Moon Phases

6th Grade Science

Standard 1

1. I can explain patterns of changes in the appearance of the moon as its orbits Earth.

1.a □ I can describe changes in the appearance of the moon during a month.

1.b □ I can identify the pattern of change in the moon's appearance.

1.c □ I can use observable evidence to explain the movement of the moon around Earth in relationship to Earth turning on its axis and the position of the moon changing in the sky.

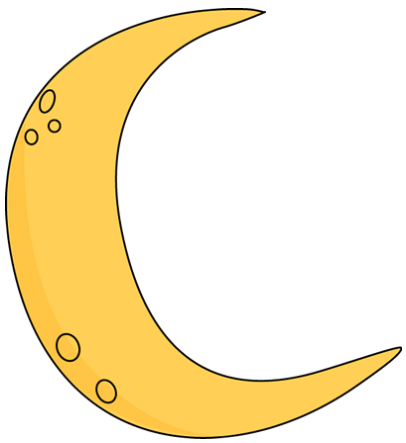
1.d □ I can design an investigation, construct a chart, and collect data depicting the phases of the moon.

2. I can demonstrate how the relative positions of Earth, the moon, and the Sun create the appearance of the moon's phases.

2.a □ I can identify the difference between the motion of an object rotating on its axis and an object revolving in orbit.

2.b □ I can compare how objects in the sky (moon, planets, stars) change in relative position over the course of the day or night.

2.c □ I can model the movement and relative positions of Earth, the moon, and the sun.



Earth's Tilt & Axis

6th Grade Science

Standard 2

1. I can describe the relationship between the tilt of Earth's axis and its yearly orbit around the Sun.

1.a □ I can describe the yearly revolution 9orbit) of Earth around the sun.

1.b □ I can explain that Earth's axis is tilted relative to its yearly orbit around the sun.

1.c □ I can investigate the relationship between the amount of heat absorbed and the angle to the light source.

2. I can explain how the relationship between the tilt of Earth's axis and it's yearly orbit around the sun produces seasons.

2.a □ I can compare Earth's position in relationship to the sun during each season.

2.b □ I can compare the hours of daylight and illustrate the angle that the sun's rays strikes the surface of Earth during summer, fall, winter, and spring in the Northern Hemisphere.

2.c □ I can use collected data to compare patterns relating to seasonal daylight changes.

2.d □ I can use a drawing and/or model to explain that changes in the angle at which light from the sun strikes Earth, and the length of daylight, determine seasonal differences in the amount of energy received.

2.e □ I can use a model to explain why the seasons are reversed in the Northern and Southern Hemispheres.

Solar System

6th Grade Science

Standard 2

1. I can describe and compare the components of the solar system.

1.a □ I can identify the planets in the solar system by name and relative location from the sun.

1.b □ I can use references, compare the physical properties of the planets.

1.c □ I can use models and graphs that accurately depict scale to compare the size and distance between objects in the solar system.

1.d □ I can describe the characteristics of comets, asteroids, and meteors.

1.e □ I can research and report on the use of manmade satellites orbiting Earth and various planets.

2. I can describe the use of technology to observe objects in the solar system and relate this to science's understanding of the Solar System

2.a □ I can describe the use of instruments to observe and explore the moon and planets.

2.b □ I can describe the role of computers in understanding the solar system.

2.c □ I can relate science's understanding of the solar system to the technology used to investigate it.

2.d □ I can use, find, and report on ways technology has been and is being used to investigate the solar system.

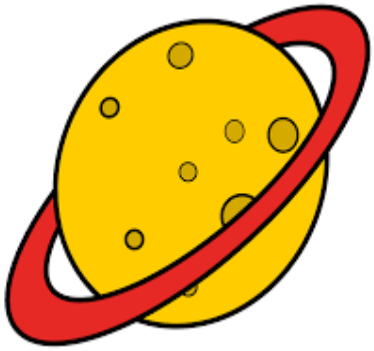
3. I can describe the forces that keep objects in orbit in the Solar System.

3.a □ I can describe the forces holding Earth in orbit around the sun, and the moon in orbit around Earth.

3.b □ I can relate a celestial object's mass to its gravitational force on other objects.

3.c □ I can identify the role gravity plays in the structure of the solar system.

Objects in the Universe



6th Grade Science

Standard 4

1. I can compare the size and distance of objects within systems in the universe.

1.a □ I can use the speed of light as a measuring standard to describe the relative distances to objects in the universe.

1.b □ I can compare distances between objects in the solar system.

1.c □ I can compare the size of the Solar System to the size of the Milky way galaxy.

1.d □ I can compare the size of the Milky way galaxy to the size of the unknown universe.

2. I can describe the appearance and apparent motion of groups of stars in the night sky relative to Earth and how various cultures have understood and used them.

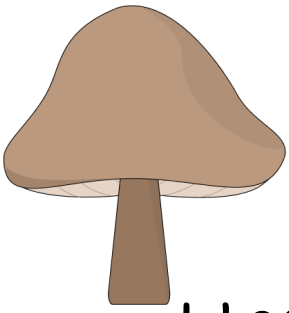
2.a □ I can locate and identify stars that are grouped in patterns in the night sky.

2.b □ I can identify ways people have historically grouped stars in the night sky.

2.c □ I can recognize that stars in a constellation are not all the same distance from Earth.

2.d □ I can relate the seasonal change in the appearance of the night sky to Earth's position.

2.e □ I can describe ways that familiar groups of stars may be used for navigation and calendars.



Microorganisms

6th Grade Science

Standard 2

1. I can observe and summarize information about microorganisms

1.a □ I can examine and illustrate size, shape, and structure of organisms found in an environment such as pond water.

1.b □ I can compare characteristics common in observed organisms and infer their function

1.c □ I can research and report on a microorganisms requirements (e.g. food, water, air, waste disposal)

2. I can demonstrate the skills needed to plan and conduct an experiment to determine a microorganism's requirements in a specific environment.

2.a □ I can formulate a question about microorganisms that can be answered with a student experiment.

2.b □ I can develop a hypothesis for a question about microorganisms based on observation and prior knowledge.

2.c □ I can plan and carry out an investigation on microorganisms.

2.d □ I can display results in an appropriate format (e.g. graphs, tables, diagrams)

2.e □ I can prepare a written summary or conclusion to describe the results in terms of the hypothesis for the investigation.

3. I can identify positive/negative effects of microorganisms and how science has developed positive uses for some microorganism and overcome the negative effects of others.

2.a □ I can describe in writing how microorganisms serve as decomposers in the environment.

2.b □ I can identify how microorganisms are used as food or in the production of food.

2.c □ I can identify helpful uses of microorganisms and the role of science in the development of understanding that led to positive uses

2.d □ I can relate several diseases caused by microorganisms to the organisms causing the disease.

2.e □ I can observe/report on microorganisms harmful effects on food.

Heat, Light, Sound

6th Grade Science

Standard 6

1. I can investigate the movement of heat between objects by conduction, convection, and radiation.

2.a □ I can compare materials that conduct heat to materials that insulate the transfer of heat energy.

2.b □ I can describe the movement of heat across space from the sun the Earth by radiation.

2.c □ I can describe the movement of heat across space from the sun to Earth by radiation.

2.d □ I can observe and describe, with the use of models, heat energy being transferred through a fluid medium (liquid and/or gas) by convection currents.

2.e □ I can design and conduct an investigation on the movement of heat energy.

2. I can describe how light can be produced, reflected, refracted, and separated into visible light of various colors.

2.a □ I can compare light from various sources (e.g. intensity, direction, color)

2.b □ I can compare the reflection of light from various surfaces.

2.c □ I can investigate and describe the refraction of light passing through various materials (e.g. prisms, water)

2.d □ I can predict and test the behavior of light interacting with various fluids.

2.e □ I can predict and test the appearance of various materials when light of different colors is shone on the material.

3. I can describe the production of sound in terms of vibration of objects that create vibrations in other materials.

3.a □ I can describe how sound is made from vibration and moves in all directions from the source in waves.

3.b □ I can explain the relationship of the size and shape of a vibrating object to the pitch of the sound produced.

3.c □ I can relate the volume of a sound to the amount of energy used to create the vibration of the object producing the sound.

3.d □ I can make a musical instrument and report on how it produces sound.