

St. Raphael the Archangel

Science

5th Grade 2017-2018

Learning Goals- Students will:

Matter and Energy

1. Classify matter as a solid, a liquid, or a gas, as it exists at room temperature, using physical properties (i.e., volume, shape, ability to flow).
2. Describe how changes in state (i.e., freezing/melting, condensation/evaporation/boiling) provide evidence that matter is made of particles too small to be seen.
3. Identify the Sun as the primary source of energy for temperature change on Earth.
4. Observe and explain how an object (e.g., moon, mirror, objects in a room) can only be seen when light is reflected from that object to the receiver (eye).
5. Predict the effect of heat (thermal energy) on the physical properties of water as it changes to and from a solid, liquid, or gas (i.e., freezes/melts, evaporates/condenses/boils).

Force and Motion

1. Explain how work can be done on an object (force applied and distance moved) (No formula calculations at this level).
2. Identify the simple machines in common tools and household items.
3. Observe and explain that simple machines change the amount of effort force and/or direction of force.

Living Organisms

1. Classify animals as vertebrates or invertebrates.
2. Classify vertebrate animals into classes (amphibians, birds, reptiles, mammals, fish) based on their characteristics.
3. Compare structures (e.g., wings vs. fins vs. legs; gills vs. lungs; feathers vs. hair vs. scales) that serve similar functions for animals belonging to different vertebrate classes.
4. Compare the major organs/organ systems (e.g. support, reproductive, digestive, transport/circulatory, excretory, response) that perform similar functions for animals belonging to different vertebrate classes.
5. Distinguish between plants (which use sunlight to make their own food) and animals (which must consume energy-rich food).

Earth Systems

1. Classify major bodies of surface water (e.g., rivers, lakes, oceans, glaciers) as fresh or salt water, flowing or stationary, large or small, solid or liquid, surface or groundwater.
2. Describe and trace the path of water as it cycles through the hydrosphere, geosphere, and atmosphere (i.e., the water cycle: evaporation, condensation, precipitation, surface run-off/ groundwater flow).
3. Explain how major bodies of water are important natural resources for human activity (e.g., food recreation, habitat, irrigation, solvent, transportation).
4. Identify and summarize relationships between weather data (e.g., temperature and time of day, cloud cover and temperature, wind direction and temperature) collected over a period of time.
5. Identify appropriate tools (i.e., thermometer, anemometer, wind vane, rain gauge, satellite images, weather maps) to collect weather data (i.e., temperature, wind speed and direction, precipitation, cloud type and cover.).
6. Identify the different forms water can take (e.g., snow, rain, sleet, fog, clouds, dew) as it moves through the water cycle.

Universe

1. Describe physical features of the planet Earth that allows life to exist (e.g., air, water, temperature) and compare these to the physical features of the Sun, the Moon, and other planets.
2. Identify that the Earth rotates once every 24 hours.
3. Observe and identify the Earth is one of several planets within a solar system that orbits the Sun.
4. Observe and identify the Moon orbits the Earth in about a month.
5. Relate the apparent motion of the Sun, Moon, and stars in the sky to the rotation of the Earth.

Scientific Inquiry

1. Analyze whether evidence supports proposed explanations.
2. Communicate the procedures and results of investigations and explanations through: oral presentations, drawings and maps, data tables, graphs (bar, single line, pictograph), and writings.
3. Compare amounts/measurements.
4. Determine the appropriate tools and techniques to collect data.
5. Evaluate the reasonableness of an explanation.
6. Formulate testable questions and explanations (hypotheses).
7. Judge whether measurements and computation of quantities are reasonable.
8. Make observations using simple tools and equipment (e.g., hand lenses, magnets, thermometers, balances, graduated cylinders, spring scale, and microscopes.)
9. Measure mass using grams, temperature using degrees Celsius, volume to the nearest milliliter, force/weight to the nearest Newton.
10. Use data as support for observed patterns and relationships, and to make predictions to be tested.

11. Use quantitative and qualitative data as support for reasonable explanations.

Science, Technology, and Human Activity

1. Describe how new technologies have helped scientists make better observations and measurements for investigations (e.g., telescopes, magnifiers, balances, microscopes, computers, stethoscopes, thermometers).

2. Research biographical information about various scientists and inventors from different gender and ethnic backgrounds, and describe how their work contributed to science and technology.