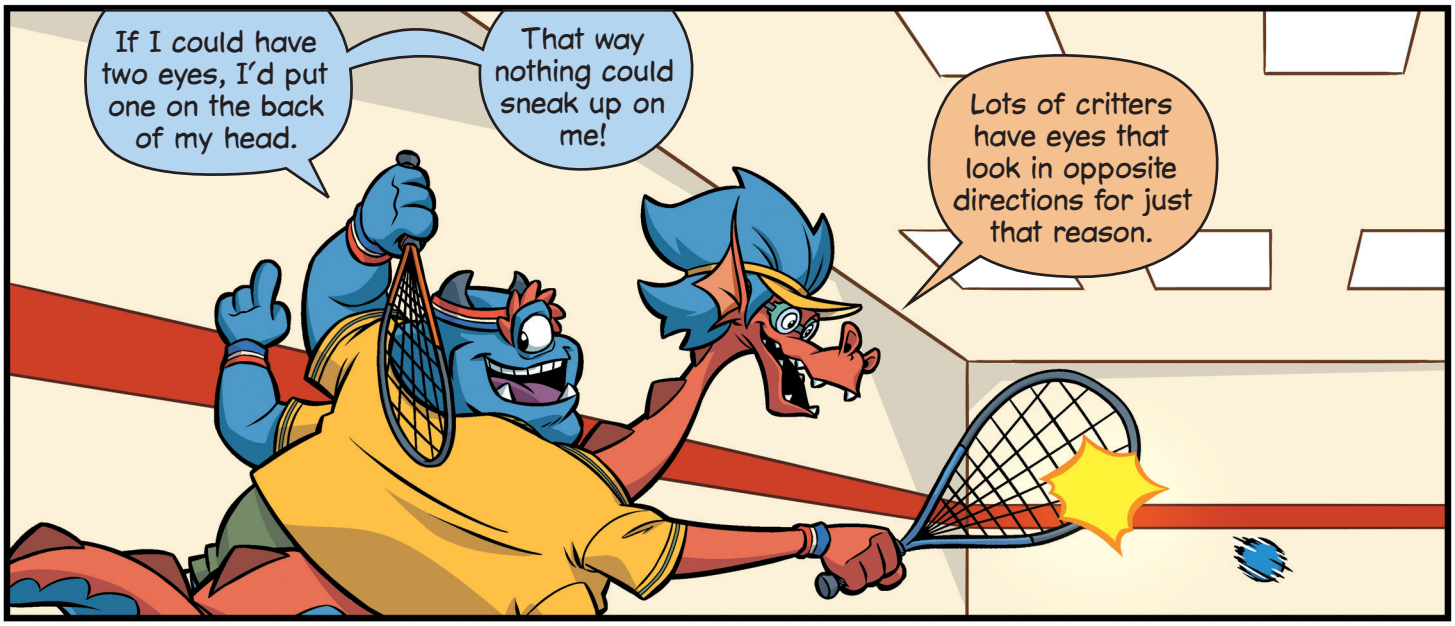
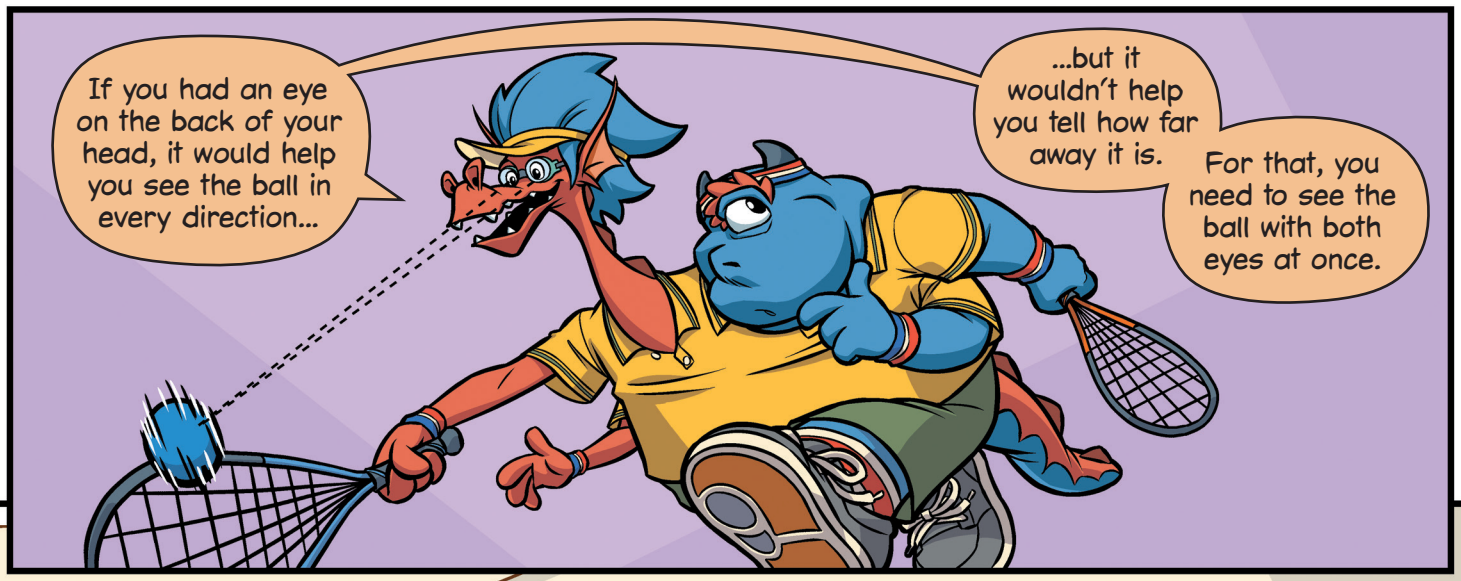


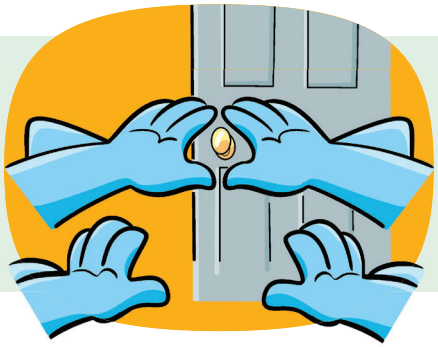


DOUBLE VISION

Humans and most other vertebrate animals have two eyes. Having two eyes lets us see two slightly different views of the world in front of us.

DISCUSSION:

20 Hold your hands out in front of you to make a triangle around an object that is at least a few meters away. Close one eye and then the other. Does the object stay centered in the triangle no matter which eye is open? Explain.



21

Hold a playing card as shown at the tip of your nose between your eyes. Can you see both sides of the card? Explain.

Your brain combines the images it gets from both of your eyes into one image. Sometimes this can result in neat illusions. Try these!

22 Look through an empty paper towel tube using one eye. Place one hand against the tube in front of your other eye as shown. Can you see a hole in your hand?

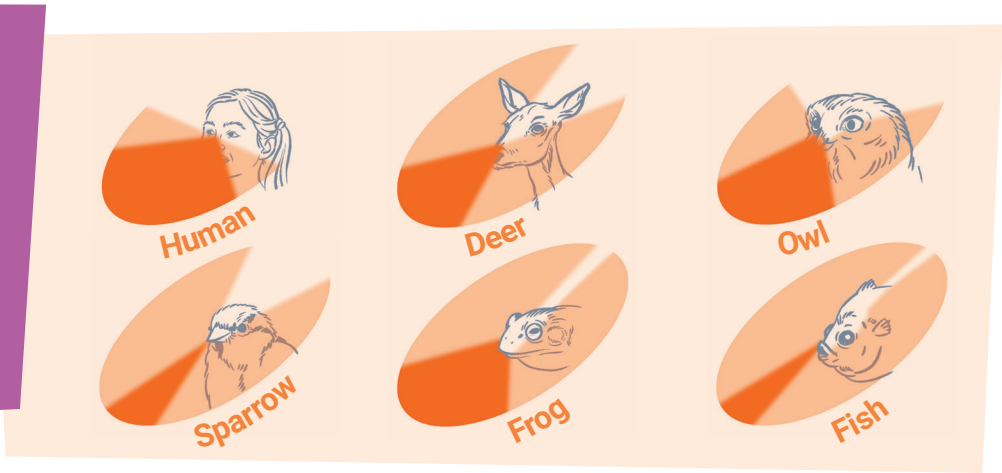
23 Close one eye and line up your thumbs so that the near thumb blocks your view of the far thumb.

Open both eyes. If you focus on one thumb, can you see 2 copies of the other?

Since our left and right eye are a few centimeters apart, they have a slightly different view of the world. Our brains combine these two views to estimate the distance of objects. This ability is especially useful for animals who navigate dense forests, catch prey, or swat ping-pong balls.

Different animals can see different amounts of the world at once based on the placement of their eyes.

The darker color shows what can be seen with both eyes at once.



24 Which animal sees the largest view of its surroundings without turning its head?

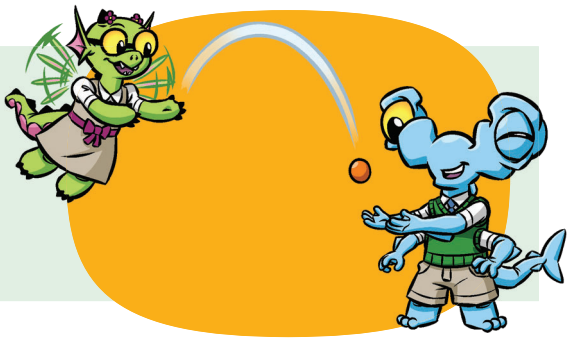
- Fish
- Sparrow
- Human
- Deer

25 Which animal sees the largest view of its surroundings with both eyes at once?

- Fish
- Sparrow
- Human
- Deer

JOURNAL:

26 With a partner, toss a ball back and forth. Design a fair test to figure out how well you catch with both eyes open compared to catching with one eye closed. Describe each step of your test and the results in your journal.



DISCUSSION:

27

Chameleons spend much of their time in trees. They capture insects using a long sticky tongue. Chameleons rely on camouflage to evade predators like snakes and birds. Chameleons can choose to move one eye independently from the other. In what situations would it be useful for a chameleon to look in multiple directions at once? When would it be best to aim both eyes forward?