

Name: _____

Solar Eclipses

An app developer creates apps that people use on tablets and phones. Some app developers create apps that are used by scientists or by students in science class. Some app developers create apps to track solar eclipses. A solar eclipse is an event that occurs when the moon gets between Earth and the sun. When this happens, the moon casts a shadow over Earth. Read the article about an app developer who is creating an app about solar eclipses. Then, look at the images and answer the questions below.



During a total solar eclipse, the shadow of the moon completely blocks the light of the Sun. When this happens, the moon, Earth and Sun are aligned. It is similar to when you can't see the TV screen because someone's head is blocking your view.



During a partial solar eclipse, the shadow of the moon partially blocks the light of the sun. When this happens, the moon and the Sun are not quite lined up. It is similar to when you can only see part of the TV screen because ' head is only blocking part of your view.

1. What is a citizen science project? Give an example of a citizen science project. You can use an example from the article or you can make up your own.

2. Why would it be useful for an app developer to create a citizen science app to track solar eclipses?

Name: _____

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3. Is there light visible during a total solar eclipse? Explain your reasoning.

4. How is a total solar eclipse different from a partial solar eclipse? Explain your reasoning.

5. True or False: Animals' behavior can change during a solar eclipse.

6. Bonus question: Comparing a total and partial solar eclipse to someone's head blocking a TV screen is an analogy. Can you think of another analogy to describe the difference between a total and partial solar eclipse?



SCIENCE CAREER
ADVENTURES



Korey the Mobile App Developer: Citizen Scientist Apps

Meet Korey!

Hi! My name is Korey, and I am a mobile app developer. A mobile app developer creates games or software for people to use on their phones or tablets. Right now, I am developing an app for a "citizen science project." A "citizen science project" allows anyone to help scientists collect data.



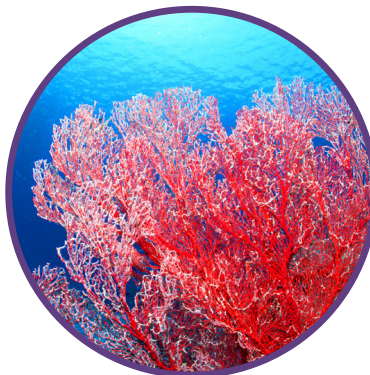
Why do scientists need help collecting data?

Science is happening around us all the time! However, scientists can't be everywhere to observe what is happening and collect data. Citizen scientists are ordinary people who can record information that scientists can use as data. For example, hikers may be walking through a forest. They can write down how many deer they see on their hike. Scientists can then use this information to figure out how many deer live in the forest. Here are some examples of citizen science projects:

Collect information on the number of frogs seen in a pond.



Make observations about the health of the coral reef in Hawaii.



Test water quality and taste in your community.

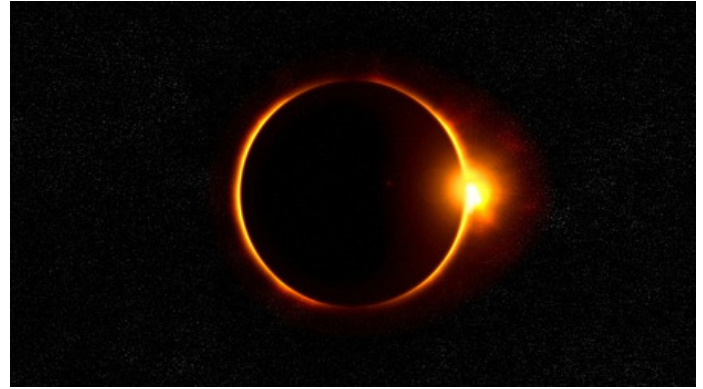


What I am Working On

The citizen scientist app I am working on will help ecologists collect information about how bugs and animals behave during a solar eclipse. During a solar eclipse, the moon blocks the light from the sun, causing it to get darker and cooler on Earth.

Scientists have trouble collecting observations about the way living things behave during a solar eclipse.

This is because solar eclipses don't happen very often. And, when they do happen, ecologists may not be in a good location to see the eclipse. By using my app, ecologists will be able to ask citizen scientists to make observations during each solar eclipse, anywhere in the world.



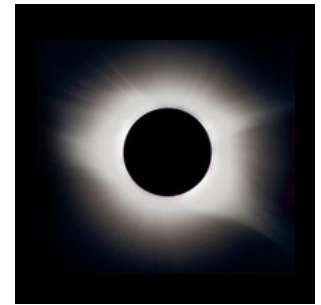
What Happens During a Solar Eclipse



During a solar eclipse, the moon moves between the Earth and the sun. You can still see most of the sun at this point.



As the moon moves between the Earth and the sun, it blocks out the sunlight on Earth, and it slowly gets darker.



When the moon is directly between the Earth and the Sun, it is called "totality."

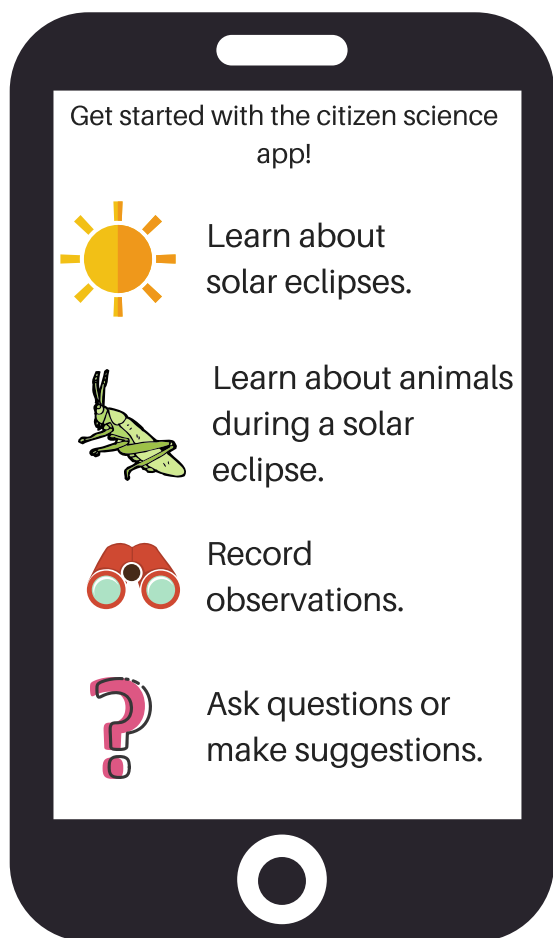
Animal Behavior During A Solar Eclipse

Many animals exhibit behaviors that are based on the time of day. For example, some animals are nocturnal and only eat at night. During an eclipse, nocturnal animals may get up to eat, even though it is really the middle of the day. You may also hear birds chirping during an eclipse. This is because birds tend to chirp while they are getting in their nests at night. Other animals may simply get confused during an eclipse. Ecologists have observed chimpanzees climbing to the tops of trees to look at what is happening.

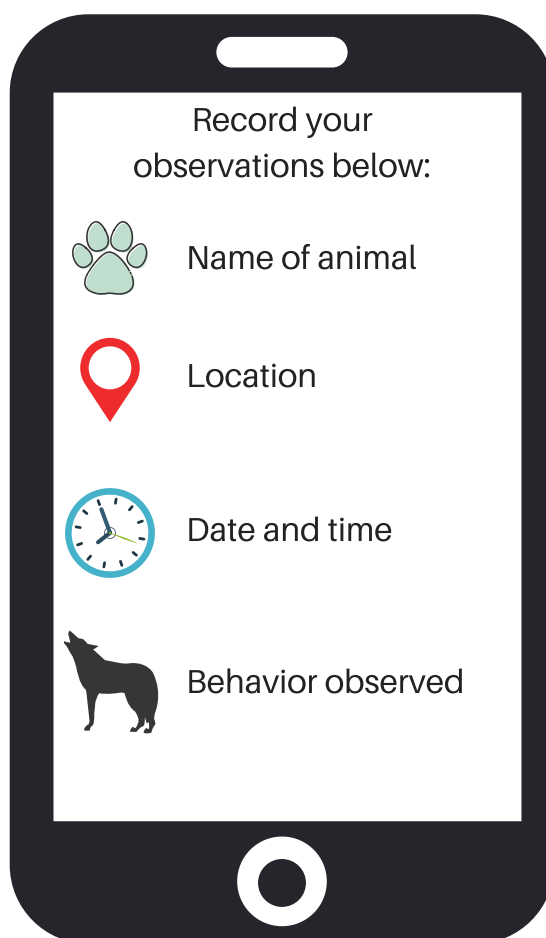


Developing a Wireframe

Today, I am creating a wireframe for my new app. A wireframe is a sketch or draft of what an app will look like once it is developed. Wireframes give you a general idea of what different screens of the app may look like. Below are two examples of wireframes for two different screens.



Opening screen



Recording observations screen

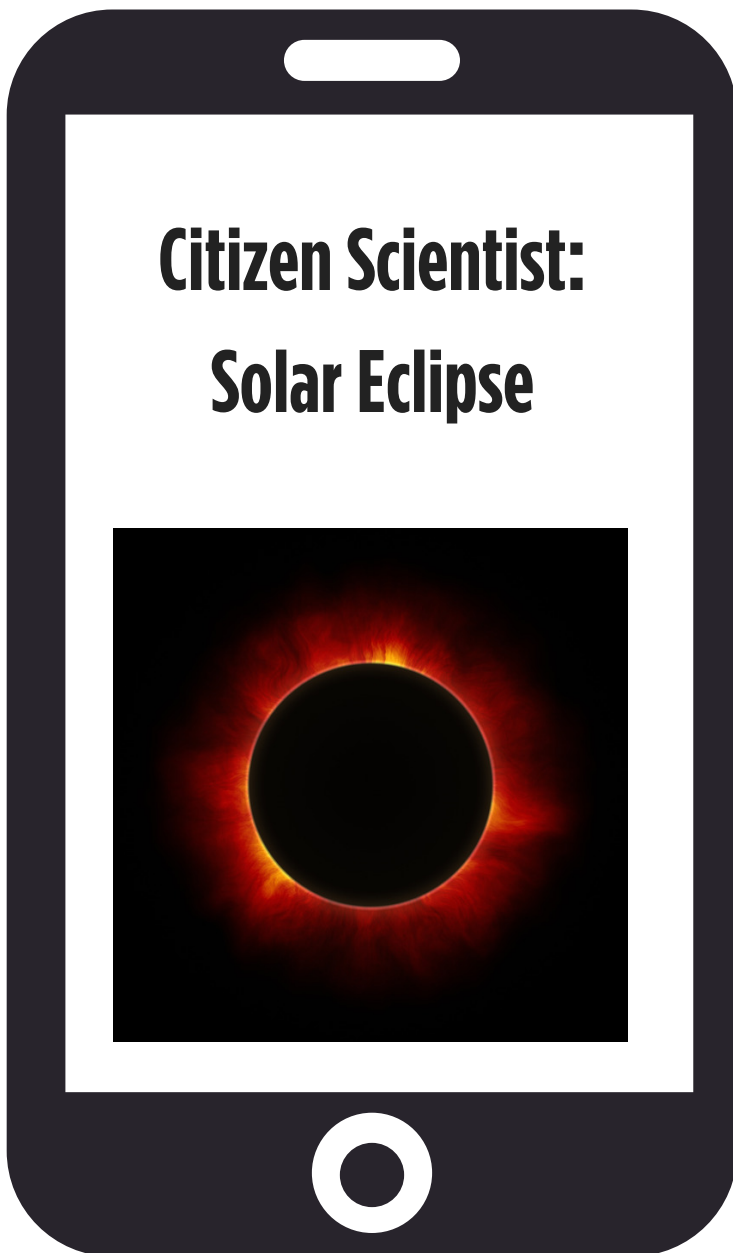
Notes on the wireframe:

Opening screen: The opening screen is the first screen that a user will see. This screen tells users that they have four options of where to go next.

Recording observations screen: This screen is where citizen scientists can record the observations they make during a solar eclipse. It is important for citizen scientists to record the name of the animals they see, their location, the time of day the eclipse happens, and the behavior they watched. Ecologists and other scientists can use this data to learn more about animals.

Improving the App

I will be able to improve my app by reading comments from citizen scientists and staying in contact with the ecologists that are analyzing the information. For example, citizen scientists might notice changes in animals that I have not listed. I can add them to the app! Or ecologists might decide they want more data, like the change in temperature that happens during the eclipse. I can then add features to the app that will measure temperature.



Keep an eye out for my new app. I can't wait to see all the information citizen scientists around the world start uploading!