Animal Appetites

AGE LEVEL 9-12

Life Skill: Critical thinking

Project Skill: Investigating food preferences in animals

Objective: Research animals' diets and adaptations for eating

Success Indicator: Participants draw sound conclusions about wildlife feeding behavior and speculate on why animals prefer some foods over others

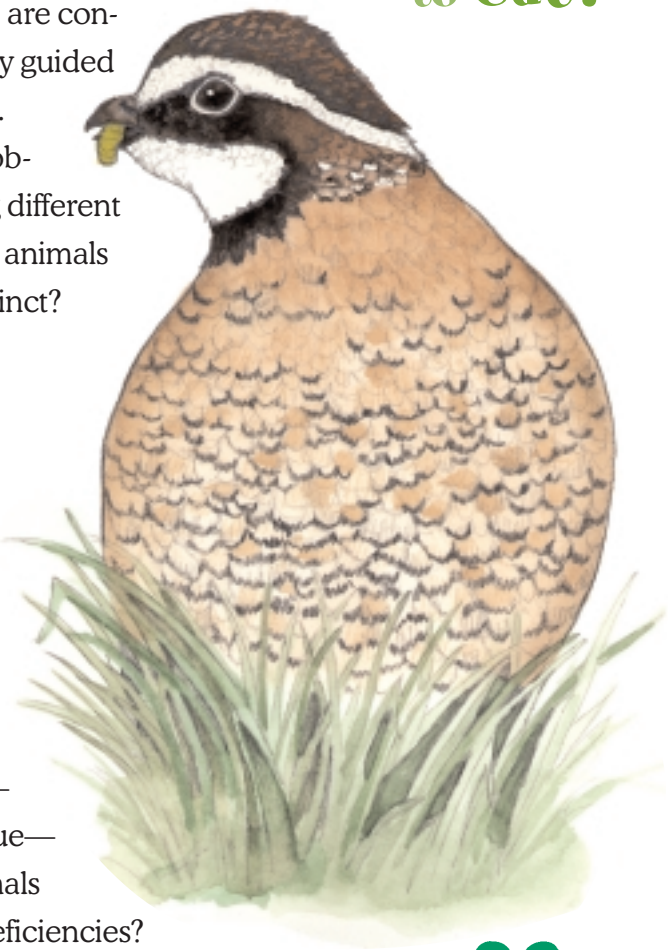
Provisions Needed

- Research avenues like library and Internet access

how do animals know what to eat?

Trailhead

Why do people like some foods and despise others? Why are certain foods "good for you" while some are considered junk food? Human food preferences are usually guided by their taste buds. Yet not everyone has a healthy diet. Poor nutrition can cause immediate and long-term problems. With each new day, the experts tell us something different about what we should and should not eat. But how do animals know what to eat? Is it something they learn or is it instinct?



Trailblazing

At least 10 million species of animals and 375,000 species of plants are known to exist on Earth. Besides making the world more interesting, these organisms amount to an incredibly diverse smorgasbord known as the **food chain**. Almost every plant and animal serves as food for other living organisms. But very little is known about why some animals seem to prefer specific foods. Several factors—including the availability of food and its nutritional value—are important. But do the nutritional needs of the animals unconsciously make them select foods to meet their deficiencies? How is this possible? Do animals pass over some foods in favor of more palatable ones? What other factors do you think are important? Develop a list of theories

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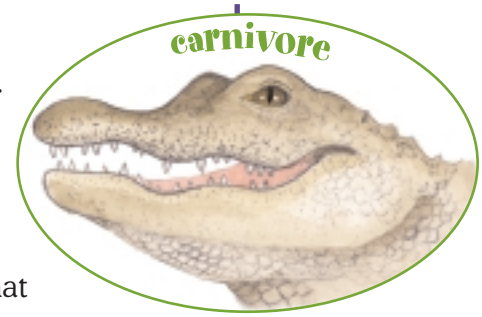
and possibilities, then conduct an investigation about wildlife food preferences. Use current research articles to gather new information. Include in your study animals and plants that are common where you live. Present your findings and conclusions to your 4-H group along with a graphic or photographic depiction of a **food web** (several interdependent food chains) representing plants and wildlife in your area.

Some suggestions for investigation include:



- What species of animals learn about food-gathering from their parents? Which ones must fend for themselves? What is similar and different about these species? Which is more advantageous for survival—learned behavior or instinctive behavior? Why or why not?
- Why do a few animals seem to favor eating plants or animals that most species avoid (such as sea turtles, which eat jellyfish in spite of the stinging cells they contain, or monarch butterflies, which feed on milkweeds, plants with bitter juices)? What benefits might these preferences provide?

- Are the animals where you live mostly **carnivores** (primarily meat-eaters), **herbivores** (primarily plant-eaters), or **omnivores** (plant- and animal-eaters)? Are the carnivores **predators** (animals that hunt and kill prey) or **scavengers** (animals that eat **carrion** or already dead animals)?
- Which parts of plants do the herbivores eat? Are all parts of a plant edible to some animal?
- How are animals' diets limited or expanded by their physical adaptations or other characteristics?
- What species can change or adapt their diets more readily? Which ones have more specialized diets?
- Do animals sometimes compete for the same food? How might they share resources?
- Research has suggested that the way people perceive tastes—such as degree of bitterness—may be an inherited trait. Similarly, some animals seem to avoid instinctively wild foods that are bitter or poisonous. How might taste perception affect survival?

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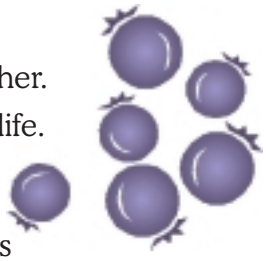
Field Guide

Most **parts of plants** are eaten by one animal species or another. Fruits, seeds, leaves, twigs, bark, and roots furnish food for various wildlife.



The availability of foods is **seasonal**. Acorns ripen and fall to the ground in autumn. Certain plants flower only in spring, while others flower in the fall. Seeds typically are most abundant in winter.

Fleshy fruits are rich in **carbohydrates and vitamins**. Seeds and nuts are concentrated packages of fat and protein. Nuts are usually considered to be tree fruits with dry, hard exteriors. The dry fruits of woody plants, such as acorns, are sometimes classed with nuts—the term **mast** is used to describe this group. A season with a heavy acorn crop is known as a **mast year**. Examples of native plants that provide fleshy fruits include black cherry, persimmon, American holly, dogwood, blackberry, blueberry, and poison ivy.

The physical abilities and adaptations of some predators are highly developed to help in capturing and killing their food. For example, otters are able to swim fast enough to catch fish. **Kingfishers** seize fish with their long, pointed bills. Night hawks have large mouths with stiff bristles at the corners forming a funnel to catch insects as they fly. Red-tailed hawks and other soaring hawks have broad wings for ease in staying aloft while they search the ground below for mice and squirrels. Owls have a silent, mothlike flight, which allows them to capture roosting birds and nocturnal rodents unaware. Bobcats and foxes have sharp-edged teeth adapted to shearing and cutting meat.

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The Extra Mile

Allow a small portion of your yard to grow wild. Identify and record (photograph) the plants that appear. What species of birds or other animals visit the plot? Don't forget to note small animals like crawling bugs and winged insects. How many types of wildlife foods can you count? Were there types of food missing in your yard, especially during certain times of the year? How many food chains can you recognize and confirm? How do the animals benefit the plants? If the food plot were destroyed, which of the creatures that used it could adapt? Which might disappear?

Field Notes

SHARE

- What surprising or unusual observations did you make about animal diets?
- What initial ideas about animal food preferences were you able to validate through research? Which ones could not be substantiated?

PROCESS

- Do you think animals place any value on food other than as a means to obtain nutrients?
- Whose diet is easier to study and analyze—an animal's or a person's? Why?
- How are your first impressions of an issue or subject useful in critical thinking?
- Animals often develop adaptations that allow them to take advantage of a specific food source. How have plants adapted to avoid animals? How have plants adapted to attract animals to their food supply?

GENERALIZE

- What other times have you had to investigate an issue by observation and later analysis?
- What human activities affect the availability of wildlife foods or an animal's ability to find food?

APPLY

- How do people use critical thinking skills in everyday life?

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