Activity 1

Can You Explain?

In the last concept you learned about how animals sense and process information. Now you will connect your learning about senses to explore the relationship between light and vision.

Imagine the power goes out at night and you cannot turn on any lights. Which senses help you gather information about your surroundings when you have little light? Do animals use the same senses to get around in the dark? What needs to happen for humans or other animals to see an object in low-light areas?

Life Skills **I can share ideas I am not yet sure about.**

Lesson 1

1.3 | Wonder

What needs to happen for humans or other animals to see an object in low-light areas?

Activity 2

Ask Questions Like a Scientist

Hunting with Night Vision

You thought about how difficult it is to see when there is not much light. **Consider** other animals. Do you know of any animals that can see in the dark? **Read** the text. Then, **discuss** what you notice about how your own vision works at night, record your qustion.

We use our sense of sight to gather information about what is happening around us. To see well, our eyes require **light**. Without light, we would need a set of night vision goggles to see in the dark. This is not true for all animals though. The fishing cat is a wild cat that hunts for food at night. These animals are able to find their prey in the dark because of the structure of their eyes.

The fishing cat's eyes seem to glow in the dark. The reason they do this is because all cats have a mirror-like membrane on the back of their eyes. As light enters, it bounces off this membrane, allowing the eye to collect more available light. This adaptation (structural adaptation) allows cats to have excellent night vision that they use to hunt successfully in the dark.

Humans have difficulty seeing in the dark, but nocturnal animals are better able to see. Why is this so?

Many nocturnal animals have spectacular night vision. As you read in the Investigative Phenomenon, some animals have eyes that are different than ours. There are many differences between the eyes of a human and a nocturnal animal. To start, nocturnal animals have bigger eyes than humans.

Cat Eyes in the Dark

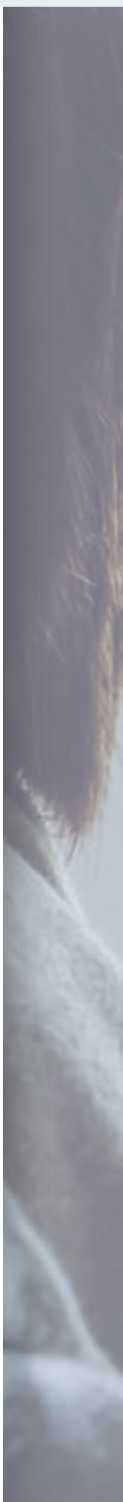
The **pupils** of their eyes usually open wider than ours, letting in more light. Many nocturnal animals also have other senses that are heightened, such as hearing and smell, that help them hunt and move about in the dark.

Write your questions you have and then **share** them with a partner.

I wonder . . .

After reading and observing, **complete** the table to **explain** the abilities of humans, cats, and tarsiers to see in dark places.

Adapting to the Dark	
Humans	**Cats**



Activity 3

Evaluate Like a Scientist

What Do You Already Know About Light and Sight?

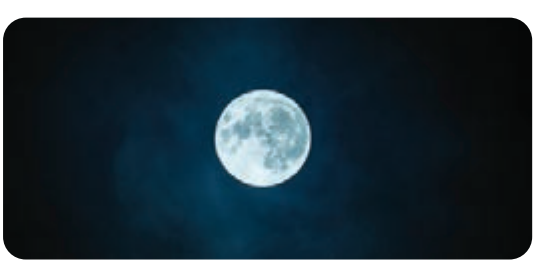
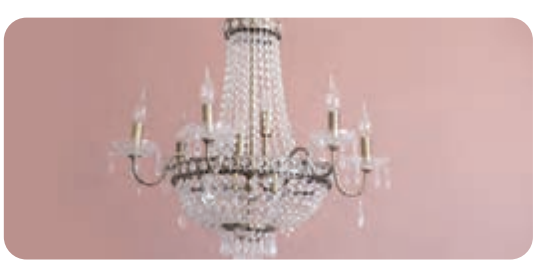
Sources of Light

A source of light is something that gives off its own light. There are objects that **reflect** light. These objects are not considered a source of light. **Look** at the pictures. **Circle** the pictures that show sources of light.





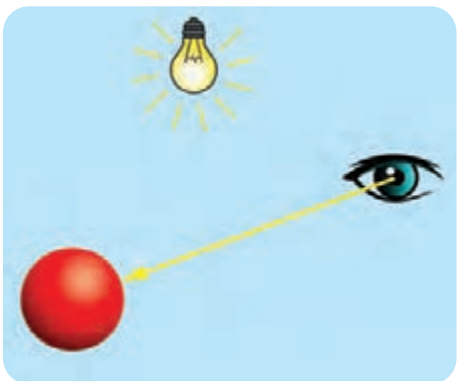


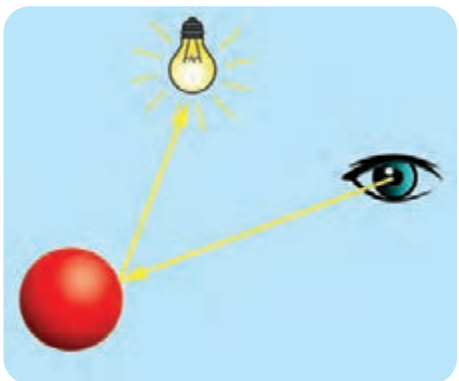
How We See

Diagrams can be used to help us understand how we see objects. Look at the images below. The yellow arrows represent the paths that light might travel. **Circle** the image that best shows what happens when you see a red ball.

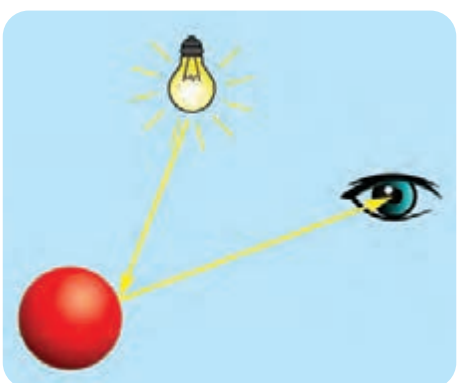
A.



B.



C.



Light has an effect on ability to see. In order for humans to see an object, light must fall on the object and be reflected into to our eyes. Structures in human eyes transmit messages to the brain to tell us what we are seeing.