

SCIENCE TEXTBOOK ACCURACY REVIEW FORM
2002

		Component Verified
Publisher:	Glencoe/McGraw-Hill	
Title:	Glencoe Science, Levels Red, Green & Blue, Blaustein, et al, 1st Edition, ©2003	
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Variant ISBN (s):		
Verifier Name:	Dr. David J. Crouse	
Verifier E-mail:	dcrouse@tntech.edu	

		Organization
Verifier Organization:	Tennessee Academy of Science	
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	Oak Ridge National Laboratory	
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ACCURACY REPORT

I found no errors in these texts that I would consider "egregious" or even "serious", however there were a handful of minor errors which rise above the level of "typographical".

Red Level - no errors noted*.

Green Level - no errors noted*.

Blue Level -

Page 9, paragraph 2 - The text classifies science as either "life, earth, or physical".

The problem with this classification is that it lead the student to believe that one can study earth or life science without a solid grounding in physical science.

It would be more correct to show that the earth and life sciences are applications of the physical sciences to specific systems.

It is correct that the different branches of science are intricately interwoven. However, in practice, science is divided into various disciplines. Some schools might choose to emphasize Earth, life, and physical science in different grades. Others include some of each science in each grade. The practice of categorizing sciences continues at the university where students might take classes in a physics department, chemistry department, biology department, or geology department. Glencoe chooses not to define life science and Earth science as applications of physical science. This implies that physical science is somehow a more fundamental discipline than the others. Also, much of the work done in the life and Earth sciences involves classification, description, and other activities that do not involve the direct application of physical principles to the system being study. A number of geological and biological principles have been inferred without reference to the underlying physical processes.

Page 49, Figure 6 caption - "This rocket uses liquid oxygen for fuel"

Rocket engines work in a vacuum by carrying their own "air" along, in this case in the form of liquid oxygen. The liquid oxygen oxidizes the real "fuel" which is usually hydrogen or kerosene, depending on the particular rocket.

Glencoe will change the caption to the following:

"Rockets differ according to the type of fuel they use. This rocket use liquid fuel and liquid oxygen. Others use a solid propellant."

Page 50, paragraph 1 - "Solid propellant rockets use a powdery or rubberlike fuel and a liquid such as liquid oxygen."

Solid rocket engines do not use liquid oxygen. The solid rocket engines contain a mixture which includes both a solid fuel and a solid chemical oxidizer. In the case of the Space Shuttle, both components are accounted for in the substance ammonium perchlorate.

Glencoe will change the first sentence of the first paragraph on page 50 to the following sentence:

"Solid-propellant rockets use a powdery or rubberlike fuel to provide the necessary thrust."

Page 77, paragraph 2 - The term "ellipse" is introduced and described, but no picture of an ellipse is shown.

A small figure of an ellipse would be better for explaining this shape.

Because of space constraints in textbooks, it is not always possible to include all of the drawings and photos that might be useful on a particular page. The concept of an ellipse will be further reinforced when students perform the activity on page 109.

Page 450, Figure 7 - The caption correctly states that molecules in heated air move faster, but the drawing of balloons may be misleading. Students may infer that this increased molecular velocity is what makes the balloon rise.

When heated a gas expands, which reduces its density. In a balloon, the reduced density allows it to float in an equal volume of cooler air.

The illustration in Figure 7 is correct. It shows that molecules in a hot balloon move faster and are farther apart than molecules in a cool balloon. Students also could infer that the hot balloon rises because the molecules are farther apart, which is correct. However, upon completing this chapter, students will know that warmer air is less dense and tends to rise in Earth's atmosphere.

Page 522, Table 1 - The number of electrons is listed immediately above the atomic number. Often students infer from this that the number of electrons is the defining characteristic of an element, rather than the number of protons.

There are several possible changes that would improve this table: 1) The atomic number could be moved up immediately below the mass number. This places atomic number and number of protons side by side, which is the comparison the students should see. 2) Since the point of this table is to understand isotopes, the number of electrons could be removed completely without compromising this point. 3) It could be pointed out that these numbers represent NEUTRAL ATOMS, and that the number of electrons is equal to that of protons only to provide for a zero charge.

Glencoe will modify the Table 1 on page 522 by moving the row labeled "Atomic Number" up so it is directly below the row labeled "Mass Number."

*Due to personal conflicts which arose, I was unable to examine these texts as thoroughly as the Blue Level.

This report was edited to assure focus on the established purpose of identifying errors of fact.