

CHECKLIST OF CA SCIENCE STANDARDS FOR GRADE 2

PEBBLES, SAND, AND SILT

PURPOSE

The checklist is

- A sequential listing of instructional activities through each module.
- A place to document teaching and coverage of CA standards.
- A correlation tool showing where each CA standard is addressed.

Instructional sequence. The Checklist displays the sequence of instruction as the module progresses through 1) active investigation, 2) reading, and 3) assessment. The chart is broken out by investigation, part, and session number.

Most grade 2 sessions start with active investigation, which may include teacher demonstration, hands-on activity in small groups with guiding questions, class discussion, teacher explanation, and vocabulary reinforcement. At certain times in an investigation, students read (or are read to) and discuss the reading as a class. Students use their science notebooks to respond in words or drawings to review questions focusing on the key science concepts in the investigation. FOSS Teacher Guide and *Science Resources* book pages where CA standards are addressed are referenced through the instructional sequence.

Documentation of teaching and coverage. The Checklist helps teachers keep track of the class's progress through the module. Teachers can copy the Checklist and record the date of each instruction session. The completed Checklist can serve as a planning tool for teaching the module a second time.

Correlation with CA standards. The Checklist allows teachers to identify all the places in the teacher guide and *Science Resources* book where any specific CA standard is addressed. Teachers can quickly find the page references for any point in the instruction. The Checklist provides a table of evidence showing where the CA standards are addressed through multiple exposures and with a minimum of 20–25% hands-on activities integrated cohesively into the instruction.



FOSS AND CALIFORNIA STANDARDS

The **Pebbles, Sand, and Silt Module** supports the following Earth Sciences Content Standards for grade 2.*

ES3 *Earth is made of materials that have distinct properties and provide resources for human activities*
As a basis for understanding this concept:

- ES3a *Students know* how to compare the physical properties of different kinds of rocks and know that rock is composed of different combinations of minerals.
- ES3b *Students know* smaller rocks come from the breakage and weathering of larger rocks.
- ES3c *Students know* that 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.
- ES3d *Students know* that fossils provide evidence about the plants and animals that lived long ago and that scientists learn about the past history of Earth by studying fossils.
- ES3e *Students know* rock, water, plants, and soil provide many resources, including food, fuel, and building materials, that humans use.

The **Pebbles, Sand, and Silt Module** supports the following Investigation and Experimentation Content Standards for grade 2.*

INVESTIGATION AND EXPERIMENTATION

I&E4 *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:*

- I&E4a Make predictions based on observed patterns and not random guessing.
- I&E4b Measure length, weight, temperature, and liquid volume with appropriate tools and express those measurements in standard metric system units.
- I&E4c Compare and sort common objects according to two or more physical attributes (e.g., color, shape, texture, size, weight).
- I&E4d Write or draw descriptions of a sequence of steps, events, and observations.
- I&E4e Construct bar graphs to record data, using appropriately labeled axes.
- I&E4f Use magnifiers or microscopes to observe and draw descriptions of small objects or small features of objects.
- I&E4g Follow oral instructions for a scientific investigation.

* *Science Content Standards for California Public Schools: Kindergarten through Grade Twelve* (Sacramento: California Department of Education, 2000).



Checklist of CA Standards for Pebbles, Sand, and Silt Investigation 1

Content Standard Focus	Investigation 1: First Rocks	Teacher Guide (Science Resources) pages
ES3a, ES3b, I&E4c, I&E4f	Part 1: Three Rocks—1 session	42–47
DATE OF INSTRUCTION	SESSION 1	
	Teacher presentation (introduce “geologist”)	45
	Hands-on with rocks	46
	Teacher-led discussion	46–47
	Teacher presentation (introduce “weathering”)	47
	Vocabulary instruction and content review	47
ES3a, I&E4f, I&E4g	Part 2: Washing Three Rocks—1 session	48–52
DATE OF INSTRUCTION	SESSION 1	
	Teacher presentation	50
	Hands-on with rocks in water	50
	Teacher-led class discussion	51
	Embedded assessment (Rock Record notebook sheet)	51
	Hands-on with finding a rock	51
	Teacher presentation	51
	Vocabulary instruction and content review	52
ES3a, I&E4c, I&E4f	Part 3: First Sorting—1 session	53–57
DATE OF INSTRUCTION	SESSION 1	
	Read book <i>Peter and the Rocks</i>	55
	Teacher presentation	55
	Hands-on with rock sorting	55
	Teacher-led class discussion	56
	Vocabulary instruction and content review	57
ES3a, I&E4c	Part 4: Sorting Games—1 session	58–61
DATE OF INSTRUCTION	SESSION 1	
	Teacher-led discussion (review <i>Peter and the Rocks</i>)	60
	Teacher-led class discussion and teacher presentation	60
	Hands-on with rock-sorting activities	60
	Embedded assessment (teacher observation)	60
	Vocabulary and content review	61
ES3a, ES3b, I&E4f	Part 5: Start a Rock Collection—2 sessions	62–67 (3–10)
DATE OF INSTRUCTION	SESSION 1	
	Teacher presentation (where to look for rocks)	64
	Teacher-led class discussion (rock collection rules)	64
	Hands-on with collecting and observing rocks	64–65
	Writing in notebook (Rock Record)	65
	Vocabulary instruction and content review	65
DATE OF INSTRUCTION	SESSION 2	
	Student reading with discussion questions	66–67 (3–10)
	Writing in notebook (review questions)	67
	Hands-on with granite	67



PEBBLES, SAND, AND SILT CHECKLIST

Checklist of CA Standards for Pebbles, Sand, and Silt Investigation 2

Content Standard Focus	Investigation 2: River Rocks	Teacher Guide (Science Resources) pages
ES3b, I&E4e, I&E4f, I&E4g	Part 1: Screening River Rocks—1 session	80–85
DATE OF INSTRUCTION	SESSION 1	
	Teacher presentation (earth materials)	82
	Hands-on with rock mixture	82
	Teacher presentation (introduce screens)	82–83
	Teacher-led class discussion	83
	Hands-on with screening rock mixture	83
	Teacher presentation (demonstrate screens)	83
	Hands-on with screening rock mixture	84
	Teacher presentation (rock names)	84
	Hands-on with labeling rock sizes	84
	Vocabulary instruction and content review	85
	Embedded assessment (Create a Graph)	85
ES3b, I&E4b, I&E4c, I&E4d, I&E4g	Part 2: River Rocks by Size—2 sessions	86–91
DATE OF INSTRUCTION	SESSION 1	
	Teacher presentation (introduce notebook sheet)	88
	Hands-on with sorting rock sizes	88
	Writing in notebook (Sand, Gravel and Pebbles)	88–89
DATE OF INSTRUCTION	SESSION 2	
	Teacher presentation (introduce balance)	89–90
	Hands-on at rock weighing center	90
	Writing in notebook (How Many Grams?)	90
	Writing in notebook (Steps for Weighing an Object)	90
	Vocabulary instruction and content review	91
ES3b, I&E4f, I&E4g	Part 3: Sand and Silt—3 sessions	92–98 (11–15)
DATE OF INSTRUCTION	SESSION 1	
	Teacher presentation (introduce sand)	94
	Hands-on with sand	94
	Teacher-led class discussion	95
	Hands-on with sand in water	95
DATE OF INSTRUCTION	SESSION 2	
	Teacher presentation (introduce drawing sheets)	96
	Writing in notebook (Sand and Water Drawing)	96
	Teacher-led class discussion	96
	Teacher presentation (introduce silt)	96
	Embedded assessment (notebook sheet)	96
	Hands-on with silt	96
	Vocabulary instruction and content review	97
DATE OF INSTRUCTION	SESSION 3	
	Student reading with discussion questions	98 (11–15)
	Writing in notebook (review questions)	98



Checklist of CA Standards for Pebbles, Sand, and Silt Investigation 2 (cont.)

Content Standard Focus	Investigation 2: River Rocks (continued)	Teacher Guide (Science Resources) pages
<i>ES3b, I&E4g</i>	Part 4: Exploring Clay—2 sessions	99–104
DATE OF INSTRUCTION	SESSION 1	
	Teacher presentation	101
	Hands-on with clay	101
	Teacher-led class discussion	101
	Teacher presentation (introduce particle size of clay)	101–102
	Hands-on with clay	102
DATE OF INSTRUCTION	SESSION 2	
	Teacher presentation	103
	Hands-on with clay balls	103
	Writing in notebook (Clay and Water Drawing)	103
	Teacher-led class discussion (discuss drawings)	103
	Vocabulary instruction and content review	104
	Embedded assessment (Bottle Drawing)	104



PEBBLES, SAND, AND SILT CHECKLIST

Checklist of CA Standards for Pebbles, Sand, and Silt Investigation 3

Content Standard Focus	Investigation 3: Using Rocks	Teacher Guide (Science Resources) pages
ES3b, ES3e, I&E4g	Part 1: Rocks in Use—2 sessions	116–120 (16–17)
DATE OF INSTRUCTION	SESSION 1	
	Teacher-led class discussion (review particle size)	118
	Teacher presentation	118
	Hands-on with field trip looking for earth materials	118
	Teacher-led class discussion	118
	Vocabulary instruction and content review	119
DATE OF INSTRUCTION	SESSION 2	
	Student reading with discussion questions	120 (16–17)
	Writing in notebook	120
ES3e, I&E4f, I&E4g	Part 2: Looking at Sandpaper—1 session	121–125
DATE OF INSTRUCTION	SESSION 1	
	Hands-on with sandpaper	123
	Teacher presentation (introduce vocabulary)	123
	Hands-on with sandpaper	123–124
	Vocabulary instruction and content review	125
	Writing in notebook	125
ES3e	Part 3: Sand Sculptures—1 session	126–129
DATE OF INSTRUCTION	SESSION 1	
	Teacher-led class discussion (review sand)	128
	Teacher presentation (sand and matrix)	128
	Hands-on with sand and matrix	128–129
	Vocabulary instruction and content review	129
	Writing in notebook	129
ES3e, I&E4g	Part 4: Clay Beads—2 sessions	130–133
DATE OF INSTRUCTION	SESSIONS 1–2	
	Teacher presentation (properties of clay as it hardens)	132
	Hands-on with molding clay	132
	Vocabulary instruction and content review	133
	Writing in notebook	133
ES3e, I&E4g	Part 5: Making Bricks—3 sessions	134–141 (18–22)
DATE OF INSTRUCTION	SESSIONS 1–2	
	Teacher presentation (introduce bricks)	137
	Hands-on with making bricks	137–138
	Embedded assessment (Uses of Earth Materials)	139
	Vocabulary and content review	139
DATE OF INSTRUCTION	SESSION 3	
	Student reading with discussion questions	140 (18–22)
	Writing in notebook (Making Things with Rocks)	140–141



Checklist of CA Standards for Pebbles, Sand, and Silt Investigation 4

Content Standard Focus	Investigation 4: Soil Explorations	Teacher Guide (Science Resources) pages
ES3c, I&E4a, I&E4f, I&E4g	Part 1: Homemade Soil—3 sessions	154–160
DATE OF INSTRUCTION	SESSIONS 1–2	
	Teacher presentation (potting soil)	156
	Hands-on with soil/humus	156
	Teacher presentation (introduce silt and define soil)	156–157
	Hands-on with separating soil	157
	Embedded assessment (teacher observation)	157
	Teacher-led discussion (about student observations)	157
	Hands-on with separating soil with screens	157
	Teacher-led class discussion	158
	Hands-on with soil and water	158
DATE OF INSTRUCTION	SESSION 3	
	Teacher presentation (review separation)	159
	Writing in notebook (Soil Drawings)	159
	Teacher-led class discussion	159
	Vocabulary instruction and content review	160
ES3c, I&E4b, I&E4d	Part 2: Water in Soil—2 sessions	161–166
DATE OF INSTRUCTION	SESSIONS 1–2	
	Teacher-led class discussion (Where does rain go?)	163
	Teacher presentation (introduce two earth materials)	163
	Teacher-led class discussion (what will happen if...)	163
	Teacher presentation (investigation procedure)	163–164
	Writing in notebooks (Water and Soil)	164
	Guided teacher demonstration with student participation	164
	Teacher-led class discussion (results)	165
	Hands-on with soil observations	166
	Embedded assessment (Water and Soil)	166
	Vocabulary instruction and content review	166
ES3c, ES3e	Part 3: Soil Search—2 sessions	167–173 (23–27)
DATE OF INSTRUCTION	SESSION 1	
	Teacher presentation (introduce soil search)	169
	Hands-on with outdoor soil search	169
	Vocabulary instruction and content review	170
	Writing in notebook	170
DATE OF INSTRUCTION	SESSION 2	
	Student reading with discussion questions	171–172 (23–27)
	Writing in notebook (What Is in Soil? Review)	172–173
	Reviewing glossary	173



PEBBLES, SAND, AND SILT CHECKLIST

Checklist of CA Standards for Pebbles, Sand, and Silt Investigation 4 (cont.)

Content Standard Focus	Investigation 4: Soil Explorations (continued)	Teacher Guide (<i>Science Resources</i>) pages
ES3c, I&E4d, I&E4f	Part 4: Studying Local Soil—3 sessions	174–180 (28–29)
DATE OF INSTRUCTION	SESSIONS 1–2	
	Teacher-led class discussion (discuss procedures)	176
	Hands-on with local soil samples	176–177
	Teacher presentation	177
	Hands-on with local soil samples in water	177
	Embedded assessment (Soil Drawings)	177
	Hands-on with comparing soils	177
	Teacher-led class discussion	177
	Vocabulary instruction and content review	179
DATE OF INSTRUCTION	SESSION 3	
	Student reading with discussion questions	180 (28–29)
	Writing in notebook	180
ES3d, ES3e	Part 5: Fossils—3 sessions	181–184 (30–36)
DATE OF INSTRUCTION	SESSION 1	
	Teacher presentation	183
	Viewing and discussing video (I Dig Fossils)	183
DATE OF INSTRUCTION	SESSION 2	
	Student reading with discussion questions	184 (30–36)
	Writing in notebook (Fossils Review)	184
DATE OF INSTRUCTION	SESSION 3	
	End-of-Module Assessment	184