

Discovering Life Science

Plan of the Textbook

Discovering Life Science is divided into ten units. Within a unit, there are 5 to 12 lessons - a total of 72 lessons. [The Table of Contents is provided later in this introduction.]

Each lesson is short, with the content nearly always covered in about 500 words. With diagrams and photos appearing throughout, the core information is typically covered in two pages - an amount of reading well suited to a single night's assignment. For student populations that are less likely to complete work at home, each lesson could easily be read during the first half of one class period, leaving the second half to introduce the corresponding lab or activity. The lab could then be completed during the following class period(s).

All lessons follow the same format. The title is in the form of a question that focuses on the key objective. Of course, students should be able to answer this question after completing the lesson. In addition, behavioral objectives are provided in the teacher's guide.

Exploring Science / Historical Steps

Following the title / question, there is a short story related to the lesson's topic. The story is designed to spark interest and encourage further reading. In most cases, the story incorporates an historically significant scientist or event. As mentioned previously, the scientists are not limited to those of widespread fame; they often are females or people of color whose efforts have for too long been given inadequate credit.

A secondary goal of the Exploring Science / Historical Steps section is to demonstrate that science material can be read simply for enjoyment. While this section often introduces content that will be elaborated upon in the next part, it does so in a less formal style.

In most cases, this section closes with an inference question or a suggestion for further research. These are designated by a ">".

Teachers may want to use this section to concentrate on students' reading skills. For example, students might be asked to share what key point is being made, what supporting information helped to make the story convincing, or what seems to be foreshadowed in the story.

Content

The key content of the lesson is introduced via a subtitle. Important words are printed in heavy type, and a pronunciation guide is provided (in parentheses) after the more difficult words.

To Do Yourself

Simple activities, entitled **To Do Yourself**, are provided for most lessons. Students are able to perform most of these investigations in small groups or by themselves, although a few require adult assistance. Materials are simple and inexpensive. Each activity is directly related to the content of the lesson, although some may extend that content slightly. Suggestions for handling each activity, and expected outcomes, are provided in the teacher's guide.

Lesson Reviews

The review material at the end of each lesson contains three or more parts, indicated by Roman numerals. Within a part, there is generally more than one question. Types of questions include fill-in-the-blank paragraphs, multiple choice, matching, arranging the steps of a process in the correct order, true/false (often with the requirement that false statements be corrected). A final question challenges the student to infer or to predict. This answer will require a complete sentence or two.

Unit Reviews

All units have a review of the content of that unit entitled **Review What You Know**. The unit review is divided into four parts. **Part A** reviews material in the unit in a motivational context. It is always a puzzle of some sort. **Part B** is a set of multiple-choice questions. **Part C** is visually oriented, getting at student learning in a different modality. **Part D** consists of one or more projects that can be used to extend the unit or to deepen understanding. Most of these could be used as group activities; many will take more than a single day to complete.

Teachers may find it useful to look at **Part D** before they begin a unit. In some cases, they may want students (or a select few students) to work on a project while the unit is being taught. On the other hand, working on a project *after* the unit has been taught is a good way to reinforce the ideas of the unit.

Summing Up / Cumulative Reviews

Except for Unit 1, odd-numbered units are followed by a cumulative review. As with **Part C** of the unit reviews, the cumulative review relies largely on a visual modality.

In general, half or more of each review is concerned with the content of the previous two units, while the remaining parts of the review are on earlier units. Since there is a cumulative review every two units (starting with Unit 3) this plan ensures that all of the units are reviewed intensively. In all cases, the questions in **Summing Up** are keyed in this *Teacher's Guide* to the units that they cover.

Careers in Life Science

A careers page is provided after the first unit, and then after each even-numbered unit. These pages introduce careers that are related to that particular unit. At least two careers are presented on each page; the first career requires limited preparation or training, while the others require more extensive education.

Support for Thinking Skills

In addition to the strategies mentioned previously (the inference question at the end of each **Exploring Science / Historical Steps** section, the inference question at the end of each lesson's **Review**, and the **To Do Yourself** hands-on activities that challenge students to 'go deeper'), two entire lessons in Unit 1 are devoted to the thinking strategies used by scientists. One lesson focuses on the scientific method. The second lesson stresses the following: pattern recognition, inferring, avoiding biases, incorporating controls, and the role of verification.

Support for Study Skills

Each of this book's short lessons are ideal for the teaching of **outlining**. In most cases, a thorough outline of the core information can be produced on one side of a sheet of paper.

Perhaps no strategy better supports analysis and synthesis - or better enhances memory - than outlining. A good outline, of course, lends itself to 'covering-and-self-quizzing.'

[Note: I integrated the teaching of outlining during my career. By 2023, I plan to complete the materials described under the menu option "Outlining Instructions." The completed version will include outlines of many of the text's lessons. With these, students are able to compare their attempts to a good version.]

Format - Is this a textbook or a workbook?

It's actually somewhat of a hybrid. The book is available only in paperback, but the format is definitely one of a textbook, with review questions after each short lesson. A teacher might opt (as I did) to spot check students' answers, and to allocate a portion of their grade for this work.

Ideally, each child will be provided their own book; in this way students may underline, make notes in the margins and, of course, complete the review questions. However, for teachers with tighter budgets, students could be required to put their answers on looseleaf paper, thereby keeping the books 'clean' for use in future years.