



Worksheet No.4 – Exploring exoplanets and lightcurves

When you look at the night sky, most of the stars you see have planets orbiting around them. These planets are surely interesting places, which might have their own life or beautiful landscapes.

The most common method for finding exoplanets is called the **transit method**. On our webpage (<https://bit.ly/PHASExoplanet>) you'll have a chance to learn all about exoplanets, and you'll find instructions for how to test out the transit method for yourself using the Science Journal App. This worksheet has some questions to help you learn about exoplanets and to explore this activity.

Exoplanets

What is a planet?

Why isn't Pluto a planet?



Life on exoplanets

What is the Goldilocks zone?

Do you think there might be life on other planets? Why or why not?

For the next sections you'll need the Science Journal App. If this isn't available to you you can stop here! If you'd like to get the App check out the webpage for instructions.

Exploring brightness

By clicking on the wavy circle, and then the lightbulb, you can make your device measure brightness.



Try pointing your device at a window, or away from all the windows. How does the brightness change? Is outside brighter or dimmer than inside?

Transit method

Set-up your device so it is pointing towards a light source, like a lamp or flashlight. For best results, make the room dimmer by turning out some of the lights and closing any blinds. Then, find a few small objects like Christmas ornaments, lollipops, balls, or whatever you have.

When you pass a small object in front of the light source, what happens to the brightness measured by your device? Make sure that the object passes between the light source and the device - otherwise nothing will happen!

Now try again, but using a smaller or larger object. How is the light curve different than before?



How do you think astronomers can figure out how big a planet around another star is?

Next, trying rotating your object around the light source slowly. What kind of a pattern does this make on your light curve? Draw the curve here!

How do you think astronomers can understand how often a planet goes around its star?