READING TOOLBOX

Science Terms

Answers may vary. Power is the rate at which work is done. The term *efficiency* is commonly used to mean to do something without much wasted effort. To scientists, efficiency is a quantity usually expressed as a percentage that measures the ratio of useful work output to work input.

Word Problems

Student charts may vary slightly, but should reflect the following: The value of F is 5,200 N. The distance is told in the phrase, "lift a girder 25 meters." The variable representing work in the equation is "W."

Graphic Organizers

Answers may vary. The concept map may be read as a long sentence, such as, "Simple machines are divided into the lever family, which includes levers, pulleys and a wheel and axle, and inclined planes, which includes wedges, ramps, and the outer edge of a screw."

READING TOOLBOX

These reading tools can help you learn the material in this chapter. For more information on how to use these and other tools, see **Appendix A.**

Science Terms

Everyday Words Used in Science

Many words used in science are familiar from everyday speech. However, when these words are used in science, their meanings are often different from or more precise than the everyday meanings. Pay special attention to the definitions of such words so that you use the words correctly in scientific contexts.

Your Turn As you read this chapter, complete a table like the one below.

WORD	EVERYDAY MEANING	SCIENTIFIC MEANING
work	a job; to do labor	the transfer of energy to a body when a force causes the body to move
power	physical strength	
efficiency		

Word Problems

Mathematical Language

Word problems describe science or math problems in words. To solve a word problem, you need to translate the language of words to the language of equations, mathematical symbols, variables, and numbers.

Your Turn Complete a table like the one below for the following word problem.

A crane uses an average force of 5,200 N to lift a girder 25 m. How much work does the crane do on the girder?

PHRASE	VARIABLE	VALUE
uses an average force of 5,200 N	force, F	
	distance, d	25 m
How much work		unknown

Graphic Organizers

Concept Maps

A concept map is a diagram that helps you see relationships between the key ideas and categories of a topic. To construct a concept map, do the following:

1. Select a main concept for the map.
2. List all of the other related concepts.
3. Build the map by arranging the concepts according to their importance under the main concept. Add linking words to give meaning to the arrangement of concepts.

Your Turn Make a concept map for Section 2 using this as a start.

