

Matter and Its Interactions

5-PS1-1

Develop a model to describe that matter is made of particles too small to be seen.

Clarification Statement:

[Examples of evidence supporting a model could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, and evaporating salt water.]

[Assessment Boundary: Assessment does not include the atomic-scale mechanism of evaporation and condensation or defining the unseen particles.]

Assessment Questions

1. If your friend did not believe the claim that matter is made of particles that are too small for humans to see, how could you explain that your claim was true?
2. Does air take up space? Support your claim with evidence and explain your reasoning.
3. When something dissolves or evaporates does it disappear? Support your claim with evidence and explain your reasoning.

Matter and Its Interactions

5-PS1-2 Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.

[Clarification Statement: Examples of reactions or changes could include phase changes, dissolving, and mixing that form new substances.]

[Assessment Boundary: Assessment does not include distinguishing mass and weight.]

Assessment Questions

1. A student did an investigation to see if changing the temperature of water in a sealed container changed the weight of the water in the container. What do you think was the result of the investigation? Explain your reasoning.

2. A student did an investigation to see if changing the temperature of water in a sealed container changed the weight of the water in the container. What do you think was the result of the investigation? Explain your reasoning.

Matter and Its Interactions

5-PS1-3

Make observations and measurements to identify materials based on their properties

[Clarification Statement: Examples of materials to be identified could include baking soda and other powders, metals, minerals, and liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility; density is not intended as an identifiable property.]

[Assessment Boundary: Assessment does not include density or distinguishing mass and weight.]

Assessment Questions

1. You are working for a company that designs cars. Your company gives you 2 different metals to test and see which would be the best for building their new car design. They want to know which metal would be the lightest, most rigid, and least conductive. Explain how you would test each metal to find out about its properties.

Matter and Its Interactions

5-PS1-4

Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

Assessment Questions

1. A class puts all of their leftover food from their lunches into a compost bin. The bin is opened after several weeks. It no longer looks the same. Do you think a new substance has been created or not? Explain your reasoning.

2. You are drinking a soda with ice cubes in it. The ice cubes melt into your soda. Has a new substance been created or not? Explain your reasoning.

Motion and Stability: Forces and Interaction

5-PS2-1 Support an argument that the gravitational force exerted by Earth on objects is directed down.

[Clarification Statement: “Down” is a local description of the direction that points toward the center of the spherical Earth.]

[Assessment Boundary: Assessment does not include mathematical representation of gravitational force.]

Assessment Questions

1. Sam the Student claims that gravity always pulls objects down on Earth. Sarah the Student claims that gravity always pulls objects toward Earth’s center. Are both claims correct, both claims incorrect, or is only one claim correct? Explain your reasoning with words or a labeled diagram.

Energy

5-PS3-1.

Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.

[Clarification Statement: Examples of models could include diagrams, and flow charts.]

Assessment Questions

1. Draw a diagram that explains how energy is transferred from the sun to plants and animals.

Fossils

5-LS1-1

Support an argument that plants get the materials they need for growth chiefly from air and water.

[Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.]

Assessment Questions

1. It is possible to grow plants without soil. Do you think it is also possible to grow plants without air? Support your argument.

Ecosystems: Interactions, Energy, and Dynamics

5-LS2-1 Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

[Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.]

[Assessment Boundary: Assessment does not include molecular explanations.]

Assessment Questions

1. A scientist has made a model ecosystem that has no living organisms, but does have soil, air, and water. The scientist wants the ecosystem to eventually have plants, animals, and decomposers. Should the scientist first introduce plants, animals, or decomposers into the ecosystem? Support your argument.

Earth's Place in the Universe

5-ESS1-1 Support an argument that the apparent brightness of the sun and stars is due to their relative distances from the Earth.

[Assessment Boundary: Assessment is limited to relative distances, not sizes, of stars. Assessment does not include other factors that affect apparent brightness (such as stellar masses, age, stage).]

Assessment Questions

1. Mia the Student said, “The Sun is brighter than all of the other stars.” Provide reasoning to explain why her argument is incorrect. You may use pictures and / or words.
2. Is it possible that a star which is not as bright as the sun when seen from Earth actually gives off more light than the sun?

Earth's Systems

5-ESS2-1

Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.

[Clarification Statement: Examples of patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months.]

[Assessment Boundary: Assessment does not include causes of seasons.]

Assessment Questions

1. Provide evidence to prove the claim that day and night are caused by Earth spinning on its axis. You may explain your evidence with pictures and / or words.
2. If you took a picture of the night sky on a clear day in January, and then took a picture of the night sky on a clear day in June in the exact same location, would you see the same stars? Provide reasoning for your claim with pictures and / or words.
3. Sam the student noticed that the tree he planted was not in the sun in the morning because his house cast a shadow over the tree. In the afternoon, Sam noticed that there was no longer a shadow cast over the tree. Explain why this occurred. How often will the shadow leave the tree?

Earth's Systems

5-ESS2-1.

Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.

[Clarification Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.]

[Assessment Boundary: Assessment is limited to the interactions of two systems at a time.]

Assessment Questions

1. Use a diagram to explain how mountain ranges effect rainfall.

2. How would the presence of a large forest in a very windy area effect the amount of erosion in that area?

Earth's Systems

5-ESS2-2.

Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth

[Assessment Boundary: Assessment is limited to oceans, lakes, rivers, glaciers, ground water, and polar ice caps, and does not include the atmosphere.]

Assessment Questions

1. Is most of the Earth's water in the form of ice, fresh water, or salt water?

2. Is most of the Earth's fresh water in the form of surface water or ground water?

Earth and Human Activity

5-ESS3-1.

Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

Assessment Questions

1. Give two examples of a way in which humans have changed the natural world to meet their needs.
2. Explain how humans have used plants to help prevent erosion.
3. Explain how humans have changed the way the hunt or harvest an animal or plant to help keep that animal or plants population healthy.