

Oneness-Family School - First through Third Grade - Science Benchmarks
Academy: History and Cultural

Subject	First Grade	Second Grade	Third Grade
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HISTORY & CULTURAL BENCHMARKS

<p>History</p>	<p>Calendar</p> <p>Demonstrate their understanding of time by measuring in equal units reinforced by using days, months and years.</p> <p>Correctly construct a calendar using the appropriate names for the months and days in the correct order.</p> <p>Knows which months have 30 days and some months that have 31 days.</p> <p>Knows why February has 28 days (and 29 every 4 years)</p> <p>Can recite the names of the months of the year in the correct order.</p> <p>Four Seasons</p> <p>Can place the appropriate pictures in the correct place in the timeline.</p> <p>Can distinguish between Spring, Summer Autumn & Winter.</p>	<p>Concept of Time BC/AD (BCE/CE)</p> <p>Knows that modern time began tracking at the birth of Jesus Christ. BC means Before Christ and AD means Anno Domini means “Year of our Lord”.</p> <p>Knows that modern time also refers to this as Before the Common Era, and the Common Era.</p> <p>Knows that a century is demarcated by counting to 100 in either direction.</p>	<p>Longitude & Latitude</p> <p>Knows that the lines running East-West are parallel lines or latitude lines.</p> <p>Knows the longest parallel line is the equator and it is 0 degrees. Parallels occur in 15 degrees intervals.</p> <p>Knows that the North Pole is 90 degrees N, and the South Pole is 90 degrees S.</p> <p>Knows that you start at the Prime Meridian is 0 degrees. Everything that is West of the Prime Meridian is West Longitude and everything East is East Longitude.</p>
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	<p>History & Grammar</p> <p>Students use the pronoun symbol and the verb symbol to discern if something is past, present or future tense.</p> <p>Students use words to describe and categorize into past, present and future tenses.</p> <p>The First Earth History Timeline</p> <p>Students know the names of the eras and periods of prehistoric time.</p> <p>Students can use the metaphor of a clock to understand the vastness of prehistory.</p>		
<p>Our Universe</p>	<p>Creation Stories</p> <p>Students know that creation stories are orally transmitted from elders to young people in each culture.</p> <p>Students locate these cultures on a map or a globe and relate them to modern day countries.</p> <p>Students know that cultures use different symbology depending on where that culture is located.</p>	<p>Our Universe, Cosmology & Astronomy</p> <p>Students know that a constellation is a group of stars that seem to form a picture and whose patterns were recorded by ancient cultures worldwide.</p> <p>Students know that different constellations will appear at certain times of the year due to Earth's orbit</p>	<p>Climate Zones of the Earth</p> <p>Students know that climate means the general weather conditions of a particular region.</p> <p>Students know that how the rays of the sun meet the Earth determines the climate of a particular zone.</p> <p>Students know the names and characteristics of Earth's major climates.</p> <p>Students understand the relationship between the sun's rays, hemispheres, and seasons.</p>

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	<p>Big Bang Theory</p> <p>Students know that the story of the Big Bang theory is a scientific theory based on observations of the universe.</p> <p>Students understand the process outlined in the Big Bang Theory</p> <p>Formation of the Galaxies</p> <p>Students know the definitions of galaxies and nebulae.</p> <p>Students know that gravity is the force that pulls things towards each other.</p> <p>Students know the three main galaxies: spiral, elliptical and irregular.</p> <p>Students know that our galaxy is called The Milky Way and that it is a spiral galaxy</p> <p>Birth & Death of Stars</p> <p>Students know there are small, medium and large main stars.</p> <p>Students know that the smallest stars live the longest while the largest live the shortest.</p> <p>Students know that all stars begin to form from hydrogen.</p>		

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	<p>Students know that the core of the star heats up through nuclear fusion.</p> <p>Students know the elements needed for a star to live, and how they are formed.</p> <p>Students know that all of these elements are pulled together by gravity, forming a supernova.</p> <p>Students know that all the energy released by a supernova goes right back into the Universe where it will be used to form new stars and planets.</p> <p>Formation of Our Solar System</p> <p>Students know that a nebula is a nursery for the stars.</p> <p>Students can define 'planetesimals' & know how they are formed.</p> <p>Students understand the basic process by which our Solar System was formed.</p> <p>Students know that our solar system was created when the Universe was 10,000 million years old. Our solar system is 4,600 million years old</p>		

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	<p>The Planets</p> <p>Students know the sizes and relative locations of the planets in our Solar System</p> <p>Students know that Pluto was reclassified as a dwarf planet in 2006.</p>		
<p>Sun and Earth</p>	<p>Sun and Earth</p> <p>Students know that the attraction between the Sun and Earth is called gravity.</p> <p>Students learn that the Earth is moving forward and that this called velocity. The earth maintains that distance due to its relative velocity and gravitational pull.</p> <p>The Formation of the Earth</p> <p>Students understand the basic process by which Earth was formed.</p> <p>Students know that it took a million years for the Earth to reach ½ its present size, and 90 million years to reach its present size.</p>	<p>Sun and Earth</p> <p>Students understand Earth’s elliptical orbit</p> <p>Students know that Earth rotates on its axis 365 times in a year and the axis is always tilted in the same direction.</p> <p>Students know the definitions of perihelion and aphelion, and how they relate to the solstices and equinoxes.</p>	

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<p>Geology</p>		<p>Geology: Life Comes to Earth</p> <p>Students know that life on Earth began about a billion years ago by examining the sedimentary rock.</p> <p>Students know that fossils are the evidence of life present, preserved in rock & sediment.</p> <p>Students know that a cell is a basic part of living matter, and that the materials necessary to make cells were found in warm oceans.</p> <p>Students know that molecules of methane, ammonia, and water made up “sea soup,” and that these 3 elements make up life.</p> <p>Students know that long carbon chains formed CHONs and they can replicate themselves. They eventually formed the building blocks of amino acids.</p> <p>Students understand the importance of prokaryotes in early life.</p> <p>Students know that photosynthesis means putting together with the help of light.</p>	

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		<p>Students know that the first organisms to breath are called Cyanobacteria.</p> <p>Students know the ozone’s job is to protect life from the damaging ultraviolet rays of the Sun.</p> <p>Students know that humans are made up of over 10 trillion Eukaryotic cells.</p>	
<p>Structure of Earth</p>	<p>The Earth’s Interior</p> <p>Students know that the Earth is made up of 3 layers; Crust, Mantle and Core.</p> <p>Students understand the makeup and relative size of these layers.</p> <p>Formation of Mountains & Faults</p> <p>Students know that mountains are formed when molten rock flows up from the Mantle through cracks in the surface of Earth.</p> <p>Students know there are 4 different types of mountains; dome mountains, gorges, folded and fault block mountains.</p> <p>Volcanoes</p> <p>Students know that a volcano is a mountain formed by many layers of cooled lava (molten rock).</p>		<p>Structure of the Earth Plate Tectonics</p> <p>Students understand the theory of Plate Tectonics.</p> <p>Students know that scientists recognize that continents used to be connected and that would be a reason for finding similar fossils on different continents.</p> <p>Students know that there are 7 major plates: Pacific, North American, South American, Eurasian, African, Indo-Australia, and Antarctic Plates.</p> <p>Students know that the plates move in 3 ways; Divergent, Convergent and Transform</p>

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	<p>Students know the definitions of magma, magma chamber, lava, conduit, fissures, and crater.</p> <p>Students know the differences between volcano types (cinder, shield, and composite)</p> <p>Students know that volcanoes can be active, dormant and extinct</p> <p>Three Major types of Rocks</p> <p>Students know the difference between Igneous, Sedimentary, and Metamorphic rocks.</p> <p>Students know how water and ice affect rock formation.</p> <p>The Earth's Insulation</p> <p>Students know that there are 2 different kinds of heat; one that comes from something burning and the other is from something that has collected the heat from something that is burning.</p> <p>Continents Globe</p> <p>Students know and identify 4 major oceans, the equator, the Northern Hemisphere, and the Southern Hemisphere</p>		<p>Students understand how the movement of plates can result in volcanoes and mountains.</p> <p>Earthquakes</p> <p>Students know how earthquakes are formed, and where they generally occur.</p> <p>Students know the definitions of seismograph, epicenter, magnitude, intensity, and waves.</p> <p>Composition of the Earth</p> <p>Students know that a rock is made up of minerals.</p> <p>Students know that a mineral is an inorganic substance made up of elements.</p> <p>Students know that a mineral is made up of tiny crystals.</p>

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<p>Hydrosphere, Lithosphere, Atmosphere</p>	<p>The Lithosphere, Hydrosphere and Atmosphere</p> <p>Students know that there is a solid Earth to live on (lithosphere), water for drinking (hydrosphere) and air to breathe (atmosphere).</p>	<p>Hydrosphere: The Work of Water</p> <p>Students know the water cycle is the continuous movement of water from fresh and saltwater sources on land to the air and back again.</p> <p>Students know the 3 main cycles of the water cycle are evaporation, condensation and precipitation.</p> <p>Students know that the Pacific, Atlantic and the Indian Ocean are the main oceans on Earth.</p> <p>Atmosphere The Work of Air - Layers of the Atmosphere</p> <p>Students know that there are 4 layers of the atmosphere; troposphere, stratosphere, mesosphere, thermosphere.</p> <p>Students know the relative locations of these layers in our atmosphere</p> <p>Students know the important characteristics of these layers.</p>	<p>Atmosphere: The Work of Air Composition of the Atmosphere</p> <p>Students know the present day composition of the atmosphere is lithosphere, atmosphere and hydrosphere.</p> <p>Students know that Nitrogen (80%) and Oxygen (20%) make up the composition of the planet.</p> <p>Students understand the basic process by which the atmosphere was formed.</p> <p>Students understand how the atmosphere affects life on Earth.</p> <p>Students know that original life forms on Earth could not survive in today's oxygen rich atmosphere.</p>

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<p>Physical Geography</p>	<p>Landscapes and Geographical Features</p> <p>Students know the definitions of salt water, mountains, fresh water, and desert.</p>		<p>The Earth's Magnetosphere</p> <p>Students understand what the magnetosphere is and how it affects the habitability of our planet.</p> <p>The Electromagnetic Spectrum</p> <p>Students know that radiant energy and electromagnetic energy come from the Sun.</p> <p>Students know there are 7 different energy waves; Visible Light, Radio Waves, Microwaves, Infrared Waves, Ultraviolet waves, X-Rays, and Gamma Rays.</p> <p>Students know important characteristics about the various types of waves.</p>
<p>Cultural Geography</p>			<p>Economic Geography</p> <p>Students know that asking where our goods come from and uncover a connection between the people who provide them and the people that want/need them.</p>

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			<p>Cultural Geography Fundamental Needs of People</p> <p>Students know that people need food, clothing and shelter.</p> <p>Students know that people need spiritual, material, art, beauty, religion, social customs, defense, transportation and communications</p>
<p>Maps and Mapping</p>	<p>Intermediate Directions</p> <p>Students know that there are 4 intermediate directions; Northeast, Southeast, Southwest, Northwest.</p> <p>Students know that you find them in between the 4 cardinal directions.</p> <p>Mapping the School Grounds or Neighborhood</p> <p>Students know that using a compass rose at the bottom of the map they created assists them in determining the direction of the map they created.</p>	<p>Cartography Hemispheres</p> <p>Students know the equator is an imaginary line that separates the Earth horizontally into two equal parts.</p> <p>Students know the Earth divided vertically from the North Pole to the South Pole at 0 degrees is the Prime Meridian/International Date Line.</p> <p>Students know the Western Hemisphere is towards the left of the line and the Eastern Hemisphere is to the right of the line</p>	<p>International Date Line</p> <p>Students know that the International Dateline is located at 0 degrees longitude.</p> <p>Students know the world's countries decided to set standard time zones so that at 12:00 noon on any day at any location on Earth the sun's rays would be directly overhead.</p> <p>Students know when you cross the date line to the west you gain a day.</p> <p>Students know when you cross the date line to the east you lose a day.</p>