

Science Is Everywhere

What does science study?

One way to define **science** is as the systematic study of natural events and conditions. It is a logical, structured way of thinking about the world. Scientists ask questions of nature. They try to give explanations to describe what they observe. Any explanation a scientist gives must rely on information available to everyone. It must be an explanation others can test.

You probably have done science yourself without knowing it. If you have looked around you and tried to explain what you saw in a way that could be tested, you have done science.

The Natural World

Science is subdivided into different branches. Each branch considers a different part of the world. Each branch, however, studies the world in the same logical and structured way.

Biology, or life science, is the study of all living things, from the smallest, one-celled organisms to mammals. Geology, or earth science, studies Earth, from the materials that make it up to the processes that shape it: Astronomy, the study of objects in outer space, often is included under Earth science. Physical science is the study of energy and all nonliving matter. Physical science includes both physics and chemistry.

These branches of science can and often do overlap. You might hear a scientist called a *biochemist* or *geophysicist*. Such terms refer to those whose work falls a little in each branch.

Think Outside the Book **Inquiry**

6 Infer List three questions you would like to have answered. Categorize them as scientific or nonscientific. For the nonscientific questions, can you rephrase them in a scientific way? Do you think you can answer every question scientifically?

Active Reading

5 Apply As you read, underline examples of subjects that can be studied by science.

Testable Ideas

What are types of questions scientists ask? Scientists ask questions that can be tested. They ask questions that have answers they can measure in some way. An explanation in science is usually agreed upon by many people and not just someone's opinion.

One way to understand how scientific thinking differs from other activities is to think of a sculptor making a piece of art. For example, consider the ice sculptor on the next page. Different people can have different ideas of the value of the art. Some may think it is beautiful. Others may find it ugly. Still another may think it's beautiful one day and ugly the next. These are all opinions. No one's opinion is more correct than another's. The types of books you like, the clothes you like to wear, or the foods you like to eat are not questions science normally addresses.

However, now think of other things the sculptor or onlooker might wonder about the piece. How long will an ice sculpture like this last before it melts? Might the sculpture stay frozen longer if something is used to treat the ice? Would using warmer tools make sculpting ice easier? Questions like these have testable answers. The results can be measured and compared. More important, they can be proved false. This is what distinguishes scientific questions from other kinds.