

# Art From Scrap Green Schools Program Correlations to the California State Education Standards

- *Green Kids Series: pages 1-6*
- *Creek Kids Series: pages 6-8*
- *Art From Scrap Fieldtrip: pages 8-12*
- *Recycling Center Tours: pages 12-14*
- *Watershed Resource Center Fieldtrip: pages 14-18*
- *Gardening and Composting Lessons: pages 18-23*

## SCROLL DOWN FOR MORE INFORMATION

The following California State Science Standards and History and Social Science Standards are covered in a typical in-class lesson or fieldtrip.

**Standard headings are in bold type.** Specific standards are in regular type. *(Examples of how lessons tie into the standards maybe written in italic type inside of parentheses.)*

## Green Kids Series

Geared for grades 3-6<sup>th</sup>

The Green Kids Series is geared for grades 3-6 and includes the following lessons and fieldtrips in the order listed: An in-class lesson on Natural Resources, a fieldtrip to Art From Scrap and the Recycling Center, an in-class lesson on Composting and Plants and either an in-class lesson on Watersheds or a fieldtrip to the Watershed Resource Center, located at Arroyo Burro Beach Park in Santa Barbara. Classes are expected to conduct a Class Environmental Service Learning Project. Students are encouraged to conduct additional environmental projects on their own or in small groups.

### Grade Three

#### **Science Standards**

**Physical Sciences 1a.** Students know energy comes from the Sun to Earth in the form of light. **1g.** 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. **Life Sciences 3a.** Students know plants and animals have structures that serve different functions in growth, survival and reproduction. **3c.** 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.

**Earth Sciences 4e.** Students know the position of the Sun in the sky changes during the course of the day and from season to season.

**Investigation and Experimentation 5d.** Predict the outcome of a simple investigation and compare the result with the prediction (*compost experiment*).

## **History and Social Science Standards**

**3.1 Students describe the physical and human geography and use maps, tables, graphs, photographs, and charts to organize information about people, places, and environments in a spatial context. 3.1-1.** Identify geographical features in their local region (*e.g., Pacific Ocean, Tajiguas Landfill, their school*). **2.** Trace the ways in which people have used the resources of the local region and modified the physical environment (*e.g., altered coastal canyons and the surrounding area for use as a landfill. Development over estuaries, urbanization, and channelization of creeks.*)

**3.3 Students draw from historical and community resources to organize the sequence of local historical events and describe how each period of settlement left its mark on the land.** (*e.g., The increase in population over the years; the increase in the use of disposable products; the history of trash disposal; the current practice of reducing, reusing, recycling and composting materials to ameliorate problems of trash disposal and pollution.*)

**3.4 Students understand the role of rules and laws in our daily lives and the basic structures of the U.S. government.** (*e.g., Laws and rules to protect and clean-up the environment and individuals' responsibility to not pollute or damage the environment. AB 939 requires cities and counties in CA to reduce the amount of trash they dispose of by 50% from the level it was in 1990 or face a \$10,000 a day fine. Santa Barbara County has meet the 50% mark and is working towards 75% reduction of trash. This law has resulted in curbside recycling and green waste collection for most California residents. Laws prohibiting household hazardous waste such as used motor oil, paint, cleaning products, pesticides, batteries etc. from being disposed of in the regular trash. Rules about what can be recycled and why.*)

**3.5 Students demonstrate basic economic reasoning skills and an understanding of the economy of the local region. 3.5-1.** Describe the ways in which local producers have used and are using natural resources ..... (*At Art From Scrap students can see the different natural resources used to make various products. They also learn that donating the discards and by products from manufacturing, instead of throwing them away, allows the natural resources in these discards to be used more fully and saves manufactures money in disposal fees. Using resources fully through reuse and recycling saves energy and reduces pollution.*) **3.5-2.** Understand that some goods are made locally, some elsewhere in the United States and some abroad. (*Most of the materials donated to Art From Scrap come from local businesses and manufactures. The Recycling Center ships recyclables to remanufacturing plants in Los Angeles, Oregon State, and China.*)

**3.5-3.** Understand that individual economic choices involve trade-offs and the evaluation of benefits and costs. (*e.g., Students evaluate the long and short term costs and benefits*)

*of buying durable vs. disposable items, recycling vs. disposing of items in the trash, using products made with renewable vs. nonrenewable natural resources, buying items in bulk vs. individual packages, and buying items made with recycled content vs. virgin materials.)*

## Grade Four

### Science Standards

**Life Sciences 2a.** Students know plants are the primary source of matter and energy entering most food chains. **2b.** 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. **2c.** Students know decomposers, including many fungi, insects, and microorganisms, recycle matter from dead plants and animals. **3a.** Students know ecosystems can be characterized by their living and nonliving components. **3b.** 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. **3d.** Students know that most microorganisms do not cause disease and that many are beneficial.

**Earth Sciences 5c.** 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).

### History and Social Science Standards

**4.1 Students demonstrate an understanding of the physical and human geographic features that define places and regions in California. 4.1-3.** Identify the state capital and describe the various regions of California, including how their characteristics and physical environments (e.g., water, landforms, vegetation, climate) affect human activity. *(Santa Barbara's physical environment, located in a narrow flood plain between the Santa Ynez Mountains and the Pacific Ocean, creates many short, steep watersheds that quickly drain to the ocean.)* **4.1-4.** Identify the locations of the Pacific Ocean, rivers, valleys, and mountain passes and explain their effects of the growth of towns. *(Much of Santa Barbara's growth is related to its proximity to the ocean. Santa Barbara's economy heavily depends on beach tourism, fishing and other ocean related activities.)* **4.4-6.** Describe the development and locations of new industries since the turn of the century such as the aerospace industry, electronics industry, large-scale commercial agriculture and irrigation projects, the oil and automobile industries, communications and defense industries, and important trade links with the Pacific Basin. *(e.g. The development of agriculture in the fertile Goleta Valley and development of all industries in the Santa Barbara area is dependent on water projects that bring water from Lake Cuchuma, Gibraltar Reservoir, and northern California. Art From Scrap is part of the reuse industry in Santa Barbara. Santa Barbara's recycling industry ships materials to Los Angeles, Oregon, Washington, and China.)*

## Grade Five

### Science Standards

**Physical Sciences 1.** Elements and their combinations account for all the varied types of matter in the world. (*e.g., These elements and their combinations, occur in the world as natural resources. Humans utilize and process natural resources into products of everyday life.*) **1c.** Students know metals have properties in common, such as high electrical and thermal conductivity. Some metals such as aluminum, iron, nickel, copper, silver and gold are pure elements; others, such as steel and brass, are composed of a combination of elemental metals. (*natural resources*)

**Life Sciences 2e.** Students know how sugar, water, and minerals are transported in a vascular plant. **2f.** Students know plants use carbon dioxide (CO<sub>2</sub>) and energy from sunlight to build molecules of sugar and release oxygen.

**Earth Sciences 3a.** Students know most of the Earth's water is present as salt water in the oceans, which cover most of Earth's surface. **3d.** 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 (*and not polluting*). **3e.** Students know the origin of the water used by their local communities.

**Investigation and Experimentation 6. 6a.** Classify objects in accordance with appropriate criteria. (*e.g. renewable vs. non-renewable; water pollutants*). **6g.** Record data by using appropriate graphic representations (including charts, graphs, and labeled diagrams) and make inferences based on those data. (*compost experiment and natural resource lesson*).

## History and Social Science Standards

None

## Grade Six

### Science Standards

**Shaping Earth's Surface 2a.** Students know water running downhill is the dominant process in shaping the landscape, including California's landscape. **2b.** Students know rivers and streams are dynamic systems that erode, transport sediment, change course, and flood their banks in natural and recurring patterns.

**Ecology (Life Science) 5a.** Students know energy entering ecosystems as sunlight is transferred by producers into chemical energy through photosynthesis and then from organism to organism through food webs. **5b.** Students know matter is transferred over time from one organism to others in the food web and between organisms and the physical environment. **5c.** Students know populations of organisms can be categorized by the functions they serve in an ecosystems (*producers, decomposers*). **5e.** Students know the number and types of organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities (*and quality*) of light and water, a range of temperatures, and soil composition. (*composting, planting and water quality*).

**Resources 6b.** Students know different natural energy and material resources, including air, soil, rocks, minerals, petroleum, fresh water, wildlife, and forests, and know how to classify them as renewable or nonrenewable. **6c.** Students know the natural origin of the materials used to make common objects.

## History and Social Science Standards

**6.1-1.** Describe the hunter-gatherer societies, including the development of tools and the use of fire. (*e.g., The tools, clothing and utensils used by hunter-gatherer societies were all hand-made mostly from locally available natural resources. People valued natural resources and the time and effort it took to turn resources into usable items. They didn't have disposable items like we do today.*) **6.1-3** Discuss the climatic changes and human modifications of the physical environment that gave rise to the domestication of plants and animals and new sources of clothing and shelter. (*Modifications of the physical environment by channelizing rivers, and building aqueducts allowed the people here to practice agriculture in a naturally dry region and build upon flood plains and estuaries.*)

## Creek Kids Series

The Creek Kids Series is geared for 4th – 6th graders.

The Creek Kids Series consists of two in-class lessons and a half-day fieldtrip to a local creek and the Watershed Resource Center, located at Arroyo Burro Beach Park in Santa Barbara. Students learn about: Watersheds, where water comes from and where it goes, what makes a healthy creek, sources of and solutions to water pollution, dangers of plastic debris in the marine environment, and how students can protect the water quality of creeks and the ocean. There is also a class project, “Flows to the Ocean”, that focuses on the dangers of floating plastics in the marine environment and lets students develop and implement ideas to reduce littering on their school campus.

**Activities include:** Constructing watershed models, understanding aerial photos and watershed maps, assessing pollutants associated with land use, Our Synthetic Seas: Plastic in the Marine Environment DVD, water pollution and solutions to pollution presentation, activities to study how pollutants travel through watersheds, beach clean up, survey of the physical and biological components of a creek, demonstration of water quality test kits, plastic debris in the ocean food web game, studying drainage patterns on school grounds, campus litter clean-up, including sorting and analyzing litter

Scientific progress is made by asking meaningful questions and conducting careful investigations (Experimentation and Investigation 6).

**Grade Five:** Scientific progress is made by asking meaningful questions and conducting careful investigations (Experimentation and Investigation 6).

**Grade Six:** Students know the number and types of organisms an ecosystem can support depends on the resources available and on factors, such as quantities of light and water, a range of temperatures and soil composition. (Resources 5.e).

Scientific progress is made by asking meaningful questions and conducting careful investigations (Experimentation and Investigation 7).

**Grade Five:** Formulate survey questions; systematically collect and represent data on a number line; and coordinate graphs, tables, and charts (Statistics, Data Analysis, and Probability 1.1).

Interpret one and two variable data graphs to answer questions about a situation (Statistics, Data Analysis, and Probability 1.3).

**Grade Six:** Identify claims based on statistical data and in simple cases, evaluate the validity of the claims. (Statistics, Data Analysis, and Probability 2.5).

Use data to estimate the probability of future events (Statistics, Data Analysis, and Probability 3.2).

### **English-language Arts Standards**

**Grade Four:** Writing informational reports (Writing 2.3).

Making informational presentations (Listening and Speaking 2.2).

**Grade Five:** Writing research reports about important ideas, issues or events (Writing 2.3). Writing persuasive letters or compositions (Writing 2.4).

Deliver informative presentations about an important idea, issue, or event (Listening and Speaking 2.2).

**Grade Six:** Write expository compositions (Writing 2.2).

Write research reports (Writing 2.3).

Deliver informative presentations (Listening and Speaking 2.2).

Deliver persuasive presentations (Listening and Speaking 2.4)

Deliver presentations on problems and solutions (Listening and Speaking 2.5)

## Grade Four

### **Science Standards**

**Life Sciences 2c.** Students know decomposers, including many fungi, insects, and microorganisms, recycle matter from dead plants and animals.

**3a.** Students know ecosystems can be characterized by their living and nonliving components. **3b.** 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.

**Earth Sciences 5c.** 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).

**Investigation and Experimentation 6a.** Differentiate observation from inference (interpretation) and know scientists' explanations come partly from what they observe and partly from how they interpret their observations. (*Flows to the Ocean Project*)

**6c.** Formulate and justify predictions based on cause-and-effect relationships. (*Flows to the Ocean Project*) (*water quality related to land use and/or mitigating factors*).

**6d.** Conduct multiple trials to test a prediction and draw conclusions about the relationships between predictions and results. (*Flows to the Ocean Project*)

### **History and Social Science Standards**

**4.1 Students demonstrate an understanding of the physical and human geographic features that define places and regions in California. 4.1-3.** Identify the state capital and describe the various regions of California, including how their characteristics and physical environments (e.g., water, landforms, vegetation, climate) affect human activity. (*Santa Barbara's physical environment, located in a narrow flood plain between the Santa Ynez Mountains and the Pacific Ocean, creates many short, steep watersheds that quickly drain to the ocean.*) **4.1-4.** Identify the locations of the Pacific Ocean, rivers,

valleys, and mountain passes and explain their effects of the growth of towns. (*Santa Barbara is a beach community that heavily depends on tourism, fishing and other ocean related activities.*)

### Mathematic Standards

**Measurement and Geometry 2.0** Students use two-dimensional coordinate grids to represent points and graph lines.

**Statistics, Data Analysis, and Probability 1.0** Students organize, represent, and interpret numerical and categorical data and clearly communicate their findings.

### English-language Arts Standards

**Writing 2.3** Writing informational reports.

**Listening and Speaking 2.2** Making informational presentations.

## Grade Five

### Science Standards

**Earth Sciences 3a.** Students know most of the Earth’s water is present as salt water in the oceans, which cover most of Earth’s surface **3e.** Students know the origin of the water used by their local communities.

**Investigation and Experimentation 6** Scientific progress is made by asking meaningful questions and conducting careful investigations.

### Mathematics

**Statistics, Data Analysis, and Probability 1.1** Formulate survey questions; systematically collect and represent data on a number line; and coordinate graphs, tables, and charts.

**Statistics, Data Analysis, and Probability 1.3.** Interpret one and two variable data graphs to answer questions about a situation.

### English-language Arts Standards

**Writing 2.3.** Writing research reports about important ideas, issues or events. **Writing**

**2.4** Writing persuasive letters or compositions. **Listening and Speaking 2.2** Deliver informative presentations about an important idea, issue, or event.

## Grade Six

### Science Standards

**Shaping Earth’s Surface 2b.** Students know rivers and streams are dynamic systems that erode, transport sediment, change course, and flood their banks in natural and recurring patterns.

**Ecology (Life Science) 5e.** Students know the number and types of organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities of light and water, a range of temperatures, and soil composition (*quality of water*).

## Mathematics

**Statistics, Data Analysis, and Probability 2.5** Identify claims based on statistical data and in simple cases, evaluate the validity of the claims.

**Statistics, Data Analysis, and Probability 3.2** Use data to estimate the probability of future events

## English-language Arts Standards

**Writing 2.2** Write expository compositions.

**Writing 2.3** Write research reports.

**Listening and Speaking 2.2** Deliver informative presentations.

**Listening and Speaking 2.4** Deliver persuasive presentations.

**Listening and Speaking 2.5** Deliver presentations on problems and solutions.

# Art From Scrap Field Trip

**Art From Scrap Fieldtrips are for grades kindergarten and up.**

**Art From Scrap Fieldtrips are one hour and 15 minutes long and focus on where our trash goes and how to create less trash through recycling, reusing, shopping choice, and composting. The art workshop part of the fieldtrip offers students a chance to creatively explore ways of reusing scrap materials.**

## Kindergarten

### Science Standards

**Physical Sciences 1a.** Students know objects can be described in terms of the materials they are made of and their physical properties.

**Earth Science 3c.** Students know how to identify resources from Earth that are used in everyday life and understand that many resources can be conserved.

**Investigation and Experimentation 4a.** Observe common objects by using the five senses. **4b.** Describe the properties of common objects. **4d.** Compare and sort common objects by one physical attribute (*recyclable vs. non-recyclable*).

### History and Social Science Standards

**K.1 Students understand that being a good citizen involves acting in certain ways.** (*Including acting in ways that do not damage the environment that all of us depend on.*)

**K.4 Students compare and contrast the locations of people, places, and environments and describe their characteristics.** (*Students identify on a map the location of the landfill in relationship to the ocean, and the surrounding area.*)

**K.6- 3.** Understand how people lived in earlier times and how their lives would be different today. (*The kind of trash people generated in the past and how they disposed of their trash, compared to the kind of trash generated and how people dispose of trash today.*)

## Grade One

## Science Standards

**Physical Sciences 1b.** Students know the properties of substances can change when the substances are mixed, cooled, or heated. (*the making of glass from sand or paper from wood pulp.*)

## History and Social Science Standards

**1.4 Students compare and contrast everyday life in different times and places around the world and recognize that some aspects of people, places, and things change over time while others stay the same.** (*The kind and amount of trash people generated in the past vs. today, the population in the past vs. today and the ways people dealt with the trash they generated in the past vs. today.*) (*Different ways of dealing with trash in different parts of the world.*)

## Grade Two

### Science Standards

**Earth Sciences 3c.** Students know that soil is made partly from weathered rock and partly from organic materials... (*composting*). **3e.** Students know rock, water, plants, and soil provide many resources, including food, fuel, and building materials, that humans use.

**Investigation and Experimentation 4c.** Compare and sort common objects according to two or more physical attributes. (*recyclable, reusable, compostable.*)

### History and Social Science Standards

**2.1 Students differentiate between things that happened long ago and things that happened yesterday.** (*Compare and contrast their daily lives with the lives of their parents, grandparents and great-grand parents in regards to disposable vs. durable products, trash, recycling and trash disposal.*)

**2.2 Students demonstrate map skills by describing the absolute and relative location of people, places, and environments.** (*Students locate the landfill, relative to the location of the Pacific Ocean and the Cities of Santa Barbara and Goleta.*)

**2.3 Students explain governmental institutions and practices in the United States and other countries.** (*Explain that in California, landfills were filling up so quickly that a law exists (AB 939) requiring all cities and counties to reduce the amount of trash they dispose of by 50% from the 1990 level.*)

**2.4 Students understand basic economic concepts and their individual roles in the economy and demonstrate basic economic reasoning skills.** (*Explain to students how their consumer choices either increase or decrease our trash crisis. For example buying durable items as alternatives to disposable items, buying items made out of recycled materials creates a market demand, buying items in bulk with little or no packaging and buying items that have packaging that can be recycled.*)

## Grade Three

### Science Standards

**Physical Sciences 1f.** Students know that evaporation and melting are changes that occur

when objects are heated. (*Sand is melted to make glass, metal ore is melted to make metal objects.*)

## History and Social Science Standards

**3.1 Students describe the physical and human geography and use maps, tables, graphs, photographs, and charts to organize information about people, places, and environments in a spatial context.** **3.1-1.** Identify geographical features in their local region (*e.g., Pacific Ocean, Tajiguas Landfill, their school*). **3.1-2.** Trace the ways in which people have used the resources of the local region and modified the physical environment (*e.g., altered coastal canyons and the surrounding area for use as a landfill. Ellings Park use to be an old landfill.*)

**3.4 Students understand the role of rules and laws in our daily lives and the basic structures of the U.S. government.** (*e.g., Laws and rules to protect and clean-up the environment and individuals' responsibility to not pollute or damage the environment shared by all life. AB 939 requiring cities and counties in CA to reduce the amount of trash they dispose of by 50% from the level it was in 1990 or face a \$10,000 a day fine. This law has resulted in curbside recycling and green waste collection for most California residents. Laws requiring newer landfills to be lined, collect leachate and install monitoring systems to protect air quality and ground water. Laws prohibiting household hazardous waste such as used motor oil, paint, cleaning products, pesticides, batteries etc. from being disposed of in the regular trash. Rules about what can be recycled and why.*)

**3.5 Students demonstrate basic economic reasoning skills and an understanding of The economy of the local region.** **3.5-1.** Describe the ways in which local producers have used and are using natural resources ..... (*At Art From Scrap students identify the natural resources used to make various products. They also learn that donating the discards and by products from manufacturing, instead of throwing them away, allows the natural resources in these discards to be used more fully and saves manufactures money in trash disposal fees. Using resources fully through reuse and recycling saves energy and reduces pollution.*) **3.5-3.** Understand that individual economic choices involve trade-offs and the evaluation of benefits and costs. (*e.g., Students evaluate the long and short term costs and benefits of buying durable vs. disposable items, recycling vs. disposing of items in the trash, using products made with renewable vs. nonrenewable natural resources and buying items made with recycled content vs. virgin materials.*)

## Grade Four Science Standards

**Life Sciences 2c.** Students know decomposers, including many fungi, insects and microorganisms, recycle matter from dead plants and animals.

## History and Social Science Standards

None

## Grade Five

## Science Standards

**Investigation and Experimentation 6a.** Students learn to classify objects in accordance with appropriate criteria.

## Grade Six

### Science Standards

**Ecology (Life Science) 5c.** Students know populations of organisms can be categorized by the functions they serve in an ecosystems ( *decomposers*). **5e.** Students know the number and types of organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities (*and quality*) of light and water, a range of temperatures, and soil composition. (*composting*).

**Resources 6b.** Students know different natural energy and material resources, including air, soil, rocks, minerals, petroleum, fresh water, wildlife, and forests, and know how to classify them as renewable or nonrenewable. **6c.** Students know the natural origin of the materials used to make common objects.

### History and Social Science Standards

None

# Recycling Center Tours

**Appropriate for 2nd graders and up.**

**Recycling Center Tours are usually combined with an Art From Scrap Fieldtrip. During Recycling Center Tours students see a recycling center in action and learn what materials can be recycled, how they are recycled, and what happens to them after they are recycled.**

## Grade Two

### Science Standards

**Investigation and Experimentation 4c.** Compare and sort common objects according to two or more physical attributes.

### History and Social Science Standards

**2.3 Students explain governmental institutions and practices in the United States and other countries.** (*Explain that in California, our landfills were filling up so quickly that state law (AB 939) requires all cities and counties to reduce their trash by 50% from the 1990 level. If cities and counties don't comply there is a \$10,000/day fine. Recycling is one way this is happening. There are also laws governing what can and cannot be put in the trash e.g. batteries, used oil, and other household hazardous waste. Bottle bills in California and other states are what funds much of the recycling operations in our country. Different states and different countries have different laws that govern how the society deals with its solid waste*).

**2.4 Students understand basic economic concepts and their individual roles in the economy and demonstrate basic economic reasoning skills.** (*e.g., California's bottle*

*bill creates an economic incentive for individuals and institutions to recycle, by charging a deposit on beverage containers that is redeemable at recycling centers. Recyclables are worth money because the natural resources from which they are made can be processed into new items. Students learn how their consumer choices effect the amount of trash that is generated and how buying items made out of recycled materials creates a market demand that closes the recycling loop.)*

## Grade Three

### **Science Standards**

**Physical Sciences 1f.** Students know evaporation and melting are changes that occur when the objects are heated. *(sand melted to make glass, ore melted to make metal objects.)*

**Investigation and Experimentation 5c.** Use numerical data in describing and comparing objects, events, and measurements. *(the weight, number of containers, and monetary value of various items at the recycling center.)* **5d.** Predict the outcome of a simple investigation and compare the result with the prediction. *(predict the weight and monetary value of items at the recycling center.)*

### **History and Social Science Standards**

**3.4 Students understand the role of rules and laws in our daily lives and the basic structure of the U.S. government.** *(Explain that in California, our landfills are filling up so quickly that there is a law requiring all cities and counties to reduce their trash by 50% from the 1990 level. If cities and counties don't comply there is a \$10,000/day fine. Recycling is one way this is happening. There are also laws governing what can and cannot be put in the trash e.g. batteries, used oil, and other household hazardous waste.)*

**3.5 -1.** Describe the ways in which local producers have used and are using natural resources, and capital resources to produce goods and services in the past and the present. *(e.g., Students identify the natural resources used to make various items and understand that recycling at the local level allows these resources to be used again.)* **3.5-2.**

Understand that some goods are made locally, some elsewhere in the United States and some abroad. *(This applies to goods made from recycled materials also. The Recycling Center ships recyclables to remanufacturing plant in Los Angeles, Oregon State, and China.)* **3.5-3.** Understand that individual economic choices involve trade-offs and the evaluation of benefits and costs. *(e.g., Students evaluate the long and short term costs and benefits of buying durable vs. disposable items, recycling vs. disposing of items in the trash, using products made with renewable vs. nonrenewable natural resources.)*

## Grade Four

### **Science Standards**

**Investigation and Experimentation 6b.** Measure and estimate the weight, length, or volume of objects. *(predict the weight and monetary value of items at the recycling center.)*

### **History and Social Science Standards**

**4.4-6.** Describe the development and locations of new industries since the turn of the century such as the aerospace industry, electronics industry, large-scale commercial agriculture and irrigation projects, the oil and automobile industries, communications and defense industries, and important trade links with the Pacific Basin. (*e.g., As industries grew their need for natural resources grew, the population grew and so did the amount and kinds of trash created by these industries and the growing population. Describe the resulting trash crisis and the development over time of how we deal with our trash. Trace the development of recycling as a means of conserving natural resources and reducing trash.*)

## Grade Five

### **Science Standards**

**Physical Sciences 1.** Elements and their combinations account for all the varied types of matter in the world. (*e.g., These elements and their combinations, occur in the world as natural resources. Humans utilize and process natural resources into products of everyday life.*)

**Investigation and Experimentation 6a.** Classify objects in accordance with appropriate criteria.

### **History and Social Science Standards**

(None)

## Grade Six

### **Science Standards**

**Resources 6c.** Students know the natural origin of the materials used to make common objects.

### **History and Social Science Standards**

(None)

## **Watershed Resource Center Fieldtrip**

**The Watershed Resource Center offers a fieldtrip geared for kindergarten through 2<sup>nd</sup> graders and different fieldtrip geared for 3<sup>rd</sup> through 6<sup>th</sup> graders.**

**Students learn about local watersheds and how to protect them. Lessons include water as a natural resource, where our water comes from and where it goes, the differences between natural vs. channelized creeks, reading watershed maps, learning about the water cycle, learning about water pollution and it's effect on aquatic environments, using watershed models, plastics in the marine environment DVD, Chumash use of aquatic resources, and participating in a beach clean-up.**

## Kindergarten

## Science Standards

**Physical Sciences 1b.** 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. (*water cycle*)

**Earth Sciences 3a.** Students know characteristics of mountains, rivers, oceans, valleys, deserts, and local landforms. **3b.** Students know changes in weather occur from day to day and across seasons, affecting Earth and its inhabitants.

## History and Social Science Standards

**K.1 Students understand that being a good citizen involves acting in certain ways.**

**K.1-2** ...individual responsibility.... **K.4-2** Distinguish between land and water on maps and globes ....**K.6-3** Understand how people lived in earlier times and how their lives would be different today. (*no cars, no plastic, no chemical fertilizers or pesticides, lower population, larger estuaries, less trash, less pollutants in the watersheds, more natural creeks, more filtering capacity of the land*).

## Grade One

### Science Standards

**Physical Sciences 1.a** Students know solids, liquids, and gases, have different properties. **1.b** Students know the properties of substances can change when the substances are mixed, cooled or heated. (*water cycle*).

**Life Sciences 2.b** Students know both plants and animals need water, animals need food, and plants need light. (*water as a natural resource*).

**Earth Sciences 3a.** Students know how to use simple tools to measure weather conditions and record changes from day to day and across the seasons. (*introduction to rain gages*). **3.b** Students know that the weather changes from day to day but that trends in temperature or of rain tend to be predictable during a season. (*Santa Barbara typically has a rainy winter season and very dry summer season*) **3.c** Students know the sun warms the land, air, and water. (*water cycle*).

**Investigation and Experimentation 4.d** Describe the relative position of objects by using two references (*the location of various pollutants to storm drain inlets*).

### History and Social Science Standards

**1.2-4** Describe how location, weather, and physical environment affect the way people live, including the effects on their food, clothing, shelter, transportation, and recreation. (*Santa Barbara's beautiful beaches, mountains and mild climate affects how people live. Our tourist economy, surfing, fishing, swimming, hiking and agriculture are intimately tied into Santa Barbara's location, weather and physical environment. Santa Barbara's watersheds are unique in that we have many short steep watersheds that drain directly and quickly to the ocean. These types of watersheds quickly wash any pollutants on land into the creeks and ocean, polluting Santa Barbara's beaches and affecting Santa Barbara's tourist economy, and people's ability to enjoy ocean sports safely.*) **1.5-3** Compare the beliefs, customs, ceremonies, traditions, and social practices of the varied cultures, drawing from folklore. (*Chumash maritime practices*)

## Grade Two

### Science Standards

**Physical Sciences 1.b** Students know an object's motion can be described by recording the change in position of the object over time. (*Pollutants being washed into creeks and down to the beach.*) **1.c** Students know the way to change how something is moving is by giving it a push or pull. The size of the change is related to the strength, or the amount of force of the push or pull. (*Heavy rains wash pollutants into creeks much faster and with much greater force than gentle rains.*) **1.e** Students know objects fall to the ground unless something hold them up (*precipitation falling from clouds in the sky, water moving downhill with gravity*).

**Earth Sciences 3e.** Students know rock, water, plants, and soil provide many resources, including food, fuel, and building materials, that humans use. (*uses of fresh water*).

**Investigation and Experimentation 4g.** Follow oral instructions for a scientific investigation. (*watershed model experiment*)

## Grade Three

### Science Standards

**Physical Sciences 1e.** Students know matter has three forms; solid, liquid, and gas. (*water cycle*) **1f.** Students know evaporation and melting are changes that occur when the objects are heated. (*water cycle*)

**Life Sciences 3d.** Students know when the environment changes, some plants and animals survive and reproduce, others die or move to new locations. (*water pollution, plastics in the ocean.*)

### History and Social Science Standards

**3.1-1** Identify geographical features in their local region (*watersheds, creeks, mountains, beaches, ocean.*) **3.1-2** Trace the ways in which people have used the resources of the local region and modified the physical environment. (*development over estuaries, urbanization, channelization of creeks.*) **3.2-2** Discuss the ways in which physical geography, including climate, influenced how the local Indian nations adapted to their natural environment (e.g. how they obtained food, clothing, tools). (*Use of resource from the ocean.*)

## Grade Four

### Science Standards

**Life Sciences 2b.** Students know procedures 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. **2c.** Students know decomposers, including many fungi, insects, and microorganisms, recycle matter from dead plants and animals.

**3a.** Students know ecosystems can be characterized by their living and nonliving components. **3b.** 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.

**Earth Sciences 5a.** 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 (*floods*). **5c.** 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).

## History and Social Science Standards

**4.1 Students demonstrate an understanding of the physical and human geographic features that define places and regions in California.** **4.1- 3.** Identify the state capital and describe the various regions of California, including how their characteristics and physical environments (e.g., water, landforms, vegetation, climate) affect human activity. (*Santa Barbara's physical environment located in a narrow flood plain between the Santa Ynez Mountains and the Pacific Ocean creates many short, steep watersheds that quickly drain to the ocean.*) **4.1-4.** Identify the locations of the Pacific Ocean, rivers, valleys, and mountain passes and explain their effects of the growth of towns. (*Santa Barbara is a beach community that heavily depends on tourism, fishing and other ocean related activities.*)

## Grade Five

### Science Standards

**Earth Sciences 3a.** Students know most of the Earth's water is present as salt water in the oceans, which cover most of Earth's surface. **3d.** 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. **3e.** Students know the origin of the water used by their local communities. **Investigation and Experimentation 6a.** Classify objects (e.g., rocks, plants, leaves) in accordance with appropriate criteria. (*Water pollutants, beach clean-up*) **6h.** Draw conclusions from scientific evidence and indicate whether further information is needed to support a specific conclusion. (Our Synthetic Seas DVD plus beach clean-up).

## Grade Six

### Science Standards

**Shaping Earth's Surface 2a.** Students know water running downhill is the dominant process in shaping the landscape, including California's landscape. **2b.** Students know rivers and streams are dynamic systems that erode, transport sediment, change course, and flood their banks in natural and recurring patterns.

**Ecology (Life Science) 5e.** Students know the number and types of organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities of light and water, a range of temperatures, and soil composition (water pollution).

# Gardening and Composting

Appropriate for kindergarten and up.

**Gardening and composting lessons can be adapted to the needs of your class. Below are some potential ways teachers may tie gardening and composting lessons into their required curriculum.**

## Kindergarten

### Science Standards

**Life Sciences 2a.** Students know how to observe and describe similarities and differences in the appearance and behavior of plants and animals. **2c.** Students know how to identify major structures of common plants and animals (*e.g., stems, leaves, roots, ...*).

**Earth Sciences 3a.** Students know characteristics of mountains, rivers, oceans, valleys, deserts, and local landforms. **3b.** Students know changes in weather occur from day to day and across seasons, affecting Earth and its inhabitants.

**Investigation and Experimentation 4a.** Observe common objects by using the five senses. **4d.** Compare and sort common objects by one physical attribute (*e.g., color, shape, texture, size, weight*). **4e.** Communicate observations orally and through drawings.

### History and Social Science Standards

**K.1 Understand that being a good citizen involves acting in certain ways.**

**K.1-1.** Follow rules, such as sharing and taking turns, and know the consequences of breaking them. (*Set the rules for behavior in the garden i.e. no running, jumping or standing in the garden beds, follow directions, be gentle with the plants etc.*)

**K.5 Students put events in temporal order using a calendar, placing days, weeks and months in proper order.** (*Planting dates, germination dates and anticipated harvest dates can be recorded and kept on a calendar.*)

**K.6 -1.** Identify the purposes of, and the people and events honored in, commemorative holidays, including the human struggles that were the basis for the events. (*Earth Day and The devastating 1969 oil spill in the Santa Barbara Channel was one of the events leading to the establishment of Earth Day*). **K.6- 3.** Understand how people lived in earlier times and how their lives would be different today. (*In earlier times most people grew their own food or small farmers in their community grew their food. Food was produced locally and eaten fresh due to limitations in the ability to transport, store and process food.*)

## Grade One

### Science Standards

**Life Science 2a.** Students know different plants and animals inhabit different kinds of environments and have external features that help them thrive in different kinds of places.

**2b.** Students know both plants and animals need water, animals need food, and plants need light. **2c.** Students know animals eat plants or other animals for food and may also use plants or even other animals for shelter and nesting. **2e.** Students know roots are associated with the intake of water and soil nutrients and green leaves are associated with making food from sunlight.

**Earth Sciences 3a.** 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. **3b.** Students know that the weather changes from day to day but that trends in

temperature or of rain tend to be predictable during a season. **3c.** Students know the sun warms the land, air and water.

**Investigation and Experimentation 4a.** Draw pictures that portray some features of the thing being described. **4b.** Record observations and data with pictures, numbers, or written statements. **4c.** Record observations on a bar graph. **4d.** Describe the relative position of objects by using two references (e.g., above and next to, below and left of.)

## History and Social Science Standards

**1.2 -4.** Describe how location, weather, and physical environment affect the way people live, including the effects on their food, clothing, shelter, transportation, and recreation.

**1.4 Students compare and contrast everyday life in different times and places around the world and recognize that some aspects of people, places and things change over time while others stay the same.** (*Compare and contrast food production, transportation and the type of food people are able to grow in different parts of the world*)

**1.6 -1.** Understand the concept of exchange and the use of money to purchase goods and services. (*Students can sell worms, produce, seeds or plants they have grown.*)

## Grade Two

### Science Standards

**Physical Sciences 1e.** Students know objects fall to the ground unless something holds them up (*e.g., Fruit falling. Water moving downhill with gravity and causing erosion, leading to fertile bottom lands and rocky outcroppings on hill tops.*)

**Life Sciences 2a.** Students know that organisms reproduce offspring of their own kind and that the offspring resemble their parents and one another. **2b.** Students know the sequential stages of life cycles are different for different animals, such as butterflies, frogs, and mice. **2c.** Students know many characteristics of an organism are inherited from the parents. Some characteristics are caused or influenced by the environment. **2d.** Students know there is variation among individuals of one kind within a population. **2e.** Students know light, gravity, touch, or environmental stress can affect the germination, growth, and development of plants. **2f.** Students know flowers and fruits are associated with reproduction in plants.

**Earth Sciences 3a.** Students know how to compare the physical properties of different kinds of rocks and know that rock is composed of different combinations of minerals.

**3b.** Students know smaller rocks come from the breakage and weathering of larger rocks.

**3c.** Students know that soil is made partly from weathered rock and partly from organic materials and that soils differ in their color, texture, capacity of retain water, and ability to support the growth of many kinds of plants. **3e.** Students know rock, water, plants, and soil provide many resources, including food, fuel, and building materials, that humans use.

**Investigation and Experimentation 4b.** Measure length, weight, temperature, and liquid volume with appropriate tools and express those measurements in standard metric system units. **4d.** Write or draw descriptions of a sequence of steps, events, and observations.

**4e.** Construct bar graphs to record data, using appropriately labeled axes. **4f.** Use magnifiers or microscopes to observe and draw descriptions of small objects or small features of objects. **4g.** Follow oral instructions for a scientific investigation.

## History and Social Science Standards

**2.1- 2.** Compare and contrast their daily lives with those of their parents, grandparents and

/or guardians. *(Students compare and contrast their lives with their parents and grandparents with regard to food, food production, transportation of food and composting.)*

**2.2 Students demonstrate map skills by describing the absolute and relative locations of people, places and environments.** *(Draw a map of their school garden.)*

**2.2-4.** Compare and contrast basic land use in urban, suburban, and rural environments in California. *(Find locations of farming areas and why farms are located where they are.)*

**2.4 -1.** Describe food production and consumption long ago and today, including the roles of farmers, processors, distributors, weather, and land and water resources.

## Grade Three

### Science Standards

**Physical Sciences 1a.** Students know energy comes from the Sun to Earth in the form of light. **1b.** Students know sources of stored energy take many forms, such as food, fuel, and batteries. **2a.** Students know sunlight can be blocked to create shadows. **2b.** Students know light is reflected from mirrors and other surfaces.

**Life Sciences 3a.** Students know plants and animals have structures that serve different functions in growth, survival and reproduction. **3b.** Students know examples of diverse life forms in different environments, such as oceans, deserts, tundra, forests, grasslands, and wetlands. **3c.** 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.

**Earth Sciences 4e.** Students know the position of the Sun in the sky changes during the course of the day and from season to season.

**Investigation and Experimentation 5a.** Repeat observations to improve accuracy and know 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. **5d.** Predict the outcome of a simple investigation and compare the results with the prediction.

## History and Social Science Standards

**3.1 -1.** Identify geographical features in their local region. *(The Santa Ynez Mountains are one of a handful of mountain ranges in the world that run East to West. This orientation gives Santa Barbara a southern exposure, and is in large part, responsible for our mild year-round climate and good growing conditions.)* **2.** Trace the ways in which people have used the resources of the local region and modified the physical environment. *(The fertile soil of the Goleta Valley is some of the best in the state and along with the mild climate has long made Goleta prime land for farming.)*

**3.3 -3.** Trace why their community was established, how individuals and families contributed to its founding and development, and how the community has changed over time, drawing on maps, photographs, oral histories, letters, newspapers, and other primary sources. *(Trace the change in land use in the Santa Barbara area from farming*

*and ranching to housing and urban development.)*

3.5 -1. Describe the ways in which local producers have used and are using natural resources, human resources, and capital resources to produce goods and services in the past and the present. (*Examine this in terms of local agriculture in the Santa Barbara area.*)

## Grade Four

### Science Standards

**Life Sciences 2a.** Students know plants are the primary source of matter and energy entering most food chains. **2b.** 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. **2c.** Students know decomposers, including many fungi, insects, and microorganisms, recycle matter from dead plants and animals. **3b.** 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. **3c.** Students know many plants depend on animals for pollination and seed dispersal, and animals depend on plants for food and shelter. **3d.** Students know that most microorganisms do not cause disease and that many are beneficial.

**Earth Sciences 5a.** 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. **5b.** Students know natural processes, including freezing and thawing and the growth of roots, cause rocks to break down into smaller pieces. **5c.** 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.

**Investigation and Experimentation 6b.** Measure and estimate the weight, length, or volume of objects. **6c.** Formulate and justify predictions based on cause-and-effect relationships. **6d.** Conduct multiple trials to test a prediction and draw conclusions about the relationships between predictions and results. **6e.** Construct and interpret graphs from measurements.

### History and Social Science Standards

**4.1 Students demonstrate an understanding of the physical and human geographic features that define places and regions in California.** (*Valleys typically have fertile soil good for farming. Topsoil from mountains surrounding a valley, erodes, and is deposited on the valley bottom by rivers. California's great Central Valley has topsoil deposits from the Sierra Nevada Mountains. Locally, the Goleta Valley has topsoil deposits washed down from the Santa Ynez Mountains.*)

**4.4 Students explain how California became an agricultural and industrial power, tracing the transformation of the California economy and its political and cultural development since the 1850's.** (*California's fertile soil in the Central Valley and other valley's, along with its mild climate and network of dams, aqueducts and reservoirs made California's an agricultural leader in the production of fresh fruits and vegetables. With the advent of modern shipping, trucking, and rail transportation (e.g. refrigerated trucks and rail cars) California was able to export fresh fruits and vegetables to the rest of the country and world.*)

## Grade Five

### Science Standards

**Life Sciences 2e.** Students know how sugar, water, and minerals are transported in a vascular plant. **2f.** Students know plants use carbon dioxide (CO<sub>2</sub>) and energy from sunlight to build molecules of sugar and release oxygen. **2g.** 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).

**Investigation and Experimentation 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: **6a.** Classify objects (*e.g., rocks, plants, leaves*) in accordance with appropriate criteria. **6b.** Develop a testable question. **6c.** Plan and conduct a simple investigation based on a student-developed question and write instructions others can follow to carry out the procedure. **6d.** Identify the dependent and controlled variables in an investigation. **6e.** 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. **6f.** Select appropriate tools (*e.g., thermometers, meter sticks, balances, and graduated cylinders*) and make quantitative observations. **6g.** Record data by using appropriate graphic representations (including charts, graphs, and labeled diagrams) and make inferences based on those data. **6h.** Draw conclusions from scientific evidence and indicate whether further information is needed to support a specific conclusion. **6i.** Write a report of an investigation that includes conducting tests, collecting data or examining evidence, and drawing conclusions.

### History and Social Science Standards

**5.4 -6.** Describe the introduction of slavery into America, the responses of slave families to their condition, the ongoing struggle between proponents and opponents of slavery, and the gradual institutionalization of slavery in the South. (*Describe the role that agriculture and the plantation system had on the need for cheap or free labor and how that need perpetuated the institution of slavery in the South.*)

## Grade Six

### Science Standards

**Shaping Earth's Surface 2.** Topography is reshaped by the weathering of rock and soil and by the transportation and deposition of sediment. As a basis for understanding this concept: **2a.** Students know water running downhill is the dominant process in shaping the landscape, including California's landscape. **2b.** Students know rivers and streams are dynamic systems that erode, transport sediment, change course, and flood their banks in natural and recurring patterns.

**Ecology (Life Science) 5a.** Students know energy entering ecosystems as sunlight is transferred by producers into chemical energy through photosynthesis and then from organism to organism through food webs. **5b.** Students know matter is transferred over time from one organism to others in the food web and between organisms and the physical environment. **5c.** Students know populations of organisms can be categorized by the functions they serve in an ecosystems. **5e.** Students know the number and types of

organisms an ecosystem can support depends on the resources available and on abiotic factors, such as quantities of light and water, a range of temperatures, and soil composition.

### **Investigation and Experimentation**

**7h.** Identify changes in natural phenomena over time without manipulating the phenomena (e.g., a tree limb, a grove of trees, a stream, a hillside).

## **History and Social Science Standards**

**6.1 Students describe what is known through archaeological studies of the early physical and cultural development of humankind from the Paleolithic era to the agricultural revolution. 6.1- 3.** Discuss the climatic changes and human modifications of the physical environment that gave rise to the domestication of plants and animals and new sources of clothing and shelter.

**6.2-1.** Locate and describe the major river systems and discuss the physical setting that supported permanent settlement and early civilizations. (*Climate, available water, and fertile soil from the periodic flooding of the river.*) **6.2-2.** Trace the development of agricultural techniques that permitted the production of economic surplus and the emergence of cities as centers of culture and power.