



# Fourth Grade: FOSS

## Life Science - Environments



Investigation Title and Synopsis	Concepts	Assessments and TE Page Numbers
<p><b>1. Terrestrial Environments</b> Students set up terrariums, observe them for 2 weeks, and describe the living and nonliving components (biotic and abiotic factors) that contribute to the terrarium environment.</p>	<ul style="list-style-type: none"> <li>• An environment is everything that surrounds and influences an organism</li> <li>• An environmental factor is one part of an environment. It can be living or nonliving</li> <li>• A relationship exists between environmental factors and how well organisms grow</li> <li>• Environments change over time</li> </ul>	<ul style="list-style-type: none"> <li>• Pretest (pages 361-364)</li> <li>• Part 1 Embedded Assessment: (pages 298-299) Science Notebook Sheet 1 <i>Terrarium Map</i> (page 229)/Teacher observation (page 298)</li> <li>• Part 2 Embedded Assessment: (pages 300-301) Science Notebook Sheet 2-Response Sheet <i>Terrestrial Environments</i> (page 230)</li> </ul>
<p><b>2. Isopods and Beetles</b> Students investigate how isopods and beetles respond to environmental factors such as water and light. They study how plants depend on animals for survival (pollination and seed dispersal) and how animals depend on plants for food and shelter.</p>	<ul style="list-style-type: none"> <li>• Every organism has a set of preferred environmental conditions</li> <li>• Isopods prefer moist environments; beetles prefer dry environments</li> <li>• Isopods and beetles prefer dark environments.</li> <li>• Flowering plants produce seeds to make new plants</li> <li>• Pollination and seed dispersal are examples of how plants depend on animals</li> <li>• Animals depend on plants for food and shelter</li> </ul>	<ul style="list-style-type: none"> <li>• Embedded Assessment: /Teacher Observation: for Part 1 <i>Observing Organisms</i> (page 302)</li> <li>• Part 2 Embedded Assessment: (page 303) Science Notebook Sheet 4 <i>Isopods and Beetles</i> (page 232)</li> <li>• Part 3 Embedded Assessment: (pages 305-306) Science Notebook Sheet 5 <i>How Organisms Depend on One Another</i> (page 233)</li> <li>• Part 4 Embedded Assessment: (page 307) Designing Animal Investigations</li> <li>• Benchmark Assessment I-Check 1-2 (pages 365-367)</li> </ul>
<p><b>3. Aquatic Environments</b> Students set up freshwater aquariums with fish and plants. They monitor the environmental factors in the systems and look for feeding interactions. They learn about the role of producers, consumers, and decomposers in food chains and webs.</p>	<ul style="list-style-type: none"> <li>• Aquatic environments include living and nonliving factors</li> <li>• The interaction of organisms with one another and with the nonliving environment is an ecosystem</li> <li>• Organisms interact in feeding relationships in ecosystems</li> </ul>	<ul style="list-style-type: none"> <li>• Part 1 Embedded Assessment: Teacher observation (pages 308-309) <i>Goldfish Aquariums</i> (page 308)</li> <li>• Part 2 Embedded Assessment: New Organisms (page 309)</li> <li>• Part 3 Embedded Assessment: Science Notebook Sheet 8 <i>Response Sheet Aquatic Environment</i> (page 236)</li> </ul>

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<p><b>3. Aquatic Environments (cont'd)</b></p>	<ul style="list-style-type: none"> <li>Producers (plants) make their own food; consumers eat plants and animals Decomposers eat dead plants and animals and recycle the raw materials</li> <li>Organisms may compete for resources</li> </ul>	<ul style="list-style-type: none"> <li>Part 4 Embedded Assessment: (pages 312-313)/ Science Notebook Sheet 9 Kelp Forest Food Web (pages 239)</li> <li>Benchmark Assessment I-Check 3 (pages 369-370)</li> </ul>
<p><b>4. Brine Shrimp Hatching</b> Students conduct a controlled experiment to determine which of four salt concentrations allow brine shrimp eggs to hatch. They determine range of tolerance and optimum conditions. They learn about a marine food web.</p>	<ul style="list-style-type: none"> <li>Brine shrimp eggs can hatch in a range of salt concentrations, but more hatch in environments with optimum salt concentration</li> <li>Organisms interact in feeding relationships in ecosystems</li> <li>Producers (plants) make their own food; consumers eat plants and animals Decomposers eat dead plants and animals and recycle the raw materials</li> <li>Most microorganisms do not cause disease, and many are beneficial</li> </ul>	<ul style="list-style-type: none"> <li>Part 1 Embedded Assessment: <i>Setting up the Experiment</i> (page 314)</li> <li>Part 2 Embedded Assessment: <i>Determining the Range of Tolerance</i> (page 315)</li> <li>Part 3 Embedded Assessment: (pages 316-317) Science Notebook Sheet 14 Reponse Sheet Investigation 4 (page 242)</li> <li>Benchmark Assessment I-Check 4 (pages 371-373)</li> </ul>
<p><b>5. Range of Tolerance</b> Students set up and monitor experiments to determine the range of tolerance of water for germination of four kinds of seeds: corn, pea, barley, and radish. In a second experiment they test the effect of salinity on these seeds.</p>	<ul style="list-style-type: none"> <li>Every organism has a range of tolerance for each factor in its environment</li> <li>Organisms have specific requirements for successful growth, development and reproduction</li> <li>Optimum conditions are those most favorable to an organism</li> </ul>	<ul style="list-style-type: none"> <li>Part 1 Embedded Assessment: (pages 318-319)/ Science Notebook Sheet 15 <i>Plant Experiment Set-Up</i> (page 243)/Science Notebook Sheet 16 <i>Plant Observations</i> (page 244)</li> <li>Part 2 Embedded Assessment: (pages 320-321)/ Science Notebook Sheet 18 Range of Tolerance (page 246)</li> <li>Part 3 Embedded Assessment: Concluding the Module Performance Assessment (page 322)</li> <li>Benchmark Assessment I-Check 5 (pages 374-375)</li> <li>Posttest (pages 361-364)</li> </ul>