

BRANCHES OF SCIENCE



ENGAGE

How many different fields of science can you think of? There's probably many more than you think!

EXPLORE

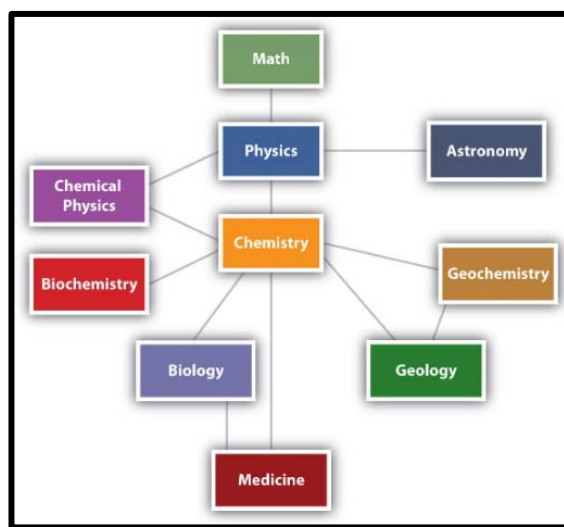
Modern scientific study is divided into three branches of natural science: **physical sciences**, **life sciences**, and **Earth sciences**. Each branch has several sub-branches.

EXPLANATION

What is science? It's defined as the systematic study of the structure and behavior of the physical and natural world through observation and experiment. Since ancient times, scientists have studied natural phenomena to try to better understand the world around us. Science is a broad subject that encompasses many different areas of study.

An oceanographer, a botanist, a seismologist, and an astronomer are all scientists. There are many more examples of different types of scientists that work in a variety of disciplines. To try to organize all of the different topics that fall under the broad scope of science, the natural sciences are divided into three main branches. These are physical sciences, life sciences, and earth sciences.

Physical sciences are focused on the study of inorganic, or nonliving, aspects of the universe. It includes the sub-fields of astronomy, chemistry, thermodynamics, mechanics, and physics. It covers a wide range of concepts, including optics, heat, acoustics, magnetism, and energy. Chemistry involves studying the different properties of various materials and elements and how they interact



Branches of Science

with each other. Physics is a related field, but it is focused on matter and its motion and behavior through space and time. The main goal of these scientific studies is to understand how the universe behaves.



*Chemistry sometimes involves
a mixing of chemicals*

Life sciences encompass the study of all life forms, aquatic, land, and air. Forms of life are studied at the microscopic level under this branch. Sub-fields in this branch include biology, genetics, neuroscience, marine biology, and ecology. Concepts included in this field of study include anatomy, evolution, genetics, virology, and nerve structure.

Earth sciences is the study of earth, water, and air—the geologic, hydrologic, and atmospheric sciences. This branch of science concerns how the universe was created and how it has evolved over time. Sub-fields under the earth sciences branch include astronomy, climatology, meteorology, geology, and atmospheric sciences. Concepts under this branch include types of rocks, dating of rocks and minerals, global warming theory, identification of fossils, and weather patterns.

These branches of science are all part of the overall study to understand the world and how it works. The branches don't work in isolation but instead cooperate in a variety of ways. For example, paleontology is a combination of biology and geology; astrophysics is a combination of astronomy and physics; and biophysics is a combination of biology and physics. Outside of natural sciences, there are also two other broad categories of sciences. The formal science branch includes mathematics, computer science, and other mechanical sciences. There is also the branch of social sciences, which involves the study of human behavior. Subjects in this category include sociology, political science, and economics.



Paleontologist in the field

EXTEND

Scientists have been making observations and conducting experiments for hundreds of years in order to help us understand various phenomena in the universe. The branches of science help us to focus on specific aspects in the vast realm of scientific study. Which branch do you find most interesting?



Branches of Science

Complete the sections below with information from the article.

VOCABULARY

Write the definition and provide examples or sketches of each term.

	Definition	Examples
Physical Science		
Life Science		
Earth Science		

APPLICATION

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Branches of Science

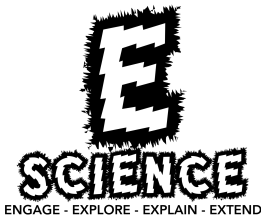
Answer the following questions in complete sentences.

READING COMPREHENSION

- 1) What are the three main branches of natural science?
- 2) Which of the following would most likely be studied under life sciences?
- 3) What is the main focus of physical sciences?
- 4) How do the branches of science often interact with one another?

HIGHER ORDER

- 5) If you were studying fossils and needed to understand both rock layers and how life evolved, which two science branches would you likely be using?
- 6) How does the sub-field of marine biology help us understand the world?



Branches of Science

Answer the following questions using the passage.

READING COMPREHENSION

- 1) What are the three main branches of natural science?
 - A. Biology, chemistry, and math
 - B. Astronomy, geology, and zoology
 - C. Physical sciences, life sciences, and earth sciences
- 2) Which of the following would most likely be studied under life sciences?
 - A. Weather patterns
 - B. Nerve structure
 - C. Rock types
- 3) What is the main focus of physical sciences?
 - A. Inorganic or nonliving aspects of the universe
 - B. Living organisms and ecosystems
 - C. Earth's climate and geology
- 4) How do the branches of science often interact with one another?
 - A. They are all completely separate and do not overlap
 - B. They compete to explain the same problems
 - C. They combine to form interdisciplinary fields like astrophysics

HIGHER ORDER

- 5) If you were studying fossils and needed to understand both rock layers and how life evolved, which two science branches would you likely be using?
 - A. Life sciences and physical sciences
 - B. Earth sciences and life sciences
 - C. Social sciences and physical sciences
- 6) Which of the following best explains how a sub-field of science helps us understand the world?
 - A. Astronomy helps us grow crops by studying insects.
 - B. Neuroscience helps us understand weather patterns.
 - C. Marine biology helps us learn about ocean life and ecosystems.



Branches of Science

Answer the following questions using the passage.

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- 1) What are the three main branches of natural science?
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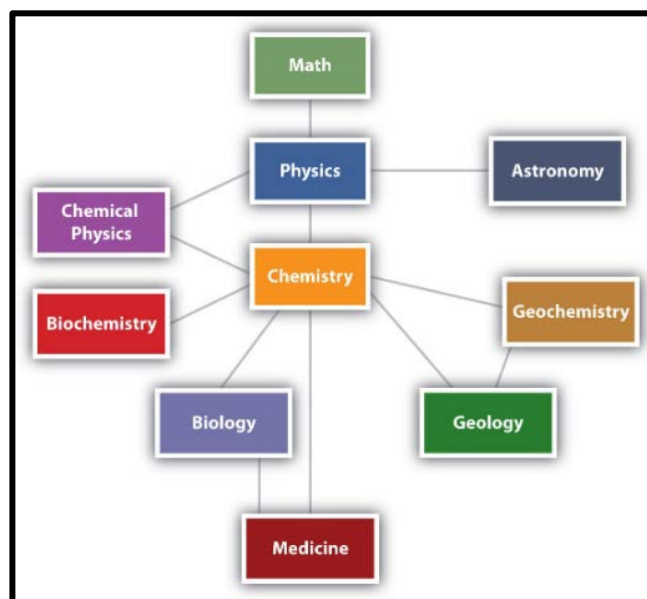
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Science is a broad subject that encompasses many different areas of study. The natural sciences are divided into three main branches. These are physical sciences, life sciences, and earth sciences. Physical sciences are focused on the study of inorganic, or nonliving, aspects of the universe. It includes the sub-fields of astronomy, chemistry, thermodynamics, mechanics, and physics. Life sciences encompass the study of all life forms, aquatic, land, and air. Concepts included in this field of study include anatomy, evolution, genetics, virology, and nerve structure.

Earth sciences is the study of earth, water, and air—the geologic, hydrologic, and atmospheric sciences. This branch of science concerns how the universe was created and how it has evolved over time. These branches of science are all part of the overall study to understand the world and how it works.



Branches of Science



Branches of Science

Answer the following questions in complete sentences.

- 1) What are the three main branches of natural science?
- 2) What do life sciences focus on?
- 3) Which sub-fields are part of physical science?
- 4) What do earth sciences study?
- 5) Why do scientists study different branches of science?
- 6) Which branch of science would you most like to study, and why?



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Answer the following questions using the passage.

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- 1) What are the three main branches of natural science?
 - A. Physical, life, and earth
 - B. Biology, chemistry, and math
 - C. Earth, space, and energy
 - D. Physics, astronomy, and geology
- 2) What do life sciences focus on?
 - A. Rocks and minerals
 - B. Nonliving things
 - C. All living things like plants and animals
 - D. Planets and stars
- 3) Which sub-fields are part of physical science?
 - A. Biology and anatomy
 - B. Chemistry, physics, and astronomy
 - C. Genetics and nerve structure
 - D. Ecology and marine biology
- 4) What do earth sciences study?
 - A. Water, weather, and land
 - B. Animals and their homes
 - C. Planets and moons
 - D. Human behavior

HIGHER ORDER

- 5) Why do scientists study different branches of science?
 - A. To make new games
 - B. To understand how the world works
 - C. To name animals
 - D. To guess what will happen
- 6) Which branch of science would you most like to study, and why?
 - A. Physical sciences
 - B. Life sciences
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Application

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