Do you have a brother or sister? Do you both try to get attention from your parents or grandparents? If so, you compete for attention. In this instance, both of you are working against each other to try to get what you want. Look at the image on the right of the brother and sister trying to catch the most river frogs. One ends up a winner, while the other ends up losing the battle.

**competition:** organisms fight to get the same resource

How does competition occur in nature?
In any ecosystem, organisms and populations with similar requirements for food, water, oxygen, or other resources may compete with each other for limited resources, which consequently limits their growth and reproduction. In nature, there are many instances of competition. Sometimes competition occurs between members of the same species. This often happens when animals try to find a mate. For example, when red deer begin mating season, the males will fight each other by locking their antlers and trying to flip each other. This is called rutting. The strongest deer emerges as the winner, and he is more likely to be found desirable as a mate by the female deer. He may be known as the alpha (leader) male, because he has established his dominance within the herd. The female deer will mate with the alpha male, because he has proven himself to be the best and strongest animal.

**Look Out!**
Many organisms compete for mates by showing off to attract attention. Examples are a show of physical prowess, dancing display of feathers, or making patterns in the sand:

- Bighorn sheep will run toward each other and butt heads to fight off the weaker competition.
- Male Birds of Paradise will dance to get a female’s attention.
- Pufferfish create elaborate circular patterns in the sand to attract a female mate.
Competition in Ecosystems

What Do You Think?

Do you think animals compete for resources? For example, both sharks and dolphins eat fish. Both need food to survive. If one eats enough fish to survive, but there is not enough fish for the other, the one that does not get its necessary food may die. Both sharks and dolphins may have to swim long distances to find food. Sharks can hunt food in deeper ocean areas or along seashores where vulnerable sea mammals live. Other sea organisms may eat the fish as well, making competition even more fierce.

Because of limited space, limited food, or other limited resources, one population of an organism may compete with another population for the same things. For example, one group of chimpanzees may attack another nearby group to gain control of certain fig trees that provide food.

Plants also compete for resources. Vines climb tree trunks so that they can be exposed to the sun. They need sunlight to go through photosynthesis—that way, they can make their own food. If you have trees in your neighborhood, see whether any of them have vines growing on them. Make a sketch of how the vine is connected to the tree. Does the vine seem to be growing in the direction of the sunlight?

How do you think organisms work together?

Some organisms are better able to survive because they have paired up with another organism to help the other to survive. The pistol shrimp and the goby have such a mutually beneficial relationship called mutualism. Pistol shrimp dig large burrows for homes that also serve as a home for the small goby fish. In return, the goby acts as a lookout for the pistol shrimp, who has poor eyesight, to alert the shrimp when danger is near by wiggling its tail. When the shrimp feels the wiggle, it knows to hide in the burrow.

The goby also gets scraps of food from the pistol shrimp. Each organism helps the other, and each gets something good out of the relationship.
What Do You Think?

Career Corner: Animal Behaviorist
Animal behaviorists are people who study how animals relate to their environments as well as to other animals. They learn about what causes certain animal behaviors and reactions, and they may also study how animals react to predators, compete for resources, find mates, and respond to changes in the environment.

Many zoos and museums employ animal behaviorists to work with the animals they have on site. Some behaviorists also research newly discovered organisms and work closely with the medical field. If you are interested in seeing how animals work together, compete, and respond to other animals, a career as an animal behaviorist might be perfect for you!

Reflect

Resource availability affects growth, competition, and rate of reproduction.
How resources become available in an ecosystem directly affects several factors within and among populations of organisms:

- **Population changes**- Changes in the amount and availability of a given resource (e.g., less food) may result in changes or limits in the population growth of an organism (e.g., less food results in fewer organisms).

- **Individual organism changes** - Changes in the amount or availability of a resource (e.g., more food) may result in changes in the growth of individual organisms (e.g., more food results in faster growth).

- **Competition**- Consequently, resource availability drives competition among organisms, both within a population as well as between populations.

- **Rate of reproduction**- Resource availability also affects a population’s rate of reproduction.

![Competition for Resources](image)
What Do You Know?
In times of surplus, colonies of organisms living together can cooperate with each other. In times of shortages, those same colonies may have to compete against each other. Read the descriptions of environmental changes in the chart below. Then read the events that happened as a result of the changes. Match each event with the most likely environmental change. Write your answers on the right side of the chart.

Environmental Changes

<table>
<thead>
<tr>
<th>Environmental Change</th>
<th>Resulting Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seasons of heavy rains flood an area and create new ponds.</td>
<td></td>
</tr>
<tr>
<td>A hurricane brings saltwater from the ocean into rivers and streams.</td>
<td></td>
</tr>
<tr>
<td>Humans cut down many trees in a forest.</td>
<td></td>
</tr>
<tr>
<td>A fire moves through a grassland ecosystem.</td>
<td></td>
</tr>
</tbody>
</table>

Events

- Algae begins to grow rapidly at the surface of the water.
- The larger fish begin to fight among themselves for smaller prey.
- Prairie dog burrows are inhabited by other savannah mammals.
- Ferns and grasses reach outward into the open sunshine.
Walk outside with your child to your backyard or a nearby park and observe the different animals. Your child may be able to identify the animals they see but might not realize how they are competing for resources in their own backyard!

Here are some questions to discuss with your child:

• What animals do you see and what needs do they have?
• Do a bird and squirrel compete with each other for the same resources?
• How does one bird compete with another bird of the same species?
• What resources do the plants need for survival and how are they competing with each other?