

CHECKLIST OF CA SCIENCE STANDARDS FOR GRADE 2 INSECTS AND PLANTS

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. Teachers can keep track of the class's progress through the module by recording 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 **Insects and Plants Module** supports the following Life Sciences Content Standards for grade 2.*

- LS2** *Plants and animals have predictable life cycles. As a basis for understanding this concept:*
- LS2a *Students know* that organisms reproduce offspring of their own kind and that the offspring resemble their parents and one another.
 - LS2b *Students know* the sequential stages of life cycles are different for different animals, such as butterflies, frogs, and mice.
 - LS2c *Students know* many characteristics of an organism are inherited from the parents. Some characteristics are caused or influenced by the environment.
 - LS2d *Students know* there is variation among individuals of one kind within a population.
 - LS2e *Students know* light, gravity, touch, or environmental stress can affect the germination, growth, and development of plants.
 - LS2f *Students know* flowers and fruits are associated with reproduction in plants.

The **Insects and Plants 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 Science Standards for Insects and Plants Investigation 1

Content Standard Focus	Investigation 1: Mealworms	Teacher Guide (Science Resources) pages
LS2a, I&E4f, I&E4g	Part 1: Mealworms—1 session	46–55
DATE OF INSTRUCTION	SESSION 1	
	Teacher introduction and vocabulary instruction	51
	Teacher-led discussion (mealworms) and demonstration	52
	Small-group hands-on with guiding questions	52
	Teacher-led class discussion (mealworm observations) and explanation (they need air, water, food, space)	52–53
	Teacher demonstration (vial setup)	53
	Small-group hands-on	53
	Teacher-led class discussion, explanation (vials and class culture), and calendar entry	53–54
	Writing in science notebook	54
	Vocabulary instruction and content review	55
LS2a, LS2d, I&E4d, I&E4f	Part 2: Larva, Pupa, Adult—7 sessions	56–64 (3–7)
DATE OF INSTRUCTION	SESSION 1	
	Teacher demonstration (hand lenses and vials)	58
	Class hands-on with mealworms and hand lenses	58
	Teacher-led class discussion (structures and behaviors)	58
	Embedded assessment (writing in science notebook)	58
DATE OF INSTRUCTION	SESSION 2	
	Teacher-led class discussion (molting) and explanation (mealworm larva poster, life cycle, stage, larva, molting)	58–59
	Class hands-on with mealworms and hand lenses	59
	Writing in science notebook	59
DATE OF INSTRUCTION	SESSION 3	
	Teacher-led class discussion (eggs versus droppings) and explanation (identify eggs and droppings)	59
DATE OF INSTRUCTION	SESSION 4	
	Class hands-on with mealworms and hand lenses	59–60
	Teacher-led class discussion (pupae), explanation (mealworm pupa, new stage in life cycle)	59–60
	Writing in science notebook and calendar entry	60
DATE OF INSTRUCTION	SESSION 5	
	Class hands-on with mealworms and hand lenses	59–60
	Teacher-led class discussion (adult), explanation (mealworm adult, darkling beetle), new vocabulary	60
	Writing in science notebook and calendar entry	60
DATE OF INSTRUCTION	SESSION 6	
	Class hands-on with mealworms (observe body variations)	61
	Teacher-led class discussion and demonstration (drawing of adult—head, thorax, abdomen, antenna)	61
	Vocabulary instruction and content review	62
DATE OF INSTRUCTION	SESSION 7	
	Student reading and discussion questions	63–64 (3–7)



FOSS

INSECTS AND PLANTS CHECKLIST

Checklist of CA Science Standards for Insects and Plants Investigation 1 (cont.)

Content Standard Focus	Investigation 1: Mealworms (continued)	Teacher Guide (Science Resources) pages
LS2a, LS2c, I&E4d, I&E4f	Part 3: Life Cycle—2 sessions	65–70 (8–14)
DATE OF INSTRUCTION	SESSION 1	
	Teacher-led class discussion (beetle culture)	67
	Small-group hands-on with culture	67
	Teacher-led class discussion (young larvae, life cycle, death, disfigurement)	67–68
	Embedded assessment (writing in science notebook)	68
	Vocabulary instruction and content review	69
	Create class summary chart of beetle life cycle	69
DATE OF INSTRUCTION	SESSION 2	
	Student reading, discussion, and review questions	70 (8–14)



Checklist of CA Science Standards for Insects and Plants Investigation 2

Content Standard Focus	Investigation 2: Brassica Seeds	Teacher Guide (Science Resources)
LS2a	Part 1: <i>Introducing Recording</i>—1 session	85–88
DATE OF INSTRUCTION	SESSION 1	
	Teacher introduction (plants) and demonstration (class calendar and science notebook sheets)	87
	Writing name and date in science notebook	87
	Vocabulary instruction and content review	88
LS2a, LS2e, LS2f, I&E4g	Part 2: <i>Planting Brassica</i>—2 sessions	89–98
DATE OF INSTRUCTION	SESSION 1	
	Teacher intro and demonstration (planting procedure)	94–95
	Small-group hands-on planting and watering seeds	96
	Teacher explanation (light nutrients, calendar entry)	96–97
DATE OF INSTRUCTION	SESSION 2	
	View and discuss video (<i>How Plants Grow</i>)	97
	Vocabulary instruction and content review	98
LS2d, LS2e, LS2f, I&E4d, I&E4e, I&E4g	Part 3: <i>Observing Brassica Growth</i>—9 sessions	99–109 (15–19)
DATE OF INSTRUCTION	SESSION 1	
	Small-group hands-on (observing growth)	101
	Teacher-led class discussion (plant growth, sprouts, seedlings, model recording in science notebook)	101–102
	Writing and drawing in science notebook	102
DATE OF INSTRUCTION	SESSION 2	
	Teacher-led class discussion (plant growth, recording)	102–103
	Writing and drawing in science notebook	103
DATE OF INSTRUCTION	SESSIONS 3–4	
	Teacher-led class discussion (plant growth, flowers, model recording in notebooks, compare life cycles)	103–104
	Writing and drawing in science notebook	104
DATE OF INSTRUCTION	SESSION 5	
	Student reading, discussion, and review questions	105 (15–19)
DATE OF INSTRUCTION	SESSIONS 6–7	
	Teacher demonstration, vocabulary instruction (pollen)	106
DATE OF INSTRUCTION	SESSIONS 8–9	
	Small-group hands-on (harvesting seedpods)	106–107
	Teacher-led class discussion (what kind of seeds) and demonstration (class bar graph of growth of plants)	107
	Vocabulary instruction and content review	108
	Teacher-led class discussion (environmental stress)	109
	Writing in science notebook	109



INSECTS AND PLANTS CHECKLIST

Checklist of CA Science Standards for Insects and Plants Investigation 3

Content Standard Focus	Investigation 3: Milkweed Bugs	Teacher Guide (<i>Science Resources</i>) pages
<i>LS2a, I&E4f, I&E4g</i>	Part 1: <i>Eggs</i>—1 session	121–125
DATE OF INSTRUCTION	SESSION 1	
	Teacher introduction (vials of milkweed bug eggs)	124
	Class hands-on with vials, hand lenses, guiding questions, and calendar entry	124
	Vocabulary instruction and content review	125
<i>LS2a, LS2d, I&E4b, I&E4g</i>	Part 2: <i>Habitats</i>—2 sessions	126–136 (20–25)
DATE OF INSTRUCTION	SESSION 1	
	Class hands-on with guiding questions	131
	Teacher-led class discussion (identify milkweed bugs, review basic needs of insects, habitat) and demonstration (habitat assembly)	131–132
	Small-group hands-on with habitat materials	133
	Teacher-led class discussion (thermometer, calendar entry)	133–134
	Writing and drawing in science notebook	134
	Vocabulary instruction and content review	135
DATE OF INSTRUCTION	SESSION 2	
	Student reading, discussion, and review questions	136 (20–25)

**Checklist of CA Science Standards for Insects and Plants Investigation 3
(cont.)**

Content Standard Focus	Investigation 3: Milkweed Bugs (continued)	Teacher Guide (Science Resources) pages
LS2a, I&E4b, I&E4d, I&E4g	Part 3: Growing Milkweed Bugs—7 sessions	137–144 (26–29)
DATE OF INSTRUCTION	SESSION 1	
	Small-group hands-on (observing milkweed bugs)	139
	Teacher-led class discussion (milkweed bug development)	139
	Writing in science notebook	139
DATE OF INSTRUCTION	SESSION 2	
	Small-group hands-on (observing milkweed bugs)	139
	Teacher-led class discussion and explanation (molting)	139
DATE OF INSTRUCTION	SESSION 3	
	Small-group hands-on (observing milkweed bugs)	139–140
	Teacher-led class discussion and explanation (eat, drink, mouthparts, true bugs, proboscis)	139–140
DATE OF INSTRUCTION	SESSION 4	
	Small-group hands-on (observing milkweed bugs)	140–141
	Teacher-led class discussion (milkweed bug male and female, mating, eggs, milkweed bug stages poster)	140–141
DATE OF INSTRUCTION	SESSION 5	
	Teacher demonstration (replenish food or water, replace bag)	141–142
	Writing in science notebook (record temperature)	142
DATE OF INSTRUCTION	SESSION 6	
	Embedded assessment (science notebook sheet)	142
	Vocabulary instruction and content review	143
DATE OF INSTRUCTION	SESSION 7	
	Student reading, discussion, and review questions	144 (26–29)



INSECTS AND PLANTS CHECKLIST

Checklist of CA Science Standards for Insects and Plants Investigation 4

Content Standard Focus	Investigation 4: Silkworms	Teacher Guide (<i>Science Resources</i>) pages
LS2a, I&E4a, I&E4f, I&E4g	Part 1: Eggs—1 session	158–161
DATE OF INSTRUCTION	SESSION 1	
	Teacher introduction (silkworm eggs)	160
	Small-group hands-on and discussion (observe, label eggs in vials)	160
	Vocabulary and content review	161
LS2d, I&E4a, I&E4f, I&E4g	Part 2: Larvae—1 session	162–166
DATE OF INSTRUCTION	SESSION 1	
	Class hands-on with guiding questions and vocabulary instruction (silkworm)	164
	Teacher-led discussion (review needs of insects) and demonstration (assemble silkworm habitat, mulberry leaves)	164–165
	Class hands-on (add silkworms eggs and larvae to class habitat)	165
	Embedded assessment (science notebook sheets)	165
	Vocabulary instruction and content review	166
LS2a, I&E4a, I&E4f, I&E4g	Part 3: Close Observations—3 sessions	167–170
DATE OF INSTRUCTION	SESSION 1	
	Teacher-led class discussion (silkworm observations) and demonstration (folding paper box for habitat)	169
	Small-group hands-on (make group habitats)	169
DATE OF INSTRUCTION	SESSIONS 2–3	
	Small-group hands-on with guiding questions (observe silkworms)	170
	Vocabulary instruction and content review	170
LS2a, I&E4b, I&E4f	Part 4: Silkworm Structure—2 sessions	171–178 (30–34)
DATE OF INSTRUCTION	SESSION 1	
	Teacher-led class discussion (segments, head, thorax, abdomen) and demonstration (draw silkworm body structures, silk)	173–174
	Drawing in science notebook	173, 174
	Embedded assessment activity (mold larvae out of clay)	175
	Small-group hands-on (measure larvae in cm)	175
	Vocabulary instruction and content review	176
DATE OF INSTRUCTION	SESSION 2	
	Student reading, discussion, review questions	177–178 (30–34)



**Checklist of CA Science Standards for Insects and Plants Investigation 4
(cont.)**

Content Standard Focus	Investigation 4: Silkworms (continued)	Teacher Guide (Science Resources) pages
<i>LS2a, LS2d, I&E4a, I&E4d</i>	<i>Part 5: Pupae and Adults—4 sessions</i>	179–184 (35–36)
DATE OF INSTRUCTION	SESSION 1	
	Small-group hands-on and discussion (place larvae in large habitat to spin cocoons)	181
	Writing in science notebook, and record date	181
DATE OF INSTRUCTION	SESSIONS 2–3	
	Teacher-led class discussion (metamorphosis, males, females, scent, eggs) and demonstration (silkworm pupa, adult and stages posters to review life cycle, calendar entry)	181–182
	Writing in science notebook	182
	Vocabulary instruction and content review	183
DATE OF INSTRUCTION	SESSION 4	
	Student reading and discussion questions	184 (35–36)



INSECTS AND PLANTS CHECKLIST

Checklist of CA Science Standards for Insects and Plants Investigation 5

Content Standard Focus	Investigation 5: Butterflies	Teacher Guide (Science Resources) pages
LS2a, I&E4a, I&E4f, I&E4g	Part 1: Caterpillars—3 sessions	196–201
DATE OF INSTRUCTION	SESSION 1	
	Teacher-led class discussion and demonstration (review insect larvae, painted lady larvae, caterpillars, class notebook)	198–199
	Embedded assessment (writing in science notebook)	199
DATE OF INSTRUCTION	SESSIONS 2–3	
	Small-group hands-on (observing caterpillars, molting, pupation)	199–200
	Writing in science notebook	199–200
	Vocabulary instruction and content review	201
LS2b, LS2d, I&E4a, I&E4f	Part 2: Chrysalises—2 sessions	202–208 (37–43)
DATE OF INSTRUCTION	SESSION 1	
	Teacher-led class discussion (pupa, chrysalis) and demonstration (transfer pupa to cage)	205
	Vocabulary instruction and content review	206
DATE OF INSTRUCTION	SESSION 2	
	Student reading, discussion, review questions, new vocabulary	207–208 (37–43)
LS2a, LS2b, LS2c, I&E4a, I&E4d	Part 3: Butterflies—7 sessions	209–217 (44–56)
DATE OF INSTRUCTION	SESSIONS 1–6	
	Teacher-led class discussion and demonstration (red splat, waste, food, nectar, mallow leaves, feeding, mating, egg laying, painted lady stages poster, death, review butterfly life-cycle chart)	212–213
	Embedded assessment (science notebook sheet)	214
	Vocabulary instruction and content review	215
DATE OF INSTRUCTION	SESSION 7	
	Student reading, discussion, review questions, name the offspring	216–217 (44–56)