Unit Planning Guide for Interdependent Relationships in Ecosystems for Grades 3–5

Timeline:

Core Idea/Topic: Interdependent Relationships in Ecosystems
Grade Level: 3–5
Concepts: Animal parts, animal needs, food chains/webs

Questions to Drive the Inquiry
1. What do animals need to live?
2. How do plants and animals interact in an ecosystem?

Student Questions
1. What does an owl eat?
2. How do owls use their heads, eyes, wings, and talons to catch their prey?
3. What does an owl need in its habitat?

Investigations
1. Dissect owl pellets. Use charts and digital resources to sort and identify what the owl ate.
2. Observe animals in the classroom and through technology. Research how animals use their body parts to seek and find food.
3. Research animal habitats. Compare different animal habitats and determine how animals interact.

Standards
NGSS

CCSS ELA-LITERACY
Key Ideas and Details (RI.3.1, RI.4.1, RI.5.1); Craft and Structure (RI.3.4, RI.3.5, RI.4.4, RI.4.5, RI.5.4, RI.5.5); Integration of Knowledge and Ideas (RI.3.7, RI.4.7, RI.5.7); Production and Distribution of Writing (W.3.5, W.3.6, W.4.5, W.4.6, W.5.5, W.5.6); Research to Build and Present Knowledge (W.3.7, W.3.8, W.4.7, W.4.8, W.5.7, W.5.8); Comprehension and Collaboration (SL.3.1, SL.3.2, SL.3.3, SL.4.1, SL.4.2, SL.4.3, SL.5.1, SL.5.2, SL.5.3); Presentation of Knowledge and Ideas (SL.3.4, SL.3.5, SL.3.6, SL.4.4, SL.4.5, SL.4.6, SL.5.4, SL.5.5, SL.5.6)

Performance Assessment
1. Students will design and build a habitat that includes an animal’s needs.
2. Students will use technology to design a brochure that explains a food web for an owl in the local community.
## Cross-Curricular Connections

<table>
<thead>
<tr>
<th>Science</th>
<th>Technology</th>
<th>Engineering</th>
<th>Mathematics</th>
<th>English Language Arts</th>
<th>Social Science</th>
<th>Art</th>
</tr>
</thead>
<tbody>
<tr>
<td>• How do the parts of an animal determine what it eats?</td>
<td>• Digital microscope: View bones and feathers</td>
<td>• Build an owl box.</td>
<td>• How does a raptor’s wingspan compare to that of other birds?</td>
<td>• Read informational text to explain key details about animals.</td>
<td>• Where do animals live? For example, research and compare animals that live in different ecosystems. Locate geographic regions on a map.</td>
<td>• John James Audubon: Observe, draw, and paint birds.</td>
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<tr>
<td>• How do living things change in a life cycle?</td>
<td>• Kidspiration®: Organize key details in preparation for writing. Create food chain/web.</td>
<td>• Design and build a bird feeder to attract bird species to your yard or garden habitat.</td>
<td>• How does the shape of a bird’s wing affect its flight patterns?</td>
<td>• Record observations and describe relevant details in journals.</td>
<td>• How do plants and animals interact locally and globally?</td>
<td>• Emily Carr: Observe, draw, and paint trees.</td>
</tr>
<tr>
<td>• How do plants and animals interact in an ecosystem?</td>
<td>• Brochure or pamphlet</td>
<td>• Class blog: Report data and information collected about plants and animals in our ecosystem.</td>
<td>• Beak shape</td>
<td>• Label diagrams and drawings.</td>
<td>• How does a drought or other extreme weather occurrence affect an ecosystem?</td>
<td>• Pattern and value</td>
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<tr>
<td></td>
<td>• Apps: Kids Discover, National Geographic</td>
<td>• Brochure or pamphlet</td>
<td>• Create charts and graphs to organize the data collected from research and observations.</td>
<td>• Write reports communicating understanding of investigations.</td>
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<td>• Observe and create animal patterns.</td>
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<td></td>
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<td>• Collaborative discussion</td>
<td>• Read informational text to explain key details about animals.</td>
<td>• Where do animals live? For example, research and compare animals that live in different ecosystems. Locate geographic regions on a map.</td>
<td>• How do plants and animals interact locally and globally?</td>
<td>• Observe and create color value to illustrate camouflage.</td>
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<td>• Collaborative discussion</td>
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</table>

## Multiple Intelligences

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<thead>
<tr>
<th>Linguistic</th>
<th>Logical-Mathematical</th>
<th>Visual-Spatial</th>
<th>Bodily-Kinesthetic</th>
<th>Musical</th>
<th>Interpersonal</th>
<th>Intrapersonal</th>
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</thead>
<tbody>
<tr>
<td>• Collaborative discussion</td>
<td>• Graphs</td>
<td>• Videos</td>
<td>• Hands-on</td>
<td>• Songs</td>
<td>• Collaborative projects</td>
<td>• Student choice</td>
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<tr>
<td>• Reading</td>
<td>• Charts</td>
<td>• Technology applications</td>
<td>Reader’s Theater</td>
<td>Chants</td>
<td>Varied groupings</td>
<td>Reflection</td>
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<tr>
<td>• Writing</td>
<td>• Measurement</td>
<td>• Hands-on investigations</td>
<td>Plays</td>
<td>Poems</td>
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<td>Meaningful connections</td>
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<tr>
<td>• Brochures</td>
<td>• Data organization</td>
<td>• Photographs</td>
<td>Outside explorations</td>
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<tr>
<td>• Reports</td>
<td>• Data interpretation</td>
<td>• Drawings</td>
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Unit Planning Guide for Interdependent Relationships in Ecosystems for Grades 3–5 (continued)
Why Is Investigating a Powerful Teaching Tool?

The Power of Investigating: Guiding Authentic Assessments

Resources

Content Vocabulary
animal  external  herbivore  predator
beak   eyes   internal  prey
 carnivore  feathers  life cycle  raptor
community  food chain  mouth  scales
ears  food web  omnivore  system
ecosystem  fur  owl pellet  talons
energy flow  habitat  parts  wings
energy flow  habitat  parts  wings

Academic Vocabulary
change  discuss  information  present
clarify  display  informational  question
compare  dissect  text  record
connect  evidence  journal  report
describe  facts  measure  resources
details  ideas  model  similar
different  illustrate  observation  support
different  illustrate  observation  thinking

definitions
Reflection
Observing raptors in the classroom through the wildlife-refuge organization provided a firsthand experience with real birds of prey. The use of dissected owl pellets was very engaging. A possible community service project to collect supplies or raise money for the wildlife refuge may be an option for a project-based learning unit. Extending the backyard bird feeder project in conjunction with a habitat journal would offer students an opportunity to observe and reflect at home as they learn about different kinds of birds.