

Unit 1—Animal Diversity (FOSS® Insects) Life Science**Essential Question: How are animals alike and different?****Major Understandings:** *Quoted from New York State Performance Indicators*

(Note: Correlation is provided at the level of FOSS “Investigation & Part.” All “Steps” of an investigation must be completed to meet the standard.)

LE 1.1 Describe the characteristics of and variations between living and nonliving things.

1.1a Animals need air, water, and food in order to live and thrive.

LE 2.1 Recognize that traits of living things are both inherited and acquired or learned.

2.1a Some traits of living things have been inherited (e.g., color of flowers and number of limbs of animals)

LE 2.2 Recognize that for humans and other living things there is genetic continuity between generations.

2.2a Plants and animals closely resemble their parents and other individuals in their species.

2.2b Plants and animals can transfer specific traits to their offspring when they reproduce.

LE 3.1 Describe how the structures of plants and animals complement the environment of the plant or animal.

3.1a Each animal has different structures that serve different functions in growth, survival and reproduction.

- Wings, legs, or fins enable some animals to seek shelter and escape predators.
- The mouth, including teeth, jaws, and tongue, enables some animals to eat and drink.
- Eyes, nose, ears, tongue, and skin of some animals enable the animals to sense their surroundings.
- Claws, shells, spines, feathers, fur, scales, and color of body covering enable some animals to protect themselves from predators and other environmental conditions or enable them to obtain food.
- Some animals have parts that are used to produce sounds and smells to help the animal meet its needs.
- The characteristics of some animals change as seasonal conditions change (e.g., fur grows and is shed to help regulate body heat; body fat is a form of stored energy and it changes as the seasons change).

3.1c In order to survive in their environment, plants and animals must be adapted to that environment.

- Seeds disperse by a plant’s own mechanism and/or in a variety of ways that can include wind, water and animals.
- Leaf, flower, stem, and root adaptations may include variations in size, shape, thickness, color, smell, and texture.
- Animal adaptations include coloration for warning and attraction, camouflage, defense mechanisms, movement, hibernation, and migration.

Grade 1**LE 4.1 Describe the major stages in the life cycles of selected plants and animals.**

- 4.1a Plants and animals have life cycles. These may include beginning of life, development into an adult, reproduction as an adult, and eventually death.
- 4.1e Each generation of animals goes through changes in form from young to adult. This completed sequence of changes in form is called a life cycle. Some insects change from egg to larva to pupa to adult.
- 4.1f Each kind of animal goes through its own stages of growth and development during its life span.
- 4.1g The length of time from an animal's birth to its death is called its life span. Life spans of different animals vary.

Plan to order Living Materials:

The FOSS[®] Program endorses the National Science Teachers Association Guidelines for Responsible Use of Animals in the Classroom as they apply to elementary classrooms. For information visit the link:

<http://lhsfoss.org/fossweb/teachers/materials/plantanimal/ethics.html>

Consult the FOSS[®] Insects Teacher Guide:

- Overview, Scheduling the Insects Module, p. 14-15
- Materials, Preparing the Kit for Your Classroom, p. 6-11 (Note that insects are obtained using Living Materials Cards redeemed through Delta Education. Some materials must be provided by the teacher. Refer to pp. 4-5 for a complete list of items organized by Investigation.)

View the FOSS Insects Module Introduction segment of the FOSS Teacher Preparation Video / DVD (also available online at http://www.fossweb.com/modulesK-2/Insects/teacher_videos.html)

Note: The order of the Investigations in the Insects module can be adjusted if necessary. Important experiences for the students will be enhanced when they are able to compare one insect to another. Insect structures, behaviors and life stages are observed, recorded and compared.

Recording Observations: Refer to the Overview section of the Teacher Guide, p. 7: Recording Observations for suggestions for recording in this module. Download the Science Notebook Folio on the Teacher Resources page at www.fossweb.com/NYC for more information.

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- Locate Live Materials Cards – Part Nos.: 270-4085 (Mealworms); 270-4096 (Waxworms); 270-4107 (Milkweed Bugs); 270-4118 (Silkworm eggs); and 270-4129 (Painted Lady Larva) shipped to your school with the kits.

NOTE: All Living Materials Cards for FOSS® kits used in your school were likely shipped in ONE or TWO large green and white striped envelopes that accompanied the kit boxes. Cards need to be sorted and distributed by module title.

- Plan to order each type of insect so they arrive the week before you begin the Investigation. Allow 4 weeks for delivery. The suggested Time-Line for Insect Delivery according to this Planning Guide is:

Mealworms (Larvae)	Week 1	Lesson 1
Waxworms (Larvae)	Week 2	Lesson 4
Milkweed Bug (Eggs)	Week 3	Lesson 7
Silkworm (Eggs)	Week 4	Lesson 13
Painted Lady Butterfly (Larvae)	Week 6	Lesson 16
Crickets (Nymphs)	Week 7	Lesson 19

- Plan for arrival and care of insects, see the Background for the Teacher section of each Investigation for specific information for each insect, or follow the link <http://www.fossweb.com/modulesK-2/Insects/index.html> .
- Note that development of insects is dependent on a warm environment. Consult the Materials section of the Teacher Guide for general guidance.
- Plan for “other insects” such as ants, aquatic insects or other local insects to enrich the student’s experience. Review Investigation 6: Other Insects to plan for this experience.
- *Suggestion: When ordering multiple sets of organisms for different classrooms, consider varying the shipment arrival dates. Should problems arise with a shipment, the second shipment will be on its way while you notify Delta Education Customer Service of your problem (1-800-258-1302).*
- **IMPORTANT! – Retain the “Living Materials Warranty Information” brochure & Packing Slip that is shipped with your order for information on unpacking your order, and resolving problems of shortages or damage.** Claims must be submitted within 48 hours of receipt of your order.
- **Obtain food for insects:** (1 lb.) Wheat bran or cereal and (ONE) carrot, sweet potato, potato, **or** apple for mealworms; 1 box (8 oz.) Baby Oat Cereal and ¼ cup table sugar for waxworms.
(Food for milkweed bugs, silkworms, butterflies and crickets is included in the kit or shipped with the insects.)
- **REMEMBER! – Do not release any living organisms into your local environment.** Any non-native organism (plant or animal) has the potential to destroy the ecological balance of your local environment.

Refer to the “Materials Supplied by the Teacher” (Materials Folio, p. 4-5) for items needed for Investigations 1 and 2.

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WEEK 1	<p>Lesson 1 (45 min) Objective(s): Pre-assessment.</p>	<p>Alignment with NYS Core Curriculum: LE 1.1a; 2.1a, 2.2a, b; 3.1a, c; 4.1a, e, f, g</p>	
	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Note: Administration of the Pre-Test should be a few days BEFORE the start of the unit. – Teacher Guide, Assessment Folio, pp. 1-12 – Kit preparation: See Teacher Guide, Materials, pp. 1-11 and Teacher Preparation Video or DVD (or view at www.fossweb.com/NYC). – Schedule the delivery of organisms. See Inv. 1, Part 1: Mealworms, Getting Ready Step 2 and “Plan to Order Living Materials” above. – Note: See Teacher Guide, Materials, p 4-5 for Materials Supplied by the Teacher. – Food is needed for Mealworms. See Inv. 1, Part 1: Mealworms, Getting Ready Steps 5 & 6 and “Plan to Order Living Materials” above. – Plan ahead: Order Animals for Investigations 2 and 3. – Gather hardwood twigs (25-30) for the milkweed bug habitats in Investigation 3. Twigs should be dried to avoid mold growth in habitat. – Review the Overview folio of the Teacher Guide taking special note of p. 3: Science Background; p. 7: Recording Observations; p. 14: Scheduling the Insects Module; p. 18: Module Matrix 	<p style="text-align: center;">Investigation/Activity</p> <ul style="list-style-type: none"> – End-of-Module Assessment, Written Assessment may be administered as a Pre-Test. Use Assessment Duplication Masters Nos. 5, 6, 7 (Questions 1-14) – Letter to Parents, Teacher Sheet No. 1 <p>Note: The Letter to Parents in your Teacher Guide refers to inviting visitors to the classroom and students capturing insects in containers for short-term observation. Two resources found on Fossweb.com will help you connect parents to student learning. Log on to www.fossweb.com/nyc: Go to Grade 1, click on Insects. Click on “For Parents and Teachers”:</p> <ol style="list-style-type: none"> 1. Click on “Home School Connection.” Download the “FOSS® at Home” Folio. 2. Click on “Teacher Resources.” Click on “Taking Science Outdoors.” Download the “Science in the Schoolyard Guide.” 	<p style="text-align: center;">Homework/Extra Practice</p> <p>Send Home Letter to Parents.</p>

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	<p>Lesson 2 (45 min) Focus: Mealworm Needs</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • Insects need air, food, water and space. • Live organisms need to be treated with care and respect. 	<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 3.1a</p>	
WEEK 1 (continued)	<p>Advanced Planning/ Notes to Teacher</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 1: Mealworms, pp. 1-7 – Teacher Guide Inv. 1: Mealworms, Part 1: Mealworms, Materials and Getting Ready, pp. 8-11 – Teacher Guide Inv. 1: Mealworms, Science Extensions p. 27. Consider using a Time Line for Mealworms in addition to keeping a calendar. – www.fossweb.com/NYC – Check website for interactive simulations, Audio Stories, to write questions to a scientist, for teaching tips, and other websites to support teaching Insects. 	<p style="text-align: center;">Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 1: Mealworms Part 1: Mealworms – Teacher Guide pp. 12-15, Steps 1-14 – (Investigation Duplication Master: Teacher Sheet No. 2 if desired) – Investigation Duplication Master: Student Sheets Nos. 3-4 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist <p>Note:</p> <p>Investigation Duplication Master: Teacher Sheet No. 2 is used if you wish to raise silkworms (Investigation 4) using <i>fresh</i> Mulberry tree leaves as a food source. This is usually done in warmer climates and/or when the organisms are raised in the Spring.</p> <p>In the New York City area, Mulberry trees bloom about the first week of May. The complete life cycle of the silkworm will take at least 8 weeks. There may not be sufficient time left in the school year to observe the complete life cycle if fresh leaves are used as food.</p> <p>A bag of powdered silkworm chow is included in the shipment of Silkworm Eggs. The chow is cooked in a double boiler, much like preparing cooked pudding. The prepared diet has a tofu-like consistency. Wrap the diet “servings” (1-2 inch cubes) in plastic wrap and refrigerate. This will keep the diet sterile and preserve freshness through the larval stage of the silkworms. Silkworms can be raised at any time during the school year using the powdered silkworm chow.</p> <p>When silkworms are raised in the Spring it is possible to start the hatchlings on the silkworm chow and transfer them to fresh Mulberry when the trees bloom. <u>Caution: It is less likely that silkworm caterpillars raised on fresh Mulberry will “switch” to the silkworm chow if the supply of fresh leaves is withdrawn.</u></p>	<p style="text-align: center;">Homework/ Extra Practice</p>

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Note: Plan for long-term observations. Students observe insect growth, development and behaviors over several weeks. In situations where several classes visit a cluster teacher in a science classroom the teacher may prefer to have classes share organisms. Conversely, in schools where the cluster teacher travels, the organisms should reside in the classroom allowing for recording of observations under the supervision of the classroom teacher when changes are observed.

	<p>Lesson 3 (45 min) Focus: Mealworm Structure and Behavior</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • Insects have characteristic structures and behaviors. • The structures of some insects change as the insect grows. • As insects grow, they molt their hard, external covering. • Adult insects have a head, thorax, and abdomen. 	<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 3.1a</p>	
WEEK 1 (continued)	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 1: Mealworms, pp. 1-7 – Teacher Guide Inv. 1: Mealworms, Part 2: Mealworms, Materials and Getting Ready, pp. 16-17, taking note of Step 4; Prepare for Adults – Teacher Guide Science Stories folio, pp. 1-3 – Teacher Guide Inv. 1: Mealworms, Science Extensions p. 27 <p>Consider using a Time Line for Mealworms in addition to keeping a calendar.</p>	<p>Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 1: Mealworms Part 2: Larva, Pupa, Adult – Teacher Guide pp. 16-18, Steps 1-3 (Steps 1-17 are completed over an 8 week sequence) – Optional: Introduce the Time Line (See Investigation 1:Mealworms, Interdisciplinary Extensions, <i>Science Extensions</i>, p. 27.) – Investigation Duplication Master: Student Sheets Nos. 3-4 – Mealworm Posters (Larva, Pupa, Adult) <i>as needed</i> – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	<p>Homework/ Extra Practice</p> <p>Home/School Connection, Investigation 1, IDM No. 25</p>

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Note:

Part 2 of Investigation 1: Mealworms, Investigation 2: Waxworms and Part 3 of Investigation 3: Milkweed Bugs take place over several weeks as the insects grow and change. Student observation and recording is combined as new insects are introduced in subsequent lessons.

Part 2 invites students to make observations of insect development, and compare the development of the different insects.

These observations/changes include:

- insect structure and behavior (at all developmental stages)
- insect molting
- discovering mealworm “droppings”
- observing the first pupae
- observing the first adults
- observing adult insect structures
- summarizing scientific vocabulary and content entries

Note that reading the Science Stories is delayed until the students have completed first hand observations of the content addressed in the Science Stories. (See the back page [p.16] of the Science Stories Folio for the table that summarizes science content.)

Developmental observations will take several sessions of 15-45 minutes over 6-8 weeks. More time is devoted as more kinds of insects are added to the class collection. Plan at least one investigation per week to record changes, add fresh food and remove old food incorporating insect care into the lesson. The planning guide has placed these observation days at approximate points in the module, but your exact sequence will vary with the insect development.

Focus the students with directed and guided questions to make a series of observations on each insect, recording the changes with technical drawings, comparisons, and discussions. Consult the Teacher Guide for key observations that are associated with the particular insects in this module.

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	<p>Lesson 4 (45 min) Focus: Waxworm Needs</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • Insects need air, food, water and space. • Insects have structures and behaviors. • Live organisms need to be treated with care and respect. 	<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 3.1a; 4.1f</p>	
WEEK 2	<p>Advanced Planning/Notes to Teacher</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 2: Waxworms, pp. 1-7 – Teacher Guide Inv. 2: Waxworms, Part 1: Waxworms, Materials and Getting Ready, pp. 8-10, taking note of: Step 4; Provide Warmth; Step 5. Make Waxworm Medium – Teacher Guide Inv. 2: Waxworms, Science Extensions, p. 27 Consider using a Time Line for Waxworms in addition to keeping a calendar. – www.fossweb.com/NYC – Check website for interactive simulations, Audio Stories, to write questions to a scientist, for teaching tips, and other websites to support teaching Insects. 	<p style="text-align: center;">Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 2: Waxworms Part 1: Waxworms, pp. 11-13, Steps 1-12 – Introduce the timeline for waxworms (See, Investigation I Interdisciplinary Extensions, Science Extensions, Teacher Guide page 27.) – Investigation Duplication Master: Student Sheet No. 4 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	<p style="text-align: center;">Homework/Extra Practice</p>

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WEEK 2 (continued)	Lesson 5 (45 min) Focus: Waxworm Structure and Behavior		Alignment with NYS Core Curriculum: LE 1.1a; 3.1a; 4.1f
	Objective(s): <ul style="list-style-type: none"> The structures and behaviors of waxworms change as they grow. Larvae produce silk. Waxworms and mealworms have similar structures and behaviors. 		
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> Teacher Guide Inv. 2: Waxworms, pp. 1-7 Teacher Guide Inv. 2: Waxworms, Part 2: Larva, Pupa, Adult, Materials and Getting Ready, pp. 14-15, taking note of: Step 3. Plan Assessment Teacher Guide Inv. 2: Waxworms, Science Extensions, p. 27 Consider using a Time Line for Waxworms in addition to keeping a calendar. 	Investigation/Activity <ul style="list-style-type: none"> Investigation 2: Waxworms Part 2: Larva, Pupa, Adult Teacher Guide pp. 16-19 (Steps 1-11 are completed over an 8-week sequence.) Optional: Introduce the Time Line (See Investigation 2: Waxworms, Interdisciplinary Extensions, <i>Science Extensions</i>, p. 27.) Waxworm Posters (Larva, Pupa, Adult) <i>as needed</i> Investigation Duplication Master: Student Sheets Nos. 4, 16 Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	Homework/Extra Practice Home/School Connection, Investigation 2, IDM No. 26

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WEEK 2 (continued)	Lesson 6 (45 min) Focus: Mealworm & Waxworm Structure and Behavior Objective(s): <ul style="list-style-type: none"> • Insects need air, food, water and space. • Insects have structures and behaviors. • Compare the structures and behaviors of mealworms to waxworms. • Live organisms need to be treated with care and respect. 		Alignment with NYS Core Curriculum: LE 1.1a; 3.1a; 4.1f
	Advanced Planning/ Notes to Teachers See notes for Lessons 3 and 5.	Investigation/Activity <ul style="list-style-type: none"> – Investigation 1: Mealworms and Investigation 2: Waxworms Part 2: Larva, Pupa, Adult – Teacher Guide: Inv. 1: Mealworms, pp. 16-18 and Inv. 2: Waxworms, p. 16-19 – Mealworm and Waxworm Posters (Larva, Pupa, Adult) <i>as needed</i> – Model recording using the Time Line and/or Class Calendar – Investigation Duplication Master: Student Sheets Nos. 3, 4 (16) – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	Homework/Extra Practice

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	<p>Lesson 7 (45 min) Focus: Milkweed Bug Eggs</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • Insects hatch from eggs. • Live organisms need to be treated with care and respect. 	<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 3.1a; 4.1f</p>	
WEEK 3	<p>Advanced Planning/Notes to Teachers</p> <ul style="list-style-type: none"> • Teacher Guide Inv. 3: Milkweed Bugs, pp. 1-7 • Teacher Guide Inv. 3: Milkweed Bugs, Part 1: Eggs, Materials and Getting Ready, pp. 8-9, taking note of: Step 3. Order Milkweed Bug Eggs • Teacher Guide Inv. 3: Milkweed Bugs, Science Extensions p.28 Consider using a Time Line for Milkweed Bugs in addition to keeping a calendar. • www.fossweb.com/NYC – Check website for interactive simulations, Audio Stories, to write questions to a scientist, for teaching tips, and other websites to support teaching Insects. 	<p style="text-align: center;">Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 3: Milkweed Bugs, Part 1: Eggs, pp. 11-13, Steps 1-8. – Introduce the timeline for Milkweed Bugs (See, Investigation 3 Interdisciplinary Extensions, <i>Science Extensions</i>, Teacher Guide page 28.) – Investigation Duplication Master: Student Sheet No. 4 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	<p style="text-align: center;">Homework/Extra Practice</p> <p>Home/School Connection, Investigation 3, IDM No. 27</p>

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	<p>Lesson 8 (45 min) Focus: Mealworm & Waxworm Structure and Behavior</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • Insects need air, food, water and space. • Insects have structures and behaviors. • Compare the structures and behaviors of mealworms to waxworms. • As insects grow, they molt their hard, external covering. • Adult insects have a head, thorax, and abdomen. • Live organisms need to be treated with care and respect. 	<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 3.1a, c; 4.1f</p>	
WEEK 3 (continued)	<p>Advanced Planning/Notes to Teachers</p> <ul style="list-style-type: none"> – See notes for Lessons 3 and 5. – Teacher Guide Science Stories folio, pp. 1-3 – Review the Milkweed Bug Habitat assembly for Investigation 3, Part 2. You may wish to pre-assemble parts of the milkweed bug habitat for young students. The habitat bag can be prepared with a drinking fountain; the seed bags and twig structure assembled. Students can prepare the ‘nest’ of cotton, hang the seed bags on the twigs and add the eggs or nymphs to the habitat, and label each group’s bag. 	<p>Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 1: Mealworms AND Investigation 2: Waxworms Part 2: Larva, Pupa, Adult – Teacher Guide: Inv. 1: Mealworms, pp. 16-18 and Inv. 2: Waxworms, pp. 16-19 – Mealworm and Waxworm Posters (Larva, Pupa, Adult) <i>as needed</i> – Model recording using the Time Line and/or Class Calendar – Investigation Duplication Master: Student Sheets Nos. 3-4 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist – Read: Insects Science Stories, pp. 3-7, “So Many Kinds, So Many Places.” <p>NOTE that Page 15 of the Science Stories Folio in the Teacher Guide has an index of all of the organism photographs in the Insects Science Stories.</p> <p>For link to the Insects Science Stories Audio Stories. Log on to www.fossweb.com/nyc: Go to Grade 1, click on Insects. Click on “Media”; Click on Audio Stories.</p>	<p>Homework/Extra Practice</p>

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WEEK 3 (continued)	Lesson 9 (45 min) Focus: Milkweed Bug Habitats Objective(s): Needs of insects include air, food, water, and space, and these are met in different ways for different insects.		Alignment with NYS Core Curriculum: LE 1.1a
	Advanced Planning/ Notes to Teachers – Teacher Guide Inv. 3: Milkweed Bugs, pp. 1-7 – Teacher Guide Inv. 3: Milkweed Bugs, Part 2: Habitats, Materials and Getting Ready, pp. 12-16	Investigation/Activity – Investigation 3 Milkweed Bugs, Part 2: Habitats pp. 17-20, Steps 1-14 – Model recording using the Time Line and/or Class Calendar – Investigation Duplication Master: Student Sheets Nos. 4, 5 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist	Homework/Extra Practice
WEEK 4	Lesson 10 (45 min) Focus: Milkweed Bug Habitats Objective(s): Needs of insects include air, food, water, and space, and these are met in different ways for different insects.		Alignment with NYS Core Curriculum: LE 1.1a
	Advanced Planning/ Notes to Teachers – Teacher Guide Inv. 3: Milkweed Bugs, pp. 1-7 – Teacher Guide Inv. 3: Milkweed Bugs, Part 2: Habitats, Materials and Getting Ready, pp. 12-16	Investigation/Activity – Investigation 3 Milkweed Bugs, Part 2: Habitats, pp. 17-20, Steps 15-17 – Model recording using the Time Line and/or Class Calendar – Investigation Duplication Master: Student Sheets Nos. 4, 5 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist	Homework/Extra Practice

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WEEK 4 (continued)	Lesson 11 (45 min) Focus: Mealworm and Waxworm Structure and Behavior		Alignment with NYS Core Curriculum: LE 1.1a; 3.1a, c; 4.1f
	Objective(s): <ul style="list-style-type: none"> • Insects need air, food, water and space. • Insects have structures and behaviors. • Compare the structures and behaviors of mealworms to waxworms. • As insects grow, they molt their hard, external covering. • Adult insects have a head, thorax, and abdomen. • Live organisms need to be treated with care and respect. 		
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – See notes for Lessons 3 and 5. – Plan for silkworm egg arrival. – Prepare the silkworm chow 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 1: Mealworms, Part 2: Larva, Pupa, Adult, pp. 16-18 – Investigation 2: Waxworms, Part 2: Larva, Pupa, Adult, pp. 16-19 – Mealworm and Waxworm Posters (Larva, Pupa, Adult) <i>as needed</i> – Model recording using the Time Line and/or Class Calendar – Investigation Duplication Master: Student Sheets Nos. 3, 4 (16) – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	Homework/Extra Practice

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WEEK 4 (continued)	Lesson 12 (45 min) Objective(s): <ul style="list-style-type: none"> • Insects need air, food, water and space; these needs are met in different ways for different insects. • Insects have structures and behaviors. • Compare the structures and behaviors of mealworms to waxworms. • As insects grow, they molt their hard, external covering. • Adult insects have a head, thorax, and abdomen. • Live organisms need to be treated with care and respect. 		Alignment with NYS Core Curriculum: LE 1.1a; 3.1a, c; 4.1f
	Advanced Planning/ Notes to Teachers See notes for Lessons 3, 5 and 9.	Investigation/Activity <ul style="list-style-type: none"> – Class Review of Insects and Changes: Investigation 1 Mealworms pp. 18-21 Investigation 2 Waxworms pp. 16-19 Investigation 3 Milkweed Bugs, p. 17-20 – Mealworm and Waxworm Posters (Larva, Pupa, Adult) <i>as needed</i> – Read a trade book or two about insects such as the “very” series by Eric Carle. Consult the “Resources” folio of the Teacher Guide for additional trade book suggestions. 	Homework/Extra Practice

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	<p>Lesson 13 (45 min) Focus: Silkworm Eggs</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • Insects hatch from eggs. • Live organisms need to be treated with care and respect. 	<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 4.1a, f</p>	
<p>WEEK 5</p>	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 4: Silkworms, pp. 1-9 – Teacher Guide Inv. 4: Silkworms, Part 1: Eggs, Materials and Getting Ready, pp. 10-11, taking note Mulberry leaves can be replaced with the silkworm chow – Teacher Guide Inv. 4: Silkworms, Science Extensions, p. 32 Consider using a Time Line for Silkworms in addition to keeping a calendar. – www.fossweb.com/NYC – Check website for interactive simulations, Audio Stories, to write questions to a scientist, for teaching tips, and other websites to support teaching Insects. 	<p style="text-align: center;">Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 4: Silkworms, Part 1: Eggs, pp. 12-13, Steps 1-6 – Introduce the timeline for Silkworms (See, Investigation 4 Interdisciplinary Extensions, <i>Science Extensions</i>, Teacher Guide page 32.) – Model recording using the Time Line and/or Class Calendar – Investigation Duplication Master: Student Sheets Nos. 4, 8 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist <p>Note: Review the notes on Silkworm Chow and Silkworm Care at the beginning of this guide.</p>	<p style="text-align: center;">Homework/Extra Practice</p> <p>Home/School Connection, Investigation 4, IDM No. 28</p>

Grade 1

	<p>Lesson 14 (45 min) Focus: Silkworm Larvae</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • Insects hatch from eggs. • Insects need air, food, water and space. 	<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 4.1a, e, f</p>	
WEEK 5 (continued)	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 4: Silkworms, pp. 1-9 – Teacher Guide Inv. 4: Silkworms, Part 2: Larvae, Materials and Getting Ready, pp. 14-15, taking note of changes needed for use of silkworm chow 	<p style="text-align: center;">Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 4: Silkworms, Part 2: Larvae, pp. 16-18, Steps 1-11 – Model recording using the Time Line and/or Class Calendar – Investigation Duplication Master: Student Sheets Nos. 4, 8, 9 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist <p>Note that you will need to explain to students that since fresh mulberry leaves are not available in the Fall (the leaves are drying and falling off the trees) you have a substitute food—silkworm chow. The chow is made from fresh mulberry leaves that are dried and mixed with other ingredients to make the silkworm food. Students may be familiar with other “instant” foods, like instant mashed potatoes, or “EasyMac” that food scientists have prepared. These foods are made ready to eat by adding water and cooking them on the stove or in a microwave.</p> <p><u>Remember that you will need to place the tiny silkworm larva ON the food. They will not find it otherwise. In the wild, the egg is laid on a plant that is a food source for the hatchling. The larva may not search for food.</u></p>	<p style="text-align: center;">Homework/ Extra Practice</p>

Grade 1

WEEK 5 (continued)	<p>Lesson 15 (45 min) Focus: Mealworm, Waxworm, and Milkweed Bug Structure and Behavior</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • Insects need air, food, water and space; these needs are met in different ways for different insects. • Insects have structures and behaviors. • Compare the structures and behaviors of mealworms to waxworms. • As insects grow, they molt their hard, external covering. • Adult insects have a head, thorax, and abdomen. • Live organisms need to be treated with care and respect. 		<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 3.1a, c; 4.1f</p>
	<p>Advanced Planning/ Notes to Teachers</p> <p>See notes for Lessons 3, 5 and 9.</p>	<p>Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 1: Mealworms, Part 2: Larva, Pupa, Adult, pp. 16-18 – Investigation 2: Waxworms, Part 2: Larva, Pupa, Adult, pp. 16-19 – Investigation 3: Milkweed Bugs, Part 3: Growing Milkweed Bugs, p. 23 – Model recording using the Time Line and/or Class Calendar – Investigation Duplication Master: Student Sheets Nos. 3-4 – Mealworm, Waxworm and Milkweed Bug Posters <i>as needed</i> – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	<p>Homework/Extra Practice</p>

Grade 1

	<p>Lesson 16 (45 min) Focus: Butterfly Caterpillar Structure and Behavior</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • Insects need air, water, food and space. • Live organisms need to be treated with care and respect. • Insect larvae have common structures, such as six legs and three body parts. 	<p>Alignment with NYS Core Curriculum: LE 1.1a; 3.1a, c; 4.1f</p>	
WEEK 6	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 5: Butterflies, pp. 1-9 – Teacher Guide Inv. 5: Butterflies, Part 1: Caterpillars, Materials and Getting Ready, pp. 10-11 – Teacher Guide Inv. 5: Butterflies, Science Extensions p. 27 Consider using a Time Line for Butterflies in addition to keeping a calendar. – www.fossweb.com/NYC – Check website for interactive simulations, Audio Stories, to write questions to a scientist, for teaching tips, and other websites to support teaching Insects. 	<p>Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 5: Butterflies, Part 1: Caterpillars, pp. 12-13, Steps 1-8 – Introduce the timeline for butterflies (See, Investigation 5 Interdisciplinary Extensions, <i>Science Extensions</i>, Teacher Guide page 27.) – Model recording using the Time Line and/or Class Calendar – Investigation Duplication Master: Student Sheets Nos. 4, 10 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	<p>Homework/Extra Practice</p> <p>Home/School Connection, Investigation 5, IDM No. 29</p>

Grade 1

WEEK 6 (continued)	<p>Lesson 17 (45 min) Focus: Milkweed Bug Molting and Feeding</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • As insects grow, they molt their hard external covering. • Adult insects have three body parts: head, thorax, and abdomen. • Insects and other animals have different structures that help them grow and survive. • The life cycle of some insects is egg, nymph stages, and adult, which produce eggs. 		<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 3.1a, c; 4.1a, e, f</p>
	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 3: Milkweed Bugs, pp. 1-7 – Teacher Guide Inv. 3: Milkweed Bugs, Part 3: Growing Milkweed Bugs, Materials and Getting Ready, pp. 21-22 	<p style="text-align: center;">Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 3 Milkweed Bugs, Part 3: Growing Milkweed Bugs, pp. 23-26, Steps 1-7 as needed. – Introduce the timeline for milkweed bugs (See, Investigation I Interdisciplinary Extensions, <i>Science Extensions</i>, Teacher Guide page 28.) – Model recording using the Time Line and/or Class Calendar – Milkweed Bug Posters (Stages, Male and Female) <i>as needed</i> – Investigation Duplication Master: Student Sheets Nos. 4, 6, 7 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	<p style="text-align: center;">Homework/Extra Practice</p>

Grade 1

WEEK 6 (continued)	<p>Lesson 18 (45 min) Focus: Mealworm, Waxworm, and Milkweed Bug Structure and Behavior</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • Insects need air, food, water and space; these needs are met in different ways for different insects. • Insects have structures and behaviors. • Compare the structures and behaviors of mealworms to waxworms. • As insects grow, they molt their hard, external covering. • Adult insects have a head, thorax, and abdomen. • Live organisms need to be treated with care and respect. 		<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 3.1a, c; 4.1a, e</p>
	<p>Advanced Planning/ Notes to Teachers</p> <p>See notes for Lessons 3, 5 and 17.</p>	<p>Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 1: Mealworms, Part 2: Larva, Pupa, Adult, pp. 16-18 – Investigation 2: Waxworms, Part 2: Larva, Pupa, Adult, pp. 16-19 – Investigation 3: Milkweed Bugs, Part 3: Growing Milkweed Bugs, pp. 23-26 – Model recording using the Time Line and/or Class Calendar – Investigation Duplication Master: Student Sheets Nos. 3-4 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	<p>Homework/ Extra Practice</p> <p>Go to www.FOSSweb.com.</p>

Grade 1

WEEK 7	Lesson 19 (45 min) Focus: Cricket Needs Structure and Behavior Objective(s): <ul style="list-style-type: none"> All insects need air, water, food, and space. Crickets hatch from eggs and become nymphs, then adults, which produce new eggs. 		Alignment with NYS Core Curriculum: LE 1.1a; 3.1a, c; 4.1a, e, f
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> Teacher Guide Inv. 6: Other Insects pp. 1-7 Teacher Guide Inv. 6: Other Insects, Part 1: Crickets, Materials and Getting Ready pp. 8-10 www.fossweb.com/NYC – Check website for interactive simulations, Audio Stories, to write questions to a scientist, for teaching tips, and other websites to support teaching Insects. 	Investigation/Activity <ul style="list-style-type: none"> Investigation 6: Other Insects, Part 1: Crickets, pp. 11-13 Steps 1-11 Investigation Duplication Master: Student Sheets Nos. 4, Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	Homework/Extra Practice
	Lesson 20 (45 min) Focus: Ant Needs Objective(s): <ul style="list-style-type: none"> Insects have common structures, including six legs, and three body parts. All insects need air, water, food and space. 		Alignment with NYS Core Curriculum: LE 1.1a; 3.1a, c; 4.1a, e, f
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> Teacher Guide Inv. 6: Other Insects pp. 1-7 Teacher Guide Inv. 6: Other Insects, Part 2: Ants, Materials and Getting Ready pp. 14-15 	Investigation/Activity <ul style="list-style-type: none"> Investigation 6: Other Insects, Part 2: Ants, pp. 16-17 Steps 1-3 Investigation Duplication Master: Student Sheet No. 4, Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist <p>Note: You can build a Homemade Ant Farm using the Home/School Connection, IDM No. 30.</p>	Homework/Extra Practice Home/School Connection, Investigation 6, IDM No. 30

Grade 1

WEEK 7 (continued)	<p>Lesson 21 (45 min) Milkweed Bug Adults</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • As insects grow, they molt their hard external covering. • Insects have three body parts: head, thorax and abdomen. • Insects and other animals have different structures that help them grow and survive. • The life cycle of some insects is egg, nymph stages, and adult, which produces eggs. 		<p>Alignment with NYS Core Curriculum: LE 1.1a; 3.1a, c; 4.1a, e, f</p>
	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 3: Milkweed Bugs, pp. 1-7 – Teacher Guide Inv. 3: Milkweed Bugs, Part 3: Growing Milkweed Bugs, Materials and Getting Ready, pp. 21-22 – Teacher Guide Science Stories folio, pp. 4-5 	<p style="text-align: center;">Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 3 Milkweed Bugs, Part 3: Growing Milkweed Bugs, pp. 23-26, Steps 4-13, as needed – Model recording using the Time Line and/or Class Calendar – Milkweed Bug Posters (Stages, Male and Female) <i>as needed</i> – Investigation Duplication Master: Student Sheets Nos. 4, 6, 7 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist <p>Read: Insects Science Stories: pp. 8-11, “Insect Shapes and Colors”</p>	<p style="text-align: center;">Homework/Extra Practice</p>
WEEK 8	<p>Lesson 22 (45 min) Focus: Ant Structure and Behavior</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • Insects have common structures, including six legs, and three body parts. • All insects need air, water, food and space. 		<p>Alignment with NYS Core Curriculum: LE 1.1a; 3.1a, c; 4.1a, e, f</p>
	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 6: Other Insects, pp. 1-7 – Teacher Guide Inv. 6: Other Insects, Part 2: Ants, Materials and Getting Ready, pp. 14-15 	<p style="text-align: center;">Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 6: Other Insects, Part 2: Ants, pp. 16-17 Steps 4-9 – Investigation Duplication Master: Student Sheet No. 4, – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	<p style="text-align: center;">Homework/Extra Practice</p>

Grade 1

WEEK 8 (continued)	Lesson 23 (45 min) Focus: Butterfly Chrysalises Objective(s): Butterflies construct chrysalises when they pupate.		Alignment with NYS Core Curriculum: LE 1.1a; 3.1a; 4.1a, e, f
	Advanced Planning/ Notes to Teachers – Teacher Guide Inv. 5: Butterflies, pp. 1-9 – Teacher Guide Inv. 5: Butterflies, Part 2: Chrysalises, Materials and Getting Ready, pp. 16-18, taking note of Step 5. Look for Mallow (Optional).	Investigation/Activity – Investigation 5: Butterflies, Part 2: Chrysalises, p. 19, Steps 1-4 – Model recording using the Time Line and/or Class Calendar – Painted Lady Posters (Larva, Pupa) <i>as needed</i> – Investigation Duplication Master: Student Sheet No. 4 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist Note: Mallow is a native perennial plant in the Northeast. It will easily grow in a school garden, or in a terrace pot. Mallow can be obtained through biological supply companies or a nursery. There are several varieties that you might consider. Search for living mallow plants online. You can expect a 4 inch pot to cost between \$6-\$10.	Homework/ Extra Practice

Grade 1

WEEK 8 (continued)	<p>Lesson 24 (45 min) Focus: Silkworm Structure—Close Observations</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • Silkworm larvae have unique behaviors and structures. • Larvae molt as they grow. 	<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 3.1a; 4.1a, e, f</p>
	<p>Advanced Planning/Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 4: Silkworms, pp. 1-9 – Teacher Guide Inv. 4: Silkworms, Part 3: Close Observations, Materials and Getting Ready, pp. 19-20, taking note of Steps 3 and 4 to familiarize yourself with the habitat construction 	<p style="text-align: center;">Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 4: Silkworms, Part 3: Close Observations, pp. 21-22, Steps 1-6, incorporating Steps 7 – 9 in ongoing observations. – Model recording using the Time Line and/or Class Calendar – Investigation Duplication Master: Student Sheets Nos. 4, 8, 9 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist <p><u>Remember that you will continue to transfer the silkworm larva to fresh pieces of food. Small slices (like a piece of cheese you slice from a block) are a good idea. The dried food and caterpillar frass will need to be cleaned from the habitat.</u></p> <p>Consider how you will store these habitats to keep them safe from other classroom “pests.” As long as the silkworms have food available, they will not wander out of the habitat, but other organisms may be attracted to their food.</p>

Grade 1

WEEK 9	<p>Lesson 25 (45 min) Focus: Painted Lady Butterfly Structure and Behavior</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • Adult insects have common structures, including six legs and three body parts. • The life cycle of the butterfly is egg, larva, pupa, and adult, which produces eggs. 		<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 3.1a; 4.1a, e, f</p>
	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 5: Butterflies, pp. 1-9 – Teacher Guide Inv. 5: Butterflies, Part 3: Butterflies, Materials and Getting Ready, pp. 20-21 	<p>Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 5: Butterflies, Part 3: Butterflies, pp. 22-23, Steps 1-10 – Model recording using the Time Line and/or Class Calendar – Painted Lady Posters (Adult, Stages) <i>as needed</i> – Investigation Duplication Master: Student Sheets Nos. 4, 11 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	<p>Homework/ Extra Practice</p>
	<p>NOTE: For each organism’s concluding “Life Cycle” lesson, add a focus question to determine the “life span” of the organism. Use the data from the Time Line or Class Calendar to calculate life span. Doing so will ensure that you meet Standard LE 4.1g.</p>		
	<p>Lesson 26 (45 min) Focus: Painted Lady Butterfly Life Cycle</p> <p>Objective(s):</p> <ul style="list-style-type: none"> – Adult insects have common structures, including six legs and three body parts. – The life cycle of the butterfly is egg, larva, pupa, and adult, which produces eggs. 		<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 2.1a, 2.2a, b; 3.1a; 4.1a, e, f, g</p>
	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 5: Butterflies, pp. 1-9 – Teacher Guide Inv. 5: Butterflies, Part 3: Butterflies, Materials and Getting Ready, pp. 20-21 – Teacher Guide Science Stories folio, pp. 8-11 	<p>Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 5: Butterflies, Part 3: Butterflies, pp. 22-23, Steps 11-13. – Model recording using the Time Line and/or Class Calendar – Painted Lady Posters (Adult, Stages) <i>as needed</i> – Investigation Duplication Master: Student Sheets Nos. 4, 11 – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist <p>Read:</p> <p>Insects Science Stories: pp. 16-21, “Insect Life Cycles,” pp. 22-33, “Life Goes Around”</p>	<p>Homework/ Extra Practice</p>

Grade 1

WEEK 9 (continued)	<p>Lesson 27 (45 min) Focus: Silkworm Structure—Creating Silkworm Models (when silkworm larvae are about 5 cm [2 in.] long)</p> <p>Objective(s):</p> <ul style="list-style-type: none"> The basic structures of all insects include six legs and three body parts. Silkworm larvae have characteristic structures. 		<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 2.1a, 2.2a, b; 3.1a, c; 4.1a, e, f, g</p>
	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> Teacher Guide Inv. 4: Silkworms, pp. 1-9 Teacher Guide Inv. 4: Silkworms, Part 4: Silkworm Structure, Materials and Getting Ready, pp. 23-24, taking note of Step 3. Review Silkworm Structures. 	<p>Investigation/Activity</p> <ul style="list-style-type: none"> Investigation 4: Silkworms, (Review if needed: Part 3: Silkworm Observations, p. 22, Steps 7-9) Part 4: Silkworm Structure, pp. 25-27, Steps 1-10 Model recording using the Time Line and/or Class Calendar Silkworm Larva Poster Investigation Duplication Master: Student Sheets Nos. 4, 8, 9 Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	<p>Homework/Extra Practice</p>

Grade 1

WEEK 10	<p>Lesson 28 (45 min) Focus: Mealworm Life Cycle</p> <p>Objective(s): The life cycle of the beetle is egg, larva, pupa, and adult, which produces eggs.</p>		<p>Alignment with NYS Core Curriculum: LE 1.1a; 3.1a; 4.1a, e, f, g</p>
	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 1: Mealworms pp. 1-7 – Teacher Guide Inv. 1: Mealworms, Part 3: Life Cycle, Materials and Getting Ready, pp. 22-23, taking note of Step 3. Test Your Classroom Culture – Prepare the Beetle Life Cycle Poster – Teacher Guide Science Stories folio, p. 13 – Plan to assemble the Student Assessment Portfolio. Consult the Assessment Folio, pp. 10-11. Review Assessment Duplication Masters Nos. 8, Portfolio Checklist. 	<p style="text-align: center;">Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 1: Mealworms, Part 3: Life Cycle, pp. 24-25, Steps 1-9 – Model recording using the Time Line and/or Class Calendar – Mealworm Poster: Mealworm Stages – Investigation Duplication Master: Student Sheets Nos. 3-4 – Make Summary Chart entries for the Beetle Life Cycle Poster – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist <p>Note: See Insects Science Stories: pp. 36-38 ONLY of “Environment” to examine photos of the darkling beetle</p>	<p style="text-align: center;">Homework/Extra Practice</p>

Grade 1

WEEK 10 (continued)	Lesson 29 (45 min) Focus: Waxworm Life Cycle Objective(s): The life cycle of the waxworm is egg, larva, pupa, and adult moth, which produces eggs.		Alignment with NYS Core Curriculum: LE 1.1a; 3.1a; 4.1a, e, f, g
	Advanced Planning/ Notes to Teachers – Teacher Guide Inv. 2: Waxworms, pp. 1-7 – Teacher Guide Inv. 2: Waxworms, Part 3: Life Cycle, Materials and Getting Ready, pp. 20-21, taking note of: Step 3. Plan for the End of the Cycle – Prepare the Moth Life Cycle Poster	Investigation/Activity – Investigation 2: Waxworms, Part 3: Life Cycle, pp. 22-24, Steps 1-10 (Steps 1-8 are completed over an 2-3 week sequence for a second generation of Waxworms.) – Model recording using the Time Line and/or Class Calendar – Waxworm Poster: Waxworm Stages – Investigation Duplication Master: Student Sheet No. 4 – Make Summary Chart entries for the Moth Life Cycle Poster – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist	Homework/ Extra Practice

Grade 1

WEEK 10 (continued)	<p>Lesson 30 (45 min) Focus: Milkweed Bug Life Cycle</p> <p>Objective(s):</p> <ul style="list-style-type: none"> – As insects grow, they molt their hard external covering. – Adult insects have three body parts: head, thorax, and abdomen. – Insects and other animals have different structures that help them grow and survive. – The life cycle of some insects is egg, nymph stages, and adult which produce eggs. 		<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 3.1a; 4.1a, e, f, g</p>
	<p>Advanced Planning/Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 3: Milkweed Bugs, pp. 1-7 – Teacher Guide Inv. 3: Milkweed Bugs, Part 3: Growing Milkweed Bugs, Materials and Getting Ready, pp. 21-22 – Prepare the Milkweed Bug Life Cycle Poster 	<p>Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 3 Milkweed Bugs, Part 3: Growing Milkweed Bugs pp. 23-26, Steps 11-14 and p. 27 Art Extension – Art Extension: Color Pictures of Bugs – Model recording using the Time Line and/or Class Calendar – Milkweed Bug Posters: Stages (Male and Female) – Investigation Duplication Master: Student Sheet No. 6 – Make Summary Chart entries for the Milkweed Bug Life Cycle Poster – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	<p>Homework/Extra Practice</p>

Grade 1

WEEK 11	Lesson 31 (45 min) Focus: Silkworm Life Cycle Objective(s): <ul style="list-style-type: none"> • Silkworms spin silk to make a cocoon around them as they pupate. • The life cycle of the silkworm is egg, larva, pupa, and adult, which produces eggs. 		Alignment with NYS Core Curriculum: LE 1.1a; 3.1a; 4.1a, e, f, g
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide Inv. 4: Silkworms, pp. 1-9 – Teacher Guide Inv. 4: Silkworms, Part 5: Pupae and Adults, Materials and Getting Ready, pp. 23-24, taking note of Step 3, Plan for Spinning. – Prepare the Silkworm Life Cycle Poster 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 4: Silkworms, Part 5: Pupae and Adults, pp. 30-31, Steps 1-2; 3-5; 7-8 – Model recording using the Time Line and/or Class Calendar – Silkworm Posters: Silkworm Pupa; Silkworm Adult; Silkworm Stages – Make Summary Chart entries for the Silkworm Life Cycle Poster – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist 	Homework/Extra Practice

Grade 1

WEEK 11 (continued)	Lesson 32 (45 min) Focus: Insect Structure Objective(s): <ul style="list-style-type: none"> • Silkworms spin silk to make a cocoon around them as they pupate. • The life cycle of the silkworm is egg, larva, pupa, and adult, which produces eggs. 		Alignment with NYS Core Curriculum: LE 1.1a; 3.1a; 4.1a, e, f
	Advanced Planning/ Notes to Teachers <ul style="list-style-type: none"> – Teacher Guide Inv. 4: Silkworms, pp. 1-9 – Teacher Guide Inv. 4: Silkworms, Part 5: Pupae and Adults, Materials and Getting Ready, pp. 23-24, taking note of Step 3, Plan for Spinning. – Teacher Guide Science Stories folio, pp. 6-7 	Investigation/Activity <ul style="list-style-type: none"> – Investigation 4: Silkworms, Part 5: Pupae and Adults, pp. 30-31, Steps 6-8 – Model recording using the Time Line and/or Class Calendar – Silkworm Posters: Silkworm Pupa; Silkworm Adult; Silkworm Stages – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist <p>Read: Insects Science Stories: pp. 12-15, “What Makes an Insect an Insect?”</p>	Homework/Extra Practice

Grade 1

WEEK 11 (continued)	<p>Lesson 33 (45 min) Focus: Comparing Insect Structure</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • Adult insects have common structures, including six legs and three body parts. • The life cycle of the butterfly is egg, larva, pupa, and adult which produces eggs. 		<p>Alignment with NYS Core Curriculum:</p> <p>LE 1.1a; 3.1a, c; 4.1a, e, f</p>
	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 5: Butterflies, pp. 1-9 – Teacher Guide Inv. 5: Butterflies, Part 3: Butterflies, pp. 20-21 – Prepare the Butterfly Life Cycle Poster – Teacher Guide Science Stories, p. 12 	<p style="text-align: center;">Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 5: Butterflies, Part 3: Butterflies, pp. 22-23, Steps 11-13 – Model recording using the Time Line and/or Class Calendar – Painted Lady Posters: Stages, Adult – Make Summary Chart entries for the Butterfly Life Cycle Poster <p>Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist</p> <p>Read: Insects Science Stories: pp. 34-35, “Same But Different.”</p>	<p>Homework/Extra Practice</p>

Grade 1

WEEK 12	<p>Lesson 34 (45 min) Focus: Comparing Environments and Variations Among Organisms</p> <p>Objective(s):</p> <ul style="list-style-type: none"> • Some insects spend all or part of their life in water. • All insects need air, water, food and space. 	<p>Alignment with NYS Core Curriculum: LE 1.1a; 2.1a; 3.1a, c</p>	
	<p>Advanced Planning/ Notes to Teachers</p> <ul style="list-style-type: none"> – Teacher Guide Inv. 6: Other Insects, pp. 1-7 – Teacher Guide Inv. 6: Other Insects, Part 3: Aquatic Insects, Materials and Getting Ready, pp. 18-20 – Teacher Guide Science Stories folio, pp. 13-14 	<p>Investigation/Activity</p> <ul style="list-style-type: none"> – Investigation 6: Other Insects, Part 3: Aquatic Insects, pp. 21-22, Steps 1-9. – Investigation Duplication Master: Student Sheet No. 4, – Assessment Duplication Masters Nos. 1, 2, 3: Anecdotal Notes and Assessment Checklist <p>Read: Insects Science Stories: pp. 36-41, “Environment”; pp. 42-46, “Variation”</p>	<p>Homework/Extra Practice</p>
	<p>Lesson 35 (45 min) Focus: Interview Assessment</p> <p>Objective(s):</p>	<p>Alignment with NYS Core Curriculum: LE 1.1a; 3.1c</p>	
	<p>Advanced Planning/ Notes to Teachers</p> <p>Teacher Guide, Assessment Folio, pp. 6-8, 10-11</p>	<p>Investigation/Activity</p> <ul style="list-style-type: none"> – Administer the End-of-Module Assessment – Interview Assessment. – Insects Science Stories, p. 11 – Assessment Duplication Masters Nos. 4 – Assessment Duplication Masters Nos. 8, Portfolio Assessment – Anecdotal Notes and Assessment Checklist 	<p>Homework/Extra Practice</p>

Grade 1

WEEK 12 (continued)	Lesson 36 (45 min) Focus: Written Assessment		Alignment with NYS Core Curriculum:	
	Objective(s):		LE 1.1a; 3.1a; 4.1a, e, f, g	
	Advanced Planning/ Notes to Teachers Teacher Guide, Assessment Folio, pp. 6-8, 10-11	Investigation/Activity – Administer the End-of-Module Assessment – Written Assessment. – Assessment Duplication Masters Nos. 5-7 – Assessment Duplication Master No. 8, Portfolio Assessment – Anecdotal Notes and Assessment Checklist		Homework/Extra Practice