

Functional Performance Indicators

CAPA Level I: Grades 2–11

(Based on the CAPA Science Blueprint adopted by the State Board of Education 7/06)

CALIFORNIA CONTENT STANDARDS

Physical Science:	Number of Tasks: 3	Percentage of Test: 37.5%
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Kindergarten

1	Properties of materials can be observed, measured and predicted. As a basis for understanding this concept:
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).
✓A	Identify color of object. <ol style="list-style-type: none"> 1. Look at/orient as requested by teacher. 2. Pick out color as requested by teacher. 3. Find color requested by teacher. 4. Name color requested.
✓B	Identify size of object. <ol style="list-style-type: none"> 1. Will look at/orient to name size (big/little). 2. Will pick up named size (smallest/largest). 3. Will find named size object (small/medium/large). 4. Will name size upon request (any of the size names listed above).
✓C	Identify texture of object. <ol style="list-style-type: none"> 1. Will match like textures. 2. Will sort objects by texture. 3. Will feel/manipulate object to identify texture.
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.
✓A	Identify ice. <ol style="list-style-type: none"> 1. Will identify ice when given the choice between some ice and another object.
✓B	Identify water. <ol style="list-style-type: none"> 1. Will identify water when given the choice between water and another object.

Grade 2

1	The motion of objects can be observed and measured. As a basis for understanding this concept:
1.c	Students know the way to change how something is moving 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.
✓A	Pull an object/switch. <ol style="list-style-type: none"> 1. Will use a pull toy appropriately. 2. Will push in/pull out a chair. 3. Will pull open/pull shut a door. 4. Will activate a switch toy/item by pushing or pulling.
✓B	Push an object/switch. <ol style="list-style-type: none"> 1. Will flush a toilet by pushing the handle down. 2. Will push button to turn on music, TV, remote control. 3. Will push button on microwave. 4. Will push button on a communication device to activate it.
1.e	Students know objects fall to the ground unless something holds them up.
✓A	Explore gravity by causing different objects to fall (e.g., feather, balloon, ball, etc.). <ol style="list-style-type: none"> 1. Will drop a variety of objects after verbal command to do so. 2. Will push a variety of objects off table after verbal command to do so. 3. Will roll object off table after verbal command to do so. 4. Will visually follow a falling object.
✓B	Hold object, then release object when verbally directed. <ol style="list-style-type: none"> 1. Will hold object, then release object when verbally directed. 2. Will hit switch to release object when verbally directed.

Kindergarten

Life Science:		Number of Tasks: 2	Percentage of Test: 25%
2	Different types of plants and animals inhabit the earth. As a basis for understanding this concept:		
2.c	Students know how to identify major structures of common plants and animals (e.g., stems, leaves, roots, arms, wings, legs).		
✓A	Identify body parts on self.		
	<ol style="list-style-type: none"> 1. Will identify body parts on self by touching, pointing, making an identifiable sound, etc. 2. Will indicate _ (number) of body parts when given the body part name. 3. Will imitate by touching the body part on self when the teacher points to body part. 4. Will identify head, torso, limbs, hands and feet (by pointing, gesturing, communication device, using eye gaze, etc.). 		
✓B	Identify animal body parts.		
	<ol style="list-style-type: none"> 1. Will identify body parts on an animal presented in stuffed or pictured form. 		

Grade 1

2	Plants and animals meet their needs in different ways. As a basis for understanding this concept:		
2.b	Students know both plants and animals need water; animals need food and plants need light.		
✓A	Identify Animals.		
	<ol style="list-style-type: none"> 1. Will identify animals shown in pictures by touching, pointing, making identifiable sound, eye gaze, etc. 		
✓B	Identify Plants.		
	<ol style="list-style-type: none"> 1. Will identify plants shown in pictures by touching, pointing, making identifiable sound, eye gaze, etc. 		
✓C	Sort animals from plants.		
	<ol style="list-style-type: none"> 1. Will sort animals from plants using animal and plant manipulatives. 2. Will sort animals from plants shown in pictures. 		

Kindergarten

Earth Science:		Number of Tasks: 2	Percentage of Test: 25%
3	Earth is composed of land, air, and water. As a basis for understanding this concept:		
3.b	Students know changes in weather occur from day to day and across seasons, affecting earth and its inhabitants.		
✓A	Match pictures of weather to same.		
	<ol style="list-style-type: none"> 1. Will match pictures of weather to same using eye gaze, selecting a matching weather picture, gesturing, or in preferred mode of communication. 2. Will identify the weather type when question is asked (e.g., "What is the weather today?") using eye gaze on a chart, selecting a weather card, or in preferred mode of communication. 		
✓B	Identify various kinds of weather.		
	<ol style="list-style-type: none"> 1. Will identify various kinds of weather using preferred mode of communication. 2. Will identify different types of weather by stating the weather when shown pictures/icons, or weather in media. 3. Will identify various kinds of weather by picture representation or icon, using preferred mode of communication. 		

Kindergarten

Investigation and Experimentation:		Number of Tasks: 1	Percentage of Test: 12.5%
4	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:		
4.a	Observe common objects by using the five senses.		
✓A	Attend to scents.		
	<ol style="list-style-type: none"> 1. Will smell a variety of scents. 2. Will turn head in response to a presented scent (may turn to the scent, or show aversion). 		
✓B	Attend to sound.		
	<ol style="list-style-type: none"> 1. Will startle when hearing a loud sound. 2. Will attend to sound. 3. Will turn to sound. 4. Will show more physical activity when hearing a sound. 		
✓C	Attend to visual material.		
	<ol style="list-style-type: none"> 1. Will attend to visual material. 2. Will demonstrate more physical activity when presented with familiar visual material (e.g., a photo of mother). 		
4.c	Describe the relative position of objects by using one reference (e.g., above or below).		

✓A	Follow simple positional receptive instruction (e.g., put water in bowl). <ol style="list-style-type: none"> Will follow single directional teacher prompt (e.g., “Put fork in tray.”). Will follow one-step directions involving positions (e.g., “Put paper in trash can.”).
✓B	Position objects by using one reference (e.g., in, on, above, etc.). <ol style="list-style-type: none"> Will indicate positions of objects relative to other objects (e.g., Which one is IN the box?).
Total Number of Tasks: 8 Percentage of Test: 100%	

Functional Performance Indicators

CAPA Level III: Grades 4–5

(Based on the CAPA Science Blueprint adopted by the State Board of Education 7/06)

CALIFORNIA CONTENT STANDARDS

Physical Science:	Number of Tasks: 2	Percentage of Test: 25%
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Grade 4

1	Electricity and magnetism are related effects that have many useful applications in everyday life. As a basis for understanding this concept:
1.f	Students know that magnets have two poles and that like poles repel each other while unlike poles attract each other.
✓A	Know that some objects are attracted to magnets. <ol style="list-style-type: none"> Will use a magnet to attract objects. Will sort objects as to whether or not they are magnetic. Will demonstrate that some objects can be moved by magnets without being touched. Will identify use of magnetic attraction in their environment.

Grade 5

1	Elements and their combinations account for all the varied types of matter in the world. As a basis for understanding this concept:
1.a	Students know that during chemical reactions the atoms in the reactant rearrange to form products with different properties.
✓A	Know that two substances may combine to form a new substance. <ol style="list-style-type: none"> Will combine two substances to make a new substance (e.g., drink mix, milk and instant pudding, corn starch/water).
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.
✓A	Know that metals conduct heat. <ol style="list-style-type: none"> Will select metal cookware for use on stovetop. Will identify items that become hot in the sun (e.g., metal vs. plastic). Will protect self from metals that conduct heat (e.g., pot holder, seat belt).
1.g	Students know properties of solid, liquid, and gaseous substances, such as sugar (C ₆ H ₁₂ O ₆), water (H ₂ O), helium (He), oxygen (O ₂), nitrogen (N ₂), and carbon dioxide (CO ₂).
✓A	Know properties of matter: solid, liquid, gas. <ol style="list-style-type: none"> Will sort items into solids and liquids. Will identify items as solids and liquids. Will identify substances that change forms (e.g., powders to liquids, liquids to solids, solids to liquids, liquids to gas). Will demonstrate that water can change state (liquid to solid) and then can revert back (solid to liquid). Will demonstrate that water left in an open container evaporates, but water in a closed container does not. Will demonstrate that the properties of substances can change when the substances are mixed, cooled, or heated (e.g., water creates steam when boiled, converts to a solid when frozen).

Grade 4

2	All organisms need energy and matter to live and grow. As a basis for understanding this concept:
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.
✓A	Know that plants (producers) are a source of food. <ol style="list-style-type: none"> 1. Will identify plants we eat. 2. Will identify food items derived from plants.
✓B	Know that animals (consumers) eat plants and other animals for food. <ol style="list-style-type: none"> 1. Will match animals to what they eat (bird to worm, cow to grass, cat to mouse). 2. Will identify food items derived from animals.
3	Living organisms depend on one another and on their environment for survival. As a basis for understanding this concept:
3.b	Students know that in any one particular environment, some kinds of plants and animals survive well, some survive less well and some cannot survive at all.
✓A	Know that animals inhabit and can survive in different kinds of environments. <ol style="list-style-type: none"> 1. Will match animal to a picture of its home. 2. Will match animal to the habitat in which it lives. 3. Will differentiate between domesticated and wild animals. 4. Will identify animals that swim, walk, or fly in the environment. 5. Will indicate the habitat in which an animal could survive. 6. Will indicate the habitat in which an animal could not survive.
3.c	Students know many plants depend on animals for pollination and seed dispersal, and animals depend on plants for food and shelter.
✓A	Students know that animals use plants for shelter. <ol style="list-style-type: none"> 1. Student will match pictures of animals to picture of appropriate plant shelter. 2. Student will name appropriate shelter for specific animal in preferred mode of communication.

Grade 5

2	Plants and animals have structures for respiration, digestion, waste disposal, and transport of materials. As a basis for understanding this concept:
2.b	Students know how blood circulates through the heart chambers, lungs, and body and how carbon dioxide (CO ₂) and oxygen (O ₂) are exchanged in the lungs and tissues.
✓A	Know that the heart pumps blood through the body. <ol style="list-style-type: none"> 1. Will identify which organ pumps blood. 2. Will demonstrate how the heart pumps blood throughout the body by showing the flow of blood to the extremities given a model (e.g., student may map the path of blood through the heart, describe how the blood moves through the heart).
✓B	Know that oxygen is inhaled and carbon dioxide is exhaled. <ol style="list-style-type: none"> 1. Will demonstrate the breathing process (e.g., student may describe or map air moving from nose/mouth to lungs and out). 2. Will label the air we inhale as oxygen. 3. Will label the air we exhale as carbon dioxide.
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.
✓A	Know that the mouth aids in the digestion of food. <ol style="list-style-type: none"> 1. Will identify functions of mouth (e.g., eating food, chewing food, swallowing food). 2. Will identify the functions of the mouth in eating.
✓B	Know that the stomach aids in the digestion of food. <ol style="list-style-type: none"> 1. Will trace the path of food on their own body or on a model (mouth, stomach, colon).
✓C	Know that the colon releases waste products. <ol style="list-style-type: none"> 1. Will identify that the body eliminates waste.

Grade 4

4	The properties of rocks and minerals reflect the processes that formed them. As a basis for understanding this concept:
4.a	Students know how to differentiate among igneous, sedimentary, and metamorphic rocks by referring to their properties and methods of formation.
✓A	<p>Know properties of various rocks (e.g., color, shine, dull, rough, smooth).</p> <ol style="list-style-type: none"> 1. Will differentiate a rock from a variety of objects. 2. Will sort rocks by properties (e.g., size, color, shape, texture). 3. Will identify one or more properties of rocks using preferred mode of communication.

Grade 5

3	Water on Earth moves between the oceans and land through the processes of evaporation and condensation. As a basis for understanding this concept:
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.
✓A	<p>Know that matter can change from one form to another.</p> <ol style="list-style-type: none"> 1. Will identify forms of water (solid/liquid). 2. Will make liquid into a solid (make ice cubes). 3. Will make ice following a pictured sequence. 4. Will make a solid into a liquid (melt ice cubes).
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.
✓A	<p>Know that water vapor can form fog or clouds.</p> <ol style="list-style-type: none"> 1. Will identify that rain, hail, snow, fog and clouds are all formed from water vapor.
✓B	<p>Know that water can fall to Earth as rain, hail or snow.</p> <ol style="list-style-type: none"> 1. Will identify where rain, hail or snow comes from (water vapor). 2. Will demonstrate water falling on Earth as rain, hail or snow.
3.d	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.
✓A	<p>Know where fresh water is located (e.g., rivers, lakes).</p> <ol style="list-style-type: none"> 1. Will identify sources of fresh water (e.g., lakes, rivers).
✓B	<p>Know that the amount of fresh water is limited.</p> <ol style="list-style-type: none"> 1. Will demonstrate a method of water conservation.
✓C	<p>Know that the availability of fresh water can be extended by decreasing the use of water.</p> <ol style="list-style-type: none"> 1. Will demonstrate 2 ways to conserve water in order to extend use.
5	The solar system consists of planets and other bodies that orbit the Sun in predictable paths. As a basis for understanding this concept:
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.
✓A	<p>Know that the Sun produces heat and light.</p> <ol style="list-style-type: none"> 1. Will identify appropriate clothing for a sunny day. 2. Will select the picture of a sunny day (e.g., depicting elements of heat and light) from a field of two. 3. Will identify the Sun as the source of heat and light during the day by pointing, gesturing, drawing, or using a preferred mode of communication.

Grade 4

6	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:
6.a ✓A	Differentiate observation from inference and know scientists' explanations come partly from what they observe and partly from how they interpret their observations. Make inferences based on observations. <ol style="list-style-type: none"> 1. Will observe environmental conditions (e.g., weather) and choose appropriate clothing. 2. Will observe ice melting and communicate the inference that heat made it melt. 3. Will observe end of day activities and infer that it is time to go home.
6.d ✓A ✓B	Conduct multiple trials to test a prediction and draw conclusions about the relationships between predictions and results. Repeat observations to improve accuracy. <ol style="list-style-type: none"> 1. Will observe environmental conditions (weather) on several occasions and choose appropriate clothing. 2. Will repeat an experiment several times to improve the accuracy of outcome prediction. Predict the outcome of a simple investigation. <ol style="list-style-type: none"> 1. Will predict what will happen next in a simple science experiment (e.g., popcorn will pop when heated; ice will melt on a hot day; seeds will develop into plants growing toward the Sun). 2. Will predict outcome based on observation (e.g., select a pictured outcome). 3. Will predict outcomes based on multiple observations.

Grade 5

6	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:
6.a ✓A	Classify objects (e.g., rocks, plants, and leaves) in accordance with appropriate criteria. Classify objects by appropriate criteria. <ol style="list-style-type: none"> 1. Will classify objects by single attributes. 2. Will classify objects by multiple attributes.
6.f ✓A	Select appropriate tools (e.g., thermometers, meter sticks, balances, and graduated cylinders) and make quantitative observations. Select appropriate tools (e.g., ruler, scale, measuring cup) and make quantitative observations. <ol style="list-style-type: none"> 1. Will identify appropriate tool to measure quantity (ruler, scale, measuring cup, calculator). 2. Will select appropriate tool to measure, count, or weigh items. 3. Will use appropriate tools (given) to weigh and measure items.
6.g ✓A ✓B	Record data by using appropriate graphic representations (including charts, graphs, and labeled diagrams) and make inferences based on those data. Represent data on a graph. <ol style="list-style-type: none"> 1. Will count objects and record on a bar graph. 2. Will record personal data on a bar graph (star chart). Interpret simple bar/pictorial graphs. <ol style="list-style-type: none"> 1. Will identify on a graph which line has more. 2. Will identify more or less on a bar graph.

Functional Performance Indicators

CAPA Level IV: Grade 8

(Based on the CAPA Science Blueprint adopted by the State Board of Education 7/06)

CALIFORNIA CONTENT STANDARDS

Motion:		Number of Tasks: 1	Percentage of Test: 12.5%
1	The velocity of an object is the rate of change of its position. As a basis for understanding this concept:		
1.a	Students know position is defined in relation to some choice of a standard reference point and a set of reference directions.		
✓A	<p>Know that the position of an object can be described by locating it in relation to a reference point (another object).</p> <ol style="list-style-type: none"> Will identify relative positions in preferred mode of communication: over, under, front, back, next to, by, on, off, on top of, bottom, behind and on the side. Will show the position of an object by placing it in position as directed. Will locate object as indicated by prepositional phrase (e.g., over the car, under the desk, in front of the door, in back of the chair). 		
1.b	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.		
✓A	<p>Know that an object's motion can be described by recording the change in position of the object over time.</p> <ol style="list-style-type: none"> Will mark the beginning and ending point of an object pushed or pulled for a specific amount of time. Will move an object from a clear beginning position to a clear ending position (hitting a ball, sliding on a slide, running to a base). Will identify the ending position when given a beginning position of a moving object. (Show a picture of a student on top of a slide and put an X where he will end up.) 		

Forces:		Number of Tasks: 1	Percentage of Test: 12.5%
2	Unbalanced forces cause change in velocity. As a basis for understanding this concept:		
2.a	Students know a force has both direction and magnitude.		
✓A	<p>Know that the way to change how something is moving is by giving it a push or a pull.</p> <ol style="list-style-type: none"> Will change how something is moving by giving it a push. Will change how something is moving by giving it a pull. Will indicate that a toy car rolls faster when it is pushed harder. Will indicate that a toy car rolls slower when it is pushed with less force. 		
✓B	<p>Know that the size of the change is related to the amount of force of the push or pull.</p> <ol style="list-style-type: none"> Student will adjust level of force to match the mass of the object to be moved (e.g., opening a light door versus a heavy door). 		
2.d	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.		
✓A	<p>Know that forces that act on an object include gravity and friction.</p> <ol style="list-style-type: none"> Will demonstrate that objects will fall to the ground when dropped (gravity). Will demonstrate that an object's speed of forward movement is reduced when in contact with other objects or rough surfaces (e.g., bicycle on grass). 		
2.f	Students know the greater the mass of an object, the more force is needed to achieve the same rate of change in motion.		
✓A	<p>Know that the greater mass of an object, the more force is needed to move the object.</p> <ol style="list-style-type: none"> Will demonstrate the amount of force needed to move a heavy object. Will demonstrate the amount of force needed to move a light object. Will demonstrate that the more mass in an object, the more force is needed to move the object (e.g., opening a heavy door versus a light door). 		

Structure of Matter:		Number of Tasks: 21	Percentage of Test: 12.5%
3	Each of more than 100 elements of matter has distinct properties and a distinct atomic structure. All forms of matter are composed of one or more elements. As a basis for understanding this concept:		
3.f ✓A	Students know how to use the periodic table to identify elements in simple compounds. Know that the periodic table is used to identify elements.		
	<ol style="list-style-type: none"> 1. Will identify the periodic table. 2. Will identify one element on periodic table. 3. Will match elements to symbols on periodic table. 		

Earth Science - Earth in the Solar System:		Number of Tasks: 1	Percentage of Test: 12.5%
4	The structure and composition of the universe can be learned from studying the stars and galaxies and their evolution. As a basis for understanding this concept:		
4.b ✓A	Students know that the Sun is one of many stars in the Milky Way galaxy and the stars may differ in size, temperature, and color. Know that the Sun is an average star that provides heat and light to Earth.		
	<ol style="list-style-type: none"> 1. Will communicate one property of the Sun (e.g., light or heat). 2. Will classify the Sun as a star and the Earth as a planet in the solar system (sorting task). 3. Will state two properties (heat and light) of the Sun that affect the Earth. 		
4.e ✓A	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. Know that the Earth is one planet that orbits the Sun.		
	<ol style="list-style-type: none"> 1. Student will demonstrate the Earth's rotation around the Sun. 		
✓B	Know that the Moon orbits the Earth.		
	<ol style="list-style-type: none"> 1. Student will demonstrate the Moon's rotation around the Earth. 		

Reactions:		Number of Tasks: 1	Percentage of Test: 12.5%
5	Chemical reactions are processes in which atoms are rearranged into different combinations of molecules. As a basis for understanding this concept:		
5.d ✓A	Students know physical processes include freezing and boiling, in which a material changes form with no chemical reaction. Know the physical changes for a liquid when it changes from one state to another (freezing, melting, boiling).		
	<ol style="list-style-type: none"> 1. Will identify freezing, melting and boiling as a state of a liquid. 2. Will freeze material and show the change in form. 3. Will melt material and show the change in form. 4. Will boil material and show the change in form. 		

Life Science - Chemistry of Living Systems:		Number of Tasks: 0	Percentage of Test: 0%
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Periodic Table:		Number of Tasks: 1	Percentage of Test: 12.5%
7	The organization of the periodic table is based on the properties of the elements and reflects the structure of atoms. As a basis for understanding this concept:		
7.c ✓A	Students know substances can be classified by their properties, including their melting temperature, density, hardness and thermal and electrical conductivity. Know that substances can be classified by their physical properties (e.g., hardness, flexibility, density and thermal conductivity).		
	<ol style="list-style-type: none"> 1. Will sort objects based on whether they are hard or soft. 2. Will classify objects as flexible or rigid. 		

Density and Buoyancy:		Number of Tasks: 1	Percentage of Test: 12.5%
8	All objects experience a buoyant force when immersed in a fluid. As a basis for understanding this concept:		
8.d ✓A	<p>Students know how to predict whether an object will float or sink.</p> <p>Know that some objects float or sink.</p> <ol style="list-style-type: none"> 1. Will hypothesize which objects will float or sink. 2. Students will experiment to determine whether objects float or sink. 3. Students will sort objects by whether they float or sink. 		

Investigation and Experimentation:		Number of Tasks: 1	Percentage of Test: 12.5%
9	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:		
9.a ✓A	<p>Plan and conduct a scientific investigation to test a hypothesis.</p> <p>Make a hypothesis based on prior knowledge.</p> <ol style="list-style-type: none"> 1. Will state a conclusion about how objects behave based on their experience. 2. Will make simple predictions as to what will follow a movement or action. 3. Will observe what happens after a movement or action is initiated. 4. Will report what happens after a movement or action is initiated. 		
✓B	<p>Conduct a scientific investigation to test a hypothesis.</p> <ol style="list-style-type: none"> 1. Will be able to design a simple experiment that they predict will have the same result. 		
9.b ✓B	<p>Evaluate the accuracy and reproducibility of data.</p> <p>Evaluate the accuracy of data.</p> <ol style="list-style-type: none"> 1. Will check easily verifiable data and separate into correct and incorrect. 2. Will check measurements to see if reported measurements are accurate. 3. Will find another source to confirm listed data. 		
9.e ✓A	<p>Construct appropriate graphs from data and develop quantitative statements about the relationships between variables.</p> <p>Construct appropriate graphs from data (e.g., bar, pictograph, pie graph).</p> <ol style="list-style-type: none"> 1. Will answer factual questions about simple bar graphs. 2. Will answer factual questions about simple pie graphs. 3. Will construct a simple pictograph using appealing icons from simple arithmetic data. 4. Will construct a simple bar graph. 		
✓B	<p>Interpret relationships between variables (e.g., time vs. temperature; time vs. population).</p> <ol style="list-style-type: none"> 1. Will verbally report simple relationships between variables represented on a simple graph (e.g., more of this; less of that). 2. Will plot measurements taken periodically on a graph with two variables (e.g., time of day and temperature). 		
		Total Number of Tasks: 8	Percentage of Test: 100%

Functional Performance Indicators

CAPA Level V: Grades 9–11

(Based on the CAPA Science Blueprint adopted by the State Board of Education 7/06)

CALIFORNIA CONTENT STANDARDS

Biology:	Number of Tasks: 3	Percentage of Test: 37.5%
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Cell Biology

1	The fundamental life processes of plants and animals depend on a variety of chemical reactions that occur in specialized areas of the organism's cells. As a basis for understanding this concept:
1.f	Students know usable energy is captured from sunlight by chloroplasts and is stored through the synthesis of sugar from carbon dioxide.
✓A	Know that plants capture sunlight and convert it to energy.
	<ol style="list-style-type: none"> Will identify that a plant needs sunlight to grow. Will compare the result when a plant is grown in the dark and in sunlight.
✓B	Know that plants use energy to make food.
	<ol style="list-style-type: none"> Will identify (using pictures) that a plant makes its own food through photosynthesis. Will identify the chloroplast in a drawing.

Ecology

6	Stability in an ecosystem is a balance between competing effects. As a basis for understanding this concept:
6.a	Students know how to analyze changes in an ecosystem resulting from changes in climate, human activity, introduction of nonnative species or changes in population size.
✓A	Know that changes in ecosystems may be due to climate changes, impact of human activity and changes in population size.
	<ol style="list-style-type: none"> Will demonstrate two ways to protect the ecosystem (e.g., recycling and water conservation). Will sequence cause and effect pictures of climate change (e.g., flood, erosion, hurricane). Will communicate that wild animals are not found in heavily human populated areas. Will identify aspects of global warming/climate. Will identify one or more results of population growth. Will indicate awareness of pollution and its impact on the ecosystem. Will give one example of how ecosystems are affected by climate, population or human activity.
6.e	Students know a vital part of an ecosystem is the stability of its producers and decomposers.
✓A	Know role of producers and decomposers in an ecosystem.
	<ol style="list-style-type: none"> Will sequence pictures of plant growth from seed to food producer. Will identify plants that produce food for humans or animals. Will describe the functions of producers (e.g., make food for animals and humans). Will describe/identify the functions of decomposers in an ecosystem (e.g., worms change leaves into compost). Will sort the producers and decomposers when given a picture of an ecosystem.
6.f	Students know at each link in a food web some energy is stored in newly made structures, but much energy is dissipated into the environment as heat. This dissipation may be represented in an energy pyramid.
✓A	Know levels of the energy pyramid (e.g., producers, consumers).
	<ol style="list-style-type: none"> Will sequence pictures of food chain. Will match pictures of animals and the food they produce (milk, meat). Will match pictures of plants and the food they produce (fruit, grains, etc.). Will complete the missing link in a pictured food chain. Will communicate how the animals at the top of the food chain are dependent upon the plants and organisms below.
✓B	Know the role of an organism in a simple food web.
	<ol style="list-style-type: none"> Will produce one or more simple food webs. Will identify what a specific organism consumes in a food web.

8	Evolution is the result of genetic changes that occur in constantly changing environments. As a basis for understanding this concept:
8.e	Students know how to analyze fossil evidence with regard to biological diversity, episodic speciation and mass extinction.
✓A	Know that fossils' evidence can be analyzed with regard to species change over time and mass extinction. <ol style="list-style-type: none"> 1. Will sort pictures into which species are living and which are extinct. 2. Will communicate the change in species characteristics when looking at a pictured fossil or representation and a current photograph of the species (e.g., fossils and photo of insects).

Physiology (Homeostasis)

9	As a result of the coordinated structures and functions of organ systems, the internal environment of the human body remains relatively stable (homeostatic) despite changes in the outside environment. As a basis for understanding this concept:
9.a	Students know how the complementary activity of major body systems provide cells with oxygen and nutrients and removes toxic waste products such as carbon dioxide.
✓A	Know that the circulatory system moves nutrients and oxygen in blood through the body. <ol style="list-style-type: none"> 1. Will demonstrate that the heart pumps blood through the body. 2. Will trace the flow of nutrients through the circulatory system. 3. Will trace the flow of oxygen from the lungs to the rest of the body. 4. Will trace the movement of oxygen in their own body. 5. Will use human model to trace flow of blood delivering nutrients or oxygen.
✓B	Know that the excretory system removes waste from the body. <ol style="list-style-type: none"> 1. Will communicate that the excretory system disposes of unused/unnecessary waste material. 2. Will identify on a human model where waste is removed from the human body.
9.b	Students know how the nervous system mediates communication between different parts of the body and the body's interactions with the environment.
✓A	Know that the sensory organs (e.g., by allowing for touch, taste, smell, hearing) provide information about the environment (e.g., temperature, light and sound). <ol style="list-style-type: none"> 1. Will identify sensory organs (e.g., eyes, ears, nose, mouth, hands, skin). 2. Will match sensory organs to the sensory information they provide (e.g., eyes are for seeing, ears are for hearing, etc.).

Physiology (Infection and Immunity)

10	Organisms have a variety of mechanisms to combat disease. As a basis for understanding this concept:
10.a	Students know the role of the skin in providing nonspecific defenses against infection.
✓A	Know that the skin protects the body from infections. <ol style="list-style-type: none"> 1. Will identify skin as a covering/protection for the body. 2. Will describe how skin protects the body from infections (e.g., by demonstration, selecting pictures). 3. Will demonstrate what to do for an open cut to prevent infection (e.g., wash and bandage).
10.c	Students know how vaccination protects an individual from infectious disease.
✓A	Know that vaccination protects an individual from infectious disease. <ol style="list-style-type: none"> 1. Will show or communicate how a person is vaccinated. 2. Will communicate one or more reasons why people are vaccinated. 3. Will communicate the possible consequence of not being vaccinated.

Physics:	Number of Tasks: 1	Percentage of Test: 12.5%
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Motion and Forces

1	Newton's laws predict the motion of most objects. As a basis for understanding this concept:
1.c	Students know how to apply the law $F=MA$ to solve one-dimensional motion problems that involve constant forces (Newton's second law).
✓A	Know that the greater the mass of an object, the more force is needed to achieve the same rate of change in motion. <ol style="list-style-type: none"> 1. Will demonstrate that mass relates to the force needed to move it. 2. Will show (demonstrate or communicate) more mass needs more force to move. 3. Will show two amounts of force needed to move an object by moving his/her wheelchair with appropriate force on both a flat walkway and on a ramp.

1.e	Students know the relationship between the universal law of gravitation and the effect of gravity on an object at the surface of Earth.
✓A	Know that gravity is a force that acts on an object on Earth. <ol style="list-style-type: none"> Will predict what will happen when an item is released. Will demonstrate how gravity works (e.g., photo of cutting down a tree, dropping objects to the floor). Will differentiate between pictured examples of gravity on Earth vs. zero gravity in space.

Chemistry:	Number of Tasks: 1	Percentage of Test: 12.5%
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Atomic and Molecular Structure

1	The periodic table displays the elements in increasing atomic number and shows how periodicity and chemical properties of the elements relates to atomic structure. As a basis for understanding this concept:
1.b	Students know how to use the periodic table to identify metals, semimetals, non-metals and halogens.
✓A	Know that elements on the periodic table are classified as metals, non-metals and inert gases. <ol style="list-style-type: none"> Will sort objects made of metal and non-metal. Will differentiate gases and metals. Will name/identify the three categories of elements on a periodic table (metals, non-metals and inert gases).

Acids and Bases

5	Acids, bases and salts are three classes of compounds that form ions in water solution. As a basis for understanding this concept:
5.d	Students know how to use the pH scale and to characterize acid and base solutions.
✓A	Know that the pH scale is used to identify acid and base solutions. <ol style="list-style-type: none"> Will identify acid and base on a pH scale. Will use pH strips to test acid/base solutions. Will use pH strip results to sort solutions into acids and bases.
6	Solutions are homogeneous mixtures of two or more substances. As a basis for understanding this concept:
6.c	Students know temperature, pressure and surface area affect the dissolving process.
✓A	Know how stirring, temperature and surface area of a substance can affect the dissolving process. <ol style="list-style-type: none"> Will use water as a solvent for dissolving a substance. Will dissolve a variety of substances in water. Will compare results of dissolving solutions, which were stirred and not stirred. Will compare results of dissolving in hot and cold water. Will compare results of dissolving a substance in a variety of container shapes/sizes.

Earth and Science:	Number of Tasks: 2	Percentage of Test: 25%
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Dynamic Earth Processes

3	Plate tectonics operating over geologic time have changed the patterns of land, sea and mountains on Earth's surface. As the basis for understanding this concept:
3.d	Students know why and how earthquakes occur and the scales used to measure their intensity and magnitude.
✓A	Know the general characteristics of an earthquake. <ol style="list-style-type: none"> Will demonstrate the motion of an earthquake. Will describe or demonstrate the characteristics of an earthquake. Will practice safety procedures for duck and cover. Will follow safety procedures during a safety drill and/or evacuation procedure.
✓B	Know that earthquakes can be the result of sudden motions along breaks in the crust called faults. <ol style="list-style-type: none"> Will show that earthquakes occur as a result of movement on a fault line (using a model).
3.e	Students know there are two kinds of volcanoes: one kind with violent eruptions producing steep slopes and the other kind with voluminous lava flows producing gentle slopes.
✓A	Know the general characteristics of a volcano. <ol style="list-style-type: none"> Will identify the characteristics of a volcano. Will differentiate between a volcano and a hill. Will differentiate between an active and a dormant volcano. Will point out the part of the volcano where lava pours out. Will sequence pictures of a volcanic eruption.

Energy in the Earth System

6	Climate is the long-term average of a region's weather and depends on many factors. As a basis for understanding this concept:
6.a	Students know weather (in the short run) and climate (in the long run) involve the transfer of energy into and out of the atmosphere.
✓A	Know the general characteristics of weather. <ol style="list-style-type: none"> 1. Will point to the picture of a named weather condition (e.g., rain, snow, hurricane, tornado). 2. Will match weather with the seasons. 3. Will label general characteristics of a variety of pictured weather conditions (e.g., rainy day, windy day, hot day).
✓B	Know the general characteristics of climate. <ol style="list-style-type: none"> 1. Will point to the picture of a named weather condition. 2. Will match climate with geographical regions (e.g., tropical, polar, desert). 3. Will label the general characteristics of a variety of pictured climate conditions (e.g., desert, polar, tropical).
6.b	Students know the effects on climate of latitude, elevation, topography and proximity of large bodies of water and cold or warm ocean currents.
✓A	Know the climate of specific biomes. <ol style="list-style-type: none"> 1. Will state climate of a variety of biomes (e.g., desert, mountains, beach, valley, etc.).

California Geology

9	The geology of California underlies the state's wealth of natural resources as well as its natural hazards. As a basis for understanding this concept:
9.b	Students know the principal natural hazards in different California regions and the geologic basis of those hazards.
✓A	Know different kinds of natural hazards (e.g., earthquakes, volcanoes, landslides). <ol style="list-style-type: none"> 1. Will identify by picture or description of scenario the major natural disasters.

Investigation and Experimentation:	Number of Tasks: 1	Percentage of Test: 12.5%
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1	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 four strands, students should develop their own questions and perform investigations.
1.a	Select and use appropriate tools and technology (such as computer-linked probes, spreadsheets and graphing calculators) to perform tests, collect data, analyze relationships and display data.
✓A	Select and use appropriate tools and technology (e.g., calculators, balances, magnifying lens, binoculars) to perform tests. <ol style="list-style-type: none"> 1. Will choose appropriate tools for calculations, comparing weights, examining cell structure and distance viewing.
✓B	Collect, display and analyze data. <ol style="list-style-type: none"> 1. Will collect, display and analyze data gathered (e.g., males/females, temperature variation, school attendance, rewards charts).
1.c	Identify possible reasons for inconsistent results, such as sources of error or uncontrolled conditions.
✓A	Identify possible source of error in an experiment. <ol style="list-style-type: none"> 1. Will identify one or more possible errors in an experiment.
1.f	Distinguish between hypothesis and theory as scientific terms.
✓A	Form a simple hypothesis based on observations. <ol style="list-style-type: none"> 1. Will make simple prediction based on an observation (e.g., predicting bad weather from darkening sky).
1.h	Read and interpret topographic and geologic maps.
✓A	Interpret scale models, maps and diagrams. <ol style="list-style-type: none"> 1. Will interpret information using a model, a map and a diagram.

Total Number of Tasks: 8	Percentage of Test: 100%
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