

# Oakley Union Elementary School District (O.U.E.S.D.)

## Kid-Friendly California Standards & Benchmarks for Science



## OUESD Kid Friendly Standards & Benchmarks – Science (Kindergarten)

<b>CA Standards &amp; Benchmarks</b>		<b><i>OUESD Kid Friendly Standards &amp; Benchmarks</i></b>
<b>Physical Sciences</b>		
1.0	Properties of materials can be observed, measured, and predicted. As a basis for understanding this concept:	<i>I know that objects can be looked at carefully, measured, and their actions can be guessed/predicted.</i>
1.a	Students know objects can be described in terms of the materials they are made of (e.g., clay, cloth, paper) and their physical properties (e.g., color, size, shape, weight, texture, flexibility, attraction to magnets, floating, sinking).	<i>I can describe objects by what they are made of, how they look, and how they are used.</i>
1.b	Students know water can be a liquid or a solid and can be made to change back and forth from one form to the other.	<i>I know that water has different forms and can be a liquid or a solid and can change back and forth.</i>
1.c	Students know water left in an open container evaporates (goes into the air) but water in a closed container does not.	<i>I know that water in a container can evaporate into the air if the lid is not on.</i>
<b>Life Sciences</b>		
2.0	Different types of plants and animals inhabit the earth. As a basis for understanding this concept:	<i>I know the world has many kinds of plants and animals.</i>
2.a	Students know how to observe and describe similarities and differences in the appearance and behavior of plants and animals (e.g., seed-bearing plants, birds, fish, insects).	<i>I know how to observe and tell about plants and animals based on how they look and how they act.</i>
2.b	Students know stories sometimes give plants and animals attributes they do not really have.	<i>I know in stories sometimes authors show plants and animals behaving like people and this is not real.</i>
2.c	Students know how to identify major structures of common plants and animals (e.g., stems, leaves, roots, arms, wings, legs).	<i>I can tell about the important parts of plants and animals.</i>

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<b>Earth Sciences</b>		
3.0	Earth is composed of land, air, and water. As a basis for understanding this concept:	<i>I know our Earth is made of land, air, and water.</i>
3.a	Students know characteristics of mountains, rivers, oceans, valleys, deserts, and local landforms.	<i>I can talk about landforms and bodies of water on Earth.</i>
3.b	Students know changes in weather occur from day to day and across seasons, affecting Earth and its inhabitants.	<i>I know that weather changes between days and across seasons and affects nature and people.</i>
3.c	Students know how to identify resources from Earth that are used in everyday life and understand that many resources can be conserved.	<i>I can tell about the things from nature that people use everyday. I know we must take care of our Earth by recycling and reusing its resources.</i>
<b>Investigation and Experimentation</b>		
4.0	Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations. Students will:	<i>I know a scientist asks good questions and carefully explores. I can observe, predict, communicate, measure, put things in order, compare, classify, and record data.</i>
4.a	Observe common objects by using the five senses.	<i>I use all of my senses when I observe an object.</i>
4.b	Describe the properties of common objects.	<i>I use describing words to tell about an object.</i>
4.c	Describe the relative position of objects by using one reference (e.g., above or below).	<i>I use direction words to describe where an object is.</i>
4.d	Compare and sort common objects by one physical attribute (e.g., color, shape, texture, size, weight).	<i>I can compare and sort objects by ways they are alike.</i>
4.e	Communicate observations orally and through drawings.	<i>I can share what I see using words and pictures.</i>

## OUESD Kid Friendly Standards & Benchmarks – Science (1<sup>st</sup> Grade)

<b>CA Standards &amp; Benchmarks</b>		<b><i>OUESD Kid Friendly Standards &amp; Benchmarks</i></b>
<b>Physical Sciences</b>		
1.0	Materials come in different forms (states), including solids, liquids, and gases.	<i>I know that matter is anything that takes up space and it comes in 3 different forms (states); solids, liquids and gases.</i>
1.a	Students know solids, liquids, and gases have different properties.	<i>I can use my senses to describe and talk about the size, shape, hardness and texture of an object.</i>
1.b	Students know the properties of substances can change when the substances are mixed, cooled, or heated.	<i>I know and can describe how an object can change its form when we mix it with something else, cool or heat it.</i>
<b>Life Sciences</b>		
2.0	Plants and animals meet their needs in different ways.	<i>Plants and animals need certain things to survive.</i>
2.a	Students know different plants and animals inhabit different kinds of environments and have external features that help them thrive in different kinds of places.	<i>Plants and animals come in different shapes, sizes and with special features that help them survive in different types of environments or habitats.</i>
2.b	Students know both plants and animals need water, animals need food, and plants need light.	<i>I know plants need light, air, water, and soil to live and animals need food, water, air and shelter.</i>
2.c	Students know animals eat plants or other animals for food and may also use plants or even other animals for shelter and nesting.	<i>I know that animals use plants and other animals as a source of food and/or shelter.</i>
2.d	Students know how to infer what animals eat from the shapes of their teeth (e.g., sharp teeth: eats meat; flat teeth: eats plants).	<i>I know that the shape of an animal's teeth can tell you what it eats.</i>
2.e	Students know roots are associated with the intake of water and soil nutrients and green leaves are associated with making food from sunlight.	<i>I know that the leaves on a plant use sunlight and air to make food and the roots of a plant take in water and nutrients from the soil.</i>

## OUESD Kid Friendly Standards & Benchmarks – Science (1<sup>st</sup> Grade)

<b>Earth Sciences</b>		
3.0	Weather can be observed, measured, and described.	<i>I can observe and talk about weather.</i>
3.a	Students know how to use simple tools (e.g., thermometer, wind vane) to measure weather conditions and record changes from day to day and across the seasons.	<i>I can use tools such as a thermometer or weather vane to measure and record weather changes from day to day.</i>
3.b	Students know that the weather changes from day to day but that trends in temperature or of rain (or snow) tend to be predictable during a season.	<i>I know that weather can change from day to day but that there is a pattern of weather that we can count on during each season.</i>
3.c	Students know the sun warms the land, air, and water.	<i>I know the sun warms the land, air, and water.</i>
<b>Investigation and Experimentation</b>		
4.0	Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations.	<i>I know science is a way of asking questions about the world. I can use the skills of a scientist to explore the world around me. I can observe, predict, communicate, measure, put things in order, compare, classify, and record data.</i>
4.a	Students will draw pictures that portray some features of the thing being described.	<i>I can explain and share my findings by drawing detailed pictures.</i>
4.b	Students will record observations and data with pictures, numbers, or written statements.	<i>I can use numbers, pictures and words to share what I have seen or experienced.</i>
4.c	Students will record observations on a bar graph.	<i>I can make a bar graph to show what I have observed.</i>
4.d	Students will describe the relative position of objects by using two references (e.g., above and next to, below and left of).	<i>I can observe and describe the location of an object.</i>
4.e	Students will make new observations when discrepancies exist between two descriptions of the same object or phenomenon.	<i>I am learning to make new observations when I find that 2 descriptions of the same object or event do not match.</i>

## OUESD Kid Friendly Standards & Benchmarks – Science (2<sup>nd</sup> Grade)

<b>CA Standards &amp; Benchmarks</b>		<b><i>OUESD Kid Friendly Standards &amp; Benchmarks</i></b>
<b>Physical Sciences</b>		
1.0	The motion of objects can be observed and measured.	<i>I know things can be moved and the movement measured.</i>
1.a	Students know the position of an object can be described by locating it in relation to another object or to the background.	<i>I can tell about an object's location by comparing it to its background or to another object.</i>
1.b	Students know an object's motion can be described by recording the change in position of the object over time.	<i>I know that an object's motion can be described by recording its change in position over time.</i>
1.c	Students know the way to change how something is moving is by giving it a push or a pull. The size of the change is related to the strength, or the amount of force, of the push or pull.	<i>I know how to change an object's movement by pushing or pulling. I know the size of the change depends on the object's size and the amount of force used.</i>
1.d	Students know tools and machines are used to apply pushes and pulls (forces) to make things move.	<i>I know tools and machines are used to apply force to make things move.</i>
1.e	Students know objects fall to the ground unless something holds them up.	<i>I know Earth's gravity is a force that pulls objects that are not held up by something to the ground.</i>
1.f	Students know magnets can be used to make some objects move without being touched.	<i>I know a magnet can push or pull some objects without touching them.</i>
1.g	Students know sound is made by vibrating objects and can be described by its pitch and volume.	<i>I know sound has pitch and volume and is made by motion called vibration.</i>
<b>Life Sciences</b>		
2.0	Plants and animals have predictable life cycles.	<i>I know plants and animals have predictable life cycles.</i>
2.a	Students know that organisms reproduce offspring of their own kind and that the offspring resemble their parents and one another.	<i>I know organisms reproduce and their offspring resemble their parents and one another.</i>
2.b	Students know the sequential stages of life cycles are different for different animals, such as butterflies, frogs, and mice.	<i>I know life cycles are different for different living things.</i>

## OUESD Kid Friendly Standards & Benchmarks – Science (2<sup>nd</sup> Grade)

2.c	Students know many characteristics of an organism are inherited from the parents. Some characteristics are caused or influenced by the environment.	<i>I know many characteristics are inherited from parents and some are caused by the environment.</i>
2.d	Students know there is variation among individuals of one kind within a population.	<i>I know no two living things are exactly the same in all ways.</i>
2.e	Students know light, gravity, touch, or environmental stress can affect the germination, growth, and development of plants.	<i>I know conditions affect the way plants grow.</i>
2.f	Students know flowers and fruits are associated with reproduction in plants.	<i>I know flowers, fruits, and seeds are the reproductive parts of plants.</i>
<b>Earth Sciences</b>		
3.0	Earth is made of materials that have distinct properties and provide resources for human activities.	<i>I know Earth is made up of materials that people use.</i>
3.a	Students know how to compare the physical properties of different kinds of rocks and know that rock is composed of different combinations of minerals.	<i>I know rocks are made of minerals and I can talk about the how rocks are different from each other.</i>
3.b	Students know smaller rocks come from the breakage and weathering of larger rocks.	<i>I know big rocks can break and the weather can make them smaller rocks.</i>
3.c	Students know that soil is made partly from weathered rock and partly from organic materials and that soils differ in their color, texture, capacity to retain water, and ability to support the growth of many kinds of plants.	<i>I know soil is made of weathered rock and organic materials. I know soil helps plants grow and that there are many different types of soil.</i>
3.d	Students know that fossils provide evidence about the plants and animals that lived long ago and that scientists learn about the past history of Earth by studying fossils.	<i>I know fossils tell a story about plants and animals that lived long ago and they help scientists learn about Earth's history.</i>
3.e	Students know rock, water, plants, and soil provide many resources, including food, fuel, and building materials, that humans use.	<i>I know resources people use for food, fuel, and building materials come from rocks, water, plants and soil.</i>

## OUESD Kid Friendly Standards & Benchmarks – Science (2<sup>nd</sup> Grade)

<b>Investigation and Experimentation</b>		
4.0	Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations.	<i>I know that progress in science happens when questions are asked and the careful investigations are conducted. I can observe, predict, communicate, measure, put things in order, compare, classify and record data to find out more about a topic.</i>
4.a	Students will make predictions based on observed patterns and not random guessing.	<i>I make predictions from careful observations and not just guessing.</i>
4.b	Students will measure length, weight, temperature, and liquid volume with appropriate tools and express those measurements in standard metric system units.	<i>I know how to use the correct tools to measure length, weight, temperature, and liquid volume and can record measurements in standard metric system units.</i>
4.c	Students will compare and sort common objects according to two or more physical attributes (e. g., color, shape, texture, size, weight).	<i>I know how to compare and group objects by 2 or more physical features.</i>
4.d	Students will write or draw descriptions of a sequence of steps, events, and observations.	<i>I can explain a series of steps, events, and observations in writing or by drawing detailed pictures.</i>
4.e	Students will construct bar graphs to record data, using appropriately labeled axes.	<i>I can make a bar graph to record information and label its parts.</i>
4.f	Students will use magnifiers or microscopes to observe and draw descriptions of small objects or small features of objects.	<i>I can use a magnifier or microscope to look at and small objects and then draw a detailed picture.</i>
4.g	Students will follow oral instructions for a scientific investigation.	<i>I can follow spoken directions to perform a scientific investigation.</i>

## OUESD Kid Friendly Standards & Benchmarks – Science (3<sup>rd</sup> Grade)

CA Standards & Benchmarks		<i>OUESD Kid Friendly Standards &amp; Benchmarks</i>
<b>Physical Sciences</b>		
1.0	Energy and matter have multiple forms and can be changed from one form to another.	<i>I know energy is the ability to do work and that matter occupies space in the form of a solid, liquid, or gas.</i>
1.a	Students know energy comes from the Sun to Earth in the form of light.	<i>I know that the Sun is a source of energy and it comes in the form of light.</i>
1.b	Students know sources of stored energy take many forms, such as food, fuel, and batteries.	<i>I know sources of stored energy can come in many forms such as food, fuel, and batteries.</i>
1.c	Students know machines and living things convert stored energy to motion and heat.	<i>I know machines and living things can change stored energy to motion and heat.</i>
1.d	Students know energy can be carried from one place to another by waves, such as water waves and sound waves, by electric current, and by moving objects.	<i>I know energy can be carried from one place to another by waves, and by moving objects.</i>
1.e	Students know matter has three forms: solid, liquid, and gas.	<i>I know matter has 3 forms; solid, liquid and gas.</i>
1.f	Students know evaporation and melting are changes that occur when the objects are heated.	<i>I know that evaporation and melting are changes that happen when objects are heated</i>
1.g	Students know that when two or more substances are combined, a new substance may be formed with properties that are different from those of the original materials.	<i>I know that when 2 or more substances are mixed the result is a new substance with its own new properties.</i>
1.h	Students know all matter is made of small particles called atoms, too small to see with the naked eye.	<i>I know matter is made up of small particles called atoms that can not be seen by the human eye.</i>
1.i	Students know people once thought that earth, wind, fire, and water were the basic elements that made up all matter. Science experiments show that there are more than 100 different types of atoms, which are presented on the periodic table of the elements.	<i>I know that elements are the building blocks of matter and that a periodic table is a chart that displays information about the elements.</i>

## OUESD Kid Friendly Standards & Benchmarks – Science (3<sup>rd</sup> Grade)

2.0	Light has a source and travels in a direction.	<i>I know light is a form of energy and that it travels in a straight path.</i>
2.a	Students know sunlight can be blocked to create shadows.	<i>I know that an object can block light causing a shadow.</i>
2.b	Students know light is reflected from mirrors and other surfaces.	<i>I know that when light hits a smooth surface such as a mirror, a clear image is reflected.</i>
2.c	Students know the color of light striking an object affects the way the object is seen.	<i>I know that the color of the light that bounces off an object gives the object its color.</i>
2.d	Students know an object is seen when light traveling from the object enters the eye.	<i>I know I see an object when reflected light enters my eyes.</i>
<b>Life Sciences</b>		
3.0	Adaptations in physical structure or behavior may improve an organism's chance for survival.	<i>I know that when a living thing is able to change its looks or behavior it may improve its ability to survive in a specific environment.</i>
3.a	Students know plants and animals have structures that serve different functions in growth, survival, and reproduction.	<i>I know that there are specific parts of plants and animals that help them get what they need and that special features help them survive.</i>
3.b	Students know examples of diverse life forms in different environments, such as oceans, deserts, tundra, forests, grasslands, and wetlands.	<i>I can name plants and animals that live in different kinds of environments.</i>
3.c	Students know living things cause changes in the environment in which they live: some of these changes are detrimental to the organism or other organisms, and some are beneficial.	<i>I know that living things can change their environment in both helpful and harmful ways.</i>
3.d	Students know when the environment changes, some plants and animals survive and reproduce; others die or move to new locations.	<i>I know that environments can change in many ways and for many reasons and that living things respond to the changes in different ways.</i>

## OUESD Kid Friendly Standards & Benchmarks – Science (3<sup>rd</sup> Grade)

3.e	Students know that some kinds of organisms that once lived on Earth have completely disappeared and that some of those resembled others that are alive today.	<i>I know that extinct means that a living thing no longer exists because it was not able to change in order to survive its new environment. Fossils found show that living things from the past resemble living things of today.</i>
<b><i>Earth Sciences</i></b>		
4.0	Objects in the sky move in regular and predictable patterns.	<i>I know that objects in the sky appear to move depending on the seasons.</i>
4.a	Students know the patterns of stars stay the same, although they appear to move across the sky nightly, and different stars can be seen in different seasons.	<i>I know that patterns of stars are called constellations and they stay the same, although they appear to move across the sky nightly, and different stars can be seen in different seasons.</i>
4.b	Students know the way in which the Moon's appearance changes during the four-week lunar cycle.	<i>I know what causes the phases of the moon.</i>
4.c	Students know telescopes magnify the appearance of some distant objects in the sky, including the Moon and the planets. The number of stars that can be seen through telescopes is dramatically greater than the number that can be seen by the unaided eye.	<i>I know and can talk about how a telescope is a tool for making distant objects appear closer, larger and clearer to the human eye.</i>
4.d	Students know that Earth is one of several planets that orbit the Sun and that the Moon orbits Earth.	<i>I know that Earth is one of many planets that travel around the Sun and the Moon travels around the Earth.</i>
4.e	Students know the position of the Sun in the sky changes during the course of the day and from season to season.	<i>I know that depending on the time of day and the season of the year, the Sun's position in the sky can appear to have changed.</i>

## OUESD Kid Friendly Standards & Benchmarks – Science (3<sup>rd</sup> Grade)

<b>Investigation and Experimentation</b>		
5.0	Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations.	<i>I know that progress in science happens when questions are asked and the careful investigations are conducted. I can observe, predict, communicate, measure, put things in order, compare, classify and record data to find out more about a topic.</i>
5.a	Students will repeat observations to improve accuracy and know that the results of similar scientific investigations seldom turn out exactly the same because of differences in the things being investigated, methods being used, or uncertainty in the observation.	<i>I know that the results of similar scientific investigations do not always turn out exactly the same because of differences in the things being investigated, methods being used or uncertainty in the observation. I know scientists often repeat observations to get accurate results.</i>
5.b	Students will differentiate evidence from opinion and know that scientists do not rely on claims or conclusions unless they are backed by observations that can be confirmed.	<i>I know that in science I must understand the difference between facts and opinions and that scientist must have evidence to support their ideas.</i>
5.c	Students will use numerical data in describing and comparing objects, events, and measurements.	<i>I can use numerical information to talk about and compare objects, events and measurements.</i>
5.d	Students will predict the outcome of a simple investigation and compare the result with the prediction.	<i>I can predict what the result of an investigation will be and then compare my idea to the actual results.</i>
5.e	Students will collect data in an investigation and analyze those data to develop a logical conclusion.	<i>I can collect information and use it to help me come up with a logical explanation of why something happened.</i>

## OUESD Kid Friendly Standards & Benchmarks – Science (4<sup>th</sup> Grade)

<b>CA Standards &amp; Benchmarks</b>		<b><i>OUESD Kid Friendly Standards &amp; Benchmarks</i></b>
<b>Physical Sciences</b>		
1.0	Electricity and magnetism are related effects that have many useful applications in everyday life.	<i>I know electricity and magnetism are related effects that have many useful applications in everyday life.</i>
1.a	Students know how to design and build simple series and parallel circuits by using components such as wires, batteries, and bulbs.	<i>I know what an electric current is and how to build simple and parallel circuits in which it can flow using wires, batteries (power source), and bulbs.</i>
1.b	Students know how to build a simple compass and use it to detect magnetic effects, including Earth's magnetic field.	<i>I know how to build a simple compass and use it to detect magnetic effects such as Earth's magnetic field.</i>
1.c	Students know electric currents produce magnetic fields and know how to build a simple electromagnet.	<i>I know how to produce magnetic fields using electric currents and how to build a simple electromagnet.</i>
1.d	Students know the role of electromagnets in the construction of electric motors, electric generators, and simple devices, such as doorbells and earphones.	<i>I know the role of electromagnets in the construction of electric motors, electric generators, and some simple everyday devices.</i>
1.e	Students know electrically charged objects attract or repel each other.	<i>I know electrically charged objects attract or repel each other.</i>
1.f	Students know that magnets have two poles (north and south) and that like poles repel each other while unlike poles attract each other.	<i>I know magnets have 2 poles and that like poles repel and unlike poles attract.</i>
1.g	Students know electrical energy can be converted to heat, light, and motion.	<i>I know electrical energy can be converted into heat, light, and motion.</i>
<b>Life Sciences</b>		
2.0	All organisms need energy and matter to live and grow.	<i>I know all organisms need energy &amp; matter to live &amp; grow.</i>
2.a	Students know plants are the primary source of matter and energy entering most food chains.	<i>I know about food chains and that plants are the most important source of matter and energy in them.</i>
2.b	Students know producers and consumers (herbivores, carnivores, omnivores, and decomposers) are related in food chains and food webs and may compete with each other for resources in an ecosystem.	<i>I know food chains and food webs contain both producers and consumers and that they often compete for resources within an ecosystem.</i>

## OUESD Kid Friendly Standards & Benchmarks – Science (4<sup>th</sup> Grade)

2.c	Students know decomposers, including many fungi, insects, and microorganisms, recycle matter from dead plants and animals.	<i>I know decomposers recycle matter from non-living plants and animals.</i>
3.0	Living organisms depend on one another and on their environment for survival.	<i>I know living organisms depend on each other and their environment to survive.</i>
3.a	Students know ecosystems can be characterized by their living and nonliving components.	<i>I know ecosystems are made up of living and non-living components.</i>
3.b	Students know that in any particular environment, some kinds of plants and animals survive well, some survive less well, and some cannot survive at all.	<i>I know within an environment the survival ability of plants and animals varies.</i>
3.c	Students know many plants depend on animals for pollination and seed dispersal, and animals depend on plants for food and shelter.	<i>I know plants and animals depend on each other to survive. Plants depend on animals for pollination and seed dispersal. Animals depend on plants for food and shelter.</i>
3.d	Students know that most microorganisms do not cause disease and that many are beneficial.	<i>I know disease is not caused by microorganisms and that many microorganisms are beneficial.</i>
<b>Earth Sciences</b>		
4.0	The properties of rocks and minerals reflect the processes that formed them.	<i>I know the properties of rocks and minerals come from the way in which they were formed.</i>
4.a	Students know how to differentiate among igneous, sedimentary, and metamorphic rocks by referring to their properties and methods of formation (the rock cycle).	<i>I know the difference between igneous, sedimentary, and metamorphic rocks in relation to their properties and methods of formation (rock cycle).</i>
4.b	Students know how to identify common rock-forming minerals (including quartz, calcite, feldspar, mica, and hornblende) and ore minerals by using a table of diagnostic properties.	<i>I know how to identify rock-forming minerals and ore minerals using a table showing diagnostic properties.</i>
5.0	Waves, wind, water, and ice shape and reshape Earth's land surface.	<i>I know the Earth's land surface is constantly changed by waves, wind, water, and ice.</i>
5.a	Students know some changes in the earth are due to slow processes, such as erosion, & some changes due to rapid processes, landslides, volcanic eruptions, & earthquakes.	<i>I know that changes in the Earth can take place over a long period of time (erosion) or happen quickly (landslides, volcanic eruptions, earthquakes).</i>

## OUESD Kid Friendly Standards & Benchmarks – Science (4<sup>th</sup> Grade)

5.b	Students know natural processes, including freezing and thawing and the growth of roots, cause rocks to break down into smaller pieces.	<i>I know rocks can break into smaller pieces through natural processes such as freezing, thawing, and plant root growth.</i>
5.c	Students know moving water erodes landforms, reshaping the land by taking it away from some places and depositing it as pebbles, sand, silt, and mud in other places (weathering, transport, and deposition).	<i>I know water movement erodes landforms and reshapes land by carrying away pebbles, sand, silt, and mud from one place to another (weathering, transport, and deposition).</i>
<b>Investigation and Experimentation</b>		
6.0	Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations.	<i>I know that progress in science happens when questions are asked and careful investigations are conducted. I can observe, predict, communicate, measure, put things in order, compare, classify and record data to find out more about a topic.</i>
6.a	Students will differentiate observation from inference (interpretation) and know scientists' explanations come partly from what they observe and partly from how they interpret their observations.	<i>I know that in science I must understand the difference between what I see (observation) and what I interpret from what I see. I know that scientists' explanations come from both observation and interpretation.</i>
6.b	Students will measure and estimate the weight, length, or volume of objects.	<i>I know how to measure and estimate the weight, length, or volume of objects.</i>
6.c	Students will formulate and justify predictions based on cause-and-effect relationships.	<i>I know how to make and give reasons for predictions based on cause-and-effect observations.</i>
6.d	Students will conduct multiple trials to test a prediction and draw conclusions about the relationships between predictions and results.	<i>I know how to test a prediction by performing trials and then make conclusions by reviewing my predictions and the trial results.</i>
6.e	Students will construct and interpret graphs from measurements.	<i>I know how to create graphs from measurements and take meaning from that information.</i>
6.f	Students will follow a set of written instructions for a scientific investigation.	<i>I know how to follow a set of written directions to perform a scientific investigation.</i>

## OUESD Kid Friendly Standards & Benchmarks – Science (5<sup>th</sup> Grade)

CA Standards & Benchmarks		<i>OUESD Kid Friendly Standards &amp; Benchmarks</i>
Physical Sciences		
1.0	Elements and their combinations account for all the varied types of matter in the world.	<i>I know that matter can be solid, liquid, or gaseous.</i>
1.a	Students know that during chemical reactions the atoms in the reactants rearrange to form products with different properties.	<i>I understand that the properties of matter include, volume, mass, weight, and density.</i>
1.b	Students know all matter is made of atoms, which may combine to form molecules.	<i>I know that matter is made of elements and elements are made of atoms.</i>
1.c	Students know metals have properties in common, such as high electrical and thermal conductivity. Some metals, such as aluminum (Al), iron (Fe), nickel (Ni), copper (Cu), silver (Ag), and gold (Au), are pure elements; others, such as steel and brass, are composed of a combination of elemental metals.	<i>I know that some metals, such as aluminum are pure elements; others are composed of a combination of elemental metals.</i>
1.d	Students know that each element is made of one kind of atom and that the elements are organized in the periodic table by their chemical properties.	<i>I know that elements are made of different kinds of atoms and that they're organized by their properties on the periodic table.</i>
1.e	Students know scientists have developed instruments that can create discrete images of atoms and molecules that show that the atoms and molecules often occur in well-ordered arrays.	<i>I know that scientists have developed instruments that helped us learn that atoms and molecules often occur in well-ordered arrays.</i>
1.f	Students know differences in chemical and physical properties of substances are used to separate mixtures and identify compounds.	<i>I know how differences in chemical and physical properties of substances are used to separate mixtures and identify compounds.</i>
1.g	Students know properties of solid, liquid, and gaseous substances, such as sugar (C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> ), water (H <sub>2</sub> O), helium (He), oxygen (O <sub>2</sub> ), nitrogen (N <sub>2</sub> ), & carbon dioxide (CO <sub>2</sub> ).	<i>I can name the properties of solid, liquid and gaseous substances, such as sugar, water, oxygen, nitrogen and carbon dioxide.</i>

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1.h	Students know living organisms and most materials are composed of just a few elements.	<i>I know that living organisms and most materials are composed of just a few elements.</i>
1.i	Students know the common properties of salts, such as sodium chloride (NaCl).	<i>I know the common properties of salt such as sodium chloride (NaCl).</i>
<b>Life Sciences</b>		
2.0	Plants and animals have structures for respiration, digestion, waste disposal, and transport of materials.	<i>I know plants and animals have special structures for respiration, digestion, waste disposal, and movement of materials.</i>
2.a	Students know many multi-cellular organisms have specialized structures to support the transport of materials.	<i>I know the body has many organ systems that move materials throughout the body.</i>
2.b	Students know how blood circulates through the heart chambers, lungs, and body and how carbon dioxide (CO <sub>2</sub> ) and oxygen (O <sub>2</sub> ) are exchanged in the lungs and tissues.	<i>I know how blood circulates through the heart chambers, lungs, and body and how carbon dioxide and oxygen are exchanged in the lungs and tissues.</i>
2.c	Students know the sequential steps of digestion and the roles of teeth and the mouth, esophagus, stomach, small intestine, large intestine, and colon in the function of the digestive system.	<i>I know that digestion is the process of breaking down food into smaller pieces that your body can use and that it begins with the mouth and includes the esophagus, stomach, small intestine, large intestine and colon.</i>
2.d	Students know the role of the kidney in removing cellular waste from blood and converting it into urine, which is stored in the bladder.	<i>I know the role of the kidney; how it removes cellular waste from the blood changing it into urine which is stored in the bladder.</i>
2.e	Students know how sugar, water, and minerals are transported in a vascular plant.	<i>I know vascular plants have special structures for the transport of materials such as sugar, water, and minerals.</i>
2.f	Students know plants use carbon dioxide (CO <sub>2</sub> ) and energy from sunlight to build molecules of sugar and release oxygen.	<i>I know plants use carbon dioxide and light from the sun to build sugar and release oxygen.</i>

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2.g	Students know plant and animal cells break down sugar to obtain energy, a process resulting in carbon dioxide (CO <sub>2</sub> ) and water (respiration).	<i>I know that plants and animals break sugar down to release energy, carbon dioxide, and water.</i>
<b>Earth Sciences</b>		
3.0	Water on Earth moves between the oceans and land through the processes of evaporation and condensation.	<i>I know about and can describe the process of evaporation and condensation.</i>
3.a	Students know most of Earth's water is present as salt water in the oceans, which cover most of Earth's surface.	<i>I know that salt water oceans cover most of the Earth's surface.</i>
3.b	Students know when liquid water evaporates; it turns into water vapor in the air and can reappear as a liquid when cooled or as a solid if cooled below the freezing point of water.	<i>I know that liquid water evaporates and can either reappear as a liquid or a solid depending on the temperature.</i>
3.c	Students know water vapor in the air moves from one place to another and can form fog or clouds, which are tiny droplets of water or ice, and can fall to Earth as rain, hail, sleet, or snow.	<i>I know that water vapor in the air can move from one place to another and that these tiny droplets of water or ice can fall to Earth as rain, hail, sleet, or snow.</i>
3.d	Students know that the amount of fresh water located in rivers, lakes, under-ground sources, and glaciers is limited and that its availability can be extended by recycling and decreasing the use of water.	<i>I know there are many limited sources for fresh water here on Earth and that the availability of these water sources can be extended by recycling and decreasing the use of water.</i>
3.e	Students know the origin of the water used by their local communities.	<i>I know the source of water my community uses.</i>
4.0	Energy from the Sun heats Earth unevenly, causing air movements that result in changing weather patterns.	<i>I know the uneven heating of the Earth from the Sun can result in changing weather.</i>
4.a	Students know uneven heating of Earth causes air movements (convection currents).	<i>I know about how the uneven heating of Earth causes air movements.</i>
4.b	Students know the influence that the ocean has on the weather and the role that the water cycle plays in weather patterns.	<i>I know the influence the ocean has on weather and the role the water cycle plays in weather patterns.</i>

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4.c	Students know the causes and effects of different types of severe weather.	<i>I know the causes and effects of different types of severe weather.</i>
4.d	Students know how to use weather maps and data to predict local weather and know that weather forecasts depend on many variables.	<i>I know how to use weather maps and data to predict weather.</i>
4.e	Students know that the Earth's atmosphere exerts a pressure that decreases with distance above Earth's surface and that at any point it exerts this pressure equally in all directions.	<i>I know that the Earth's atmosphere exerts a pressure equally in all directions and that this pressure decreases with distance above the Earth.</i>
5.0	The solar system consists of planets and other bodies that orbit the Sun in predictable paths.	<i>I know the solar system consists of planets and other bodies that travel around the Sun in predictable paths.</i>
5.a	Students know the Sun, an average star, is the central and largest body in the solar system and is composed primarily of hydrogen and helium.	<i>I know that the Sun is a star made up of hydrogen and helium and that it is the center of our solar system.</i>
5.b	Students know the solar system includes the planet Earth, the Moon, the Sun, eight other planets and their satellites, and smaller objects, such as asteroids and comets.	<i>I know our solar system includes the planet Earth, the Moon, the Sun and other planets along with smaller objects.</i>
5.c	Students know the path of a planet around the Sun is due to the gravitational attraction between the Sun and the planet.	<i>I know the path of a planet around the Sun is because of the gravitational attraction between the Sun and the planet.</i>
<b>Investigation and Experimentation</b>		
6.0	Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept and addressing the content in the other three strands, students should develop their own questions and perform investigations.	<i>I know that progress in science happens when questions are asked and the careful investigations are conducted. I can observe, predict, communicate, measure, put things in order, compare, classify and record data to find out more about a topic.</i>
6.a	Students will classify objects (e.g., rocks, plants, leaves) in accordance with appropriate criteria.	<i>I can use specific criteria to classify objects.</i>

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6.b	Students will develop a testable question.	<i>I can develop a testable question.</i>
6.c	Students will plan and conduct a simple investigation based on a student-developed question and write instructions others can follow to carry out the procedure.	<i>I can plan and carry out a simple investigation based on my own developed question and I can write instructions others can understand.</i>
6.d	Students will identify the dependent and controlled variables in an investigation.	<i>I can identify dependent and controlled variables in an investigation.</i>
6.e	Students will identify a single independent variable in a scientific investigation and explain how this variable can be used to collect information to answer a question about the results of the experiment.	<i>I can identify a single independent variable in an investigation and explain how this variable is used to collect information to answer a question about the results of the experiment.</i>
6.f	Students will select appropriate tools (e.g., thermometers, meter sticks, balances, and graduated cylinders) and make quantitative observations.	<i>I can make quantitative observations using tools like thermometers, meter sticks, balances, and graduated cylinders.</i>
6.g	Students will record data by using appropriate graphic representations (including charts, graphs, and labeled diagrams) and make inferences based on those data.	<i>I can record data using charts, labeled diagrams, and graphs and make inferences based on the data.</i>
6.h	Students will draw conclusions from scientific evidence and indicate whether further information is needed to support a specific conclusion.	<i>I can draw conclusions from scientific evidence and determine whether more information is needed in order to support a specific conclusion.</i>
6.i	Students will write a report of an investigation that includes conducting tests, collecting data or examining evidence, and drawing conclusions.	<i>I can write a report after an investigation where I conduct tests, collect data, examine evidence and draw conclusions.</i>