

Lesson 21: Missions Outside Our Solar System: Kepler

Summary

This learning module is meant for adaptation into any course wishing to introduce students to planets outside Earth's solar system. Students will learn about the 'habitable zone' and apply techniques used to find planets outside our solar system.

Learning Goals

Students will be able to:

- Identify and explain the “habitable zone”
- Explain and apply the planet transit technique of detecting planets outside our solar system in the Kepler Mission.
- Utilize software programs such as Planet Hunters and the Kepler Exoplanet Transit Hunt sponsored/created by NASA missions.

Context for Use

This learning module can be used in any course of instruction where instructors would like to introduce students to planets outside our solar system and the concept of the habitability zone.

Description and Teaching Materials

In-Class Activity

In-Class Activity 1: Seeing like Kepler

Homework/Lab

Homework 1: Light Grapher

Homework 2: Planet Hunters!

Teaching Notes and Tips

1. Purchase or order an orrery device in order to use *In-Class Activity 1* Seeing Like Kepler in your course
2. All Homework sets can be adapted for the classroom if desired.

3. Before students are assigned *Homework 1* “Light Grapher” provide a demonstration of how the software works and explain to students that they will need a webcam in order to do the homework
4. Create a planethunters.org account so you can demonstrate how the website interacts with the user in the *Homework 2* “Planet Hunters”.

Assessment

Methods of assessment are within each individual *In-Class Activity* and *Homework*.

Mars for Earthlings

References and Resources

1. Kepler Exoplanet Transit Hunt computer interaction:
<http://kepler.nasa.gov/multimedia/Interactives/keplerFlashAdvDiscovery/#>
2. Orrery suggestions for building:
<http://kepler.nasa.gov/education/ModelsandSimulations/LegoOrrery/>
3. Planet Hunters: <http://www.planethunters.org>



