<table>
<thead>
<tr>
<th>Lesson Components</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Virginia Standards of Learning (VSOL)</strong></td>
<td>Science 2.5a, 3.5</td>
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| **Objective ("KUD")** | **Students will know:** what a predator, prey, producer, consumer, decomposer, herbivore, carnivore, and omnivore are.  
**Students will understand:** living things are interdependent with their living and non-living surroundings.  
**Students will be able to:** demonstrate and explain how predators and prey rely on one another using a food chain. |
| **Assessment/Monitoring** | Assessment will occur by monitoring class discussion, analyzing group project presentations and completed projects, observing students during activities such as the predator vs. prey game, and by assessing the completed food chain worksheet and food chain crossword. |
| **Procedures** | 1. After going to the zoo, ask students what they noticed about different animals. What were the animals eating? Were they all eating the same thing? See if students can list some of the things that the animals they saw at the zoo like to eat. On a whiteboard, record student responses (an example is given below)  
2. Using examples of animals that eat meat, ask if anyone knows what an animal that only eats meat is called. If no one knows, explain that an animal that only eats meat is called a carnivore. Do the same with an animal that eats only plants (herbivore) and plants and meat (omnivore).  
3. Split students into three groups. One group will be carnivores, one herbivores, and the last omnivores. Each group will work together to create a utopian habitat for that type of animal. For example, the herbivore group may want to create a habitat surrounded by plants, while the omnivore group would want plenty of plants and animals in their habitat. Students should research their food classification and animals that maintain that diet. Research can be conducted using books, computers, and any other resources you have in the classroom. Finished products can include three dimensional projects or drawings depending on supplies available. A written explanation of each group’s habitat should be included. Research should be reflected in this explanation. Groups should present their findings and finished product to the class.  
4. Ask students if they have ever heard of a producer. What do students think a producer might do? Produce or make things? Ask students what they think a consumer might do. Consume or eat things? What might a decomposer do? What does decompose mean? Have a student look this up in a dictionary. After students have hypothesized what these terms might mean, show the food chain video at https://www.youtube.com/watch?v=33pC31rw9bM.  
5. Play the producers, consumers, decomposers game as a class at |
6. Break students into small groups of four or five. Have each group discuss examples of producers, consumers, and decomposers that they saw while visiting the zoo. Producers could include grass, flowers, bamboo, trees, etc. Consumers could be any of the animals: red panda, snow leopard, Pallas cat, etc. Decomposers could include worms, cockroaches, mushrooms, etc. Have students record what they come up with on a piece of paper. Make three columns on the board; one for producers, one for consumers, and one for decomposers. After giving students a few minutes to come up with examples, have one member of each group come up to the board and write down their examples under the corresponding column.

7. Review what students learned about predator and prey. After discussing this as a class, play the Prey vs. Predator Game

8. Have students create a food chain using animals they saw at the zoo. Use the pictures of the animals below and have students paste them on the food chain in the correct location.

9. For review, have students complete the food chain crossword.

<table>
<thead>
<tr>
<th>Materials/Equipment/Preparation</th>
<th>Whiteboard</th>
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<tbody>
<tr>
<td></td>
<td>Research materials: books, computers, etc.</td>
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<tr>
<td></td>
<td>Project materials: paper, clay, markers, etc.</td>
</tr>
<tr>
<td></td>
<td>Dictionary</td>
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<tr>
<td></td>
<td>Food Chain Video <a href="https://www.youtube.com/watch?v=33pC31rw9bM">https://www.youtube.com/watch?v=33pC31rw9bM</a></td>
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<tr>
<td></td>
<td>Producers, Consumers, Decomposers Game <a href="http://www.sheppardsoftware.com/content/animals/kidscorner/games/producersconsumersgame.htm">http://www.sheppardsoftware.com/content/animals/kidscorner/games/producersconsumersgame.htm</a></td>
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<tr>
<td></td>
<td>Prey vs. Predator Game</td>
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<td></td>
<td>Colored paper and tape</td>
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<td></td>
<td>Food chain worksheet</td>
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<td></td>
<td>Food chain crossword</td>
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| Differentiation | Some students may require more direct instructions for the research aspect of this lesson. Feel free to help the student through the research process with direct questions you want answered. For example, if the student is in the herbivore group, assign a specific herbivore, such as the dwarf zebu for the student to research further to create its ideal habitat. To maintain the attention of students with attention disorders during the video, try providing a checklist of things for them to look for while watching. This provides a purpose throughout the video watching process and helps maintain attention. When conducting classroom activities such as playing the producers, consumers, decomposers game, call on a variety of students to keep everyone engaged. |

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<thead>
<tr>
<th>Prior and/or Foundational Knowledge</th>
<th>Students should have some understanding of animal needs prior to beginning this lesson (understanding the need for food is essential).</th>
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<tr>
<td>Rationale for Lesson</td>
<td>Understanding interdependency between animals and the environment is</td>
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critical to understanding environmental sustainability and the impact humans have on the environment. Learning about predators, prey, producers, consumers, and decomposers sets students up to learn about this interdependent relationship. Learning about different animal diets through classifications such as herbivores, carnivores, and omnivores is crucial to understanding how different animals survive.
Example of Student Responses for Whiteboard

Dwarf Zebu- Hay

Fishing Cat- Fish

Florida Sandhill Crane- Plants, crayfish, lizards

Asian Small-Clawed Otter- Fish, clams

Indian Crested Porcupine- Fruit, plants

Snow Leopard- Meat

Example of Producer, Consumer, and Decomposer Chart for Board

<table>
<thead>
<tr>
<th>Producers</th>
<th>Consumers</th>
<th>Decomposers</th>
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Prey vs. Predator Game

This is a game to help your students understand the interrelationship between living things. This game requires a large area. Outside is ideal, but if this is not possible a large space such as a gymnasium will work.

1. Divide students into two equal groups. Assign one group as “prey” and the other as “predators.”
2. Explain that the predator group will be trying to catch their prey by tagging them. If prey gets caught they have been fed to a baby predator that will grow up to be a new predator. Any prey that is consumed will join the predator group. Distinguish the two groups by taping colored paper to all the members of one of the groups.
3. Explain that the prey group will be trying to run away from the predators.
4. The number of prey will go down quickly. Stop the game when there are one or two members of the prey group left and explain to students that there are too many predators and not enough prey to eat. Ask them what they think will happen if there is not enough food to go around. Since there are so many predators catching prey there is not enough left for them all to survive. “Kill off” all but two of the predators. These two predators have temporarily won and sit out.

5. Explain to the students that the predators have decomposed and added to the soil to allow plants to grow. These students will now be plants that the prey is searching for. If a student in the “prey” group tags one in the “plant” group, the “plant” has been eaten and has allowed a new member of the “prey” group to be born. This student now joins the “prey” group.

6. Fairly quickly a similar situation will arise in which there is not enough food for the prey to eat. Stop the game when there are one or two members of the “plant” group left and explain that there are too many prey and not enough plants to eat. “Kill off” all but two of the prey.

7. Ask students what they are noticing about the game. What keeps happening? Ask students what happens when there are too many predators. (They eat all the prey and there is not enough for them all to survive, so most die off.) Ask students what happens when there are too many prey. (They eat all the plants and there is not enough for them all to survive, so most die off.)

8. Tell the prey that died that they have decomposed and added to the soil to allow plants to grow. These students will now be plants that the prey is searching for. Allow the two predators who survived to return to the game. As the “plants” get eaten, have them take become “prey” again.

9. Soon all the plants will be gone and there will be a fairly equal number of prey and predators. Stop the game and discuss with students what has happened. How do living things rely on one another? What if there were no predators? What if there was no prey? (Without predators the population of prey would increase to the point that they would not be able to find enough food for everyone to survive. This would cause many to die off. Without prey the predators would die off since they would have nothing to eat. Prey and predators keep one another in balance.)
Zoo Food Chain

Cut out each living thing and paste it in the correct location on the food chain below.

Which animal is the predator? Which is the prey? How do these animals rely on one another?

________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

![Red Panda](image1)

![Snow Leopard](image2)

![Bamboo](image3)
Which animal is the predator? Which is the prey? How do these animals rely on one another?

The snow leopard is the predator, and the red panda is the prey. Example response of how these animals rely on each other: The snow leopard needs the red panda for food. If there are no red pandas the snow leopard could starve. The red panda needs the snow leopard to control its population. If there are no predators eating the red panda, their population would become too large and there would not be enough bamboo to go around.
Across
4. A plant that makes its own food using water, sunlight, and air
5. Eats only plants
6. An animal that eats living things
7. Eats only other animals
Down
1. Eats plants and animals
2. Breaks down decaying plants and animals
3. An animal that is hunted by another animal for food
4. An animal that hunts other animals for food
Crossword Answer Key

Across
4. A plant that makes its own food using water, sunlight, and air **Producer**
5. Eats only plants **Herbivore**
6. An animal that eats living things **Consumer**
7. Eats only other animals **Carnivore**

Down
1. Eats plants and animals **Omnivore**
2. Breaks down decaying plants and animals **Decomposer**
3. An animal that is hunted by another animal for food **Prey**
4. An animal that hunts other animals for food **Predator**