

# READING FOR INFORMATION

## USING GRAPHIC ORGANIZERS

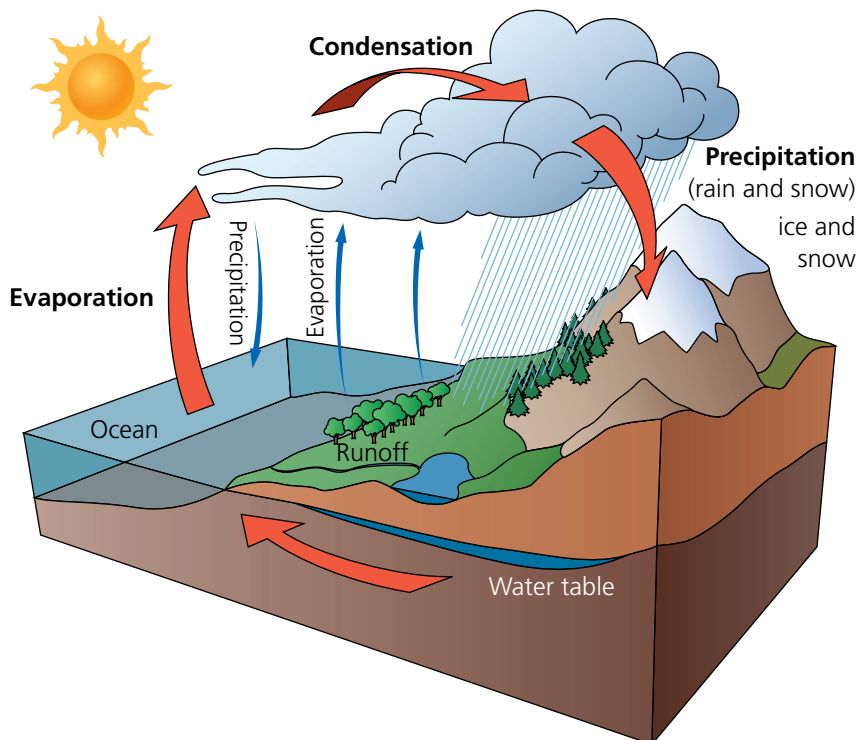
Diagrams that are used to organize and display ideas visually are called graphic organizers. A graphic organizer can help you see connections and patterns among different ideas. Different graphic organizers are used for different purposes.

- To Show Processes
- To Organize Ideas and Thinking
- To Compare and Contrast
- To Show Properties or Characteristics

### To Show Processes



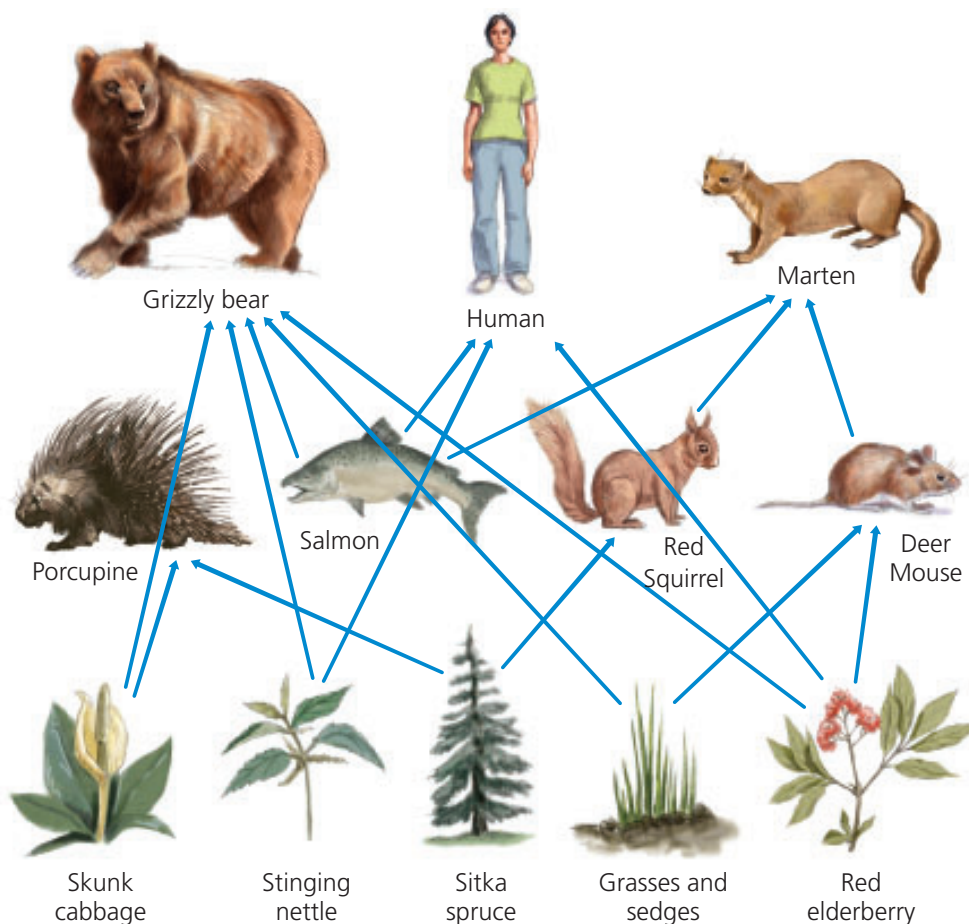
You can use a **flow chart** to show a sequence of steps or a time line.



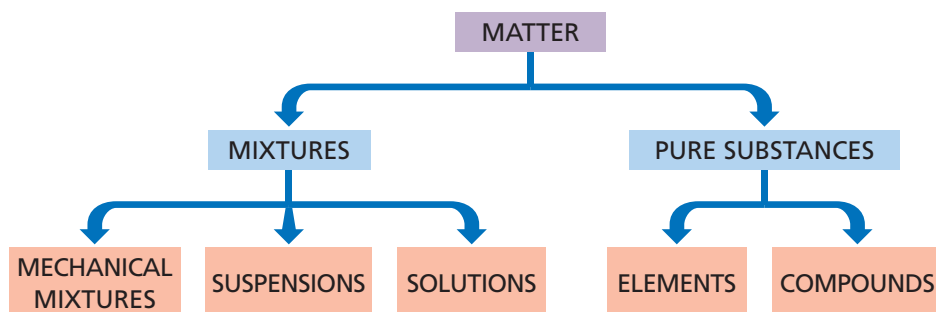
You can use a **cycle map** to show cycles in nature.

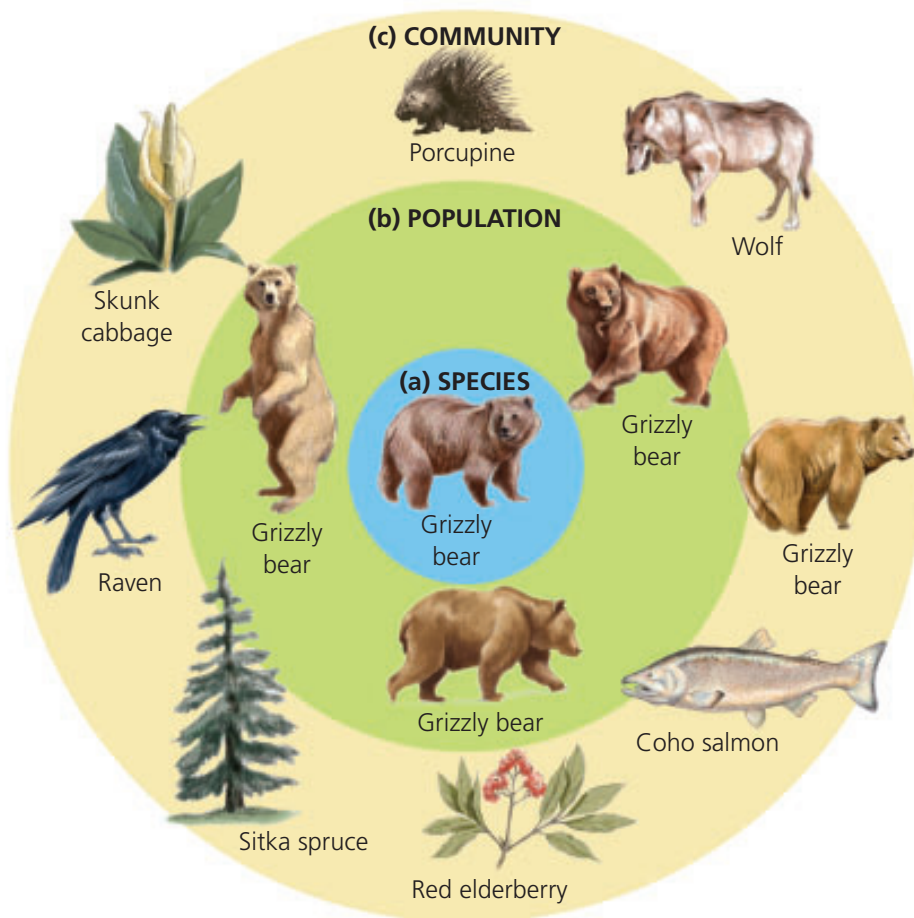
## To Organize Ideas and Thinking

A **concept map** is a collection of words or pictures, or both, connected with lines or arrows. You can write on the lines or arrows to explain the connections. You can use a concept map to brainstorm what you already know, to mind map your thinking, or to summarize what you have learned.



You can use a **tree diagram** to show concepts that can be broken down into smaller categories.





You can use a **nested circle diagram** to show parts within a whole.

## To Compare and Contrast

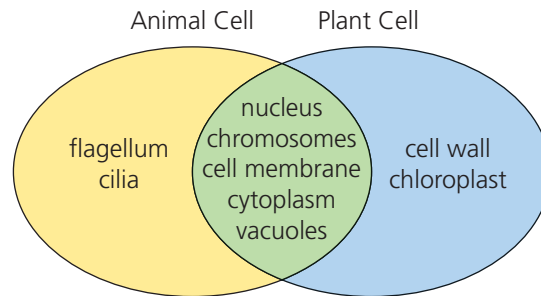
You can use a **comparison matrix** to record and compare observations or results.

**Comparison of the Three States of Matter**

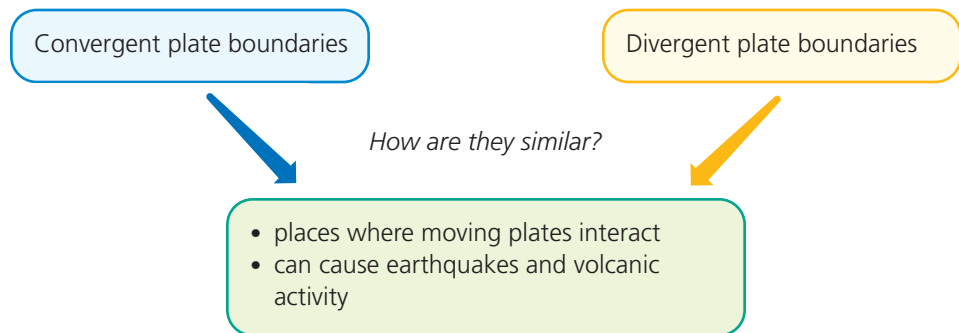
State	Fixed mass?	Fixed volume?	Fixed shape?
solid	X	X	X
liquid	X	X	
gas	X		

You can use a **Venn diagram** to show similarities and differences. Similarities go in the middle section.

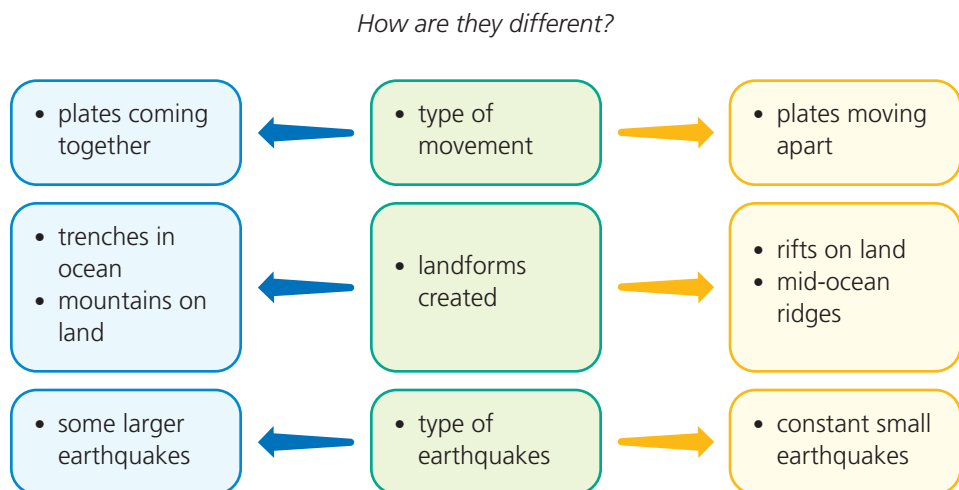
**Comparing Plant and Animal Cells**



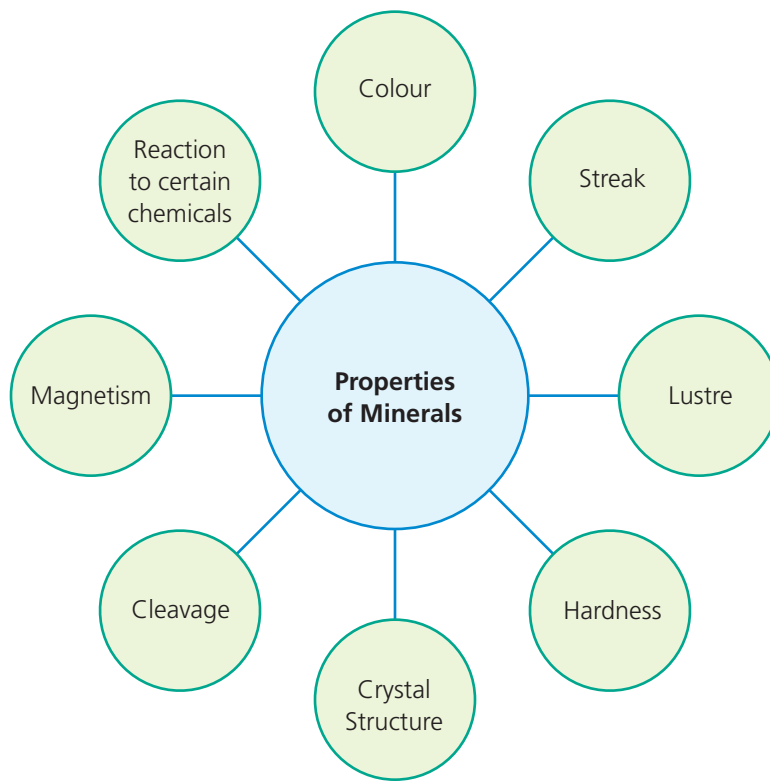
**Convergent and Divergent Plate Boundaries**



You can use a **compare and contrast chart** to show both similarities and differences.



## To Show Properties or Characteristics



You can use a **bubble map** to show properties.

## READING STRATEGIES

The skills and strategies you use to help you read can differ, depending on the type of material you are reading. Reading a science text is different from reading a novel. When you are reading a science text, you are reading for information. Here are some strategies to help you read for information.

### Before Reading

Skim the section you are going to read. Look at the illustrations, headings, and subheadings.

- *Preview.* What is this section about? How is it organized?
- *Make connections.* What do I already know about the topic? How is it connected to other topics I have already learned?
- *Predict.* What information will I find in this section? Which parts will give me the most information?
- *Set a purpose.* What questions do I have about the topic?

**Properties of Matter 4.1**

When you choose your clothes, your foods, and even your backpack, you are making choices based on the properties of matter. A **property** is a characteristic that may help to identify a substance. You can observe properties using your five senses, or you can determine properties using simple tests and measurements.

**Properties You Can Observe with Your Senses**

You can use your five senses—sight, touch, hearing, smell, and taste—to observe matter (Figure 1).

**LEARNING TIP**

Before reading this section, "think" through it and make a note of the headings and subheadings. Use these to take good notes as you read.

**Figure 1**

Which senses could you use to describe the properties of an unknown number?

Some of the properties you can observe with your senses are summarized in Table 1.

Property	Describing the property
color	Is it black, white, colorless, red, blue, green/yellow...?
taste	Is it sweet, sour, salty, bitter...?
texture	Is it fine, coarse, smooth, gritty...?
odor	Is it odorless, spicy, sharp, burnt...?
sound	Is it shiny, dull...?
clarity	Is it clear, cloudy, opaque, translucent...?

## During Reading

Pause and think as you read. Spend time on the photographs, illustrations, tables, and graphs, as well as on the words.

- *Check your understanding.* What are the main ideas in this section? How would I explain them in my own words? What questions do I still have? Do I need to reread? Do I need to read more slowly, or can I read more quickly?
- *Determine the meanings of key science terms.* Can I figure out the meaning of unfamiliar terms from context clues in words or illustrations? Do I understand the definitions of terms in bold type? Is there something about the structure of a new term that will help me remember its meaning? Are there terms I should look up in the glossary?

**4.3 Mass and Volume**

**LEARNING TIP**

The word "matter" comes from the Latin word *mater*, which means "material" or "stuff."

In this chapter, you are investigating some of the properties of matter. Everything in the world, including you, is made of matter. What exactly is matter? **Matter** is anything that has mass and occupies space. In this section, you will learn about mass and volume.

**Mass**

The **mass** of an object is a measure of the amount of matter in the object. An object's mass stays constant everywhere in the universe.

Mass is used to measure many things, from food to people (Figure 1). For example, when you buy a bag of potato chips, you are buying a certain mass of potato chips. Small masses, such as the mass of a bag of potato chips, are often measured in grams. Larger masses, such as the mass of people or vehicles, are often measured in kilograms (like masses "1000"). Very small masses, such as the masses of some medicines, are measured in milligrams (with prefix "one-thousandth," or  $\frac{1}{1000}$ ).

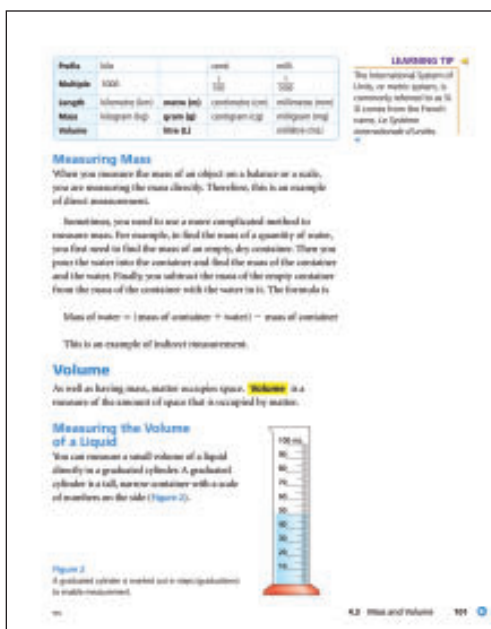
$1 \text{ mg} = \frac{1}{1000} \text{ g}$   
 $1 \text{ kg} = 1000 \text{ g}$

**Figure 1**

The mass of objects with different amounts of matter can be measured in different units.



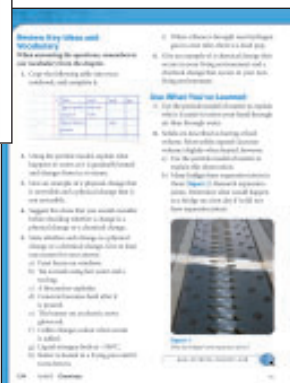
- *Make inferences.* What conclusions can I make from what I am reading? Can I make any conclusions by “reading between the lines”?
- *Visualize.* What mental pictures can I make to help me understand and remember what I am reading? Would it help to make a sketch?
- *Make connections.* How is this like things I already know?
- *Interpret visuals and graphics.* What additional information can I get from the photographs, illustrations, charts, or graphs?



## After Reading

Many of the strategies you use during reading can be used after reading as well. For example, in this text, there are questions to answer after you read. These questions will help you check your understanding and make connections.

- *Locate needed information.* Where can I find the information I need to answer the questions? Under what heading might I find the information? What terms in bold type should I skim for? What details do I need to include in my answers?
- *Synthesize.* How can I organize this information? What graphic organizer could I use? What headings or categories could I use?
- *React.* What are my opinions about this information? How does it, or might it, affect my life or my community? Do other students agree with my reactions?
- *Evaluate information.* What do I know now that I did not know before? Have any of my ideas changed as a result of what I have read? What questions do I still have?



## RESEARCHING

There is an incredible amount of scientific information that is available to you. Here are some tips on how to gather scientific information efficiently.

- Identify the Information You Need
- Find Sources of Information
- Evaluate the Sources of Information
- Record and Organize the Information
- Communicate the Information

### Identify the Information You Need

Identify your research topic. Identify the purpose of your research.

Identify what you, or your group, already know about your topic. Also identify what you do not know. Develop a list of key questions that you need to answer. Identify categories based on your key questions. Use these categories to identify key search words.

### Find Sources of Information

Identify all the places where you could look for information about your topic. These places might include videotapes of science programs on television, people in your community, print sources (such as books, magazines, and newspapers), and electronic sources (such as CD-ROMs and Internet sites). The sources of information might be in your school, home, or community.



### Evaluate the Sources of Information

Preview your sources of information, and decide whether they are useful. Here are four things to consider.

- *Authority*: Who wrote or developed the information or sponsors the Web site? What are their qualifications?
- *Accuracy*: Are there any obvious errors or inconsistencies in the information? Does the information agree with other reliable sources?
- *Currency*: Is the information up to date? Has recent scientific information been included?
- *Suitability*: Does the information make sense to someone your age? Do you understand it? Is it organized in a way that you understand?

### Record and Organize the Information

Identify categories or headings for note taking. Record information, in your own words, under each category or heading, perhaps in point form. If you quote a source, use quotation marks.

Record the sources to show where you got your information. Include the title, author, publisher, page number, and date. For Web sites, record the URL (Web site address).

If necessary, add to your list of questions as you find new information.

### Communicate the Information

Choose a format for communication that suits your audience, your purpose, and the information.