

Wallenpaupack Area School District

Planned Course Curriculum Guide

Science

Grade 6

Course Description:

The major goal of the sixth grade science program is to provide basic knowledge of: astronomy, weather, and rocks. Students will learn to discover and interpret scientific knowledge by completing projects, demonstrations, and lab activities.

Revision Date:

September 2015

This PCCG is designed as an ACTIVE document capable of technological modification as required.

| Wallenpaupack Area School District Curriculum | |
|---|--------------------------------|
| COURSE: Science | GRADE/S: 6 |
| UNIT 1: Astronomy | TIMEFRAME: 28 – 30 Days |

PA COMMON CORE/NATIONAL STANDARDS:

- 3.3.6.B1.1 - Compare and contrast the size, composition, and surface features of the planets that comprise the solar system as well as the objects orbiting them.
- 3.3.6.B1.2 - Recognize the role of gravity as a force that pulls all things on or near the earth toward the center of the earth and in the formation of the solar system and the motions of objects in the solar system.
- 3.3.6.B1.3 - Explain why the planets orbit the sun in nearly circular paths.
- 3.3.6.B2.2 - Use models to demonstrate that the phases of the moon are a result of its orbit around Earth.
- 3.3.7.B1.1 - Explain how gravity is the major force in the formation of the planets, stars, and the solar system.
- 3.3.7.B2.1 - Identify a variety of instruments used to gather evidence about the universe.
- 3.3.7.B2.2 - Describe repeating patterns in the Sun- Earth-Moon system and the positions of stars.
- 3.3.7.B2.3 - Relate planetary size and distance in our solar system using an appropriate scale model.
- 3.3.8.A6.2 - Explain how satellite images, models, and maps are used to identify Earth's resources.

UNIT OBJECTIVES (SWBATS):

- Compare and contrast the size, composition, and surface features of the planets that comprise the solar system as well as the objects orbiting them.
- Recognize the role of gravity as a force that pulls all things on or near the earth toward the center of the earth and in the formation of the solar system and the motions of planets, stars, and the solar system.
- Explain why the planets orbit the sun in nearly circular paths.
- Describe how the planets change their position relative to the background of stars.
- Explain how light, measured remotely, can be used to classify objects in the universe.
- Describe the motions of tides and identify their causes.

INSTRUCTIONAL STRATEGIES/ACTIVITIES:

- Class discussions
- Peer discussions
- Worksheets
- Visual presentations
- Projects
- Study guides
- Oral questioning
- Essays
- Short answers
- Internet resources
- Homework

ANCHOR VOCABULARY:

- Galaxy
- Gravity

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|---|
| <p>ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):</p> <ul style="list-style-type: none"> • Tests • Quizzes • Projects |
| <p>EVIDENCE OF MASTERY/Cut Score (Keystone Exam):</p> <ul style="list-style-type: none"> • Formative Assessments • Teacher/department generated tests/quizzes |
| <p>DIFFERENTIATED INSTRUCTION (Remediation/Extension) (Process, Product or Content)</p> <p>Remediation:</p> <ul style="list-style-type: none"> • Appropriate accommodations based on student's IEP/504 Plan • Colored highlighter for focus • Explicit modeling followed by systematic guided practice • Assign narrative selections that are appropriate level of student comprehension <p>Extension:</p> <ul style="list-style-type: none"> • Assign narrative selections that are appropriate level of student comprehension • Extending skills to the next level of complexity • Individualized enriched assignments and activities |
| <p>RESOURCES (Websites, Blogs, Videos, Whiteboard Resources, etc.):</p> <ul style="list-style-type: none"> • Discovery Education Tech Book • Holt Science and Technology: Astronomy (Copyright 2002) • Internet resources • Teacher Created Resources |
| <p>RESOURCE SPECIFIC VOCABULARY:</p> <p>Altitude, apparent magnitude, artificial satellite, asteroid, asteroid belt, astronomical unit, astronomy, black hole, chromosphere, circumpolar stars, comet, constellation, convective zone, core, corona, eclipse, electromagnetic spectrum, ellipse, elliptical galaxy, escape velocity, gas giants, geosynchronous orbit, horizon, H-R diagram, irregular galaxy, Kuiper belt, light year, low Earth orbit, lunar eclipse, main sequence, meteor, meteorite, meteoroid, moon, NASA, nebula, neutron star, nuclear fusion, Oort cloud, orbit, orbital velocity, period of revolution, period of rotation, phases, photosphere, prograde rotation, pulsar, quasar, radiative zone, red giant, reflecting telescope, refracting telescope, retrograde rotation, revolution, rocket, rotation, satellite, solar eclipse, solar system, space probe, space station, spiral galaxy, supernova, surface gravity, telescope, terrestrial planets, thrust, white dwarf, year, zenith</p> |

| Wallenpaupack Area School District Curriculum | |
|---|--------------------------------|
| COURSE: Science | GRADE/S: 6 |
| UNIT 2: Rocks | TIMEFRAME: 28 – 30 Days |

PA COMMON CORE/NATIONAL STANDARDS:

3.3.6.A2.1 - Examine how soil fertility, composition, resistance to erosion, and texture are affected by many factors.

3.3.6.A4.1 - Describe how water on earth cycles in different forms and in different locations, including underground and in the atmosphere.

3.3.7.A1.1 - Define basic features of the rock cycle.

3.3.7.A3.1 - Explain and give examples of how physical evidence, such as fossils and surface features of glaciation support theories that the Earth evolved over geologic time.

UNIT OBJECTIVES (SWBATS):

- Define basic features of the rock cycle.
- Examine how soil fertility, composition, resistance to erosion, and texture are affected by many factors.
- Explain and give examples of how physical evidence, such as fossils support theories that the Earth has evolved over geologic time.

INSTRUCTIONAL STRATEGIES/ACTIVITIES:

- Class discussions
- Peer discussions
- Worksheets
- Visual presentations
- Projects
- Study guides
- Oral questioning
- Essays
- Short answers
- Internet resources
- Homework

ANCHOR VOCABULARY:

- Geology
- Igneous
- Metamorphic
- Rock cycle
- Sedimentary

ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):

- Tests
- Quizzes
- Projects

EVIDENCE OF MASTERY/Cut Score (Keystone Exam):

- Formative Assessments
- Teacher/department generated tests/quizzes

DIFFERENTIATED INSTRUCTION (Remediation/Extension) (Process, Product or Content)**Remediation:**

- Appropriate accommodations based on student's IEP/504 Plan
- Colored highlighter for focus
- Explicit modeling followed by systematic guided practice
- Assign narrative selections that are appropriate level of student comprehension

Extension:

- Assign narrative selections that are appropriate level of student comprehension
- Extending skills to the next level of complexity
- Individualized enriched assignments and activities

RESOURCES (Websites, Blogs, Videos, Whiteboard Resources, etc.):

- Discovery Education Tech Book
- Holt Science and Technology: Earth Science (Copyright 2002)
- Internet resources
- Teacher Created Resources

RESOURCE SPECIFIC VOCABULARY:

Bedrock, composition, erosion, extrusive, foliated, fossil, ground water, humus, intrusive, leaching, magma, nonfoliated, parent rock, rock, soil, soil conservation, strata, stratification, texture, topsoil, water table

| Wallenpaupack Area School District Curriculum | |
|---|--------------------------------|
| COURSE: Science | GRADE/S: 6 |
| UNIT 3: Weather | TIMEFRAME: 28 – 30 Days |

PA COMMON CORE/NATIONAL STANDARDS:

3.3.6.A5.1 - Describe the composition and layers of the atmosphere.
 3.3.6.A5.3 - Describe how global patterns such as the jet stream and water currents influence local weather in measurable terms such as temperature, wind direction and speed, and precipitation.
 3.3.6.B1.5 - Explain how the tilt of the earth and its revolution around the sun cause an uneven heating of the earth which in turn causes the seasons and weather patterns.
 3.3.6.B2.1 - Use models to demonstrate that earth has different seasons and weather patterns.
 3.3.7.A4.2 - Describe the motions of tides and identify their causes.
 3.3.7.A5.1 - Describe basic elements of meteorology.
 3.3.7.A5.2 - Explain the relationship between the energy provided by the sun and the temperature differences among water, land and atmosphere.
 3.3.7.A6.2 - Describe changes in atmospheric conditions associated with various weather patterns.

UNIT OBJECTIVES (SWBATS):

- Describe the composition and layers of the atmosphere.
- Describe how global patterns such as the jet stream and water currents influence local weather in measurable terms such as temperature, wind direction, and speed, and precipitation.
- Describe the basic elements of meteorology.
- Explain the relationship between the energy provided by the sun and the temperature differences among water, land, and atmosphere.
- Compare and contrast water vapor, clouds, and humidity.
- Explain how the tilt of the earth and its revolution around the sun cause an uneven heating of the earth which in turn causes the seasons and weather patterns.

INSTRUCTIONAL STRATEGIES/ACTIVITIES:

- Class discussions
- Peer discussions
- Worksheets
- Visual presentations
- Projects
- Study guides
- Oral questioning
- Essays
- Short answers
- Internet resources
- Homework

ANCHOR VOCABULARY:

- Atmosphere
- Conduction
- Convection
- Hydrologic cycle

- Meteorology
- Model
- Radiation

ASSESSMENTS (Diagnostic/Benchmark/Formative/Summative):

- Tests
- Quizzes
- Projects

EVIDENCE OF MASTERY/Cut Score (Keystone Exam):

- Formative Assessments
- Teacher/department generated tests/quizzes

DIFFERENTIATED INSTRUCTION (Remediation/Extension) (Process, Product or Content)

Remediation:

- Appropriate accommodations based on student's IEP/504 Plan
- Colored highlighter for focus
- Explicit modeling followed by systematic guided practice
- Assign narrative selections that are appropriate level of student comprehension

Extension:

- Assign narrative selections that are appropriate level of student comprehension
- Extending skills to the next level of complexity
- Individualized enriched assignments and activities

RESOURCES (Websites, Blogs, Videos, Whiteboard Resources, etc.):

- Discovery Education Tech Book
- Holt Science and Technology: Weather and Climate (Copyright 2002)
- Internet resources
- Teacher Created Resources

RESOURCE SPECIFIC VOCABULARY:

Acid precipitation, air mass, air pressure, altitude, anemometer, barometer, cirrus clouds, climate, cloud, condensation, Coriolis effect, cumulus clouds, dew point, elevation, evaporation, front, global warming, greenhouse effect, humidity, hurricane, jet streams, latitude, lightning, mesosphere, meteorology, microclimate, ozone, polar easterlies, polar zone, precipitation, prevailing winds, psychrometer, relative humidity, solar energy, station model, storm surge, stratosphere, stratus clouds, surface current, temperate zone, temperature, thermometer, thermosphere, thunder, thunderstorms, tornado, trade winds, tropical zone, troposphere, water cycle, weather, weather forecast, westerlies, wind, wind sock, wind vane