Search for Another Earth

Grades 3-8

Space agencies around the world are pointing telescopes towards the sky in search of planets outside the solar system that are similar to Earth. So far, astronomers have discovered over 4000 exoplanets in total, with 40 or more having the possibility of supporting life. Join us as we learn about different exoplanet telescope missions, and how we might determine if a planet is suitable for life!

Post lesson discussion Questions

1) Why is it difficult for astronomers to take pictures of exoplanets with telescopes?
2) When using the transit method to detect exoplanets, what are astronomers observing- the planet or the star?
3) Explain what the habitable zone is? Do all planets in the habitable zone have alien life?
4) What are some methods astronomers could use to determine if there is life on an exoplanet?

Post lesson activities

1) Students can become citizen scientists and search for exoplanets with real TESS data at: https://www.zooniverse.org/projects/nora-dot-eisner/planet-hunters-tess
   Note that students of any age can quickly learn how to look at transit data and identify exoplanet transits. No login is required, but older students can create a login to track their progress and participate in discussion boards.
2) Have students create a "Travel Poster" to a known exoplanet. They should draw pictures of what they think the planet looks like and describe its properties, with the goal of "selling" it to tourists. Here are some examples from NASA: https://exoplanets.nasa.gov/alien-worlds/exoplanet-travel-bureau/

Other Resources

Classroom activities from NASA: https://www.nasa.gov/kepler/education/formal/

Exoplanet transit demonstration: https://uaf.edu/files/museum/education/community-outreach/Exoplanet-Transits-activity.pdf

Database of exoplanet discoveries: https://exoplanetarchive.ipac.caltech.edu/

Nat Geo exoplanet video: https://www.youtube.com/watch?v=EUU0-ZpFoK4

Simple transit explanations: https://spaceplace.nasa.gov/transits/en/

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