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ABSTRACT

When reading science texts, students often do not know what they know. Prereading activities can help students build bridges from the known to the unknown. Brainstorming will help students recognize their own prior knowledge on the subject and learn from hearing each other's responses. An anticipation guide is a teacher-generated list of questions that are asked of students before reading the text to elicit thinking, arouse curiosity, and focus attention. Science teachers can use graphic organizers to introduce new technical vocabulary from the unit under investigation and to illustrate the interrelationships that exist among the various concepts and terms. Capitalizing on students' curiosity increases students' motivation to read, which leads to an increase in comprehension. Providing students with a list of terms and having them classify them and identify their reasons for doing so will not only stimulate student interest but will also help the teacher find out what students do and do not know about the topic. Active comprehension on the part of the students can be promoted by asking them to make predictions as to the content of the selection. (MG)

Ready, Set, Read. . .and Understand!

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Ready, Set, Read. . .and Understand!

Read the following paragraph:

The procedure is actually quite simple. First you arrange items into different groups. Of course one pile may be sufficient depending on how much there is to do. If you have to go somewhere else due to lack of facilities that is the next step: otherwise, you are pretty well set. It is important not to overdo things. That is, it is better to do too few things at once than too many. In the short run this may not seem important but complications can easily arise. A mistake can be expensive as well. At first, the whole procedure will seem complicated. Soon, however, it will become just another facet of life. It is difficult to foresee any end to the necessity for this task in the immediate future, but then, one can never tell. After the procedure is completed one arranges the materials into different groups again. Then they can be put into their appropriate places. Eventually they will be used once more and the whole cycle will then have to be repeated. However, that is part of life (Bransford & Johnson, 1972, p. 722).

Did you have a hard time understanding the above paragraph? No doubt you were able to read every word, but would you be able to summarize the passage, or explain it to another person? Would you want to be tested on it? If you had known before reading the paragraph that the topic was about washing clothes, you would probably have found it quite easy to understand. In fact, try reading it again and see how different this second reading is for you. Now, it makes a lot of sense!

When reading science texts, students often don't always know what they know. Just like us in the above example, they have a wealth of information that they come to the text with, but they might not realize it. One of our jobs as strategic teachers of science is to help them build bridges from the known to the unknown--from what they already know about a topic to what they are about to learn. Prereading activities can do just that.

The following prereading strategies are all designed around a fifth grade unit on animals with and without a backbone. However, they can be adapted for any unit at any grade level. What is important is for you to survey the textbook, note relationships between concepts and

vocabulary, identify the areas that might pose a problem for understanding. Finally, choose the prereading activities that are interesting to you. Your interest will be catchy!

BRAINSTORMING

One of the easiest of the prereading activities is brainstorming. On the first day of your unit of study, write the topic on the blackboard or on a large piece of paper, for example, "Animals with a backbone." Then have students call out anything that comes to mind. This general brainstorming will enable you to ascertain how much your students do and do not know about the topic under investigation. It will also help them to recognize their own prior knowledge on the subject, as well as to learn from hearing each other's responses.

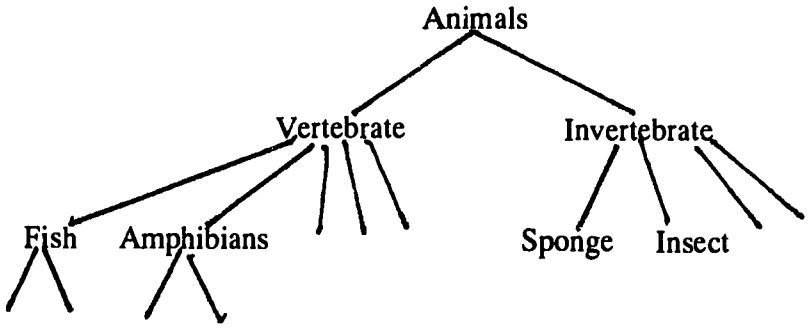
ANTICIPATION GUIDE

An anticipation guide is a teacher-generated list of questions--generally true or false questions--that are asked of students before reading the text to elicit thinking, arouse curiosity, and focus attention. "The colorful sponges we use when washing dishes were once alive," "A starfish can regrow missing body parts," "Insects are both harmful and helpful," and "Snakes do not have a backbone," are examples of possible questions for an anticipation guide on vertebrates and invertebrates. The guides can be given orally or in writing. Students should answer individually and discuss their answers. However, their subsequent reading will be the final word on the correctness of their guess.

GRAPHIC ORGANIZERS

Science teachers can use graphic organizers to introduce new, technical vocabulary from the unit under investigation and to illustrate the interrelationships that exist among the various concepts and terms. An incomplete graphic organizer, such as the one shown below, can be

presented to students before reading the chapter and filled in by students as new information is gathered.



Thus, graphic organizers provide a comprehension framework that helps students organize the learned material.

CURIOSITY GETTERS

Increasing students' motivation to read will lead to an increase in comprehension. Capitalizing on curiosity does just this. For example, before students read about fish in their text chapter on vertebrates, bring in a bowl of goldfish. Have them observe the fish and write down everything they observe. Or, show the students a closeup photograph of an insect's compound eye and have them guess what it is. Or, introduce your chapter on insects in the following way:

> Due to some strange change in the earth's atmosphere, every insect on the planet has been killed. Insects no longer exist! List the advantages of this new development. List the disadvantages, too.

CLASSIFYING

Providing students with a list of terms and having them group them and identify their reasons for doing so will not only stimulate student interest, but will also help you as the teacher find out what students do and do not know about the topic under investigation. For example, before reading the chapters on invertebrates and vertebrates, have students work in pairs to group the following terms: mollusks, centipede, spider, sponge, starfish, chip, whale, bluejay, shark,

catfish, salamander, snake, shrew. Be sure to ask them their reasons for putting them together the way they did.

PREDICTING

Active comprehension on the part of the students can be promoted by asking them to make predictions as to the content of the selection under investigation. In the case of a section on snakes, students can read the chapter's title, study the pictures and diagrams, analyze the subtitles, read an introductory paragraph (if there is one), and then predict what the section will be about. For example, students might volunteer that they will be learning about how and why snakes shed their skin, how they give birth, what the longest snake is, and how you can tell a poisonous snake from a nonpoisonous one. Forecasting such as this enables students to set their own purposes for reading, focus their attention, and become more actively involved in the comprehension process.

These are just a few of the many prereading activities that a strategic science teacher can utilize. Getting your students ready to read and to learn will result in better comprehension. And isn't that what it's all about?!

Resource

Bransford, J. D., & Johnson, M. K. (1972). Contextual prerequisites for understanding: Some investigations of comprehension and recall. Journal of Verbal Learning and Verbal Behavior, 11, 717-726.