

Origins of Life Educational Standards (4-12)

Grade 4

- SC.4.5.3** Describe how different organisms need specific environmental conditions to survive.
- SC.4.6.1** Describe how some materials may be combined to form new substances.
- SC.4.8.1** Describe how slow processes sometimes shape and reshape the surface of the Earth.
- SC.4.8.2** Describe how fast processes (e.g. volcanoes, earthquakes) sometimes shape and reshape the surface of the Earth.

Grade 5:

- CTE.5.1.1** Examine how different innovations have developed/evolved in various cultures over time to improve life and solve problems.
- SC.5.2.1** Use models and/or simulations to represent and investigate features of objects, events and process in the real world.
- SC.5.3.2** Describe the interdependent relationship among producers, consumers and decomposers in an ecosystem in terms of the cycles of matter.
- SC.5.8.1** Describe the relationship (size and distance) of Earth to other components in the Solar System.
- SC.5.8.2** Describe examples of what astronomers have discovered using telescopes.
- SC.5.8.3** Explain that the planets orbit the sun and that the moon orbits around the Earth.

Grade 6:

- SC.6.3.1** Describe how matter and energy are transferred within and among living systems and their physical environment.
- SC.6.6.5** Explain how matter can change physical or chemical forms, but the total amount of matter remains constant.

SC.6.6.9 Describe matter using the atomic model.

Grade 7:

SC.7.1.3 Explain the need to revise conclusions and explanations based on new scientific evidence.

SC.7.3.2 Explain the interaction and dependence of organisms on one another.

SC.7.4.1 Describe the cell theory.

SC.7.4.3 Describe the levels of organization in organisms.

SC.7.5.5 Explain how fossils provide evidence that life and environmental conditions have changed over time.

SC.7.5.6 Explain why variation(s) in a species gene pool contributes to its survival in a constantly changing environment.

Grade 8:

SC.8.1.1 Determine the link(s) between the evidence and the conclusions of an investigation.

SC.8.2.2 Describe how scale and mathematical models can be used to support and explain scientific data.

SC.8.5.1 Describe how changes in the physical environment affect the survival of organisms.

SC.8.8.8 Describe the composition of objects in the galaxy.

SC.8.8.11 Describe the major components of the Universe.

Earth and Space Science:

SC.ES.1.1 Describe how a testable hypothesis may need to be revised to guide a scientific investigation.

SC.ES.1.9 Explain how scientific explanations must meet a set of established criteria to be considered valid.

- SC.ES.2.4** Describe technologies used to collect information about the universe.
- SC.ES.8.3** Explain the possible origins and evolution of the solar system.
- SC.ES.8.9** Describe the physical and nuclear dynamics involved in the life cycle of a star.
- SC.ES.8.10** Compare different theories concerning the formation of the Universe.

Physical Science:

- SC.PS.1.1** Describe how a testable hypothesis may need to be revised to guide a scientific investigation.
- SC.PS.1.9** Explain how scientific explanations must meet a set of established criteria to be considered valid.
- SC.PS.6.12** Describe nuclear reactions and how they produce energy.

Chemistry:

- SC.CH.1.9** Explain how scientific explanations must meet a set of established criteria to be considered valid.
- SC.CH.8.1** Describe how the energy release per gram of material is much larger in nuclear fission or fusion reactions than in chemical reactions and how the change in mass ($E=mc^2$) is small but significant in nuclear reactions.

Physics:

- SC.PH.1.1** Describe how a testable hypothesis may need to be revised to guide a scientific investigation.
- SC.PH.1.9** Explain how scientific explanations must meet a set of established criteria to be considered valid.

Biology:

- SC.BS.1.1** Describe how a testable hypothesis may need to be revised to guide a scientific investigation.
- SC.BS.1.9** Explain how scientific explanations must meet a set of established criteria to be considered valid.
- SC.BS.3.4** Explain dynamic equilibrium in organism populations and ecosystems; explain the effect of equilibrium shifts.
- SC.BS.5.1** Explain the theory of evolution and describe the evidence that supports this theory.
- SC.BS.5.2** Explain the theory of natural selection.
- SC.BS.5.3** Explain the structural properties of DNA and the role of DNA in heredity and protein synthesis.