

CHECKLIST OF CA SCIENCE STANDARDS FOR GRADE 5 WATER PLANET

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 sessions start with active investigation, which may include teacher demonstration, hands-on activity, recording/writing in notebooks, class discussion, teacher explanation, and vocabulary reinforcement. Next students read, answer review questions, and discuss the reading. Finally, embedded assessments are completed, reviewed, and self-assessed. 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 **Water Planet Module** supports the following Earth Sciences Content Standards for grade 5.*

EARTH SCIENCES

ES3 *Water on Earth moves between the oceans and land through the processes of evaporation and condensation. As a basis for understanding this concept:*

- ES3a *Students know* most of Earth's water is present as salt water in the oceans, which cover most of Earth's surface.
- ES3b *Students know* when liquid water evaporates, it turns into water vapor in the air and can reappear as a liquid when cooled or as a solid if cooled below the freezing point of water.
- ES3c *Students know* water vapor in the air moves from one place to another and can form fog or clouds, which are tiny droplets of water or ice, and can fall to Earth as rain, hail, sleet, or snow.
- ES3d *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.
- ES3e *Students know* the origin of the water used by their local communities.

ES4 *Energy from the Sun heats Earth unevenly, causing air movements that result in changing weather patterns. As a basis for understanding this concept:*

- ES4a *Students know* uneven heating of Earth causes air movements (convection currents).
- ES4b *Students know* the influence that the ocean has on the weather and the role that the water cycle plays in weather patterns.
- ES4c *Students know* the causes and effects of different types of severe weather.
- ES4d *Students know* how to use weather maps and data to predict local weather and know that weather forecasts depend on many variables.
- ES4e *Students know* that the Earth's atmosphere exerts a pressure that decreases with distance above Earth's surface and that at any point it exerts this pressure equally in all directions.

ES5 *The solar system consists of planets and other bodies that orbit the Sun in predictable paths. As a basis for understanding this concept:*

- ES5a *Students know* the Sun, an average star, is the central and largest body in the solar system and is composed primarily of hydrogen and helium.
- ES5b *Students know* the solar system includes the planet Earth, the Moon, the Sun, eight other planets and their satellites, and smaller objects, such as asteroids and comets.
- ES5c *Students know* the path of a planet around the Sun is due to the gravitational attraction between the Sun and the planet.

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

The **Water Planet Module** supports the following Investigation and Experimentation Content Standards for grade 5.*

INVESTIGATION AND EXPERIMENTATION

I&E6 *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&E6a Classify objects (e.g., rocks, plants, leaves) in accordance with appropriate criteria.
- I&E6b Develop a testable question.
- I&E6c Plan and conduct a simple investigation based on a student-developed question and write instructions others can follow to carry out the procedure.
- I&E6d Identify the dependent and controlled variables in an investigation.
- I&E6e 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.
- I&E6f Select appropriate tools (e.g., thermometers, meter sticks, balances, and graduated cylinders) and make quantitative observations.
- I&E6g Record data by using appropriate graphic representations (including charts, graphs, and labeled diagrams) and make inferences based on those data.
- I&E6h Draw conclusions from scientific evidence and indicate whether further information is needed to support a specific conclusion.
- I&E6i Write a report of an investigation that includes conducting tests, collecting data or examining evidence, and drawing conclusions.

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



Checklist of CA Science Standards for Water Planet Investigation 1

Content Standard Focus	Investigation 1: Solar System	Teacher Guide (<i>Science Resources</i>) pages
ES5a, ES5b, I&E6a, I&E6g	Part 1: <i>Solar-System Cards</i>—2 sessions	50–58 (145–158)
DATE OF INSTRUCTION	SESSION 1	
	Teacher-led class discussion	53
	Hands-on with Solar-System Cards	53
	Teacher presentation	54
	Hands-on with Solar-System Cards	54–55
	Teacher-led class discussion	55–56
	Writing in notebook (Solar-System Data)	55
	Teacher presentation	56
	Vocabulary instruction and content review	57
DATE OF INSTRUCTION	SESSION 2	
	Student reading with discussion questions	58 (145–158)
	Writing in notebook	58
ES5c	Part 2: <i>Solar-System Gravity</i>—6 sessions	59–66 (159–167)
DATE OF INSTRUCTION	SESSIONS 1–3	
	Teacher presentation	61
	Teacher-led class discussion	61–62
	Student reading with discussion questions	62–63 (159–163)
	View and discuss video (<i>Planets and the Solar System</i>)	63
	Writing in notebook (<i>Planets and the Solar System</i>)	63
	Teacher-led class discussion	63–64
	Vocabulary instruction and content review	65
DATE OF INSTRUCTION	SESSION 4	
	Student summary reading with questions	66 (164–167)
	Writing in notebook	66
DATE OF INSTRUCTION	SESSIONS 5–6	
	Assess Progress—I-Check 1	66



Checklist of CA Science Standards for Water Planet Investigation 2

Content Standard Focus	Investigation 2: Swingers	Teacher Guide (Science Resources) pages
<i>I&E6d</i>	Part 1: Exploring Swingers—1 session	78–83
DATE OF INSTRUCTION	SESSION 1	
	Teacher presentation	80
	Hands-on with swingers (pendulums)	80–82
	Teacher presentation	82
	Vocabulary instruction and content review	83
<i>I&E6d, I&E6e</i>	Part 2: Testing Variables—3 sessions	84–94 (169–171)
DATE OF INSTRUCTION	SESSIONS 1–2	
	Teacher presentation	87
	Hands-on with swingers (pendulums)	87–88
	Teacher-led class discussion	88
	Hands-on with swingers (pendulums)	88
	Teacher presentation	88–89
	Hands-on with swingers (pendulums)	89–90
	Teacher-led class discussion	90–91
	Writing in notebook (Swingers Picture Graph)	92
	Teacher-led class discussion	92
	Vocabulary instruction and content review	93
	Embedded assessment—Response Sheet	93
DATE OF INSTRUCTION	SESSION 3	
	Student reading with discussion questions	94 (169–171)
	Writing in notebook	94
<i>I&E6g</i>	Part 3: Predicting Swings—5–6 sessions	95–102 (172–180)
DATE OF INSTRUCTION	SESSIONS 1–2	
	Teacher presentation	97–98
	Writing in notebook (Swingers Two-Coordinate Graph)	98
	Teacher-led class discussion	99
	Hands-on with swingers (pendulums)	100
	Vocabulary instruction and content review	100
DATE OF INSTRUCTION	SESSIONS 3–4	
	Student reading with discussion questions	101 (172–177)
	Writing in notebook	101
DATE OF INSTRUCTION	SESSION 5	
	Student summary reading with questions	102 (178–180)
	Writing in notebook	102
DATE OF INSTRUCTION	SESSION 6	
	Assess Progress—I-Check 2	102



Checklist of CA Science Standards for Water Planet Investigation 3

Content Standard Focus	Investigation 3: Water Vapor	Teacher Guide (Science Resources) pages
ES3b	Part 1: Evaporation—2 sessions	114–119 (182–183)
DATE OF INSTRUCTION	SESSION 1	
	Teacher presentation	116
	Teacher-led class discussion	117
	Teacher presentation	117
	Writing in notebooks (Wet Paper Towels)	117
	Vocabulary instruction and content review	118
DATE OF INSTRUCTION	SESSION 2	
	Student reading with discussion questions	119 (182–183)
	Writing in notebook	119
ES3b, I&E6f, I&E6g	Part 2: Evaporation Locations—3 sessions	120–126 (184–186)
DATE OF INSTRUCTION	SESSIONS 1–2	
	Teacher-led class discussion	122
	Hands-on with evaporation location investigation	122–124
	Writing in notebook (Evaporation Location Charts)	124
	Teacher-led class discussion	124
	Vocabulary instruction and content review	125
DATE OF INSTRUCTION	SESSION 3	
	Student reading with discussion questions	126 (184–186)
	Writing in notebook	126
ES3b, I&E6d, I&E6e, I&E6f, I&E6g	Part 3: Surface Area—2 sessions	127–134 (187–188)
DATE OF INSTRUCTION	SESSION 1	
	Teacher presentation	129
	Hands-on with surface-area investigation	129–131
	Writing in notebook (Surface-Area Chart)	130–131
	Teacher-led class discussion	131
	Vocabulary instruction and content review	132
DATE OF INSTRUCTION	SESSION 2	
	Student reading with discussion questions	133 (187–188)
	Embedded assessment—Response Sheet	134
ES3b, I&E6f, I&E6g	Part 4: Condensation—6 sessions	135–144 (189–196)
DATE OF INSTRUCTION	SESSIONS 1–2	
	Hands-on with ice and water	138
	Teacher-led class discussion	138
	Hands-on with condensation	140–141
	Teacher-led class discussion	141
	Vocabulary instruction and content review	142
DATE OF INSTRUCTION	SESSION 3	
	Student reading with discussion questions	143 (189–193)
DATE OF INSTRUCTION	SESSION 4	
	Student summary reading with questions	144 (194–196)
DATE OF INSTRUCTION	SESSIONS 5–6	
	Assess Progress—I-Check 3	144



Checklist of CA Science Standards for Water Planet Investigation 4

Content Standard Focus	Investigation 4: Heating Earth	Teacher Guide (Science Resources) pages
<i>ES4a, I&E6c, I&E6d, I&E6f, I&E6g</i>	Part 1: <i>Heating Earth Materials</i>—4 sessions	159–169 (198–201)
DATE OF INSTRUCTION	SESSIONS 1–3	
	Teacher presentation	162
	Small-group discussion	162
	Writing in notebook (Heating Earth Materials)	163
	Teacher presentation	163–164
	Hands-on with heating earth materials investigation	164–165
	Writing in notebook (Heating Earth Materials)	165
	Writing in notebook (Graph of Earth-Material Temperatures)	166
	Teacher-led class discussion	166
	Teacher presentation	167
	Small group discussion	167
	Teacher presentation	167
	Vocabulary instruction and content review	168
DATE OF INSTRUCTION	SESSION 4	
	Student reading with discussion questions	169 (198–201)
	Writing in notebook	169
<i>ES4a, I&E6c, I&E6g</i>	Part 2: <i>Convection</i>—2 sessions	170–178 (202–207)
DATE OF INSTRUCTION	SESSION 1	
	Teacher presentation	172–173
	Hands-on with density and cold water investigation	173
	Teacher-led class discussion	174
	Hands-on with density and hot water investigation	174–175
	Writing in notebook (Heating Water)	175
	Teacher-led class discussion	175
	Teacher presentation	175–176
	Vocabulary instruction and content review	177
	Embedded assessment—Response Sheet	177
DATE OF INSTRUCTION	SESSION 2	
	Student reading with discussion questions	178 (202–207)
	Writing in notebook	178
<i>ES4e, I&E6h</i>	Part 3: <i>The Pressure Is On</i>—5 sessions	179–192 (208–217)
DATE OF INSTRUCTION	SESSIONS 1–2	
	Teacher presentation	182
	Hands-on with air pressure in syringes	182–183
	Writing in notebook (Air and Syringes)	183
	Teacher-led class discussion	183
	Teacher presentation	184–185
	Small group discussion	185
	Teacher presentation	186–187
	Writing in notebook (Atmospheric Pressure at Work)	188
	Vocabulary instruction and content review	189



WATER PLANET CHECKLIST

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Checklist of CA Science Standards for Water Planet Investigation 4 (cont.)

Content Standard Focus	Investigation 4: Heating Earth (continued)	Teacher Guide (Science Resources) pages
<i>ES4e, I&E6h</i>	<i>Part 3: The Pressure Is On—5 sessions (continued)</i>	<i>179–192 (208–217)</i>
DATE OF INSTRUCTION	SESSION 3	
	Student reading with discussion questions	190–191 (208–213)
	Writing in notebook	190–191
Date of Instruction	SESSION 4	
	Student summary reading with questions	191–192 (214–217)
	Writing in notebook	191–192
Date of Instruction	SESSION 5	
	Assess Progress—I-Check 4	192



Checklist of CA Science Standards for Water Planet Investigation 5

Content Standard Focus	Investigation 5: Weather	Teacher Guide (Science Resources) pages
ES3a, ES3c, ES3d, ES4b	Part 1: Water Cycle—3 sessions	216–229 (219–226)
DATE OF INSTRUCTION	SESSIONS 1–2	
	Embedded assessment (Quick write)	219
	Teacher presentation	219
	Hands-on using globe activity	219
	Teacher-led class discussion	220–221
	Teacher presentation	221–223
	Hands-on with Water-Cycle Game	224
	Writing in notebook (Water-Cycle Game)	224
	Teacher presentation	224–225
	Writing in notebook (Water-Cycle Game)	225
	Teacher presentation	226
	Vocabulary instruction and content review	227
DATE OF INSTRUCTION	SESSION 3	
	Student reading with discussion questions	228–229 (219–226)
	Writing in notebook	228–229
ES4b, ES4c	Part 2: Severe Weather—2 sessions	230–235 (227–235)
DATE OF INSTRUCTION	SESSIONS 1–2	
	Small group discussion	232
	Teacher-led class discussion	232
	Teacher presentation	232–233
	Student reading with discussion questions	233–234 (227–235)
	Vocabulary instruction and content review	235
ES4d	Part 3: Weather Maps—3 sessions	236–242 (236–245)
DATE OF INSTRUCTION	SESSIONS 1–2	
	Teacher-led class discussion	238
	Teacher presentation	238
	Using weather maps	238
	Student reading with discussion questions	239 (236–245)
	Writing in notebook (Weather Maps Questions)	239
	Teacher-led class discussion	239–240
	Using weather maps	241
	Teacher-led class discussion	241
	Vocabulary instruction and content review	242
Date of Instruction	SESSION 3	
	Assess Progress—I-Check 5	242



WATER PLANET CHECKLIST

Checklist of CA Science Standards for Water Planet Investigation 5 (cont.)

Content Standard Focus	Investigation 5: Weather (continued)	Teacher Guide (Science Resources) pages
ES3d, ES3e	Part 4: Local Water—3 sessions	243–248 (246–251)
DATE OF INSTRUCTION	SESSION 1	
	Teacher presentation	245–246
	Using California water maps	246
	Teacher-led class discussion	246
	Writing in notebook (Mealtime)	246–247
	Teacher-led class discussion	247
DATE OF INSTRUCTION	SESSION 2	
	Student summary reading with questions	248 (246–251)
	Writing in notebook	248
DATE OF INSTRUCTION	SESSION 3	
	Assessment: Posttest	248