

St. Raphael the Archangel Science

7th Grade 2017-2018

Learning Goals- Students will:

Earth's Changing Surface

1. Identify that the lithosphere contains rocks and minerals and that minerals make up rocks.
2. Describe how rocks and minerals are formed and/or classified.
3. Understand that fossil records provide evidence that many different organisms have existed over time and organisms have changed over time.
4. Describe the processes that contribute to the continuous changing of Earth's surface (e.g., earthquakes, volcanic eruptions, erosion, mountain building and lithospheric plate movements).
5. Explain how extinction of a species occurs when the environment changes and its adaptive characteristics are insufficient to allow survival (as seen in evidence of the fossil record).
6. Investigate how soil composition affects plant growth.
7. Describe how landforms are created through a combination of destructive (e.g., weathering and erosion) and constructive processes (e.g., crustal deformation, volcanic eruptions and deposition of sediment).
8. Understand that the forces that cause erosion and deposition are gravity, running water, glaciers, waves and wind.
9. Use models to analyze the size and shape of Earth, its surface and its interior (e.g., globes, topographic maps, satellite images).
10. Explain that most major geological events (e.g., earthquakes, volcanic eruptions, hot spots and mountain building) result from plate motion.
11. Illustrate how the three primary types of plate boundaries (transform, divergent and convergent) cause different landforms (e.g., mountains, volcanoes and ocean trenches).

Earth's Waters

1. Analyze the ways humans affect the erosion and deposition of soil and rock materials (e.g., clearing of land, planting vegetation, paving land, construction

of new buildings, building or removal of dams) and propose possible solutions.

2. Describe how the Earth's surface changes through the activity of floods, rock/mudslides, earthquakes, or volcanoes, and the resultant primary or secondary succession.
3. Describe the effect of human activities (e.g., landfills, use of fertilizers and herbicides, farming, septic systems) on the quality of water.
4. Relate the comparative amounts of fresh water and salt water on the Earth to the availability of water as a resource for living organisms and human activity.
5. Identify greenhouse gasses and their sources, and relate the effect that changing amounts of these gasses can have on climate.

Astronomy

1. Compare and contrast the characteristics of Earth that support life with the characteristics of other planets that are considered favorable or unfavorable to life (e.g., atmospheric gases, extremely high/low temperatures.)
2. Compare and contrast the size, composition, atmosphere, and surface of the planets (inner vs. outer) in our solar system and Earth's moon.
3. Describe prominent features of our Sun and understand how it produces and transfers its energy.
4. Identify objects in our Solar System by location and orbits.
5. Describe how and why the appearance of the Moon that can be seen from Earth changes approximately every 28 days in an observable pattern (moon phases).
6. Describe how the planets' gravitational pull keeps satellites and moons in orbit around them.
7. Recognize and explain the phases of the moon are due to the relative positions of the Moon with respect to the Earth and Sun.
8. Relate the axial tilt and orbital position of the Earth as it revolves around the Sun to the intensity of sunlight falling on different parts of the Earth during different seasons.
9. Explain what effect the Moon has on Earth's oceans.

Scientific Inquiry

1. Communicate the procedures and results of investigation through oral presentations, drawings, data tables, graphs, and writings.
2. Compare amounts/measurements.
3. Formulate testable questions and hypotheses.

- 4. Identify and describe the importance of the independent variable, dependent variables, control of constants, and multiple trials to the design of a valid experiment.**
- 5. Measure length to the nearest millimeter, mass to the nearest gram, volume to the nearest milliliter, temperature to the nearest degree Celsius, force (weight) to the nearest Newton, time to the nearest second.**
- 6. Use data as support for observed patterns and relationships, and to make predictions to be tested.**