

**California State**  
**AIMS activities supporting Kindergarten Science Standards of Learning**

**PHYSICAL SCIENCE**

**1. Properties of materials can be observed, measured and predicted. As a basis for understanding this concept, students know:**

- a. objects can be described in terms of the materials they are made of (clay, cloth, paper, etc.) and their physical properties (color, size, shape, weight, texture, flexibility, attraction to magnets, floating and sinking, etc.).**

“All Sorts of Stuff,” Under Construction

*Students will sort and classify a variety of materials.*

“Bag it,” Under Construction

*Students will design a bag with a variety of materials made from cloth, paper, and plastic.*

“Texture Rough, Texture Smooth,” Sense-able Science

*Students will sort and classify objects by texture.*

“Touch and Tell,” Sense-able Science

*Students will identify and classify rough and smooth textures.*

“Let Me Count the Ways,” Primarily Bears

*Students will explore weighing various objects.*

“Sizing Up Bears,” Under Construction

*Students will understand that the descriptive size of an object depends on the size of the other objects to which it is compared*

“Color My World,” Sense-able Science

*Students will mix primary colors to produce secondary colors, recognizing that they use the sense of sight to see colors.*

“Stick to It,” Mostly Magnets

*Students will classify objects in the classroom according to whether or not they attract to magnets.*

“What Will a Magnet Attract?” Mostly Magnets

*Students will predict and then test objects for their magnetic attraction.*

“Mining With Magnets,” Mostly Magnets

*Students will use a magnet to obtain iron bits from sand and soil.*

“Floating Fruits,” Spring Into Math & Science

*Students will discover which fruits float or sink.*

“What Do You Think Will Float?” Spring Into Math and Science

*Students will discover whether an object floats or sinks.*

“Bears Afloat,” Primarily Bears

*Students will discover that physical shape can determine whether an object will sink or float.*

- b. water can be a liquid or a solid and can be made to change back and forth from one form to the other.**

“Melt a Cube,” Primarily Physics

*Students will discover the fastest way to melt ice and find the best way to prevent it from melting.*

“Room For Change,” AIMS: XIII.9

*Students will discover that water as it changes from liquid to solid also changes in appearance.*

- c. Water left in an open container evaporates (goes into the air), but water in a closed container does not.**

“A Disappearing Act,” Primarily Earth  
*Students will see the results of water evaporating into the atmosphere.*

## LIFE SCIENCE

### 2. Different types of plants and animals inhabit the Earth. As a basis for understanding this concept students should know:

- a. **how to observe and describe similarities and differences in the appearance and behavior of plants and of animals (e.g., seed-bearing plants, birds, fish, insects).**

“Lenses and Ladybugs,” AIMS: IX. 8  
*Students will observe similarities and differences in ladybugs.*

“Under Cover,” Critters  
*Students will classify animals according to various skin coverings.*

“A Seed Within,” Primarily Plants  
*Students will compare size, shape, and color of various seeds within fruits and vegetables.*

“A Plant Patch,” AIMS: XIV.1  
*Students investigate the growth of various plants.*

- b. **stories sometimes give plants and animals attributes they do not really have.**

- c. **how to identify major structures of common plants and animals (e.g., stems, leaves, roots, arms, wings, legs)**

“Wings and Webs,” Critters  
*Students will identify external differences in the bodies of insects and spiders.*

“Fishful Thinking & Fish Puzzle,” Critters  
*Students will draw what they think a goldfish looks like and after observations re-draw the goldfish and assemble their own fish models.*

“Stem Study,” Primarily Plants  
*Students will explore why stems are necessary to plants.*

## EARTH SCIENCES

### 3. The Earth is composed of land, air and water. As a basis for understanding this concept, students should know:

- a. **characteristics of mountains, rivers, oceans, valleys, deserts, and local landforms.**

“Earth's Features,” Primarily Earth  
*Students will observe and compare physical features of the earth.*

- b. **changes in weather occur from day to day and over seasons, affecting the Earth and its inhabitants.**

“Weather Wear,” Fall Into Math and Science  
*Students will learn that weather influences what we wear.*

“Watching the Weather,” Primarily Earth  
*Students will observe and record weather conditions over time.*

“A Snap of Time,” Cycles of Knowing and Growing

*Students will observe the changes of a tree over the seasons.*

**c. how to identify resources from the Earth that are used in everyday life, and that many resources can be conserved.**

“The Earth Has What We Need!” Primarily Earth

*Students will identify rocks and minerals around the school that come from the earth..*

“Drip Drop, Flip Flop,” Water, Precious Water

*Students will play a game that emphasizes the conservation of water.*

“Just a Little Drip,” AIMS: IX.9

*Students will investigate how water can be conserved by observing a leaky faucet.*

## **INVESTIGATION AND EXPERIMENTATION**

**4. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept, and to address the content in the other three strands, students should develop their own questions and perform investigations. Students will:**

**a. observe common objects using the five senses.**

“Touch Tells Much,” AIMS XI. 8

*Students will use the sense of touch to explore shells.*

“Paper Picnic,” Sense-able Science

*Students will make a book that encompasses their understanding of the senses.*

“The Art of Tasting,” Sense-able Science

*Students will use both the sense of taste and smell to taste foods.*

**b. describe the properties of common objects.**

“Touch Tells Much,” AIMS: XI.8

*Students will use the sense of touch to describe the properties of shells.*

“Observe a Leaf,” Primarily Plants

*Students will observe leaves using their senses.*

“Bags of Beads,” Sense-able Science

*Students will sort and describe shape beads using the sense of touch.*

**c. describe the relative position of objects using one reference (e.g., above or below)**

“The McGregors’ Garden,” AIMS: X.9

*Students will use positional and ordinal descriptions to develop a garden.*

“Bear Caves,” Primarily Bears

*Students will use logical thinking skills to solve situational problems.*

**d. compare and sort common objects based on one physical attribute (including color, shape, texture, size, weight).**

“Exploring Geometric Solids,” Math Series A

*Students will compare and contrast geometric solids. They will explore different orientations, sizes, and shapes, discovering distinguishing characteristics.*

“Describing Shapes,” Math Series A, Task Cards 13, 14

*Students will compare real world objects using geometric vocabulary.*

“Shell Sort,” Math Series A

*Students will compare and contrast shells in order to collect and graph data.*

“Gingerbread Kids Make Connections, *AIMS*: VI.5

*Students will observe measure, and graph gingerbread kids.*

**e. communicate observations orally and in drawings.**

“Lenses and Ladybugs,” *AIMS*: IX.8

*Students will use hand lenses and microscopes in order to discover and discuss the features of a ladybug.*

“Sensational Observations,” *AIMS*: XI.8

*Students will use math and science tools to increase their observation skills through discussion, measurement, and drawings.*

“Holiday Sense,” *AIMS*: XI.5

*Students will use their senses to increase their observational skills and through discussions compare their observations with those of others.*

**California State**  
**AIMS Activities supporting First Grade Science Standards of Learning**

**PHYSICAL SCIENCE**

**1. Materials come in different forms (states) including solids, liquids, and gasses. As a basis for understanding this concept, students know:**

**a. solids, liquids, and gases have different properties.**

“Room for Change,” *AIMS: XIII.9*

*Students will observe that water, as it changes from liquid to solid, also changes in appearance.*

“A Matter of Change,” *AIMS: XII.2*

*Students will use cooking experiences to investigate changes in matter when two or more substances interact.*

“Can It Matter?” *AIMS: X.2*

*Students will use their sense of hearing to try and determine states of matter found in four film canisters.*

“Pouring over Matter,” *AIMS: XI.9*

*Students will make observations of solids and liquids.*

**b. the properties of substances can change when the substances are mixed, cooled, or heated.**

“Water to Ice to Water,” Primarily Earth

*Students will discover that water expands as it freezes and that it will float.*

“Frosty Forms,” *AIMS: XII.6.*

*Students will observe a solid (ice) as it melts and becomes a liquid.*

**LIFE SCIENCES**

**2. Plants and animals met their needs in different ways. As a basis for understanding this concept, students know:**

**a. different plants and animals inhabit different kinds of environments and have external features that help them thrive in different kinds of places.**

“Cactus,” Budding Botanist

*Students will study the adaptations of a cactus plant.*

“Noses for Nectar,” Bats Incredible

*Students make a nose and explore ways in which the bat gets food, aids in pollination, supports seed dispersal.*

**b. plants and animals both need water; animals need food, and plants need light.**

“A Seed Grows,” Primarily Plants

*Students will grow a bean seed and watch how a plant begins.*

“Two-liter Aquarium,” Primary Science Series 2

*Students will observe various animals and plants in an aquarium environment.*

“What Do Plants Need To Grow,” Primarily Plants

*Students will discover that in order to grow healthy plants soil, water, light, and air must be provided.*

**c. animals eat plants or other animals for food and may also use plants or even other animals for shelter and nesting.**

“Food Chain,” Critters

*Students explore the interdependence of life through food chains and webs.*

“Catch Me If You Can,” Critters

*Students play a tag game to simulate the relationship between predators and prey.*

- d. how to infer what animals eat from the shape of their teeth (e.g., sharp teeth: eats meat; flat teeth: eats plants).**
- e. roots are associated with the intake of water and soil nutrients, green leaves with making food from sunlight.**

“Root Study,” Primarily Plants

*Students will be able to describe the functions of the roots of a plant.*

“Show It Grow,” AIMS: XIII.10

*Students will observe bulbs roots and stems.*

## **EARTH SCIENCES**

**3. Weather can be observed, measured and described. As a basis for understanding this concept, students know:**

- a. how to use simple tools (e.g., thermometer, wind vane) to measure weather conditions and record changes from day to day and over the seasons.**

“What Is the Temperature?” Primarily Physics

*Students will learn to use a thermometer.*

“The Wind Blows,” Primarily Earth

*Students will observe and measure how the wind blows using a rating scale.*

“Which Way, (Make a Weather Vane),” Primarily Earth

*Students make a weather vane to measure wind direction.*

- b. the weather changes from day to day, but trends in temperature or of rain (or snow) tend to be predictable during a season.**
- c. the sun warms the land, air, and water.**

“You are My Sunshine,” Spring Into Math and Science

*Students will discover the effects of the sun's heat.*

## **INVESTIGATION AND EXPERIMENTATION**

**4. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept, and to address the content the other three strands, student should develop their own questions and perform investigations. Students will:**

- a. draw pictures that portray some features of the thing being described.**

“Making a Careful Observation,” AIMS: XII.8

*Students will increase their observation skills by distinguishing one object from other similar objects.*

**b. record observations and data with pictures, numbers, and /or written statements.**

“Patch Planner,” *AIMS: XIV.1*

*Students will observe plants as they change over time through pictures, numbers, and written statements.*

**c. record observations on a bar graph.**

“Gummy Bears,” Primarily Bears

*Students will use gummy bears to count, classify, and construct a graph.*

**California State**  
**AIMS Activities supporting Second Grade Science Standards of Learning**

**PHYSICAL SCIENCE**

**1. The motion of objects can be observed and measured. As a basis for understanding this concept, students know:**

**a. the position of an object can be described by locating it relative to another object or the background.**

“Look at the Moon,” Cycles of Knowing and Growing

*Students will observe the moon and its phases in relation to the earth's position.*

“Taking Turns With Triangles,” AIMS: IX.5

*Students will position triangles to create rotational symmetry in relation to other triangles.*

**b. an object's motion can be described by recording the change in its position over time.**

“Mr. Groundhog,” Cycles of Knowing and Growing

*Students will observe, trace and discuss the shadow of a paper groundhog throughout a day.*

**c. the way to change how something is moving is to give 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.**

“Pull-It Eggs,” Under Construction

*Students will observe the reaction of a pull-string puppet when the string is pulled.*

“Huff and Puff,” Spring Into Math and Science

*Students will move objects by blowing on them.*

“Spheres on a Roll,” AIMS: XIII.7

*Students will measure and record the direction and distance a variety of spheres roll when given an equal push.*

“Hungry Hounds,” Mostly Magnets

*Students will move paper dogs along a path by pushing or pulling with magnets.*

**d. tools and machines are used to apply pushes and pulls (forces) to make things move.**

“Three Gear Circus,” AIMS: XIII.8

*Students will observe that a simple gear train can be used to change the direction of rotation and make things move.*

“Why Wheels,” AIMS: XIII.2

*Students will understand that wheels make some tasks, (movement) easier for us.*

“Push 'n Pull Puppets,” Under Construction

*Students will design puppets so they can be made to move in different ways.*

**e. objects near the Earth fall to the ground unless something holds them up.**

“Fish 'n Clips,” Mostly Magnets

*Students will observe magnet strength by the number and mass of paper clips they lift with a magnet.*

“Feather Relays,” AIMS: XIII.4

*Students will blow on various objects to keep them in the air.*

“What Goes Up Must Come Down,” AIMS: XIV.1

*Students will discover the effects of gravity on different objects.*

**f. magnets can be used to make some objects move without being touched.**

“How Close Can You Get?” Mostly Magnets

*Students will observe magnetic interaction between a magnet and a paper clip.*

“Through It All,” Mostly Magnets

*Students will investigate and measure the number of pieces of paper a magnet can maintain attraction to paper clips.*

**g. sound is made by vibrating objects and can be described by its pitch and volume.**

“Sound is Vibration,” Primarily Physics

*Students will learn that vibrating objects produce sounds and cause vibrations to whatever they touch.*

“The Beat of the Drum,” AIMS: XI.4

*Students will build drums of various sizes and materials and as they play these drums, they will hear different sounds associated with vibrations.*

“Musical Bottles Xylophone,” Primarily Physics

*Students will observe that when glass bottles are filled with different levels of water and are tapped, they will hear a difference of sound (pitch and volume).*

## **LIFE SCIENCES**

**2. Plants and animals have predictable life cycles. As a basis for understanding this concept, students know:**

**a. organisms reproduce offspring of their own kind. The offspring resemble their parents and each other.**

**b. the sequential stages of life cycles are different for different animals, for example butterflies, frogs, and mice.**

“My Mealworms,” Critters

*Students will observe the life cycle of the mealworm.*

“Time of Their Own,” Cycles of Knowing and Growing

*Students will observe the life cycle of the butterfly.*

**c. many characteristics of an organism are inherited from the parents. Some characteristics are caused by, or influenced by the environment.**

**d. there is variation among individuals of one kind within a population.**

“Gimme Five,” Jaw Breakers and Heart Thumpers

*Students will compare fingerprints to determine similarities and differences.*

“Microbat and Megabat,” Bats Incredible

*Students will compare and contrast features of megabats and microbats.*

**e. the germination, growth, and development of plants can be affected by light, gravity, touch, or environmental stress.**

“Plants and Space,” Primarily Plants

*Students explore plant growth and the need for space.*

**f. in plants flowers and fruits are associated with reproduction.**

“Flowers,” Primarily Plants

*Students will describe the parts of a flower used for reproduction.*

“Just a Little Sprout,” Cycles of Knowing and Growing

*Students will plant pumpkin seeds and observe the cycle of growth.*

## **EARTH SCIENCES**

**3. Earth is made of materials that have distance properties and provide resources for human activities. As the basis for understanding this concept, students know:**

**a. how to compare the physical properties of different kinds of rocks and that rock is composed of different combinations of minerals.**

“Rock Groups,” Primarily Earth

*Students observe physical properties of rocks and sort them by attributes.*

“Rocks and More Rocks,” Primarily Earth

*Students observe and compare and classify rocks in groups.*

**b. smaller rocks come from the breakage and weathering of larger rocks.**

“Agent Erosion,” Primarily Earth

*Students will observe the weathering of rocks into sand and soil.*

“Sand Pile,” Primary Science Series 1

*Students will observe that sand is made from larger bits of rocks.*

**c. 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.**

“Soil Samplers,” AIMS: VI.9

*Students will learn to recognize many different kinds of materials in the soil by sorting and grouping their findings.*

“That Sorted Soil,” AIMS VI.10

*Students will learn to identify living, once living and non-living soil contents.*

“Dirt Baggers,” Cycles of Knowing and Growing

*Students will observe soil to determine, if the materials are living, once living, non-living and will they support the growth of new plants.*

**d. fossils provide evidence about the plants and animals that lived long ago, and scientists learn about the past history of Earth by studying fossils.**

**e. rock, water, plants and soil provide many resources including food, fuel, and building materials that humans use.**

## **INVESTIGATION AND EXPERIMENTATION**

**4. Scientific progress is made by asking meaningful questions and conducting careful investigations. As a basis for understanding this concept, and to address the content the other three strands, students should develop their own questions and perform investigations. Students will:**

**a. make predictions based on patterns of observation rather than random guessing.**

“Teddy Bears and Oranges,” Primarily Bears

*Students discover similarities and differences in oranges by observing pattern of data.*

“Scouting for Patterns,” *AIMS: XII.1*

*Students collect common objects and predict common attributes.*

“Gimme Five,” Jaw Breakers and Heart Thumpers

*Students will compare fingerprints to determine likenesses and differences.*

“Who’s Not Home,” Primarily Bears

**b. measure length, weight, temperature, and liquid volume with appropriate tools and express measurements in standard and non-standard units.**

“Queen’s Bed,” *AIMS: XIII.6*

*Students construct a bed for the queen using their feet for non-standard measure.*

“Spread Your Wings,” Bats Incredible

*Students will estimate the wingspan of microbats and megabats.*

“Measure Me,” Primary Series 1

*Students use standard measures to find the length of various body parts (feet, hands, smile, etc.)*

“Bear Facts,” Hardhatting in a Geo World

*Students compare measurements between their body and their stuffed bear's body.*

“Balance Bazaar,” *AIMS: XI. 5*

*Students order, measure, and compare objects in an open-ended problem solving activity.*

“Temperature Told Hot or Cold,” *AIMS: XI.7*

*Students learn about a thermometer by building a model and using an immersion thermometer.*

“Just a Little Drip,” *AIMS: IX.9*

*Students construct a model of a leaky faucet to observe and measure how much water is wasted.*

**c. compare and sort common objects based on two or more physical attributes (including color, shape, texture, size, weight).**

“All Sorts of Stuff,” Under Construction

“Creature Feature,” (Sorting All Sorts) Math + Science, a Solution

*Students sort and resort creatures according to physical attributes.*

“A Pumpkin With Class,” *AIMS: VI.3*

*Students measure and compare the mass and size of various pumpkins.*

“A Penny for Your Thoughts,” *AIMS: XIII.3*

*Students use pennies to facilitate scientific processes and the use of tools .*

“The Remarkable Peanut,” *AIMS: XII.7*

*Students use their senses, math and science tools, and process skills to explore peanuts.*

**d. write or draw descriptions of a sequence of steps, events, and observations.**

“Tell Me When Your Birthday Comes,” Cycles of Knowing and Growing

*Students will describe the sequence of months and birthdays for a class and record these dates on a graph.*

“Materials Matter,” Under Construction

*Students will explore different materials and prepare a display board used to describe their materials' project.*

“Water Watchers,” Primary Science Series 2

*Students will observe and describe the changes in the water level of four containers with different sized openings.*

“Observing Bulbs,” Cycles of Knowing and Growing

*Students will observe and describe the physical attributes of the bulb and the steps of its growth.*

“A Time of Their Own,” Cycles of Knowing and Growing

*Students will observe and compare the metamorphosis of butterflies and moths.*

**e. construct bar graphs to record data using appropriately labeled axes.**

“Wings and Webs,” Critters

*Students will collect and record on bar graphs the external differences of spiders and insects.*

“Gone Fishing,” Critters

*Students will use a labeled bar graph to record the results of the effect of camouflage on prey populations.*

“Mini-Boxes of Raisin Fun,” AIMS: VI.2

*Students will create real graphs using small boxes of raisins.*

“Huff and Puff,” Spring Into Math and Science

*Students will move objects by blowing on them and record the distance on a bar graph.*

**f. write or draw descriptions of a sequence of steps, events and observations, and include the use of magnifiers or microscopes to extend senses.**

“Golden House,” Cycles of Knowing and Growing

*Students will observe and keep a record of what happens to a pumpkin once it has been carved.*

“Observing Bulbs,” Cycles of Knowing and Growing

*Students will describe the physical attributes of a bulb using magnifiers to extend their senses.*

“Magniviewer,” AIMS: IX.10

*Students will construct a milk carton microscope to use in investigations.*

**g. follow verbal instructions for a scientific investigation.**

“I See The Light,” Sense-able Science

*Students will construct a diorama box demonstrating the need for light.*

“Grapes to Raisins,” Fall Into Math and Science

*Students will use a step by step procedure using the sun to turn grapes into raisins.*