACK:**

*“The purpose of homework is practice; therefore, I will report it separately and provide you with non-numerical feedback so that you can learn from your mistakes”*





English Language Arts		
Date	Practice or Standard	Score
9/8	Practice: Worksheet 1	✓
9/15	Standard: Identify the theme or central idea of a text.	4
9/22	Practice: Worksheet 2	L
10/1	Standard: Cite evidence to support analysis.	3
10/8	Practice: Worksheet 3	✓
10/14	Standard: Write arguments to support analysis.	4
10/21	Practice: Worksheet 4	X
10/30	Standard: Analyze the author's claims.	2
10/30	Standard: Determine the author's point of view.	1
<b>Homework and practice key:</b>	<b>Assessment key:</b>	
✓ = Collected	0 = No evidence of learning	
X = Missing	1 = Minimal understanding	
L = Late	2 = Partial understanding	
Ab = Absent	3 = Proficiency with standards	
	4 = Mastery of standards	

# Providing students multiple opportunities to demonstrate understanding

## **FROM TIME-DRIVEN:**

*“Everyone only has one chance to demonstrate learning, which happens to be this Friday’s test.”*

## **TOWARDS FLEXIBLE & CORRECTIVE:**

*“If you have not yet learned (standard), the reassessment process is (insert relearning and reassessment plan).”*

# Sample student re-learning plan checklist

- ✓ What standard would you like to reassess? \_\_\_\_\_
- ✓ Homework/practice turned in before the test? \_\_\_ Yes  
If no, complete homework and staple to this.
- ✓ Setup a time to go over test/project corrections with teacher.  
Time/date requested: \_\_\_\_\_
- ✓ Complete extra practice. Teacher assigned practice: \_\_\_\_\_
- ✓ Bring this completed checklist to teacher to setup reassessment time.

# Communicating current levels of learning in the grade book.

## FROM TASKS & PERCENTAGES:

*Chapter 3 Test: 86%*

## TOWARDS GOALS:

Area of a Circle

2

Area of a Rectangle

3

Area of a Triangle

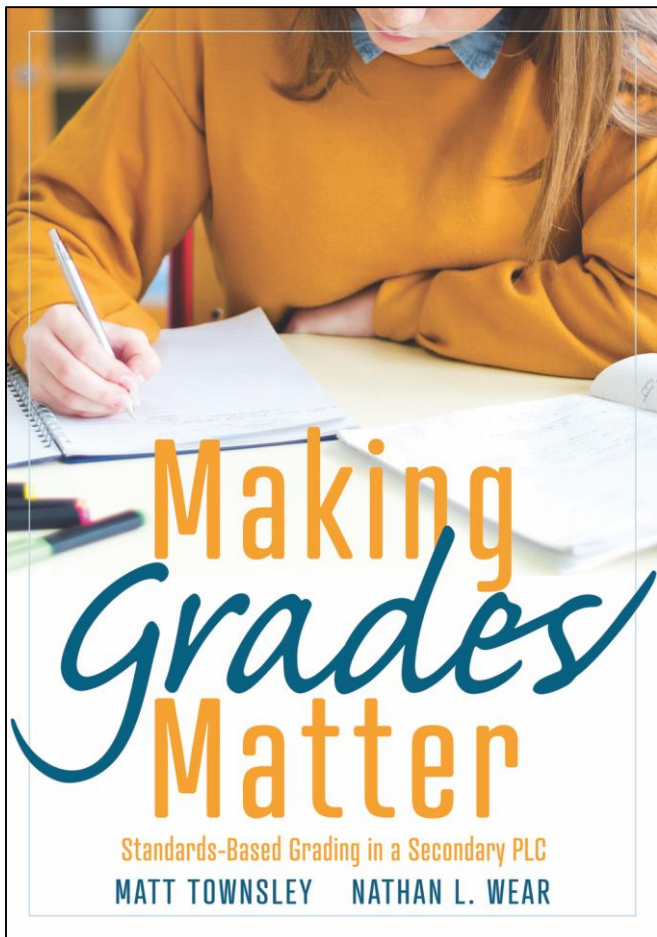
4

Key: 4 = meets standard

3 = nearly meets standard

2 = progressing towards standard

1 = not even close!



English Language Arts		
Date	Practice or Standard	Score
9/8	Practice: Worksheet 1	✓
9/15	Standard: Identify the theme or central idea of a text.	4
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<b>Homework and practice key:</b> ✓ = Collected X = Missing L = Late Ab = Absent	<b>Assessment key:</b> 0 = No evidence of learning 1 = Minimal understanding 2 = Partial understanding 3 = Proficiency with standards 4 = Mastery of standards	

# Determining end of reporting period letter grades from standards

Three general methods

1. “Percentages” method.
2. “Logic rule” method
3. “Marzano” method

For a full description of each method: [www.bit.ly/sblgrades](http://www.bit.ly/sblgrades)

# Three shifts in standards-based grading

1. Repurposing homework as ungraded practice
2. Providing students multiple opportunities to demonstrate their learning
3. Communicating current levels of learning in the grade book.

# Gradebook



# Gradebook - a couple of examples

## BIOLOGY

\*Required for graduation (10th grade)

### FINAL GRADE CALCULATION:

-90% learning targets

-10% final exam

# Gradebook

HOMEWORK: ... (9/6/2017)	HOMEWORK: ... (9/7/2017)	DATA ANALYSI... (9/8/2017)	DATA TABLES - ... (9/8/2017)	CAUSE & EFFE... (9/28/2017)	DEFINING A SU... (9/28/2017)	ATOMS & MOL... (9/29/2017)	PLANT CELLS (9/29/2017)	PHOTOSYNTH... (10/13/2017)	CELLULAR RE... (10/14/2017)
✓	✓	3	3	3	3	3	3	3	3
✓	●	4	4	4	4	4	3	4	3
✓	●	4	4	3.5	3	3.5	3.5	3	3
✓	●	2	3.5	3	3.5	3.5	2	3	3
✓	✓	4	3.5	3.5	4	4	4	4	3.5
✓	●	4	4	3.5	3	4	3.5	4	3
●	●	4	4	2	2	3.5	3	3.5	2
✓	●	3.5	3	3	3.5	3	3.5	2	3.5
●	✓	3.5	4	3.5	4	4	3.5	4	3
✓	●	3.5	2	3	3.5	3.5	3	1	2

# One Student

ASSIGNMENT	SCORE	DUE DATE ▼
<b>Lear</b> 2. Claim, Evidence, Reasoning	2	10/15/2017
<b>Lear</b> 3. Matter and Energy in Ecosystems	2	10/14/2017
<b>Lear</b> 4. Cellular Respiration	3	10/14/2017
<b>Lear</b> 5. Photosynthesis	3	10/13/2017
<b>Lear</b> 6. Plant Cells	3.5	9/29/2017
<b>Lear</b> 7. Atoms & Molecules	3.5	9/29/2017
<b>Lear</b> 8. Defining a Sustainability Problem	3	9/28/2017
<b>Lear</b> 9. Cause & Effect Diagram with Indicators	3.5	9/28/2017
<b>Lear</b> 10. Data Tables - Duckweed	4	9/8/2017
<b>Lear</b> 11. Data Analysis - Sustainability	4	9/8/2017
<b>Prac</b> 12. HOMEWORK: Darewadi Case Study		9/7/2017

Assignment: **Cells 4.1 Microscope**

Score Comment

Scoring Type: **Points**

Collected:  Late:

Exempt Score:  Missing:

Score:

Points: **3.5/4**


Percent: **87.5%**

Grade: **B+**

Comment:

Reassessment from 3

Approximately **2029** characters left



Comment:

We would like Jordan to work toward reassessing the following learning targets she does not understand: using evidence to make decisions, trade-offs, and correlation vs. causation.

To reassess students must 1) have a completed notebook and glossary, 2) make corrections and go over those with Mr. Monahan. 3) do extra practice.

Approximately **1625** characters left

Reporting Term: **Q2**

Score Comment

Manual Override:

Percent:


Grade:

Points: n/a

Comment:

I would like to continue to see Megan during seminar, after school or by appointment in the morning for some reassessment.

Approximately **1926** characters left



Due Date	Category	Assignment	Standard	Score	%	Grd	Codes
10/21/2014	Standards	Density		1/4	25%	F	
10/22/2014	Standards	Elements/Ions/Isotopes		3.5/4	87.5%	B+	
10/23/2014	Standards	Atomic Theory		3/4	75%	C	
10/24/2014	Standards	Periodic Table		3.5/4	87.5%	B+	
10/25/2014	Standards	Naming Compounds		4/4	100%	A	
10/26/2014	Standards	Balancing Equations		3.5/4	87.5%	B+	
10/27/2014	Standards	Chemical Reactions		3.5/4	87.5%	B+	
10/28/2014	Standards	The Mole		1/4	25%	F	
10/29/2014	Standards	Mole Ratio		3/4	75%	C	
11/05/2014	Element Narrative	Element Narratives		4/4	100%	A	
11/06/2014	Chemical Reactions Lab	Reaction Lab		4/4	100%	A	
11/07/2014	Mystery Liquids	Mystery Liquids		3.5/4	87.5%	B+	
11/08/2014	Separation Lab	Take Home Separation Lab		3.5/4	87.5%	B+	
11/09/2014	Penny Lab	Penny Lab		3.5/4	87.5%	B+	
11/20/2014	Homework/Practice	Name Matching Sheet		0/0		NO	☒
11/21/2014	Homework/Practice	Naming Sheet #1		0/0		NO	☒
11/22/2014	Homework/Practice	Naming Sheet #2		0/0		NO	☒
11/23/2014	Homework/Practice	Balancing Sheet #1		0/0		NO	☒
11/24/2014	Homework/Practice	Balancing Sheet #2		0/0		NO	☒
11/25/2014	Homework/Practice	Balancing Sheet #3		0/0		NO	☒
11/26/2014	Homework/Practice	Reactions Practice #1		0/0		NO	☒
11/27/2014	Homework/Practice	Reaction Practice #2		0/0		NO	☒
11/28/2014	Homework/Practice	Mole Practice 1		0/0		NO	☒
12/19/2014	Final	Final Q2		45/82	54.88%	F	

Grades last updated on 12/19/2014

☑ - Collected, ▲ - Late, ■ - Missing, ◆ - Score is exempt from final grade, ☒ - Assignment is not included in final grade

# Guideline: Reassessment

*“If we allow students an opportunity to reassess, won't they just blow off the first attempt?”*

# Multiple points of data/most recent evidence counts

\*Formative assessment/pre-test

\*Informal observations during instruction

\*Practice, homework etc. during instruction

\*Formal quick check

\*Target test (GRADED)

\*Reassessment (NEW GRADE)

\*Professional judgment

# Reassessment

Some target tests will only assess a single learning target while others will assess multiple learning targets. Students may reassess any learning target except lab practical exams and finals as long they meet the deadlines for reassessment and complete the "insurance policy." Reassessment dates are set by the teacher and will be approximately one week after the class gets results back.

*Reassessment rules:*

- Only one learning target may be reassessed at a time.
- No more than one learning target can be reassessed per day.
- **Reassessment cannot be on the same day a student received help from the teacher.**
- The reassessment is not identical to the original quiz or test.
- The new score replaces the previous score.
- Students may reassess as many times as necessary, but additional practice or work may be required with each attempt.
- Some learning targets are weighted more heavily. These will be communicated before assessment and noted in the assignment description in PowerSchool.
- After reassessment, if you would like another chance, you must contact the teacher within two days of receiving your results and work together to create a plan for the next reassessment.
- Stop in to go over reassessments results with your teacher. These are not passed back during class.



# Reassessment Policy

## To REASSESS in Biology:

1. Show teacher completed work (notebook, homework, lab, activity, etc.)
2. Correct test (those parts related to the learning target)
3. Go over corrections with teacher
4. Do additional practice
5. Schedule reassessment time with teacher

# Reassessment

\*Communicate clearly & often (never stop)

\*Have a solid “insurance policy”

\*Do have a timeline/limits

\*Process builds relationships

Name : \_\_\_\_\_ Block \_\_\_\_\_

## Reassessment Checklist

The following steps must be completed in order. Check them off as you complete them.

1. Determine which learning target you would like to reassess (only one at a time). Write it below.

Learning Target: \_\_\_\_\_ Original Score: \_\_\_\_\_

2. Complete A or B below depending on your original score and work:

- A. If you got a 3.5 or 3, and you completed and turned in evidence of studying before the test (for example you may have created study cards and answered the “Can I...” statements,) confirm this with your teacher.

Teacher Approval: \_\_\_\_\_ Date \_\_\_\_\_

- B. If you got less than a 3 or did not complete and turn in evidence of studying before the test, show your teacher you have completed work related to the learning target. A list is posted on the microscope cabinet. This includes related activities in your notebook, practice, etc. If you need help completing these, please do not hesitate to ask.

Teacher Approval: \_\_\_\_\_ Date \_\_\_\_\_

3. Ask teacher for your original assessment (test).

- A. Correct the part of the target test related to the learning target you want to reassess using a different color. You may use your notebook, a textbook, the internet, etc. **You may not use another person's test or work with another student.** Doing so may disqualify you.

- B. Consider your corrections. Write a reflection that connects original work to corrections. Why did you miss what you missed? What patterns do you notice?

## Ecosystem Change Cause/Effect Diagram Notebook Check

Check that you have all of the following completed and ready to show your teacher:

- \*Glossary for Ecology Activity 1 (Part 1 – two pages)
- \*At least three sticky notes from your case study reading
- \*Case Study Comparison chart
- \*Cause/Effect diagram for your case study in notebook
- \*Complete list of tips for making cause/effect diagrams
- \*A Walk Outdoors handout
- \*Invasive Species handout with 3 comments
- \*Revisit the Challenge

# Another reassessment policy

## Grading and Reassessment

At this point, the high school is very streamlined on grading. The grading scale is consistent (see syllabus) and the scoring guide for assessments is consistent. One of the items that differs in each classroom is the idea of a reassessment. My reassessment schedule consists of two days a week (Tuesday and Thursday). Students can come in any time on those days and initiate a reassessment. There are several things that must be done ahead of time:

1. At least two days ahead of the reassessment, students need to check with Mr. Beck to see what needs to be done ahead of time for the reassessment. This would include homework assigned in class that wasn't completed or a set of practice problems outside of the homework.
2. The day before the reassessment, students will come in with completed work assigned, and check over them with Mr. Beck.
3. No help will be given the day of the reassessment.
4. Students need to schedule a time for the reassessment (this can be done in person or over email).
5. Students will sit down with Mr. Beck after the reassessment and go through the problems together. Immediate feedback will be given.

The latest score on a reassessment takes the place of the most current score. Students may only reassess one standard per week. This means that they may reassess one standard on Tuesday, and another standard on Thursday of that same week.

# Revisions

\*Sometimes revisions make more sense.

- Lab reports

- Projects

- Models/Modeling

- ????

# Guideline: Homework as practice

*“If I don’t assign a grade for the homework, will students still complete it?”*

# Homework

- \*System vs you (students now only know SBG)
- \*Nothing new/different overall (some will and some won't do homework)
- \*Saw a decline for a bit then return (testing it out)
- \* Should be meaningful and purposeful, help them see value
- \*Reduce!
- \*Studying vs homework

# Communication (Say it and repeat)

\*Clear communication of content & skills to be learned

\*Metacognitive goals (mindset)

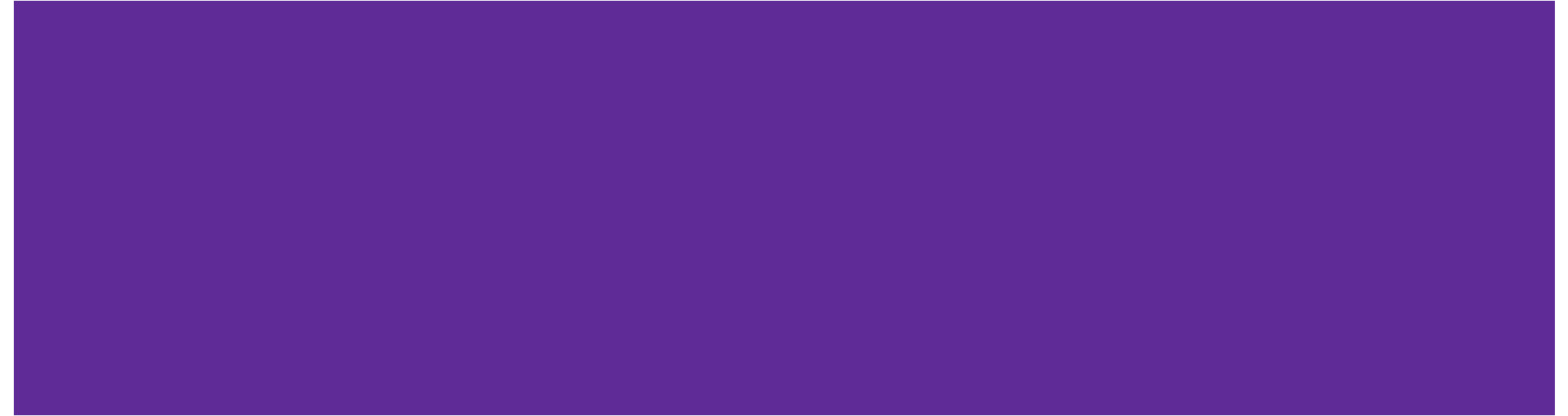
## -Failure, progress & improvement

-Self-regulated thinking

-Identify what they know & don't know



**Let's try this!**





# Solon SBG Standard Scale

## Rubric Scale

4	3.5	3	2	1
Demonstrates thorough understanding (of course or grade level standard)	Demonstrates understanding (of course or grade level standard)	Demonstrates a developing understanding (of course or grade level standard)	Demonstrates partial understanding (of course or grade level standard)	Demonstrates minimal understanding (of course or grade level standard)

## Science Department Standards Based Grading Guidelines

<b>Rubric Score</b>	<b>Power School Entry</b>	<b>Parent Sees</b>	<b>Teacher Language</b>	<b>Student Language</b>
4	4	$4/4 = 100\%$	Demonstrates thorough understanding of course standard.	<b>I get this very well and can apply it to new situations.</b>
3.5	3.5	$3.5/4 = 87.5\%$	Demonstrates understanding of course standard.	<b>I'm almost there.</b>
3	3	$3/4 = 75\%$	Demonstrates a developing understanding of course standard.	<b>I have some questions.</b>
2	2	$2/4 = 50\%$	Demonstrates partial understanding of course standard.	<b>I need some help.</b>
1	1	$1/4 = 25\%$	Demonstrates minimal understanding of course standard.	<b>I need LOTS of help!</b>
0	0 (or missing indicator)	$0/4 = 0\%$	Missing or not enough to assess.	<b>I couldn't answer the questions and left some blank. I wasn't ready or I was gone.</b>

# What this is NOT

- \*A scale to be turned into the student got 90-100% correct (=4) or 25-50% correct (=2).
- \*Each item on the assessment is of equal value (this may or may not be true)
  - The whole assessment should be considered toward the level of understanding. -
  - Some items within it may be valued more than others.

# Determining Levels of Understanding

Go to the shared folder

-Open the “Atoms and Molecules Can I...” PDF

## Atoms and Molecules Target Test Study Guide

- \*Can I explain the difference between atoms and molecules?
- \*Can I determine reactants and products of a chemical equation?
- \*Can I explain what a chemical equation shows?
- \*Can I explain what a chemical **formula** shows?
- \*Can I build a molecule based on a chemical formula?
- \*Can I determine the number of atoms and molecules in a chemical **formula**?
- \*Can I determine the specific number of atoms and molecules in a chemical equation?
- \*Can I evaluate a model given a formula?

---

## Levels of Understanding

1. Determine who “gets it” and who doesn’t.
2. Then determine the specific level of understanding.

## Rubric Scale

4	3.5	3	2	1
Demonstrates thorough understanding (of course or grade)	Demonstrates understanding (of course or grade level standard)	Demonstrates a developing understanding (of course or grade)	Demonstrates partial understanding (of course or grade)	Demonstrates minimal understanding (of course or grade)

# Determining Levels of Understanding

Go to the shared folder

-Open the “Score these tests” PDF

# Determining Levels of Understanding

Work on your own or with a colleague to look at each of the student examples and decide where you would place each assessment on the SBG scale. Please write your ideas on a piece of paper. Be prepared to discuss.

<b>4</b>	<b>3.5</b>	<b>3</b>	<b>2</b>	<b>1</b>
Demonstrates thorough understanding (of course or grade level standard)	Demonstrates understanding (of course or grade level standard)	Demonstrates a developing understanding (of course or grade level standard)	Demonstrates partial understanding (of course or grade level standard)	Demonstrates minimal understanding (of course or grade level standard)

# Determining Levels of Understanding

1. What was easy about the process?
2. Which student work examples did you think were easy to score? Why?
3. What was challenging about the process?
4. Which student work examples were difficult? Why?
5. Overall reflections and questions on this experience?

# Feedback - always room for improvement

## POPULATION ECOLOGY LAB REPORT

1. The guiding question was, "What factors affect population size in song sparrows?" Use the data you collected on Student Sheet 3.1 to do the following:

a. List the variable(s) that had a positive effect on nesting success.

Temperature, it's positive because it increases the nesting rate increased.

b. List the variable(s) that had a negative effect on nesting success.

Rainfall. Breeding. Local Parasitism rate. Brood Parasitism rate. Female aging. Level of Inbreeding. Negative because some had a big drop or even a little drop in the percentage. Decreasing the nesting rate.

c. List the variable(s) that had no effect on nesting success.

Private comments

 Dawn Posekany  
Sep 11, 2021, 10:15 PM

Identify why age is both positive and negative (when positive and when negative) for #1 a/b.

1d. Please double check the data for female age.

For #1d-f, where do breeding density, temperature, and inbreeding go? Good use of data in the others!

 Dawn Posekany  
Sep 11, 2021, 11:22 PM

Thoughtful answer for #2!

 Dawn Posekany  
Sep 12, 2021, 7:34 PM

For #3a, describe the pattern shown in the line on the graph.

For question #3a, you have a variable might cause an increase in the slope. Which might cause a decrease?



# Questions, Sharing, and Discussion



# Resources



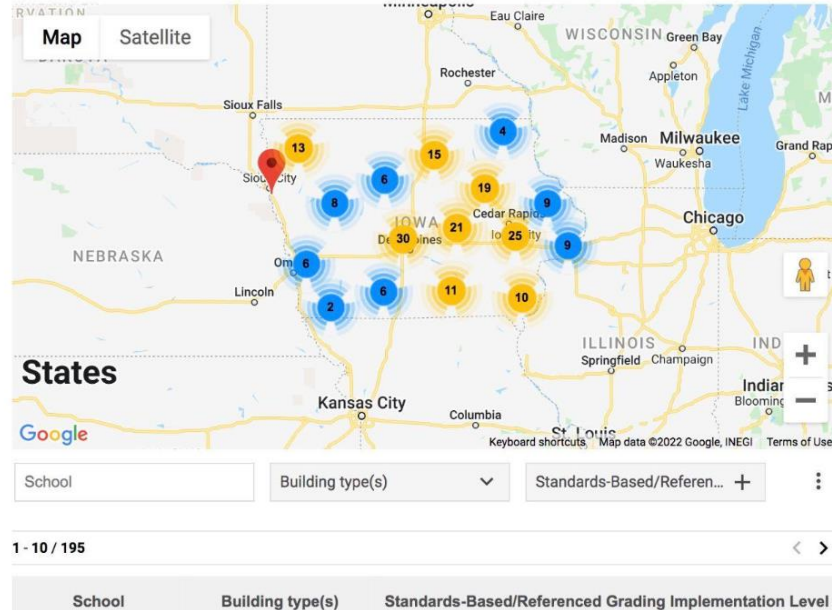
🔍 all things standards-based grading × 

Google Search

I'm Feeling Lucky

# Secondary Standards-Based Grading in Iowa

Last updated in November 2019



## Levels of SBG Implementation:

**Full** = Implemented at all grade levels or content areas.

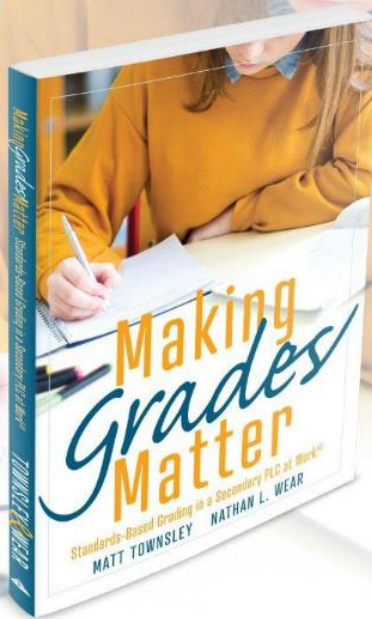
**Moving Forward** = School has implemented in some, but not all grade levels or content areas. A plan is in place to scale SBG system-wide within the next 1-2 years.

**Beginning Soon** = School has one or more teachers currently implementing SBG with plans to scale further within the next 3-4 years.

**Beginning Later** = School has one or more teachers currently implementing SBG with plans to scale further within the next 5+ years.

**Investigating** = School has one or more teachers currently implementing SBG, however does not currently have a plan to systematically shift to SBG.

**No Plan** = School does not use standards-based grading in any classrooms, and is not planning to do so at this time.



# Making Grades Matter

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