

Sixth Grade Nature of Science

(Application) 6.N.2.1. Students are able to pose questions that can be explored through scientific investigations.

I can create (pose) questions that can be discovered (explored) through scientific explorations (investigations).

Sixth Grade Nature of Science Performance Descriptors

Sixth grade students performing at the advanced level:

- pose a question and a hypothesis that can be explored through scientific exploration.

Sixth grade students performing at the proficient level:

- pose questions that can be explored through scientific investigations.

Sixth Grade students performing at the basic level:

- given a prompt, pose one question that can be scientifically explored.

Sixth Grade Physical Science

(Knowledge) 6.P.1.1. Students are able to identify the subatomic particles that make up atoms.

I can select from given information (identify) the electrons, neutrons and protons (subatomic particles) that make up atoms.

(Application) 6.P.1.2. Students are able to classify matter based on physical and chemical properties.

I can group (classify) matter based on:

- any characteristic of a material that can be observed without changing the identity of the material itself (physical properties - boiling point and melting point)
- a description of how one substance reacts in the presence of another substance, ex. acids and bases (chemical properties).

(Comprehension) 6.N.1.3. Students are able to describe phase changes in matter differentiating between the particle motion in solids, liquids, and gases.

I can tell in words or numbers (describe) a change from one state of matter to another state of matter (phase changes) by telling the differences between the movement and separation of atoms and molecules (particle motion) in solids, liquids and gases.

(Comprehension) 6.P.2.1. Students are able to describe how push/pull forces acting on an object produce motion.

I can tell in words or numbers (describe) how gravity, friction and magnetism (push/pull forces) act on an object to produce motion.

(Comprehension) 6.P.3.1. Students are able to identify types of energy transformations.

I can select from given information (identify) these types of energy changes:

(transformations)

- mechanical to electrical
- chemical to light
- kinetic to potential
- potential to kinetic.

Sixth Grade Physical Science Performance Descriptors

Sixth grade students performing at the advanced level:

- draw models of simple atoms indicating appropriate positions of protons, electrons, and neutrons;
- identify physical and chemical changes;
- explain the role of temperature in phase changes of matter;
- predict motion(s) of an object acted on by multiple push/pull forces;
- given a scenario, identify energy transformation(s).

Sixth grade students performing at the proficient level:

- identify the subatomic particles that make up atoms;
- classify matter based on physical and chemical properties;
- describe phase changes in matter differentiating between the particle motion in solids, liquids, and gases;
- describe how push/pull forces acting on an object produce motion;
- identify types of energy transformations.

Sixth grade students performing at the basic level:

- label the protons, neutrons, and electrons of an atom;
- classify matter based on physical property;
- given an illustration of particle motion, can identify solids, liquids, and gases;
- given an illustration, identify push/pull forces;
- give an example of one energy transformation.

Sixth Grade Life Science

(Comprehension) 6.L.1.1. Students are able to illustrate the difference between plant and animal cells.

I can explain with pictures (illustrate) that plant cells have chloroplasts and cell walls (difference between plant and animal cells).

(Comprehension) 6.L.1.2. Students are able to explain the importance and scientific use of a classification system.

I can give reasons for (explain) the importance and scientific use of a classification system.

Sixth Grade Life Science Performance Descriptors

Sixth grade students performing at the advanced level:

- explain the reasons for the differences between plant and animal cells;
- design a classification system.

Sixth grade students performing at the proficient level:

- illustrate the difference between plant and animal cells;
- explain the importance and scientific use of a classification system.

Sixth grade students performing at the basic level:

- name two similarities and differences between plant and animal cells;
- list the five kingdoms.

Sixth Grade Earth/Space Science

(Comprehension) 6.E.1.1. Students are able to describe how the spheres (lithosphere, hydrosphere, atmosphere, and biosphere) of the Earth interact.

I can tell in words or numbers (describe) how

- the solid part of Earth is made up of crust and mantle (lithosphere)
- the water portion of Earth contains oceans, seas, lakes and rivers (hydrosphere)
- the mixture of gases and particles surrounding the earth (atmosphere)
- the region of Earth on which life exists (biosphere)

relate to one another ex. erosion, flooding and pollution (interact).

(Application) 6.E.1.2. Students are able to examine the role of water on the Earth.

I can observe and describe (examine) the behavior (role) of rivers, aquifers and precipitation (water) on the Earth.

(Comprehension) 6.E.1.3. Students are able to explain processes involved in the formation of the Earth's structure.

I can give reasons why (explain) volcanoes, earthquakes and plate tectonics (processes) are involved in the making (formation) of the Earth's structure.

(Knowledge) 6.E.2.1. Students are able to identify the organization and relative scale of the solar system.

I can select from given information (identify) the arrangement of objects (organization) and the size and distance (relative scale) of the Sun, planets, moons, meteors, asteroids and comets (solar system).

Sixth Grade Earth/Space Science Performance Descriptors

Sixth grade students performing at the advanced level:

- analyze the role of water as it interacts with the Earth's spheres;
- explain the role of plate tectonics in shaping the earth;
- compare and contrast terrestrial and gaseous planets.

Sixth grade students performing at the proficient level:

- describe how the spheres (lithosphere, hydrosphere, atmosphere, and biosphere) of the Earth interact;
- examine the role of water on the Earth;
- explain processes involved in the formation of the Earth's structure;
- identify the organization and relative scale of the solar system.

Sixth grade students performing at the basic level:

- identify the spheres of Earth;
- list two effects of water on Earth;
- identify processes of weathering and erosion in the formation of earth's structures;
- list the planets in order from the Sun outward.

Sixth Grade Science, Technology, Environment, and Society

(Comprehension) 6.S.1.1. Students are able to describe how science and technology have helped society to solve problems.

I can tell in words or numbers (describe) how science and the practical application of scientific principles (technology) have helped society to solve problems.

(Knowledge) 6.S.2.1. Students are able, given a scenario, to identify the problem(s) of human activity on the local, regional, or global environment.

I can, given a story (scenario), select from given information (identify) how urban expansion and water pollution (problems of human activity) affect areas containing living and non-living things (environment) in local, regional, or global areas.

Sixth Grade Science Technology, Environment, and Society Performance Descriptors

Sixth grade students performing at the advanced level:

- list pros and cons of technological solutions to problems.

Sixth grade students performing at the proficient level:

- describe how science and technology have helped society to solve problems;
- given a scenario, identify the problem(s) of human activity on the local, regional, or global environment.

Sixth grade students performing at the basic level:

- recognize a problem.