[illegible] Primary Sources

[illegible] to answer the following questions.

[illegible] years I was asking the question: How [illegible] or change this person? Now I would phrase [illegible] this way: How can I provide a relationship [illegible] may use for his own personal growth?"

—Carl Rogers

[illegible] *[illegible]* How do you think experience working as a [illegible] changed Rogers's outlook about the field [illegible] time?

[illegible] *Discussing* How can psychologists today learn from the work of Carl Rogers and other psychologists who worked in the past century?

Research and Technology

21 *Researching* In April and May, 2011, tornadoes ripped through Tuscaloosa, Alabama, and Joplin, Missouri, killing hundreds and destroying thousands of homes and businesses. Perform a Web quest to report on rebuilding efforts in these two towns. Use software to report on how the cities allocated resources, what improvements were made to the new structures in the area, and how the people of Joplin and Tuscaloosa have responded psychologically to these efforts.

Psychology Journal Activity

22 *Argument* Review your entry in your Psychology Journal for this chapter. How is the "crowd effect" phenomenon an example of applied psychology? Describe several ways that applied psychology can benefit society.

[illegible]	[illegible]	[illegible]	[illegible]	14	15	16	17	18	19	20	21	22
[illegible]	[illegible]	[illegible]	619	620	613	612, 619	619	620	612	613	620	610

Psychology Handbook

Contents

Psychology Skills

Forming a Hypothesis

A researcher in the study of psychology analyzes information and asks a research question. The researcher then forms a **hypothesis,** or an educated guess that answers the research question. A hypothesis allows a person to make sense of unorganized, separate observations and bits of information by placing them within a structured and coherent framework. The researcher has some evidence for suspecting a specific answer. The hypothesis expresses the researcher's reasoning in such a way that it can be confirmed or not confirmed.

For example, a researcher may analyze the following information:

There are several different methods for trying to quit smoking. Most people, however, fail at their attempts to quit. Studies show that people who attend "quit smoking" clinics have a better chance of kicking the smoking habit.

Fear tactics, such as describing health hazards, have been used successfully to motivate people to modify their behavior.

The researcher asks:

Can fear tactics, such as describing the health hazards of smoking, increase the number of smokers who sign up for "quit smoking" clinics?

The researcher forms a hypothesis from this research question:

Using fear tactics, such as describing the health hazards of smoking, increases the number of smokers who sign up for "quit smoking" clinics.

Learn the Skill

1. Analyze information to identify a specific problem or question.
2. Use the specific problem or question to form a hypothesis.
3. Test the hypothesis by gathering additional information.
4. Use the additional information to reanalyze the original hypothesis. If necessary, restate the hypothesis.

Apply the Skill

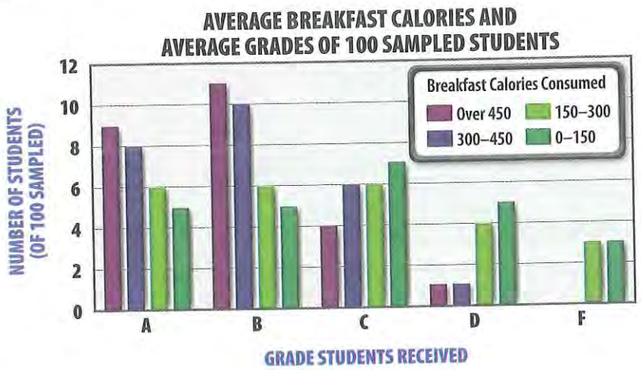
Read the information below regarding two hypothetical behavioral scenarios. Once you have read both of them, form a hypothesis about these two different scenarios by using the four steps discussed above in the *Learn the Skill* section.

People who bathe in warm water relax more quickly than people who bathe in cold water.

Some mothers complain that they are unable to calm their babies in order to get them to sleep.

Interpreting Statistics

Statistics are mathematical processes used to organize, summarize, and analyze data collected by researchers. Interpreting statistics helps us use data to support a generalization or conclusion.



Learn the Skill

There are three things to consider when interpreting statistics: non-representative sample, correlation, and statistical significance.

1. Suppose that a psychologist wants to test the following hypothesis: *Teenagers who eat large breakfasts have high grades.* Since it is impossible to study all teenagers, the researcher must pick a **sample**, or a relatively small population, of students that represents the population of students as a whole. A **non-representative sample** is a sample that does not represent the entire population and, therefore, may affect the results of the study. For example, a sample that includes only females would be a non-representative sample. What information can you learn about the sample by looking at the Average Breakfast Calories graph?
2. A **correlation** is the association or relationship between two or more variables. For example, if data show that students who eat large breakfasts have high grades, this would be a positive correlation. If the data show that students who eat large breakfasts have low grades, this would be a negative correlation. What type of correlation do the statistics in the Average Breakfast Calories graph show?
3. When interpreting statistics, researchers must decide whether the data support a generalization or whether the data are due to chance. The results are called **statistically significant** if the probability that the data support a generalization is 95 percent or higher. Do you think the data in the Average Breakfast Calories graph support a generalization or are due to chance? Explain.

Apply the Skill

Develop a two-question survey for which you believe the data might show a correlation. For example, "Do you have a regular exercise routine that you follow?" and "Do you have enough energy to make it through the day?" Or, "Do you prefer a large group of friends or a small group of friends?" and "Are you the oldest, middle, youngest, or only child?" Pick a representative sample of people and conduct the survey. Organize and interpret your statistics.

Designing an Experiment

An **experiment** is a series of carefully planned steps that test a hypothesis. Psychologists establish cause-and-effect relationships by performing experiments. Experiments allow the researcher to control the situation and narrow the possibilities as to what can influence the results. In designing experiments, researchers think in terms of **variables**, or factors and conditions that can change or vary. Researchers test the relationship between two factors by deliberately producing a change in one factor and observing the effect the change has on the other factor. An **independent variable** is the factor that researchers change or alter so they can observe its effects. The **dependent variable** is the one that changes in response to manipulation of the independent variable.

Learn the Skill

Use the following steps to design an experiment:

1. Make a hypothesis. All experiments must start with a hypothesis. A **hypothesis** is an educated guess a researcher makes about some phenomenon. The researcher should state the hypothesis in clear, concrete language to rule out any confusion or error in its meaning. To be valid, a hypothesis must be testable by experimentation.
2. Brainstorm a list of ways to test the hypothesis. You might include surveys or questionnaires, but in order to be an experiment, one variable must be manipulated.
3. Identify the independent and dependent variables that will be measured.
4. From the list created in Step 2, design an experiment to test one variable identified in Step 3.
5. List materials needed for the experiment. This step includes determining the number of participants to be tested. Researchers should use at least two groups of participants in every experiment. The **experimental group** is the group of participants who is exposed to the independent variable. For example, if your hypothesis was that hot temperatures cause aggression in humans, then you would expose the members of the experimental group to hot temperatures and observe their reactions. Members of the **control group** are treated the same as the members of the experimental group in every way except they are not exposed to the independent variable (in this case hot temperatures).
6. Gather the data.
7. Decide how you can display the results. From the data collected, you will draw a conclusion and make a statement about your results. If your conclusion supports your hypothesis, then you may say that your hypothesis is confirmed. (Researchers use statistical procedures to determine if their results are statistically significant—that is, not due to chance.) If your conclusions did not support your hypothesis, then you would have to make additional observations, state a new hypothesis, and test it against the available data.

Researchers often repeat experiments many times before they are confident that the answers they found are correct. That is why the results of new studies and experiments are often questioned until other researchers have a chance to repeat the experiments and come up with the same conclusions.

Apply the Skill

Read the hypothesis below. Design an experiment using the steps discussed above.

People exposed to the smell of certain foods prior to eating a meal have a smaller appetite than people who are not exposed to the smell of those foods.

Using the Scientific Method

The **scientific method** is a series of planned steps used to solve problems. It is an objective, logical, and systematic way of collecting data and drawing conclusions. Psychology researchers use the scientific method to analyze data, to draw conclusions, and to prevent their own biases from interfering with the research process.

Researchers **analyze the data** collected in an experiment by looking for patterns and relationships in the facts obtained. Analyzing the data leads to **drawing conclusions**. After careful analysis of the data, the researcher asks: Was the hypothesis supported by the facts? Was it not supported? Are more data needed? **Inferences** are logical conclusions based on observations and are made after careful analysis of all the available data. Inferences are a means to explain or interpret observations.

Researchers also use reasoning to draw conclusions. **Inductive reasoning** involves first considering a number of specific statements or observations and then drawing a conclusion—reasoning from particular facts to a broad generalization. An example of inductive reasoning might be:

Observations: *That woman is a jogger. She is wearing sneakers.* Conclusion: *People who wear sneakers are joggers.*

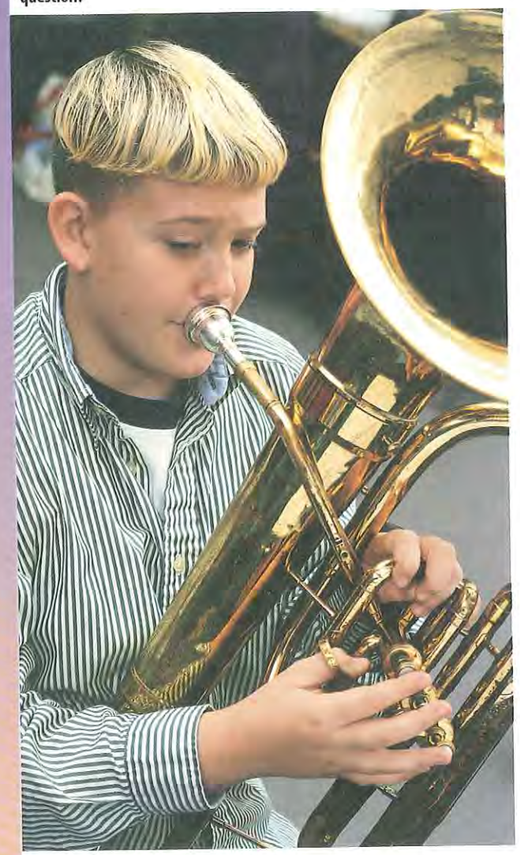
However, just because someone is wearing sneakers does not necessarily mean that the person is a jogger. This generalization might be too broad.

Deductive reasoning involves using past knowledge or general rules to decide or predict how probable or accurate a certain conclusion is—reasoning from general to particular. An example of deductive reasoning might be:

General rule: *People who jog wear sneakers.* Past Knowledge: *That woman is a jogger.* Conclusion: *She probably wears sneakers when she jogs.*

Researchers must use both deductive and inductive reasoning in forming and testing hypotheses.

What kind of experiment would help Robert find the answer to his question?



©Ariel Skelley/Corbis

Learn the Skill

The following steps are used in the scientific method:

1. **Question** Ask a question about an observation you have made.
2. **Hypothesis** Make a hypothesis about the observation you have made.
3. **Experiment** Design an experiment that will test your hypothesis.
4. **Data** Collect data through observation and organize it into graphic form.
5. **Draw Conclusions** Analyze your data and determine if your hypothesis is true or false.

Apply the Skill

Read the hypothetical problem described below regarding Robert and his tuba. Using the steps in the scientific method outlined above, design a plan to investigate and solve this problem.

Robert is having difficulty learning to play the tuba. He is not sure if he learns better practicing by himself, with another tuba player, or with his tuba instructor.

Reading and Critical Thinking Skills

Identifying Cause-and-Effect Relationships

When reading information, it is important to determine cause-and-effect relationships in order to understand why an event occurred. A **cause** is the action or situation that produces an event. An **effect** is the result or consequence of an action or situation. The connection between what happens and what makes it happen is known as a **cause-and-effect relationship**.

Learn the Skill

1. Begin by asking questions about why events occur. Look for related problems and actions, since these are potential causes of the event.
2. Look for clue words that may help you identify whether one event caused the other. Words or phrases such as *because, led to, brought about, produced, as a result of, so that, for this reason, as a consequence, as an outgrowth, if, since,* and *therefore* indicate cause-and-effect relationships.
3. Identify the outcome or impact of the event or situation. Look for relationships between events. Be sure to check for other, more complex, connections beyond the immediate cause and effect. For example, in a chain of events, an event often becomes the cause of multiple events.

CAUSE	→	EFFECT (CAUSE)	→	EFFECT
Takes drugs to reduce stress	→	Becomes dependent on drugs	→	Steals to support drug habit

Apply the Skill

Read the following passage excerpted from an article in the *APA Monitor.* Then identify the causes and effects by creating a cause-and-effect diagram. In a paragraph, discuss the immediate effects and possible later effects.

In a recent study of 107 kindergarten students in New York City, [Dr. Carol] Dweck confirmed the notion that negative reactions to failure and criticism start early. Dweck asked the children to role-play a scene in which they pretended to give their teacher a gift they had made. Almost all of them were happy with the gift they gave. But, after the teacher found something wrong with it, nearly half of them decided the gift they had made was "bad," while the rest of them still considered the gift "good."

Comparing and Contrasting

Often it is necessary to compare and contrast to understand concepts, to make decisions, or to solve problems. Making comparisons is a good way to organize information, extend understanding, and learn more about the behavior of people. As long as two things share one common quality, they can be compared. To make a comparison, students must examine two or more groups, situations, events, or documents. Then students must identify **similarities**, or ways they are alike, and **differences**, or ways they are not alike. **Comparing** means identifying similarities. **Contrasting** means identifying differences.

Azar, Beth, *Schools the source of rough transitions* from Close up on psychology: Supplemental readings from the APA Monitor (Development pp. 58-71), Reich, Jill Nagy (Ed); Bulatao, Elizabeth Q. (Ed); VandenBos, Gary R. (Ed); Fatterman, Rhea K. (Ed), American Psychological Association, Washington, DC, US (1997). Adapted with permission.

Learn the Skill

1. Identify what is being compared and contrasted.
2. Determine the purpose for comparing and contrasting. Ask: What do these events or items have in common? What would you compare using these two events or items? What is the purpose of this comparison? What question do you want to answer by comparing the events or items? By answering these questions, you are deciding what items are to be compared.
3. Now you must decide what characteristics will be used to compare the items. Note and list similarities in the characteristics of the items being compared. When comparing items, look for clue words that indicate two things are alike. Such clue words include *all, both, like, as, likewise,* and *similarly.*
4. List differences in the characteristics of the items. When contrasting, look for clue words that show how things differ, such as *different, differ, unlike, however,* and *on the other hand.*
5. At this point you should review the similarities and differences that you have found. Ask: Why are there similarities and differences in these items? What might have caused the differences? Point out information related to the similarities and differences found.
6. Finally, recall the research question or the purpose of comparing the events or items (from Step 2). Ask yourself: Does this comparison answer this research question? How?

Apply the Skill

Research to compare and contrast the theories and beliefs of any two of the following psychologists.

John B. Watson	Wilhelm Wundt	William James
Wolfgang Köhler	Sigmund Freud	Carl Rogers

Distinguishing Fact From Opinion

It is necessary to distinguish between fact and opinion in order to think critically and to make decisions. A **fact** is a statement that can be proved to be false or true and is supported by evidence. For example, the statement *In 2002, psychologist Daniel Kahneman won a Nobel Prize for applying psychological findings to economic theory* is a fact because it can be proved. An **opinion** expresses a personal belief, viewpoint, or emotion. For example, the statement *The best method to use to cope with stress is meditation* is an opinion since it cannot be proved and it is not supported with any evidence.

Learn the Skill

The following guidelines will help you distinguish between fact and opinion.

1. When listening to or reading a statement, keep in mind the meanings of *fact* and *opinion.* It is a fact if the statement is supported with evidence. It is an opinion if the statement is not or cannot be supported with evidence.
2. Identify facts by looking for words and phrases that indicate specific information about people, places, events, dates, times, and statistics.
3. Identify opinions by looking for words and phrases such as *I believe, I think, most likely, in my judgment, in my view, may, might, could,* and *seems to me.*

Apply the Skill

Find a newspaper or magazine article about a psychological study. Use the guidelines in *Learn the Skill* to help you identify five statements in the article as being either facts or opinions. Give a reason why each statement is either a fact or an opinion.

Research and Writing Skills

Using Critical Methods of Inquiry

It is important to use critical methods of inquiry when conducting research. Once you have decided on a topic for your research report, use the library, the Internet, or a computerized referral service to find suitable reference sources. Resource materials can be accessed through the World Wide Web. Information on the Web is organized according to category and is stored at an address, or *URL*—Universal Resource Locator. Web browsers and search engines help you locate material on the Internet.

Learn the Skill

There is a vast amount of information in libraries and on the Internet. Use the following steps in analyzing sources:

1. Determine if the material is a *primary source,* which is a firsthand account, or a *secondary source,* which is a description or interpretation of events. Primary sources are helpful because they provide a close-up view of research results. Secondary sources are helpful tools because the writer has the advantage of knowing what theories and research results were proved or disproved, thus providing a broad perspective.
2. Read the material to identify main ideas and supporting details. Consider the nature of the material. Is it scientific or is it telling a story?
3. Distinguish fact from opinion. Psychologists often express their beliefs, but make sure these beliefs are based on facts.
4. Check for bias or faulty reasoning. Search for evidence presented by the writer that supports the conclusion.
5. If possible, find more than one source to check for accuracy.
6. Consider the origin of the source. Does the writer have credibility in the field of psychology? Does the writer have a degree and experience in the subject area?
7. Search for information on the Internet written by a well-known source. Do not use information that does not list a source.

Apply the Skill

Select an article from a psychology magazine, journal, or book. Analyze the source by using the steps in *Learn the Skill.*

Organizing and Analyzing Information

Information for research reports must be organized and analyzed. To do this, it is important to know how to classify information you gather as you conduct your research, synthesize information from different sources and mediums, and create an outline of the information as it should appear in the research report.

Learn the Skill

1. **Classifying Information** As you read about your topic, identify information that has similar characteristics. List this information on separate note cards. Label the note cards with categories. Then classify this information by adding facts to the categories as you continue your research. Remember that when classifying your information, you are grouping objects or events for a purpose.

The purpose could be general, such as for ease of finding an item. Once you have classified the material, look for patterns and relationships among the facts. It is at this point that you may make comparisons, draw conclusions, and develop questions or hypotheses for further study.

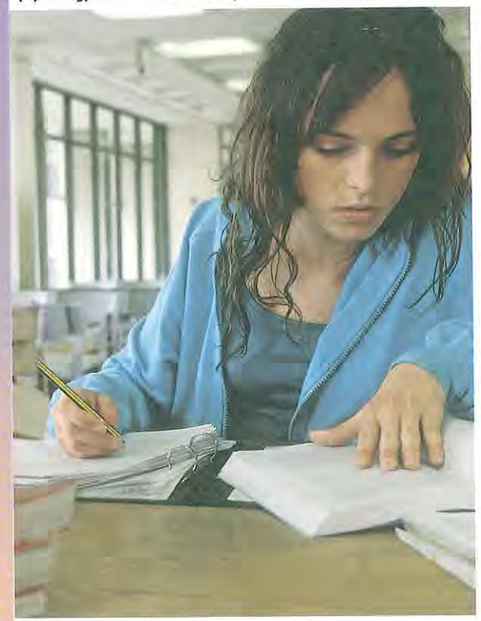
2. **Synthesizing Information** When using more than one source for a research report, you need to synthesize, or combine, the information. Look for connections and relationships among different sources. You may want to include both primary and secondary sources in your report. Combine the information so that each source adds to the understanding of your topic.
3. **Outlining Information** Outlines are also very useful when researching and writing essays or reports. Use outlines to help clarify and organize your thoughts, to decide what main ideas to include, and to flesh out each main idea with subtopics and supporting details. A good outline summarizes information and shows how ideas and facts are connected. In an outline, information is arranged in three categories—main ideas; subtopics, or parts of each main idea; and supporting details. Outlines begin with broad ideas, followed by more specific ideas. Put your information in order. Determine what information will be part of the introduction, the body, and the conclusion of your report. Use main ideas as headings in your outline. Use supporting details as subheadings under the appropriate headings in your outline.

Apply the Skill

Select a topic for research. Organize and analyze the information you collect using the steps in *Learn the Skill.*

Writing a Research Report/Essay

You will be asked to write research reports and essays in most of the subjects you take in school, including psychology. There are basic steps to follow when writing research reports or essays. You can apply these steps to a report or essay written for any subject.



Writing and research skills apply to psychology and several other subjects.

Pixland/AGE Fotostock

Learn the Skill

1. Choose a topic and identify your purpose for the research report or essay.
2. Write several main idea questions you want to answer about your topic. Organize these questions into an outline.
3. Conduct research about the topic and take notes.
4. Organize and analyze your information. Classify, synthesize, and outline the information collected.
5. Write a first draft. A research report or essay has an introduction, a body, and a conclusion. The *introduction* explains the purpose of the report or essay. The *body* develops the main ideas of the report or essay. Be sure to use proper transitions between paragraphs in the body. The *conclusion* summarizes your findings.
6. Edit the first draft. Reorganize information, and use standard grammar, spelling, sentence structure, and punctuation.
7. Write your final report or essay.

Apply the Skill

Write a psychology research report on a subject of your choosing using the steps in *Learn the Skill.*

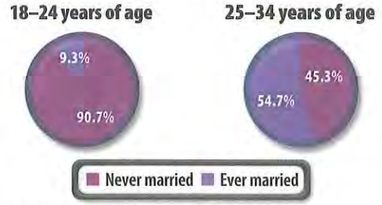
Visual Literacy Skills

Interpreting Charts, Tables, Graphs, and Diagrams

Data gathered in psychology research are often presented in charts, tables, graphs, and diagrams. These visual representations of data organize the information to make it quicker and easier to read, compare, and contrast.

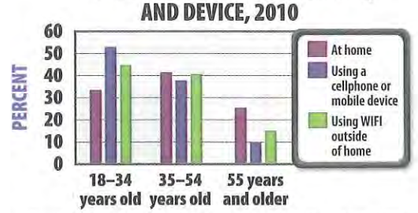
Charts and tables are divided into columns and rows. The column title usually lists items to be compared. The row headings usually list the specific characteristics being compared among those items. There are three main types of graphs. A **line graph** shows the relationship between two variables. The independent variable usually goes on the x-axis, or the horizontal axis. The dependent variable usually goes on the y-axis, or the vertical axis. A **bar graph** is similar to a line graph, except bars are used to show comparisons between data or to display data that do not continuously change. Thick bars are used instead of dots and lines (see the Internet Usage graph below). A **circle graph** shows the parts of a whole (see the Marital Status graph below). Each section represents one part of the whole. A **diagram** is a drawing that shows what something is or how something is done. Diagrams may have several parts that show steps in a process. The parts of a diagram are usually labeled.

MARITAL STATUS OF POPULATION SEGMENTS, 2011



Source: U. S. Census Bureau, 2011

INTERNET USAGE BY AGE, LOCATION, AND DEVICE, 2010



Source: U.S. Census Bureau, *Statistical Abstract of the United States,* 2012

Learn the Skill

1. **Read the title.** The title tells you the subject and purpose of the visual information being presented.
2. **Look for clues.** Study the parts of the visual information, paying close attention to labels and data types being presented.
3. **Analyze the information.** Ask yourself questions such as: How do the data relate to each other? How do the data change over time? What is the relationship of the parts to the whole? Can I identify or locate any trends presented by this data?
4. **Put the data to use.** Draw conclusions based on the data.

Apply the Skill

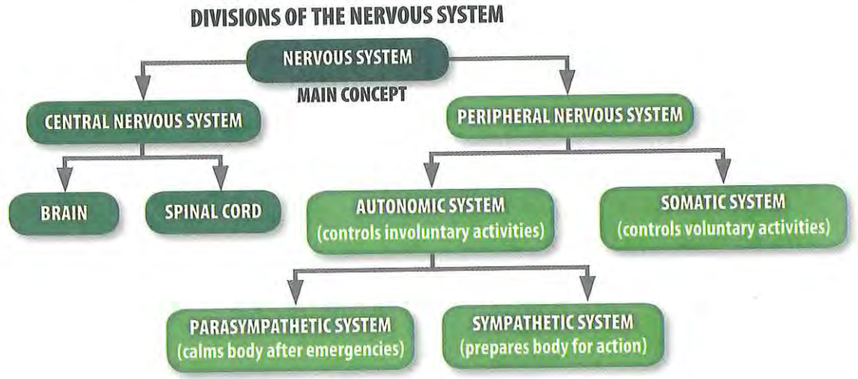
Find examples of visual information in your psychology text or by using the Internet. Use the steps in *Learn the Skill* to interpret the visual of your choice. Write a short paragraph about the conclusions you can draw from the data you review.

Reading and Making Graphic Organizers

A **graphic organizer** is a type of diagram that shows the relationship among ideas and helps you organize information in a visual context. A graphic organizer can make abstract ideas more concrete and help you better understand the ideas and terms you are studying. A graphic organizer can show the interaction of a series of events, present a hierarchy of procedures, or describe the steps in a process.

Graphic organizers come in many forms. There are network trees, concept webs, events chain maps, cycle concept maps, and others. There may be more than one way to construct a graphic organizer. As you make a graphic organizer, you may realize that there is a better way to show the information on a map. In that case, change the format or how the information is displayed. Graphic organizers can be used to help you review and study information.

The graphic organizer below is a network tree. To read it, begin by reading the term at the top of the network tree that shows the main concept—nervous system. Next, find the two divisions of the nervous system—central nervous system and peripheral nervous system—that branch out from the main concept. Now look at how the parts of these divisions branch out. Finally, see how the divisions of the autonomic system branch out.



Learn the Skill

Follow the steps below when creating a graphic organizer.

1. State the main concept.
2. Branch the related concepts from the main concept. Use lines to connect the branches.
3. Continue to branch out more specific details from the related concepts.
4. You may write words on the lines to help explain the relationship of related concepts.

Apply the Skill

Construct a graphic organizer. Choose one of the following main concepts, or choose your own. Use information from your text and the steps in *Learn the Skill* to help you make your graphic organizer.

Endocrine System	Classical Conditioning
Processes of Memory	Development of Language
Changes in Old Age	Personality Theory