

New Paltz Central School District

Science
Fifth Grade

TIME	CONTENT	SKILLS	ASSESSMENTS
<p style="writing-mode: vertical-rl; transform: rotate(180deg);"> 10030000 10030000 </p>	<p><u>Forces Shaping the Earth's Surface</u></p> <ul style="list-style-type: none"> • What are the structures of the Earth? • What internal and external forces have shaped and continue to change the surface of the Earth? • What are the impacts of these changes? • How do oceans interact with the land? • How are rocks and minerals formed? • How are rocks and minerals classified? • What do rocks and fossils tell us about the past? <p style="text-align: center;">- - -</p> <ul style="list-style-type: none"> • Extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient to permit its survival. Extinction of species is common. Fossils are evidence that a great variety of species existed in the past. • Many thousands of layers of sedimentary rock provide evidence for the long history of Earth and for the long history of changing life forms whose remains are found in the rocks. Recently deposited rock layers are more likely to contain fossils resembling existing species. • The rock at Earth's surface forms a nearly continuous shell around Earth called the lithosphere. • The majority of the lithosphere is covered by a relatively thin layer of water called the hydrosphere. 	<ul style="list-style-type: none"> • Safely and accurately use a hand lens, metric ruler, balance, thermometer, dropper, and stream table. • Observe, collect, organize, and appropriately record data, then accurately interpret results. • Collect and organize data, choosing the appropriate representation: journal entries; graphic representations; drawings/pictorial representations. • Make predictions based on prior experiences and/or information. • Compare and contrast organisms/objects/events in the living and physical environments. • Identify and control variables/factors. • Identify cause-and-effect relationships. • mineral samples. 	<ul style="list-style-type: none"> • Unit assessment • Model of a geological landform or geological process with written description. • Student/teacher conferences • Quizzes • Vocabulary quizzes • Homework • Daily class work • Observation of process skills • Lab reports • Science journals

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	<ul style="list-style-type: none"> • Rocks are composed of minerals. Only a few rock-forming minerals make up most of the rocks of Earth. Minerals are identified on the basis of physical properties such as streak, hardness, and reaction to acid. • Fossils are usually found in sedimentary rocks. Fossils can be used to study past climates and environments. • The dynamic processes that wear away Earth's surface include weathering and erosion. • The process of weathering breaks down rocks to form sediment. Soil consists of sediment, organic material, water, and air. • Erosion is the transport of sediment. Gravity is the driving force behind erosion. Gravity can act directly or through agents such as moving water, wind, and glaciers. • The interior of the Earth is hot. Heat flow and movement of material within Earth cause sections of Earth's crust to move. This may result in earthquakes, volcanic eruption, and the creation of mountains and ocean basins. • Analysis of earthquake wave data (vibrational disturbances) leads to the conclusion that there are layers within the Earth. These layers – the crust, mantle, outer core, and inner core – have distinct properties. 	<ul style="list-style-type: none"> • Given the latitude and longitude of a location, indicate its position on a map and determine the latitude and longitude of a given location on a map. • Using identification tests and a flow chart, identify • Use appropriate units for measured or calculated values. • Recognize and analyze patterns and trends. • Classify objects according to an established scheme and a student-generated scheme. • Sequence events. • Use a diagram of the rock cycle to determine geological processes that led to the formation of a specific rock type. • Plot the location of recent earthquake and volcanic activity on a map and identify patterns of distribution. 	

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	<ul style="list-style-type: none">• Folded, tilted, faulted, and displaced rock layers suggest past crustal movement.• Continents fitting together like puzzle parts and fossil correlations provided initial evidence that continents were once together.• The Theory of Plate Tectonics explains how the “solid” lithosphere consists of a series of plates that “float” on the partially molten section of the mantle. Convection cells within the mantle may be the driving force for the movement of the plates.• Plates may collide, move apart, or slide past one another. Most volcanic activity and mountain building occur at the boundaries of these plates, often resulting in earthquakes.• Rocks are classified according to their method of formation. The three classes of rocks are sedimentary, metamorphic, and igneous. Most rocks show characteristics that give clues to their formation conditions.• The rock cycle model shows how types of rock or rock material may be transformed from one type of rock to another.• Fossil fuels contain stored solar energy and are considered nonrenewable resources. They are a major source of energy in the United States. Solar energy, wind, moving water, and biomass are some examples of renewable energy resources.		

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<p>50 minutes</p>	<p><u>Weather</u></p> <ul style="list-style-type: none"> • What is weather and why does it change? • How do meteorologists measure weather? • How do meteorologists predict weather? • How does geography affect the weather and climate? <li style="text-align: center;">- - - • Most objects in the solar system have a regular and predictable motion. These motions explain such phenomena as a day, a year, phases of the moon, eclipses, tides, meteor showers, and comets. • The tilt of Earth’s axis of rotation and the revolution of Earth around the Sun cause seasons on Earth. The length of daylight varies depending on latitude and season. • Nearly all the atmosphere is confined to a thin shell surrounding Earth. The atmosphere is a mixture of gases, including nitrogen and oxygen with small amounts of water vapor, carbon dioxide, and other trace gases. The atmosphere is stratified into layers, each having distinct properties. Nearly all weather occurs in the lowest layer of the atmosphere. • As altitude increases, air pressure decreases. • The majority of the lithosphere is covered by a relatively thin layer of water called the hydrosphere. • Water circulates through the atmosphere, lithosphere, and hydrosphere in what is known as the water cycle. • Weather describes the conditions of the atmosphere at a given location for a short period of time. • Climate is the characteristic weather that prevails from season to season and year to year. 	<ul style="list-style-type: none"> • Safely and accurately use a thermometer, rain gauge, metric ruler, and barometer. • Observe, collect, organize, and appropriately record data, then accurately interpret results. • Collect and organize data, choosing the appropriate representation: journal entries; graphic representations; drawings/pictorial representations. • Make predictions based on prior experiences and/or information. • Identify and control variables/factors. • Communicate procedures and conclusions through oral and written presentations. • Use appropriate units for measured or calculated values. • barometric pressure, etc. 	<ul style="list-style-type: none"> • Unit assessment • Student/teacher conferences • Quizzes • Vocabulary quizzes • Homework • Daily class work • Observation of process skills • Lab reports • Science journals


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	<ul style="list-style-type: none"> • The uneven heating of Earth’s surface is the cause of weather. • Air masses form when air remains nearly stationary over a large section of Earth’s surface and takes on the conditions of temperature and humidity from that location. Weather conditions at a location are determined primarily by temperature, humidity, and pressure of air masses over that location. • Most local weather condition changes are caused by movement of air masses. • The movement of air masses is determined by prevailing winds and upper air currents. • Fronts are boundaries between air masses. Precipitation is likely to occur at these boundaries. • High-pressure systems generally bring fair weather. Low-pressure systems usually bring cloudy, unstable conditions. The general movement of highs and lows is from west to east across the United States. • Hazardous weather conditions include thunderstorms, tornadoes, hurricanes, ice storms, and blizzards. Humans can prepare for and respond to these conditions if given sufficient warning. • Substances enter the atmosphere naturally and from human activity. Some of these substances include dust from volcanic eruptions and greenhouse gases such as carbon dioxide, methane, and water vapor. These substances can affect weather, climate, and living things. • The Sun is a major source of energy for Earth. Other sources of energy include nuclear and geothermal. 	<ul style="list-style-type: none"> • Recognize and analyze patterns and trends. • mass based on the origin of the air mass. • Measure weather variables such as wind speed and direction, relative humidity, • Generate and interpret field maps including topographic and weather maps. • Predict the characteristics of an air • Sequence events. • Identify cause-and-effect relationships. • Use indicators (Beaufort Scale) and interpret results. 	

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	<p><u>Motion, Force, Work, Energy, and Simple Machines</u></p> <ul style="list-style-type: none"> • What are forces? • What are Newton’s Laws of Motion? • How does the interaction of energy and matter cause motion? • What is work and how is it measured? • What are simple machines? • How can we use simple machines to make life easier? <p style="text-align: center;">- - -</p> <ul style="list-style-type: none"> • Gravity is the force that keeps planets in orbit around the Sun and the Moon in orbit around the Earth. • The Sun is a major source of energy for Earth. Other sources of energy include nuclear and geothermal energy. • Fossil fuels contain stored solar energy and are considered nonrenewable resources. They are a major source of energy in the United States. Solar energy, wind, moving water, and biomass are some examples of renewable energy resources. • Most activities in everyday life involve one form of energy being transformed into another. For example, the chemical energy in gasoline is transformed into mechanical energy in an automobile engine. Energy, in the form of heat, is almost always one of the products of energy transformations. 	<ul style="list-style-type: none"> • Safely and accurately use a balance, metric ruler, and spring scale. • Observe, collect, organize, and appropriately record data, then accurately interpret results. • Collect and organize data, choosing the appropriate representation: journal entries; graphic representations; drawings/pictorial representations. • Make predictions based on prior experiences and/or information. • Identify and control variables/factors. • Use appropriate units for measured or calculated values. • Recognize and analyze patterns and trends. 	<ul style="list-style-type: none"> • Unit assessment • Student/teacher conferences • Quizzes • Vocabulary quizzes • Homework • Daily class work • Observation of process skills • Lab reports • Science journals

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	<ul style="list-style-type: none">• Energy can be considered to be either kinetic energy, which is the energy of motion, or potential energy, which depends on relative position.• The motion of an object is always judged with respect to some other object or point. The idea of absolute motion or rest is misleading.• The motion of an object can be described by its position, direction of motion, and speed.• An object's motion is the result of the combined effect of all forces acting on the object. A moving object that is not subjected to a force will continue to move at a constant speed in a straight line. An object at rest will remain at rest.• Force is directly related to an object's mass and acceleration. The greater the force, the greater the change in motion.• For every action there is an equal and opposite reaction.• Every object exerts gravitational force on every other object. Gravitational force depends on how much mass the objects have and on how far apart they are. Gravity is one of the forces acting on orbiting objects and projectiles.	<ul style="list-style-type: none">• Sequence events.• Identify cause-and-effect relationships.• Determine the speed and acceleration of a moving object.	

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	<ul style="list-style-type: none">• The position or direction of an object can be changed by pushing or pulling.• Machines transfer mechanical energy from one object to another.• Friction is a force that opposes motion.• A machine can be made more efficient by reducing friction. Some common ways of reducing friction include lubricating or waxing surfaces.• Machines can change the direction or amount of force, or the distance or speed of force required to do work.• Simple machines include a lever, a pulley, a wheel and axle, and an inclined plane. A complex machine uses a combination of interacting simple machines, e.g., a bicycle.• Mechanical energy may cause change in motion through the application of force and through the use of simple machines.		