

# Indian Diggings School District Science Units

## K-3 Year A

|              |          | Trimester 1  | Trimester 2  | Trimester 3                  |
|--------------|----------|--|--|------------------------------|
| <b>K-3 A</b> | Topic    | Plant and Animal Structures  | Ecosystems   | Biomes and Ecology           |
|              | Text     | 5 <sup>th</sup> Unit A All   | 4 <sup>th</sup> Unit A Ch3   | 4 <sup>th</sup> Unit A Ch4-5 |
|              | Standard | <p>5LS2.a.<br/>Students know many multicellular organisms have specialized structures to support the transport of materials.</p> <p>5LS2.b.<br/>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.</p> <p>5LS2.c.<br/>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.</p> <p>5LS2.d.<br/>Students know the role of the kidney in removing cellular waste from blood and converting it into urine, which is stored in the bladder.</p> <p>5LS2.e.<br/>Students know how sugar, water, and minerals are transported in a vascular plant.</p> <p>5LS2.f.<br/>Students know plants use carbon dioxide (CO<sub>2</sub>) and energy from sunlight to build molecules of sugar and release oxygen.</p> <p>5LS2.g.<br/>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).</p> | <p>4LS2.a. Students know plants are the primary source of matter and energy entering most food chains.</p> <p>4LS2.b.<br/>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.</p> <p>4LS2.c.<br/>Students know decomposers, including many fungi, insects, and microorganisms, recycle matter from dead plants and animals.</p> <p>4LS3.a.<br/>Students know ecosystems can be characterized by their living and nonliving components.</p> <p>4LS3.b.<br/>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.</p> <p>4LS3.c.<br/>Students know many plants depend on animals for pollination and seed dispersal, and animals depend on plants for food and shelter.</p> <p>4LS3.d.<br/>Students know that most microorganisms do not cause disease and that many are beneficial.</p> |                              |
|              | Lab      |  |  |                              |

# Indian Diggings School District Science Units

## K-3 Year B

| Grade |          | Trimester 1  | Trimester 2   | Trimester 3   |
|-------|----------|--|---|---|
| K-3 B | Topic    | Water Cycle  | Rocks and Minerals  | The Solar System  |
|       | Text     | 5 <sup>th</sup> Unit B Ch1 Les 2&4   | 4 <sup>th</sup> Unit B Ch2  | 5 <sup>th</sup> Unit B Ch4-5  |
|       | Standard | <p>5ES3.a.<br/>Students know most of Earth's water is present as salt water in the oceans, which cover most of Earth's surface.</p> <p>5ES3.b.<br/>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.</p> <p>5ES3.c.<br/>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.</p> <p>5ES3.d.<br/>Students know that the amount of fresh water located in rivers, lakes, underground sources, and glaciers is limited and that its availability can be extended by recycling and decreasing the use of water.</p> <p>5ES3.e.<br/>Students know the origin of the water used by their local communities.</p> | <p>4ES4.a.<br/>Students know how to differentiate among igneous, sedimentary, and metamorphic rocks by referring to their properties and methods of formation (the rock cycle).</p> <p>4ES4.b.<br/>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.</p> | <p>5ES5.a.<br/>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.</p> <p>5ES5.b.<br/>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.</p> <p>5ES5.c.<br/>Students know the path of a planet around the Sun is due to the gravitational attraction between the Sun and the planet.</p> |
|       | Lab      |  |   |   |

# Indian Diggings School District Science Units

## 4<sup>th</sup> Grade

| Grade |          | Trimester 1   | Trimester 2  | Trimester 3   |
|-------|----------|---|--|---|
| 4     | Topic    | <b>Erosion</b>  | <b>Electricity</b>   | <b>Magnetism</b>  |
|       | Text     | <b>4<sup>th</sup> Unit B – Ch1</b>  | <b>4<sup>th</sup> Unit C – Ch2 – Les 1&amp;2</b>   | <b>4<sup>th</sup> Unit C – Ch2 – Les 3&amp;4</b>  |
|       | Standard | <p>4ES5.a.<br/>Students know some changes in the earth are due to slow processes, such as erosion, and some changes are due to rapid processes, such as landslides, volcanic eruptions, and earthquakes.</p> <p>4ES5.b.<br/>Students know natural processes, including freezing and thawing and the growth of roots, cause rocks to break down into smaller pieces.</p> <p>4ES5.c.<br/>Students know moving water erodes land forms, 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).</p> | <p>4PS1.a.<br/>Students know how to design and build simple series and parallel circuits by using components such as wires, batteries, and bulbs.</p> <p>4PS1.e.<br/>Students know electrically charged objects attract or repel each other.</p> <p>4PS1.g.<br/>Students know electrical energy can be converted to heat, light, and motion.</p> | <p>4PS1.b.<br/>Students know how to build a simple compass and use it to detect magnetic effects, including Earth's magnetic field.</p> <p>4PS1.c.<br/>Students know electric currents produce magnetic fields and know how to build a simple electromagnet.</p> <p>4PS1.d.<br/>Students know the role of electromagnets in the construction of electric motors, electric generators, and simple devices, such as doorbells and earphones.</p> <p>4PS1.f.<br/>Students know that magnets have two poles (north and south) and that like poles repel each other while unlike poles attract each other.</p> |
|       | Lab      | <b>Water Sheds (Not in book)</b>  | <b>Circuits (Not in book)</b>  | <b>Electromagnetic Induction (Not in book)</b>  |

# Indian Diggings School District Science Units

## 5<sup>th</sup> Grade

| Grade |          | Trimester 1  | Trimester 2  | Trimester 3           |
|-------|----------|--|--|-----------------------|
| 5     | Topic    | <b>Weather</b>   | <b>Elements of Matter</b>  | <b>Concept Review</b> |
|       | Text     | <b>5<sup>th</sup> Unit B – Ch1, 2, &amp; 3</b>   | <b>5<sup>th</sup> Unit C – Ch1&amp;2</b>   | <b>Handouts</b>       |
|       | Standard | <p>5ES4.b.<br/>Students know the influence that the ocean has on the weather and the role that the water cycle plays in weather patterns.</p> <p>5ES4.e.<br/>Students know that 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.</p> <p>5ES4.a.<br/>Students know uneven heating of Earth causes air movements (convection currents).</p> <p>5ES4.c.<br/>Students know the causes and effects of different types of severe weather.</p> <p>5ES4.d.<br/>Students know how to use weather maps and data to predict local weather and know that weather forecasts depend on many variables.</p> | <p>5PS1.a.<br/>Students know that during chemical reactions the atom in the reactants rearrange to form products with different properties.</p> <p>5PS1.b.<br/>Students know all matter is made of atoms, which may combine to form molecules.</p> <p>5PS1.c.<br/>Students know metals have properties in common, such as high electrical and thermal conductivity.<br/>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.</p> <p>5PS1.d.<br/>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.</p> <p>5PS1.e.<br/>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.</p> <p>5PS1.f.<br/>Students know differences in chemical and physical properties of substances are used to separate mixtures and identify compounds.</p> <p>5PS1.g.<br/>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>), and carbondioxide (CO<sub>2</sub>).</p> <p>5PS1.h.<br/>Students know living organisms and most materials are composed of just a few elements.</p> <p>5PS1.i.<br/>Students know the common properties of salts, such as sodium chloride (NaCl).</p> |                       |
|       | Lab      | <b>Sun's Energy Heats Unevenly p.B38-B39</b>   | <b>Chemical Properties p.C20-C21</b>   |                       |

# Indian Diggings School District Science Units

## 6<sup>th</sup> Grade

| Grade |          | Trimester 1   | Trimester 2   | Trimester 3  |
|-------|----------|---|---|--|
| 6     | Topic    | Earth and Solar System  | Chemical Reactions  | The Chemistry of Living Systems  |
|       | Text     | Physical Ch17-19  | Physical Ch15-Sec1-3  | Life Ch2-Sec3  |
|       | Standard | <p>8PC4.a.<br/>Students know galaxies are clusters of billions of stars and may have different shapes.</p> <p>8PC4.b.<br/>Students know that the Sun is one of many stars in the Milky Way galaxy and that stars may differ in size, temperature, and color.</p> <p>8PC4.c.<br/>Students know how to use astronomical units and light years as measures of distances between the Sun, stars, and Earth.</p> <p>8PC4.d.<br/>Students know that stars are the source of light for all bright objects in outer space and that the Moon and planets shine by reflected sunlight, not by their own light.</p> <p>8PC4.e.<br/>Students know the appearance, general composition, relative position and size, and motion of objects in the solar system, including planets, planetary satellites, comets, and asteroids.</p> | <p>8PC5.a.<br/>Students know reactant atoms and molecules interact to form products with different chemical properties.</p> <p>8PC5.b.<br/>Students know the idea of atoms explains the conservation of matter: In chemical reactions the number of atoms stays the same no matter how they are arranged, so their total mass stays the same.</p> <p>8PC5.c.<br/>Students know chemical reactions usually liberate heat or absorb heat.</p> <p>8PC5.d.<br/>Students know physical processes include freezing and boiling, in which a material changes form with no chemical reaction.</p> | <p>8PC6.a.<br/>Students know that carbon, because of its ability to combine in many ways with itself and other elements, has a central role in the chemistry of living organisms.</p> <p>8PC6.b.<br/>Students know that living organisms are made of molecules consisting largely of carbon, hydrogen, nitrogen, oxygen, phosphorus, and sulfur.</p> <p>8PC6.c.<br/>Students know that living organisms have many different kinds of molecules, including small ones, such as water and salt, and very large ones, such as carbohydrates, fats, proteins, and DNA.</p> |
|       | Lab      | How Far is the Sun? p.586   | Cata-What? Catalyst! P.577  | The Best Bread Bakery Dilemma p.566  |

# Indian Diggings School District Science Units

## 7<sup>th</sup> Grade

| Grade |          | Trimester 1  | Trimester 2  | Trimester 3   |
|-------|----------|--|--|---|
| 7     | Topic    | <b>Motion</b>  | <b>Forces</b>  | <b>Density and Buoyancy</b>   |
|       | Text     | Physical Ch5 Sec1  | Physical Ch5 Sec2-4<br>Ch6 Sec1  | Physical Ch7<br>Density p.45  |
|       | Standard | <p>8PC1.a.<br/>Students know position is defined in relation to some choice of a standard reference point and a set of reference directions.</p> <p>8PC1.b.<br/>Students know that average speed is the total distance traveled divided by the total time elapsed and that the speed of an object along the path traveled can vary.</p> <p>8PC1.c.<br/>Students know how to solve problems involving distance, time, and average speed.</p> <p>8PC1.d.<br/>Students know the velocity of an object must be described by specifying both the direction and the speed of the object.</p> <p>8PC1.e.<br/>Students know changes in velocity may be due to changes in speed, direction, or both.</p> <p>8PC1.f.<br/>Students know how to interpret graphs of position versus time and graphs of speed versus time for motion in a single direction.</p> | <p>8PC2.a.<br/>Students know a force has both direction and magnitude.</p> <p>8PC2.b.<br/>Students know when an object is subject to two or more forces at once the result is the cumulative effect of all the forces.</p> <p>8PC2.c.<br/>Students know when the forces on an object are balanced the motion of the object does not change.</p> <p>8PC2.d.<br/>Students know how to identify separately the two or more forces that are acting on a single static object, including gravity, elastic forces due to tension or compression in matter, and friction.</p> <p>8PC2.e.<br/>Students know that when the forces on an object are unbalanced, the object will change its velocity (that is, it will speed up, slow down, or change direction).</p> <p>8PC2.f.<br/>Students know the greater the mass of an object the more force is needed to achieve the same rate of change in motion.</p> <p>8PC2.g.<br/>Students know the role of gravity in forming and maintaining the shapes of planets, stars, and the solar system.</p> | <p>8PC8.a.<br/>Students know density is mass per unit volume.</p> <p>8PC8.b.<br/>Students know how to calculate the density of substances (regular and irregular solids and liquids) from measurements of mass and volume.</p> <p>8PC8.c.<br/>Students know the buoyant force on an object in a fluid is an upward force equal to the weight of the fluid the object has displaced.</p> <p>8PC8.d.<br/>Students know how to predict whether an object will float or sink.</p> |
|       | Lab      | Built for Speed p.536  | Science Friction p.540<br>Relating Mass and Weight p.541   | Fluids, Force, and Floating p.548   |

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Science Units

**8<sup>th</sup> Grade**

| Grade |          | Trimester 1   | Trimester 2   | Trimester 3    |
|-------|----------|---|---|----------------|
| 8     | Topic    | Periodic Table  | Structure of Matter   | Concept Review |
|       | Text     | Physical Ch13   | Physical Ch3-Sec1-2<br>Ch12-Sec1-2<br>Ch14-Sec1-2<br>Ch16-Sec1-3  | Handouts       |
|       | Standard | <p>8PC7.a.<br/>Students know how to identify regions corresponding to metals, nonmetals, and inert gases.</p> <p>8PC7.b.<br/>Students know each element has a specific number of protons in the nucleus (the atomic number) and each isotope of the element has a different but specific number of neutrons in the nucleus.</p> <p>8PC7.c.<br/>Students know substances can be classified by their properties, including their melting temperature, density, hardness, and thermal and electrical conductivity.</p> | <p>8PC3.a.<br/>Students know the structure of the atom and know it is composed of protons, neutrons, and electrons.</p> <p>8PC3.b.<br/>Students know that compounds are formed by combining two or more different elements and that compounds have properties that are different from their constituent elements.</p> <p>8PC3.c.<br/>Students know atoms and molecules form solids by building up repeating patterns, such as the crystal structure of NaCl or long-chain polymers.</p> <p>8PC3.d.<br/>Students know the states of matter (solid, liquid, gas) depend on molecular motion.</p> <p>8PC3.e.<br/>Students know that in solids the atoms are closely locked in position and can only vibrate; in liquids the atoms and molecules are more loosely connected and can collide with and move past one another; and in gases the atoms and molecules are free to move independently, colliding frequently.</p> <p>8PC3.f.<br/>Students know how to use the periodic table to identify elements in simple compounds</p> <p>8PC5.e.<br/>Students know how to determine whether a solution is acidic, basic, or neutral.</p> |                |
|       | Lab      | Create a Periodic Table<br>p.572  | Made to Order p.570   | None           |