





Preparation Guide

Level 4 Module 3

PLANTS IN THE ENVIRONMENT

Materials: This section lists the quantity of each material necessary for the lesson. Lesson materials may be from a *PhD Science*® Texas materials kit, or the materials may be school-supplied items. In addition to having the listed materials, teachers should have access to the following common classroom items: sticky notes, chart paper, pencils, a whiteboard, and markers.

Resources: This section lists module resources (from the Module Resources section in the Teacher Edition) and core texts used in the lesson. Classrooms also need daily access to the module's Teacher Edition, Science Logbooks, and, if applicable, digital slides. A symbol () identifies resources that appear in the digital slides. Additional supports and Spanish resources are available in the Implementation Resources and Level Overview sections of the digital platform.

Preparation: This section identifies preparation teachers should complete before the lesson, including media teachers must cue before the lesson and activities that require setup. This section also describes advance preparation for upcoming lessons. For example, if teachers need to prepare 1 day in advance for an activity in Lesson 11, an advance preparation note appears in the Preparation section for Lesson 10. A symbol () identifies lessons with advance preparation notes.







Plants in the Environment | Advance Preparation

Several activities in this module require advance preparation. A version of this list appears in the Module Overview of the Teacher Edition. The expanded version in this guide identifies all lessons for which preparation may take longer than a planning period. A symbol (†) identifies preparation that can be done earlier than the suggested time.





Lesson	Time in Advance	Investigation	Description
1	2 weeks	Terrarium	Order carnivorous plants and set up the terrarium when plants are delivered. (See Lesson 1 Resource A.)
6	1 day†	Plant Structure and Function Stations	Prepare materials for plant structure and function stations.
9	7 days	Science Challenge	Plant radish seeds to prepare plants for Part 1 of the Science Challenge. (See Lesson 9 Resource A.)
9	1 day	Science Challenge	Prepare radish plants for Part 1 of the Science Challenge. (See Lesson 9 Resource B.)
12	1 day†	Water movement models	Make or obtain ice.
17	7 days	Fungi observation stations	Prepare samples of moldy bread. (See Lesson 17 Resource B.)

Plants in the Environment | Lesson Preparation





Lesson 1

<p>Materials</p>	<p>Kit Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Bloodworms, freeze-dried ($\frac{1}{4}$ oz) <input type="checkbox"/> Carnivorous plants, live (1 set) <input type="checkbox"/> Cup, small (1) <input type="checkbox"/> Gravel (2 cups) <input type="checkbox"/> Light bulb, grow (1) <input type="checkbox"/> Pipettes, disposable (2) <input type="checkbox"/> Soil, low-nutrient (2 cups) <input type="checkbox"/> Sphagnum moss, live (enough to cover soil in terrarium) <input type="checkbox"/> Terrarium with cover, clear plastic, 1 gal (1) <input type="checkbox"/> Toothpicks (6) or tweezers (1) <p>Module 1 Kit</p> <ul style="list-style-type: none"> <input type="checkbox"/> Safety goggles, teacher (1) <p>Module 2 Kit</p> <ul style="list-style-type: none"> <input type="checkbox"/> Heat lamp with reflector (1) <p>School-Supplied Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Digital camera (1) <input type="checkbox"/> Scissors (1) <input type="checkbox"/> Thermometer for terrarium (1, optional) <input type="checkbox"/> Water, distilled (access) <p>Item Reuse</p> <ul style="list-style-type: none"> <input type="checkbox"/> Lesson 5 requires the prepared terrarium. <input type="checkbox"/> Lesson 9 requires the lamp with grow bulb. <input type="checkbox"/> Lesson 17 requires the tweezers.
<p>Resources</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 1 Resource A: Classroom Terrarium Setup and Care Instructions <input type="checkbox"/> Lesson 1 Resource B: Texas Map  <input type="checkbox"/> Lesson 1 Resource C: Pitcher Plant and Sundew Photographs 
<p>Preparation</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Cue <ul style="list-style-type: none"> <input type="radio"/> plant video 1 (sundew) (http://phdsci.link/2412),  <input type="radio"/> plant video 2 (pitcher plant) (http://phdsci.link/2413),  and <input type="radio"/> plant video 3 (Venus flytrap) (http://phdsci.link/2414),  <input type="checkbox"/> Take a photograph of the terrarium to display during Lesson 1. <p>Advance Preparation for Lesson 1</p> <ul style="list-style-type: none"> <input type="checkbox"/> 2 Weeks Before: Order carnivorous plants. Set up the terrarium when the plants are delivered. (See Lesson 1 Resource A.)





Lesson 2

Materials	<p>Kit Items None</p> <p>School-Supplied Items <input type="checkbox"/> Scissors (1)</p>
Resources	<p><input type="checkbox"/> Lesson 1 Resource C: Pitcher Plant and Sundew Photographs </p> <p><input type="checkbox"/> Lesson 2 Resource A: Butterwort and Bladderwort Photographs </p> <p><input type="checkbox"/> Lesson 2 Resource B: Big Thicket Plant Cards </p> <p><input type="checkbox"/> Lesson 2 Resource C: Carnivorous Plant Environment Photograph </p>
Preparation	<p><input type="checkbox"/> Prepare Big Thicket plant cards. (See Lesson 2 Resource B.)</p>


Lesson 3

Materials	<p>Kit Items <input type="checkbox"/> Gloves, disposable (24 pairs)</p> <p>Module 1 Kit <input type="checkbox"/> Cup, small (1) <input type="checkbox"/> Ruler (1)</p> <p>School-Supplied Items <input type="checkbox"/> Glue stick (1) <input type="checkbox"/> Paper, 11" × 17" or larger (6 sheets) <input type="checkbox"/> Scissors (1)</p> <p>Item Reuse <input type="checkbox"/> Lesson 6 requires the ruler.</p>
Resources	<p><input type="checkbox"/> Lesson 3 Resource A: Apple Tree Photograph </p> <p><input type="checkbox"/> Lesson 3 Resource B: Apple Photographs </p> <p><input type="checkbox"/> Lesson 3 Resource C: Offspring and Possible Parent Plant Photographs </p> <p><input type="checkbox"/> Lesson 3 Resource D: Apple Tree Family Poster Setup Instructions</p> <p><input type="checkbox"/> Lesson 3 Resource E: Apple Tree Family Trait Data Table</p> <p><input type="checkbox"/> Lesson 3 Resource F: Rabbit Photographs </p>
Preparation	<p><input type="checkbox"/> Prepare apple tree family posters. (See Lesson 3 Resource D.)</p> <p><input type="checkbox"/> Prepare to distribute a copy of Lesson 3 Resource E to each group.</p>


Lesson 4

<p>Materials</p>	<p>Kit Items None</p> <p>School-Supplied Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Glue sticks (6) <input type="checkbox"/> Paper, 11" × 17" or larger (6 sheets) <input type="checkbox"/> Scissors (1)
<p>Resources</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 4 Resource A: Apple Tree and Fruit Photographs  <input type="checkbox"/> Lesson 4 Resource B: Before Photographs  <input type="checkbox"/> Lesson 4 Resource C: Traits Chart Setup Instructions <input type="checkbox"/> Lesson 4 Resource D: Trait Photographs 
<p>Preparation</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Prepare traits charts. (See Lesson 4 Resource C.) <input type="checkbox"/> Take a photograph of the terrarium to display during Lesson 4. <p>Advance Preparation for Lesson 9</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1 Week Before: Prepare radish plants for the Science Challenge. (See Lesson 9 Resource A.)






Lesson 5

<p>Materials</p>	<p>Kit Items None</p> <p>School-Supplied Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Digital camera (1) <input type="checkbox"/> Scissors (1) <p>Prepared Items from Previous Lessons</p> <ul style="list-style-type: none"> <input type="checkbox"/> Terrarium from Lesson 1 (1) <p>Item Reuse</p> <ul style="list-style-type: none"> <input type="checkbox"/> Lesson 13 requires the terrarium.
<p>Resources</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 5 Resource A: Plants in Big Thicket Environments Photographs  <input type="checkbox"/> Lesson 5 Resource B: Big Thicket Environment Cards
<p>Preparation</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Take a photograph of the terrarium to display in Lesson 5. <input type="checkbox"/> Prepare Big Thicket environment cards. (See Lesson 5 Resource B.)




Lesson 6

<p>Materials</p>	<p>Kit Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Binder clips, medium (2) <input type="checkbox"/> Bowls, small (2) <input type="checkbox"/> Clay, modeling, nonhardening (2 lb) <input type="checkbox"/> Cups, opaque, 9 oz (8) <input type="checkbox"/> Gravel (6 cups) <input type="checkbox"/> Pipettes, disposable (2) <input type="checkbox"/> Toothpicks, pointed (150) <p>Module 1 Kit</p> <ul style="list-style-type: none"> <input type="checkbox"/> Cups, plastic, 3 oz (6) <input type="checkbox"/> Food coloring, blue (40 drops) <input type="checkbox"/> Plates, paper (4) <input type="checkbox"/> Rulers, metric (2) <input type="checkbox"/> Safety goggles, student (24) <input type="checkbox"/> Safety goggles, teacher (1) <input type="checkbox"/> Spoon, plastic (1) <input type="checkbox"/> Timers, digital (6) <p>Module 2 Kit</p> <ul style="list-style-type: none"> <input type="checkbox"/> Rice, uncooked (4 tbsp) <p>School-Supplied Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Newspaper (4 sheets) <input type="checkbox"/> Paper towels, white, absorbent (12 sheets) <input type="checkbox"/> Scissors (1) <input type="checkbox"/> Tape, clear (partial roll) <input type="checkbox"/> Water (access) <p>Item Reuse</p> <ul style="list-style-type: none"> <input type="checkbox"/> Lesson 9 requires the rulers. <input type="checkbox"/> Lesson 12 requires the timers.
<p>Resources</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 5 Resource A: Plants in Big Thicket Environments Photographs  <input type="checkbox"/> Lesson 6 Resource A: Plant Structure and Function Stations Setup Instructions <input type="checkbox"/> Lesson 6 Resource B: Plant Structure and Function Stations Procedure Sheets
<p>Preparation</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Set up the plant structure and function stations. (See Lesson 6 Resources A and B.)

Lesson 7

<p>Materials</p>	<p>Kit Items None</p> <p>School-Supplied Items None</p>
<p>Resources</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 7 Resource A: Carnivorous Plants Painting  <input type="checkbox"/> Lesson 7 Resource B: Carnivorous Plants with Prey Photographs  <input type="checkbox"/> Lesson 7 Resource C: Death Valley National Park Photographs  <input type="checkbox"/> Lesson 7 Resource D: Average Yearly Precipitation Graph  <input type="checkbox"/> Lesson 7 Resource E: Conceptual Checkpoint 
<p>Preparation</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Prepare to distribute a copy of Lesson 7 Resource E to each student.



Lesson 8

<p>Materials</p>	<p>Kit Items None</p> <p>School-Supplied Items None</p>
<p>Resources</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 8 Resource A: Science Challenge Rubric <input type="checkbox"/> Lesson 8 Resource B: Soybean Crop Photograph  <input type="checkbox"/> Lesson 8 Resource C: Soybean Plants Photograph 
<p>Preparation</p> 	<p>None</p> <p>Advance Preparation for Lesson 9</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1 Day Before: Prepare radish plants in sand and local soil, and set up the Science Challenge. (See Lesson 9 Resource B.)







Lesson 9

<p>Materials</p>	<p>Kit Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Gloves, disposable (2 pairs) <input type="checkbox"/> Light bulb, grow (1) <input type="checkbox"/> Nursery pots, plastic, 3" (8) <input type="checkbox"/> Objects, quarter-size (6) <input type="checkbox"/> Pipette, disposable (1, optional) <input type="checkbox"/> Radish seed packet (1) <input type="checkbox"/> Sand (1 cup) <input type="checkbox"/> Toothpicks (6) <input type="checkbox"/> Tray, plastic (1) <p>Module 1 Kit</p> <ul style="list-style-type: none"> <input type="checkbox"/> Bag, resealable, clear plastic, 1 qt (1) <input type="checkbox"/> Bowl, large (1) <input type="checkbox"/> Cup, small (1) <input type="checkbox"/> Graduated cylinders, 50 mL (5) <input type="checkbox"/> Magnifiers, handheld, plastic (6) <input type="checkbox"/> Plates, paper (3) <input type="checkbox"/> Rulers, metric (6) <input type="checkbox"/> Safety goggles, student (24) <input type="checkbox"/> Safety goggles, teacher (1) <input type="checkbox"/> Spoon, plastic (1) <input type="checkbox"/> Straw, plastic (1) <p>Module 2</p> <ul style="list-style-type: none"> <input type="checkbox"/> Heat lamp with reflector (1) <p>School-Supplied Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Marker, permanent (1) <input type="checkbox"/> Paper towels, white, absorbent (3 sheets) <input type="checkbox"/> Potting soil (6 cups) <input type="checkbox"/> Soil, local (1 cup) <input type="checkbox"/> Tape, masking (partial roll) <input type="checkbox"/> Water (access) <p>Item Reuse</p> <ul style="list-style-type: none"> <input type="checkbox"/> Lesson 12 requires the lamp. <input type="checkbox"/> Lesson 14 requires the quarter-size objects, magnifier, prepared radish plants, and rulers. <input type="checkbox"/> Groups 1, 3, 4, 5, and 6 will need materials to periodically water the Science Challenge plants.
<p>Resources</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 8 Resource A: Science Challenge Rubric <input type="checkbox"/> Lesson 9 Resource A: Radish Plant Setup Instructions <input type="checkbox"/> Lesson 9 Resource B: Science Challenge Setup Instructions <input type="checkbox"/> Lesson 9 Resource C: Science Challenge Results Photographs
<p>Preparation</p>	<p>None</p>



Lesson 10

<p>Materials</p>	<p>Kit Items None</p> <p>School-Supplied Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Glue sticks (24) <input type="checkbox"/> Scissors (1)
<p>Resources</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 10 Resource A: Pitcher Plant Range Maps  <input type="checkbox"/> Lesson 10 Resource B: Big Thicket Current Weather Data Table Setup Instructions <input type="checkbox"/> Lesson 10 Resource C: Big Thicket Historical Weather Graphs  <input type="checkbox"/> Lesson 10 Resource D: Weather and Climate Cards
<p>Preparation</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Prepare the Big Thicket current weather data table on the day of Lesson 10. (See Lesson 10 Resource B.) <input type="checkbox"/> Prepare to distribute a color copy of Lesson 10 Resource C to each student pair. <input type="checkbox"/> Prepare to distribute a set of weather and climate cards to each student. (See Lesson 10 Resource D.)



Lesson 11

<p>Materials</p>	<p>Kit Items None</p> <p>School-Supplied Items None</p>
<p>Resources</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 1 Resource C: Pitcher Plant and Sundew Photographs  <input type="checkbox"/> Lesson 10 Resource C: Big Thicket Historical Weather Graphs <input type="checkbox"/> Lesson 11 Resource A: Pitcher Plants in Alabama Photograph  <input type="checkbox"/> Lesson 11 Resource B: Pale Pitcher Plant Range Map  <input type="checkbox"/> Lesson 11 Resource C: Baldwin County, Alabama, Historical Weather Graphs  <input type="checkbox"/> Lesson 11 Resource D: Texas Precipitation Map 
<p>Preparation</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Prepare to distribute a color copy of Lesson 10 Resource C to each student pair. <input type="checkbox"/> Prepare to distribute a color copy of Lesson 11 Resource C to each student pair. <p>Advance Preparation for Lesson 12</p> <ul style="list-style-type: none"> <input type="checkbox"/> 1 Day Before: Make or obtain ice.





Lesson 12

<p>Materials</p>	<p>Kit Items None</p> <p>Module 1 Kit</p> <ul style="list-style-type: none"> <input type="checkbox"/> Bags, resealable, clear plastic, 1 qt (2) <input type="checkbox"/> Bins, clear plastic, 6 qt (2) <input type="checkbox"/> Measuring cup, 1 L (1) <input type="checkbox"/> Plastic wrap (partial roll) <input type="checkbox"/> Safety goggles, teacher (1) <input type="checkbox"/> Safety goggles, student (24) <input type="checkbox"/> Timer, digital (1) <p>Module 2 Kit</p> <ul style="list-style-type: none"> <input type="checkbox"/> Heat lamps with reflectors (2) <input type="checkbox"/> Light bulbs, heat (2) <p>School-Supplied Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Cooler bag, insulated (1) or freezer (access) <input type="checkbox"/> Ice cubes (12) <input type="checkbox"/> Tape, masking (partial roll) <input type="checkbox"/> Water, hot (access)
<p>Resources</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 12 Resource A: Big Thicket After Rain Photograph  <input type="checkbox"/> Lesson 12 Resource B: Water Movement Model Setup Instructions and Procedure
<p>Preparation</p> 	<ul style="list-style-type: none"> <input type="checkbox"/> Prepare water movement models. (See Lesson 12 Resource B.) <p>Advance Preparation for Lesson 17</p> <ul style="list-style-type: none"> <input type="checkbox"/> 7 Days Before: Prepare four sealed bags of moldy bread. (See Lesson 17 Resource B.)


Lesson 13

<p>Materials</p>	<p>Kit Items None</p> <p>School-Supplied Items None</p> <p>Prepared Items from Previous Lessons</p> <ul style="list-style-type: none"> <input type="checkbox"/> Terrarium from Lesson 1 (1)
<p>Resources</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 12 Resource B: Water Movement Model Setup Instructions and Procedure: Water Movement Model Photograph <input type="checkbox"/> Lesson 13 Resource: Stream in Big Thicket Photograph 
<p>Preparation</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Cue clouds in sky video (http://phdsci.link/2432). 


Lesson 14

Materials	<p>Kit Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Objects, quarter-size (6) <p>Module 1 Kit</p> <ul style="list-style-type: none"> <input type="checkbox"/> Magnifiers, handheld, plastic (6) <input type="checkbox"/> Rulers, metric (6) <input type="checkbox"/> Safety goggles, student (24) <input type="checkbox"/> Safety goggles, teacher (1) <p>School-Supplied Items</p> <p>None</p> <p>Prepared Items from Previous Lessons</p> <ul style="list-style-type: none"> <input type="checkbox"/> Radish plants in different conditions from Lesson 8 (6) <p>Item Reuse</p> <ul style="list-style-type: none"> <input type="checkbox"/> Lesson 17 requires the magnifiers. <input type="checkbox"/> Lesson 20 requires the quarter-size objects, rulers, and prepared radish plants.
Resources	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 14 Resource A: Big Thicket Environment Photographs  <input type="checkbox"/> Lesson 14 Resource B: Death Valley Without Precipitation Photographs  <input type="checkbox"/> Lesson 14 Resource C: Death Valley After Precipitation Photographs  <input type="checkbox"/> Lesson 14 Resource D: Conceptual Checkpoint 
Preparation	<ul style="list-style-type: none"> <input type="checkbox"/> Prepare to distribute a copy of Lesson 14 Resource D to each student.


Lesson 15

Materials	<p>Kit Items</p> <p>None</p> <p>School-Supplied Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Glue sticks (24) <input type="checkbox"/> Scissors (24) <p>Item Reuse</p> <ul style="list-style-type: none"> <input type="checkbox"/> Lesson 16 requires the student-created food web posters.
Resources	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 15 Resource A: Big Thicket Organism Photographs  <input type="checkbox"/> Lesson 15 Resource B: Big Thicket Organism Cards <input type="checkbox"/> <i>Trout Are Made of Trees</i> (Sayre and Endle 2008)
Preparation	<ul style="list-style-type: none"> <input type="checkbox"/> Prepare Big Thicket organism cards. (See Lesson 15 Resource B.) <input type="checkbox"/> For each group, cut three equal strips of paper that are at least 5.5" x 26".


Lesson 16

Materials	Kit Items None School-Supplied Items <input type="checkbox"/> Glue sticks (8) <input type="checkbox"/> Highlighters in 3 different colors (8 sets) <input type="checkbox"/> Scissors (1) Prepared Items from Previous Lessons <input type="checkbox"/> Food web posters from Lesson 15
Resources	<input type="checkbox"/> Lesson 16 Resource A: Sun Cards <input type="checkbox"/> Lesson 16 Resource B: Energy in the Food Web Article <input type="checkbox"/> Lesson 16 Resource C: Fallen Log in Big Thicket Photograph 
Preparation	<input type="checkbox"/> Prepare Sun cards. (See Lesson 16 Resource A.) <input type="checkbox"/> Prepare to distribute a copy of Lesson 16 Resource B to each student.




Lesson 17

Materials	<p>Kit Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Gloves, disposable (24 pairs) <input type="checkbox"/> Magnifiers, handheld, plastic (2) <input type="checkbox"/> Toothpicks (24) <input type="checkbox"/> Tweezers (4) <input type="checkbox"/> Water, distilled (access) <p>Module 1 Kit</p> <ul style="list-style-type: none"> <input type="checkbox"/> Bags, resealable, clear plastic, 1 qt (4) <input type="checkbox"/> Magnifiers, handheld, plastic (6) <input type="checkbox"/> Safety goggles, student (24) <input type="checkbox"/> Safety goggles, teacher (1) <p>School-Supplied Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Bread, organic (4 slices) <input type="checkbox"/> Mushrooms, whole, fresh (12) <input type="checkbox"/> Paper towels, white, absorbent (12 sheets) <input type="checkbox"/> Scissors (1) <input type="checkbox"/> Tape, masking (partial roll) <p>Item Reuse</p> <ul style="list-style-type: none"> <input type="checkbox"/> Lesson 20 requires 6 of the magnifiers.
Resources	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 17 Resource A: Big Thicket Mushroom Photographs  <input type="checkbox"/> Lesson 17 Resource B: Fungi Observation Stations Setup Instructions <input type="checkbox"/> Lesson 17 Resource C: Question Corners Statements <input type="checkbox"/> Lesson 17 Resource D: Fungi Article
Preparation	<ul style="list-style-type: none"> <input type="checkbox"/> Set up fungi observation stations. (See Lesson 17 Resource B.) <input type="checkbox"/> Identify two corners of the classroom for a Question Corners routine. Prepare a copy of the statements in Lesson 17 Resource C. During the lesson, post one statement in each corner. <input type="checkbox"/> Prepare to distribute one copy of Lesson 17 Resource D to each student.


Lesson 18

Materials	<p>Kit Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Yarn (2 balls) <p>School-Supplied Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Scissors (1)
Resources	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 17 Resource D: Fungi Article <input type="checkbox"/> Lesson 18 Resource: Food Web Cards <input type="checkbox"/> <i>Trout Are Made of Trees</i>
Preparation	<ul style="list-style-type: none"> <input type="checkbox"/> Cue leaf litter decomposition video (http://phdsci.link/2475).  <input type="checkbox"/> Prepare food web cards. (See Lesson 18 Resource.)


Lesson 19

Materials	<p>Kit Items None</p> <p>School-Supplied Items None</p>
Resources	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 19 Resource A: Devils Hole Photograph  <input type="checkbox"/> Lesson 19 Resource B: Devils Hole Pupfish Photograph  <input type="checkbox"/> Lesson 19 Resource C: Organism Table <input type="checkbox"/> Lesson 19 Resource D: Conceptual Checkpoint 
Preparation	<ul style="list-style-type: none"> <input type="checkbox"/> Prepare to distribute a copy of Lesson 19 Resources C and D to each student.

Lesson 20

Materials	<p>Kit Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Objects, quarter-size (6) <p>Module 1 Kit</p> <ul style="list-style-type: none"> <input type="checkbox"/> Magnifiers, handheld, plastic (6) <input type="checkbox"/> Rulers, metric (6) <input type="checkbox"/> Safety goggles, student (24) <input type="checkbox"/> Safety goggles, teacher (1) <p>School-Supplied Items</p> <ul style="list-style-type: none"> <input type="checkbox"/> Digital camera (1) <p>Prepared Items from Previous Lessons</p> <ul style="list-style-type: none"> <input type="checkbox"/> Radish plants in different conditions from Lesson 8 (6)
Resources	<ul style="list-style-type: none"> <input type="checkbox"/> Lesson 8 Resource A: Science Challenge Rubric <input type="checkbox"/> Lesson 9 Resource C: Science Challenge Results Photographs (optional)  <input type="checkbox"/> Teacher-taken photograph of plants grown with all resources (1)
Preparation	<ul style="list-style-type: none"> <input type="checkbox"/> Before Lesson 20, take a photograph of the plants grown with all resources to display during the lesson.



Lesson 21

Materials	<p>Kit Items None</p> <p>School-Supplied Items None</p>
Resources	<p><input type="checkbox"/> Lesson 8 Resource A: Science Challenge Rubric</p> <p><input type="checkbox"/> Lesson 16 Resource B: Energy in the Food Web Article</p> <p><input type="checkbox"/> Lesson 17 Resource D: Fungi Article</p> <p><input type="checkbox"/> Lesson 21 Resource: Plant Diagram </p>
Preparation	<p><input type="checkbox"/> Prepare to distribute one copy of Lesson 16 Resource B to each student in Groups 1, 2, 3, and 6.</p> <p><input type="checkbox"/> Prepare to distribute one copy of Lesson 17 Resource D to each student in Groups 4 and 5.</p>

Lesson 22

Materials	<p>Kit Items None</p> <p>School-Supplied Items</p> <p><input type="checkbox"/> Glue sticks (24)</p> <p><input type="checkbox"/> Scissors (24)</p>
Resources	None
Preparation	None

Lesson 23

Materials	<p>Kit Items None</p> <p>School-Supplied Items None</p>
Resources	<p><input type="checkbox"/> Lesson 10 Resource C: Big Thicket Historical Weather Graphs </p> <p><input type="checkbox"/> Lesson 23 Resource: Welwitschia Photograph </p>
Preparation	<p><input type="checkbox"/> Prepare to distribute a copy of the End-of-Module Assessment to each student.</p>

Lesson 24

Materials	Kit Items None School-Supplied Items <input type="checkbox"/> Scissors (1)
Resources	<input type="checkbox"/> Lesson 24 Resource A: Module Concept Statements <input type="checkbox"/> Lesson 24 Resource B: Recurring Themes and Concepts
Preparation	<input type="checkbox"/> Prepare to distribute a copy of the End-of-Module Assessment Rubric to each student. <input type="checkbox"/> Score End-of-Module Assessments and write individual feedback. <input type="checkbox"/> Select End-of-Module Assessment responses to share with students. If selecting student responses, remember to remove identifying information and choose diverse student responses. <input type="checkbox"/> Prepare visual for student connections between module learning and content standards. (See Lesson 24 Resources A and B.)

Plants in the Environment | Works Cited

Sayre, April Pulley, and Kate Endle (illustrator). 2008. *Trout Are Made of Trees*. Watertown, MA: Charlesbridge.
[All references to *Trout Are Made of Trees* are from this source.]