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In the Classroom: Reading and Writing in the Content Areas (Dec. '89)

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IN THE CLASSROOM

Reading and writing in content areas

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Students comprehend content material by reading, discussing, writing, questioning, investigating, exploring, and organizing. Reading and writing in the content areas relates prior knowledge, classroom interaction, cooperative learning, vocabulary instruction, and questioning techniques. Children practice research skills by organizing information in a meaningful and practical manner. This month's In the Classroom column presents ways in which teachers can enhance their students' comprehension of content area topics by involving them in various classroom activities. Additional resources for content area reading and writing activities follow:

Dupuis, M.M. (1983). *Reading in the content areas: Research for teachers*. Newark, DE: International Reading Association.

Graves, D.H. (1989). *Investigate nonfiction*. Portsmouth, NH: Heinemann.

Heimlich, J.E. and Pittelman, S.D. (1986). *Semantic mapping: Classroom applications*. Newark, DE: International Reading Association.

Marzano, R.J. and Marzano, J.S. (1988). *A cluster approach to elementary vocabulary instruction*. Newark, DE: International Reading Association.

Thelen, J.N. (1984). *Improving reading in science*. Newark, DE: International Reading Association.

Understanding content material

Lane Roy Gauthier

One problem intermediate-grade students face is understanding concepts in content material. Textbooks in which concepts are presented in rapid-fire fashion certainly make the task no easier. Following is a strategy which seeks to improve students' comprehension of content material by having them read, discuss, and give written responses to items pertaining to short content texts.

In this activity, the teacher chooses a short selection from a content text (e.g., science or social studies). The length of the excerpt could vary from one paragraph to one page depending upon its concept load and the purpose of the lesson. The teacher then prepares a list of the major concepts for students to learn. Next, the teacher selects a small group to participate in the lesson. For this activity, a cooperative group comprised of children of different abilities works well. Initially, the teacher previews the content of the short selection. These brief comments may address vocabulary terms (technical and/or specialized) or major concepts. In addition, the teacher should ask if anyone in the group already knows a few things about the subject, so that students with information can share their knowledge with the rest of the group. One fifth-grade teacher doing a science lesson about the Earth's four seasons got responses such as "I know that the winter is a lot colder when you go north" and "When the Earth goes around the sun it helps the seasons to change."

Before the students read the selection, the teacher should ask them to look at the following questions and to be aware that they will be asked to address them in written form after the reading is complete. These prequestions will help students set purposes for reading.

1) What have you learned from reading this selection?
2) How does the information in this selection connect to the other things you know about this subject?
3) List the words in the selection which you did not fully understand.

After the students have read the selection and have written responses to the three questions, the teacher leads a discussion. For example, the fifth-grade teacher elicited responses such as "That the world going around the sun is only some of why we get the seasons" (for item 1). "I knew the Earth went around the sun, but not that it was tilted a little" (for item 2). *Revolve, axis, solstice, rotate, equinox, Tropic of Cancer* (for item 3).

When the students have had sufficient time to conduct their own discus-

sion of their written answers, the teacher should join in the exchange to help solidify the students' understanding of the topic by asking key questions and providing explanations of unfamiliar concepts and vocabulary words. Key questions should be based upon the major concepts which the teacher listed before the lesson began.

By limiting the amount of text to be read at one time, connecting the material to prior knowledge, attending to content vocabulary, and involving the students in cooperative learning, this technique can lessen the usual difficulties associated with understanding content material.

Gauthier is director of the Internship and Practicum in Reading at the University of Houston, Texas.

Classroom big books: Links between reading and writing nonfiction

Diane Snowball

Children are often asked to write about nonfiction topics. This activity presents a process for researching and presenting information in the form of nonfiction big books that allow children to read for information and write to inform.

STEP 1 Select a topic that interests the class and ask children to suggest words related to that topic (see Figure 1).

STEP 2 Ask children to describe the relationship between the topic word and each of the words they have suggested. Assist them in classifying the words into categories which describe different aspects of the topic. This organization will help the students retain information when reading about the topic. It will also help students organize notes from other sources (see Figure 2).

STEP 3 Choose one of the categories to write about as a class. The teacher should model the processes involved in gathering further information about the topic.

- List what is known about the category.
- List questions students would like to explore.
- Discuss where the necessary information could be found.

If necessary, the teacher should demonstrate how children might write letters to obtain information, how to interview people, or how to use various resources such as telephone books, a variety of informational texts, brochures, magazines, audiovisual materials, and computer data bases.

STEP 4 Relate newly acquired information to original known data. The information may be written as one of the chapters of a book about the topic. The teacher should discuss how the information could be organized, perhaps using other suitable nonfiction books as models. The teacher should make use of headings, subheadings, and layout. Remember that often information is best presented in tables, labeled diagrams, flowcharts, and graphs.

Working with the teacher, the class should now decide on the best way to organize the total information—reorganizing, revising, and perhaps even deciding to delete some information or to find out more. This chapter is then written on large sheets of paper as part of a class big book.

STEP 5 Allow groups of children to select one of the other topic categories to research. This should be presented following the model of the class example given above.

STEP 6 Collate all of the groups' chapters into a total class big book and decide on an appropriate title for the book. Have the class compile a table of contents, an index, and other necessary sections for the book such as a glossary, suggestions for further reading, a title page, an imprint page with necessary acknowledgments, and back cover blurb. Use other suitable books as models.

STEP 7 Encourage the children to work in groups, pairs, or as individuals to write other nonfiction books in a variety of curriculum areas.

A variety of reading, writing, and oral language tasks are involved in this process. Learning of this type broadens the range of options for children and allows them to choose their own resources for reading literary forms and styles of writing. Cooperative learning strategies are used, and teachers are provided with a scaffolding that can work with all age groups.

Snowball is a language consultant and author in Melbourne, Australia.

Figure 1

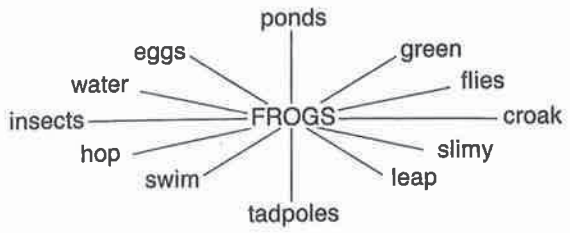


Figure 2

Characteristics	Habitats	Food	Life cycle	Movement
green	water	flies	eggs	swim
slimy	ponds	insects	tadpoles	hop
croak				leap

Research and report writing in the elementary grades

Evelyn T. Cudd

Initiating research and report writing in the elementary grades is a difficult task that frequently results in children mindlessly copying information out of whatever encyclopedia is closest at hand. I have found that one effective, easy way to initiate research, and avoid rote copying from reference books, is to begin by having children work with a grid or QUAD, an acronym for *qu*estions, *a*nswers, *d*etails (see Example 1).

With my third graders, I begin by requiring them to write on their QUAD four or five questions about a topic. Before the questions are written, however, the topic must be approved by me. This procedure ensures that the topic chosen is not too broad. Topics like *pets, dogs,* or *Africa* tend to produce unfocused, general questions that the child will have difficulty researching. I have found that the narrower the topic, the better the questions that are generated.

When the topic has been approved, the children write down their questions on the QUAD. Thus, from the beginning stages of research and report writing, children learn that research emanates from questions that a researcher has about a given topic, not questions that someone else has generated. Children have ownership of the project because the questions belong to them.

After students have written their questions, they begin their research, writing notes on the QUADS. Sometimes an answer to a particular question does not require that additional details be noted (see Example 2). This is fine. Children begin to learn when such details are appropriate. Occasionally, children cannot find an answer to a particular question (see Example 3). This is also a learning experience. Children can either write another question or let the original question stand unanswered.

At the bottom of each QUAD is a space for references to be recorded. I require two or three references. The

Example 1

Name A. W

Topic: Kangaroos

Questions	Answers	Details
1. Do kangaroos hibernate?	no	groundhogs, dormice, and bears do
2. What kinds of food do they eat?	plants	grass, grain, leaves, and twigs
3. How far can they jump?	30 feet 1 jump	
4. Do kangaroos live in one part of Australia	no	they also live in South America
5. How many different kinds of kangaroos are there?	50 or more	grey kangaroo, red kangaroo, and tree kangaroo
References: Childrens' Britannica	Kangaroos	Book of Knowledge

Example 2

Name C. E.

Topic: Battle of Gettesburg

Questions	Answers	Details
1. How many men were killed	60,000	That is more than all the other wars in which the United states has fought.
2. Who were the two Generals that fought in Gettesburg	General Grant and General Robert E. Lee	
3. What was the cause of the war?	slavery	slavery made it easy to produce cotton. People made lots of money.
4. What was the famos speech that Abram Lincoln write about the battle.	The Gettesburg Address.	He wanted to always remember the soldiers that had died.
5. Did General Robert E. Lee give up?	Yes.	The battle gradually decided the war in favor of the Union
References: Encyclopedia Britannia The Civil War		

Example 3

Name J A

Topic: Polar Bears

Questions	Answers	Details
1. where do Polar Bears mostly live?	Arctic Ocean	float on ice.
2. Why do Polar Bears live in cold water and not warm?	I couldn't find the answer	
3. What do Polar Bears eat?	sea animals	walros, seal, and fish.
4. Who big are Polar Bears?	8 3/4 feat	other bears are three feet tall.
5. How fast can they run?	35 m.p.h.	some can run 50 m.ph.
References: Children's Britannica	Book of Bears	

Example 4

Name J.

Topic: Anacondas

Questions	Answers	Details
1. Where does it live?	South America	Marsh land
2. How long is it?	30 feet	the only snake in the group of reptily that is the closest to it Size is the python
3. What does it eat?	Large frogs, baby alligators.	The Anaconda eats 30 to 40 times a year.
4. Is it poisonous?	No.	It has no venom glands, however, it crushes it's prey.
References:	Encyclopedia Britannica	National Geographic Snakes around the world

use of an encyclopedia as a reference is encouraged. Since the child is answering specific questions, the reading is purposeful. Interviews with experts are accepted as references also.

Before the children begin their research, I notify our school librarian that a research project is underway and explain my intent. Children can then be assisted in the Media Center as they search for additional references. Children must have their QUADS with them when they go to the library; otherwise, the librarian will send them back to the room. This simple step helps to minimize discipline problems and seems to keep students focused on their projects.

Most of the time, the end product is the completed QUAD, not a five-page painfully written report. Sometimes children work in pairs or in small groups on QUADS. This has proven to be an excellent way to involve my less able and less inspired students. Later, QUADS can be used as notes for drafting a formal written report.

By initiating research with a QUAD, children learn from the beginning that research stems from questions about the world around them, and that in order to find answers one must construct clear questions. Students also learn that even with clear questions, sometimes the answer cannot be found, and they find that researching can be an exciting and rewarding experience.

Cudd is a third-grade teacher at Hidden Oak School in Gainesville, Florida.

Quick draw

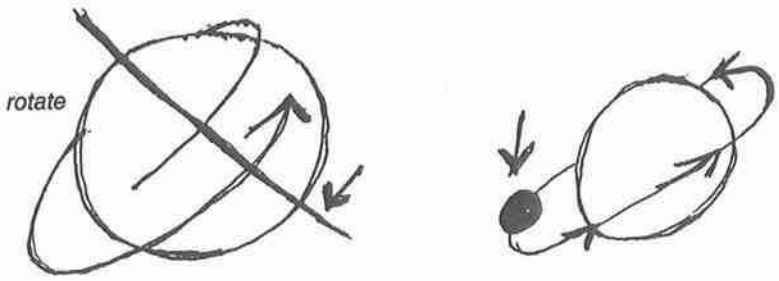
Vicki Owsley

Oral discussion helps students expand and refine concepts and relate new knowledge to previous experiences. This activity, which is patterned after current popular drawing games, helps provide the stimulus for semantic elaboration that leads to the ownership of words. It can be used in content area vocabulary studies for upper elementary students.

Prior to introducing the activity, the children are given a list of 5 to 10 vocabulary words. In class, the dictionary definitions are given and discussed. The students are then encouraged to take the words home and discuss their meanings with parents and friends. The illustrating activity is completed the following day.

1. The teacher writes the words on 3″ × 5″ (about 8 × 12 cm) cards.
2. The children are divided into groups of four to six members. Two students are designated as illustrators in each group. Prior to beginning, the rules are reviewed:
   a. Illustrators may not communicate verbally or physically with teammates during the sketching rounds.
   b. Sketches may not include numbers or letters.
   c. Each sketching round is limited to 30 seconds. Conferencing time is also limited to 30 seconds. There is a limit of three sketching rounds and two conferencing periods allowed per word.
3. Sketching round begins:
   The timer is set for 30 seconds. Student #1 picks a card from the pile of words, looks at it, and then hands it to Student #2, who will be the first illustrator. The word is not shown to the rest of the team. Time is begun and the illustrator is allowed 30 seconds to sketch a graphic interpretation of the word. Students #3 through #6 may continually communicate orally. The teacher encourages thoughtful questioning by modeling appropriate discussion pertaining to the concepts and their relationship to the students' prior knowledge.
4. Conference period:
   If the word is not correctly guessed during the first sketching round, a 30-second conference period between the two illustrators is required. They are encouraged to discuss the meaning of the word, the drawing, and what should be added or changed. Student #2 sketches for the second round. One additional conferencing period and a last sketching round will be allowed if needed. Either illustrator may sketch in the final round. If the word is not guessed, it is revealed and the entire team discusses the word and its relationship to the drawings.
5. Students should understand that artistic ability is not prerequisite to success in this game. Simple drawings are in fact preferred as they take less time. Teachers should model examples of appropriate stick figures and abbreviated designs that can be used. As the children relax and begin to enjoy the game, the discussion becomes insightful and instructional. They become active learners. An example of the graphic representation and accompanying discussion for *rotate* is provided.

Example of graphic representation and discussion



Discussion

Student: I drew it with this arrow at this line because of the axis thing. I didn't want them to think that it was *revolve* or a *satellite*.

Teacher: How would you change the picture if the word had been *revolve?"*

Student: I would have used the arrows to show that it was orbiting like this around something else that was bigger.

Teacher: And, if it were *satellite?*

Student: I would have pointed the arrow at the circle orbiting here.

Owsley is a basic skills instructor at Marvin Elementary School in San Diego, California.

Writing feature stories

Eunice G. Coakley

"Why don't people write good news about students?" asked one of my students.

"We do lots of good things, too," exclaimed another student in my language arts class.

For the remainder of that week, I searched frantically and clipped out articles from our local community newspaper, highlighting the successes of young persons. One article depicted a rescue attempt made by local high school students who entered a burning home. This captured the interest of the students because these high schoolers saved the life of an infant. We began discussing incidents/events/achievements in my students' lives that they considered newsworthy. I then challenged them to write feature stories about one another. This spawned a successful writing activity that we entitled "Students in the News."

These budding reporters were assigned the task of interviewing a partner. Prior to this, techniques for conducting interviews were discussed, and students were asked to list three important events in their lives which they deemed newsworthy. Partners determined which event would be the focus of the interview and then wrote questions. We then brainstormed the basic ingredients needed for a feature story, focusing primarily on human interest information. Having reached a consensus that the five W's (who, what, where, when, why) were important, students also agreed to consider other pertinent information.

In addition, sections of our local community newspapers were distributed. For example, if a student's feature centered on sports, then s/he received the sports section; if it was related to the performing arts, then s/he received the theatre section. Students read these sections, examining writing techniques employed by local reporters. After discussing several of these sections and the writing styles employed, we defined newspaper terms such as *headline, caption, byline, dateline,* and *wire service.* Students jotted down the definitions and clipped samples, placing these in their journals for future reference. We unanimously adopted SMS (Sevier Middle School) as our wire service.

Finally, we embarked upon our newspaper assignment with gusto! Each person was asked to provide a photo related to the article's content; many of these photos were in color. For students who were not able to obtain a photo, the reporter had the added responsibility of drawing an appropriate illustration related to the article. Not only were the students responsible for the layout of the photos, headlines, and so forth, but all had to write a caption for the photo/illustration and type or write in ink the newspaper article in columns.

I was also teaching a lesson on direct quotations, so I had students employ direct quotations within their articles and punctuate them correctly. Furthermore, we brainstormed how to devise headlines that would capture the reader's interest. Many students incorporated literary devices previously studied (alliteration, simile, metaphor, personification, onomatopoeia), resulting in headlines such as "Feathered Friend Learns to Fly," "Flipping Through Life," "Tragedy on Turner Street," "Two-Year Old Gets a Taste for House Construction," "Eleven-Year Old Wins Physics Award," "Swimming to Success," and "Teacher 'Strikes' IT Rich." One student did a feature story on my interest and involvement in bowling.

This was indeed a fun, enriching activity for my students and me. Many students dug deep to recall earlier childhood memories and more vivid details surrounding recent events. We learned quite a bit about each other's special interests, talents, future goals and aspirations and developed admiration for those sharing success stories regardless of the degree of success. These students' feature stories are housed in a display case near the school library.

Coakley teaches seventh grade at Sevier Middle School in Greenville, South Carolina.

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Send a self-addressed, stamped envelope to this same address to receive a brochure describing manuscript preparation and submission procedures.

Booklet on independent reading from Center for the Study of Reading

A 10-page booklet titled "Teachers and Independent Reading: Suggestions for the Classroom" has been prepared by the Center for the Study of Reading. This booklet provides suggestions for motivating students to read, arranging classroom time for independent reading, setting up classroom libraries, and extending reading programs beyond the classroom to the entire school, the home, and the community. The booklet also provides a list of bibliographies of children's books. Individual copies are available for US$1.50 and sets of 15 copies for US$20. Make checks or money orders payable to: University of Illinois–I.R. (IL, OH, IN, MN, MI, WI residents add appropriate state sales tax). Mail orders and payments to University of Illinois–Independent Reading, P.O. Box 2268, Station A, Champaign, IL 61825-2268, USA.