Food Chain

Life Science | Lesson Guide

Kindergarten

Photo Description

This image shows a small lizard resting on sandy, rocky soil with bits of wood and leaves scattered around. The lizard has bumpy, grayish-brown skin that helps it blend in with its surroundings. This type of ground is where desert lizards find food, shelter, and safety.

Scientific Phenomena

Anchoring Phenomenon: Why does this lizard blend in with the ground?

This lizard displays camouflage—a natural adaptation that helps animals survive. The lizard's bumpy, earth-toned skin matches the color and texture of the rocky soil and debris around it. This happens because over many generations, lizards with coloring that matched their environment survived longer and had more babies. The animal's body has evolved to match its habitat, making it harder for predators to spot it while also helping the lizard sneak up on insects it eats.

Core Science Concepts

1. Animal Adaptations: Lizards have special body features (color, bumpy skin, shape) that help them live in their desert or rocky habitats.

2. Habitat and Survival: Animals need specific places to live where they can find food, water, and shelter. This lizard's rocky home gives it everything it needs.

3. Camouflage as Protection: The lizard's coloring matches its surroundings, which helps it hide from animals that might eat it and helps it catch food.

4. Living Things and Their Environment: Lizards are part of a community of living things (insects, plants, soil organisms) that all depend on each other.

Pedagogical Tip:

For Kindergarteners, use the concrete experience first: show real pictures and objects (rocks, twigs, sand) before introducing the word "camouflage." Let students physically hide toy lizards in a sandbox or among rocks to experience the concept directly. This builds understanding through play before formal vocabulary is introduced.

UDL Suggestions:

Multiple Means of Representation: Provide images of the same lizard in different habitats (desert, rocky area, green plants) so students can see how the lizard looks different in each place. Use both photos and illustrated diagrams. Multiple Means of Action/Expression: Allow students to show understanding by drawing, acting out being a camouflaged lizard, building habitats with blocks, or verbally describing what they observe—not just through worksheets.

Zoom In / Zoom Out

Zoom In: Skin Cells and Color
If we could look at the lizard's skin under a super-powerful magnifying glass (a microscope), we would see tiny, tiny cells. Inside those cells are special things called pigments—they're like tiny paint drops that make the lizard's skin brown and bumpy. Different lizards have different amounts of brown, gray, and tan pigments in their skin cells. The bumpy parts of the skin are made of many cells stacked together, kind of like stacked blocks. All these tiny cells working together create the color and texture we see that helps the lizard hide!

Zoom Out: The Desert Ecosystem
This one lizard is just one small part of a big community of living things called a desert ecosystem. The lizard eats insects (like beetles and ants), which eat plants and seeds. Bigger animals (like hawks and snakes) hunt the lizard. The soil beneath holds water and nutrients that help plants grow. When the lizard dies, it becomes part of the soil again. Everything in the desert—the sun, rocks, sand, plants, insects, and animals—works together in a big cycle. If one part changes (like if all the insects disappeared), the whole desert ecosystem would be affected, and the lizard might not survive.

Discussion Questions

1. Why do you think this lizard is bumpy and brown instead of bright pink? (Bloom's: Analyze | DOK: 2)

2. If we moved this lizard to live on green grass, do you think it would be easier or harder for other animals to find it? Why? (Bloom's: Evaluate | DOK: 3)

3. What do you think this lizard needs to live in this rocky place? (Bloom's: Understand | DOK: 1)

4. How does the lizard's color help it find food and stay safe? (Bloom's: Analyze | DOK: 2)

Potential Student Misconceptions

Misconception 1: "The lizard chose to be brown to hide."
Clarification: The lizard didn't decide to be brown on purpose. Over many, many years (longer than anyone can imagine), lizards that were already brown survived better because predators couldn't see them as easily. Those brown lizards had babies, and those babies were also brown. Bright-colored lizards didn't survive as long, so we don't see many of them. It's not a choice—it's nature's way of helping animals fit their homes.

Misconception 2: "All lizards look the same and live in the same places."
Clarification: There are many, many different types of lizards! Some are bright green (they live in forests), some are blue (they live near water), and some are brown like this one (they live in rocky or sandy places). Each lizard's color and bumpy or smooth skin helps it live in its special home. A green forest lizard would stand out like a toy in this rocky desert, and this brown lizard would be very easy to spot in a green forest.

Misconception 3: "Lizards only drink water from pools or puddles."
Clarification: While some lizards do drink from water, desert lizards like this one get water in different ways too! They drink water from insects they eat, or they get moisture from the soil and rocks. Some lizards can even collect water from morning dew on rocks. Their bodies are specially adapted to need less water than animals like dogs or humans do.

Extension Activities

1. Camouflage Matching Game: Place toy lizards (or pictures) and rocks/sand in a sensory bin. Have students take turns hiding the lizards so others can find them. Discuss why some hiding places work better than others. This builds understanding of how color and surroundings match.

2. Habitat Building with Natural Materials: Provide students with sand, rocks, twigs, leaves, and pictures of different lizards. Have them create a small habitat in a shallow box, then place their lizard figurine in it. Ask: "Does your lizard blend in? Is it easy to see?" Discuss what the lizard might eat, where it might rest, and what might hunt it.

3. Animal Homes Sorting Activity: Show pictures of different habitats (desert, forest, pond, grassland) and animal pictures (lizard, frog, rabbit, fish). Have students match animals to their homes and discuss why each animal fits there. Use this to reinforce that different animals need different environments.

Cross-Curricular Ideas

Math Connection: Patterning and Sorting
Have students sort rocks, twigs, leaves, and sand by color, size, or texture—the same attributes that help the lizard blend in. Create simple patterns (brown rock, tan rock, brown rock, tan rock) to explore how the lizard's color fits into the pattern of its environment. Students can count how many different shades of brown they find, connecting to color recognition and basic number skills.

ELA Connection: Descriptive Language and Storytelling
Read aloud books like The Lizard and the Sun and have students use sensory words to describe what they observe in the photo (bumpy, rocky, brown, grainy, dusty). Encourage students to tell or act out a story: "What does the lizard do during the day? Where does it hide? What does it eat?" Record their stories and create a class "Lizard Adventures" book with student drawings and dictated text. This builds vocabulary and narrative skills while reinforcing the science concept.

Art Connection: Camouflage Collage
Provide students with natural materials (sand, twigs, small rocks, leaves, brown and gray paper scraps) and have them create a collage habitat for a paper lizard cutout. As they build, ask: "Can you still see the lizard? Does it blend in? What did you add to make it hide better?" Students can then present their collages and explain their choices, connecting art-making to scientific reasoning about color, texture, and camouflage.

Social Studies Connection: Animal Homes Around the World
Introduce students to different habitats and the animals that live there (rainforest monkeys, arctic foxes, grassland zebras, desert camels). Compare and contrast the colors and features of animals in different places. Create a simple world map and place pictures of animals in their habitats. Discuss: "Why do animals in cold, snowy places look different from animals in hot, sandy places?" This builds geographic awareness and reinforces that adaptation is universal.

STEM Career Connection

Wildlife Biologist
A wildlife biologist is a scientist who studies animals in their homes to learn how they survive and stay healthy. This person might go out to the desert to watch lizards, count them, and learn about their habits—what they eat, where they rest, and how they stay safe. They might wear special gear, take pictures, and write notes about what they see. Then they share what they learned with other scientists and help protect the places where animals live. Average Annual Salary: $65,000 USD

Zoologist (Herpetologist)

A zoologist studies all kinds of animals, and a special type called a herpetologist focuses on reptiles like lizards and snakes. These scientists might work in zoos, museums, or in nature to learn about how lizards are related to each other, how they evolved to have special features (like bumpy skin and the perfect camouflage color), and what their bodies can do. They might even discover new types of lizards! Average Annual Salary: $68,000 USD

Environmental Scientist
An environmental scientist studies how animals and plants live together in habitats and how to keep those places healthy and safe. This person might work to protect the desert where this lizard lives by making sure the soil stays good, there's enough food (insects), and no pollution harms the animals. They help make decisions about which areas should stay wild so animals like lizards can live their natural lives. Average Annual Salary: $73,000 USD

NGSS Connections

Performance Expectation (K-LS1-1): Use observations to describe patterns of what plants and animals (including humans) need to survive.

- K-LS1.A (All animals need food, water, and a place to live)
- K-LS1.C (Animals have body parts and behaviors that help them survive in their habitat)
- Patterns (The lizard's color follows a pattern—it matches the pattern of rocks and soil)
- Structure and Function (The lizard's bumpy skin and color are structures that function to help it hide and survive)

Science Vocabulary

* Camouflage: When an animal's color or pattern helps it blend in and hide in its environment.

* Habitat: The special place where an animal lives that has everything it needs (food, water, shelter, safety).

* Adaptation: A special body part or behavior that helps an animal survive in its home.

* Predator: An animal that hunts and eats other animals for food.

* Desert: A dry, hot place with very little rain where animals like lizards live.

External Resources

Children's Books:
- The Lizard and the Sun by Alma Flor Ada (folklore with themes of adaptation and nature)
- Anole Lizards by Julie Murray (DynaReaders; simple factual text about how lizards live)
- Little Lizard by Guido van Genechten (story about a small lizard finding its place)

Teacher Notes: This lesson scaffolds from direct observation (the lizard photo) to understanding camouflage and adaptation. Use lots of hands-on activities, real objects, and concrete comparisons. Kindergarteners learn best through play and exploration—let them touch, hide, build, and move to deepen their scientific thinking.