Science Grade 2 Curriculum Guide

West Contra Costa Unified School District

- Pacing is based on current (2016) version of Draft California Science Framework
  - http://www.cde.ca.gov/ci/sc/cf/scifw2nd60daypubreview.asp
- Textbook: California Science (sea lion)

Instructional Segments

1. **Landscape Shapes**

   Students represent landscapes with 3-D physical models and 2-D maps. They recognize patterns in the shapes and locations of landforms and water bodies. They ask questions about how these features formed.

2. **Landscape Materials**

   Students learn to describe differences in material properties. They explain how material properties can change, especially focusing on changes caused by changing temperature. Some of these changes can be reversed while others cannot. Students relate the properties of materials to how they can be used. Properties important to landscapes and landforms include the strength of materials and their ability to absorb water.

3. **Landscape Changes**

   Some changes on Earth occur quickly while others occur slowly. Students investigate several processes that sculpt landforms and then create engineering solutions that slow down those changes.

4. **Biodiversity in Landscapes**

   Different landscapes support different types and quantities of life. Students investigate the needs of plants and engineer models that mimic their pollination and seed dispersal structures. They then ask questions about how plant needs are met in the physical conditions of different habitats.

2. Landscape Materials

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Instructional Segment	Guiding Questions	Phenomena	Performance Expectation	Suggested Lessons/Activities	Resources
2. Landscape Materials	*How can we describe different materials?*	Video or book – The Magic School Bus – Inside the Earth. Describe a collection of minerals/rocks gathered from students' homes.	**2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.**	• Student science notebook to record observations, predictions, compare similarities/differences of materials, illustrate/color raw materials. • Light reflection of a mineral using a flashlight • Scrape minerals/rocks with nail to determine hardness/softness. • Can you be a mineral detective? activity	District FOSS Kit – Rocks and Minerals 2-PS1-1 Evidence Statement Textbook p. 172-177 Rocks rock! Science Study Notebook p. 73-80 Rocks and Soil Interactive Study Guide p. 44-45 What are rocks and minerals? Sorting Minerals Textbook - page 190-191

Instructional Segment	Guiding Questions	Phenomena	Performance Expectation	Suggested Topics/Activities	Resources
2. **Landscape Materials**	*How are materials similar and different from one another?* *How do the properties of the materials relate to their use?*	Realia showing sculptures, jewelry, coins, etc. vs. raw materials like rocks, granite, clay, gems, metal.	**2-PS1-2** **Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.**	• Properties including strength, flexibility, hardness, texture, and absorbency. • What materials are best for soaking up a spill? For making a strong table? For breaking a nut? • Compare and contrast materials with Venn diagrams? • Students justify why one material is better than another for a given purpose.	2-PS1-2 Evidence Statement Textbook - pages 192-193 - Guided Inquiry Textbook - page 170 - Directed Inquiry

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2. **Landscape Materials**	*What sort of changes can happen to materials?*		**2-PS1-3** **Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.**	• Venn Diagrams to show changes to materials	2-PS1-3 Evidence Statement Textbook p. 178-181 What is weathering? Science Study Notebook p. 81-85 What is weathering? Interactive Study Guide p. 46-47 What is weathering? Textbook p. 182-185 What is soil? Science Study Notebook p. 82 What is soil? Interactive Study Guide p. 48-49 What is soil?

Instructional Segment	Guiding Questions	Phenomena	Performance Expectation	Suggested Topics/Activities	Resources
2. **Landscape Materials**	*How can we describe different materials?* *How are materials similar and different from one another?* *What sort of changes can happen to materials?*	Ice cubes melt, but can be re-frozen. Cookies cannot be turned back into cookie dough. Reversibility of frozen corn syrup vs. room temperature corn syrup poured down a cardboard ramp. Reversibility of frozen ice vs. melting ice. Non-reversibility of clay vs. kiln fired clay.	**2-PS1-4** **Construct an argument with evidence that some changes in matter, caused by mixing, heating, or cooling can be reversed and some cannot.**	•	2-PS1-4 Evidence Statement Textbook p. 186-189 What are natural resources? Science Study Notebook p. 83-85 What are natural resources? Interactive Study Guide p. 50-51 What are natural resources?

Instructional Segment	Guiding Questions	Phenomena	Performance Expectation	Suggested Topics/Activities	Resources
2. **Landscape Materials**			**K-2-ETS1-3** **Analyze data data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.**	• Differentiation groups – Rocks and Soil - leveled content readers.	K-2-ETS1-3 Evidence Statement Helpful websites: Lawrence Hall of Science– http://www.lawrencehallofscience.org/ California Academy of Sciences – http://www.calacademy.org/ Exploratorium – http://www.exploratorium.edu/ National Geographic News – http://www.news.nationalgeographic.com/news/ www.education.com/science-fair/article/what-can-sue-identity-minerals