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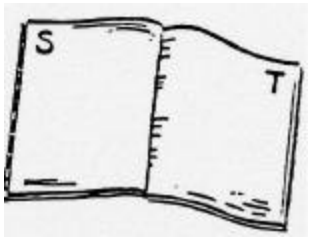
ORGANIZATION OF PAGES IN THIS UNIT



Student Pages

Teacher's Book

Reproductions of Science Book Pages are always on the left side.

Pages with information for Teachers are on the right side.

INTRODUCTION
WRITING DESCRIPTIONS AND EXPLANATIONS

This unit is based on a basic belief about the nature and purposes of scientific knowledge: We believe that science was developed for the purpose of describing and explaining natural phenomena. This means that an important part of teaching science consists of giving students the chance to practice their own descriptions and explanations. For that reason, this unit contains many questions that require students to write out descriptions or explanations.

Although this writing is essential for student learning, it is also a lot of work, for the students and for you. We would like to give you a few suggestions about how to make the work load manageable while still giving the students plenty of practice in developing descriptions and explanations.

You do not have to check every activity and question set yourself (though you certainly can if you want to). The last question set in each lesson cluster contains questions reviewing the content of the entire lesson cluster. If you grade those question sets, which are packaged separately so that they can be taken up or used as tests, you should be able to do an adequate job of monitoring the progress of individual students.
It is important for students to answer the remaining questions, but there are a variety of ways that they can get practice and feedback in answering these questions without your having to read every student answer. For example:

1. Students can answer their questions individually, then meet in groups of three to compare their answers and develop a group consensus answer. The group consensus answers can then be compared in a class discussion.
2. Groups of students working together on a question set or laboratory activity can develop a group consensus answer and write that group answer in their Activity Books.
3. Students can check each other's papers. It is possible for students to learn a great deal from a class discussion that focuses on what qualities make an answer acceptable or unacceptable.
4. Student answers can be used as a basis for class discussion rather than individual checking. You can solicit a variety of answers from the students, and lead the class in a discussion of the merits of each answer.

You can probably think of a variety of other arrangements that will work equally well. What is important is that students keep writing and discussing their descriptions and explanations, with enough feedback from you or from each other to help them understand their mistakes and improve the quality of their descriptions and explanations.

Some questions are intended primarily for the purpose of eliciting students' ideas about topics that they have not yet studied and may only partially understand. These questions should <u>not</u> be graded on a right-or-wrong basis; they should be used as a basis for discussion by small groups of students or by the whole class.