

Astrobiologist: Exploring Planets

NGSS Standard: 5-ESS1-1



Adventure Description:

In this adventure, you will think like an astrobiologist and discover an alien creature that could live on exoplanets.



Activity

Step 1: Background on Astrobiologists and Exoplanets (10 minutes)

- Show [Video: Exploring Planets](#)
- Explain to students that they will think like an astrobiologist and determine if an alien creature could live on a new Goldilocks exoplanet that scientists have found.
- Remind students that Goldilocks planets are a lot like Earth, but there are also a few differences.
- Show [Handout: New Goldilocks Planet](#). Explain to students that the new Goldilocks planet orbits around a star far from our solar system.
- As a class, read through the list of ways that the new planet is like Earth. Discuss why these things are important to living things like insects and animals. For example:
 - Temperature like Earth – Insects and animals that live on Earth would not get too hot or too cold to live.
 - Plenty of oxygen to breathe – Insects and animals that live on Earth would have oxygen to breathe.
 - Plenty of fresh water – Insects and animals that live on Earth would have water to drink.
- As a class, read through the list of ways that the new planet is not like Earth. Discuss why the differences between Earth and the Goldilocks planet are important. For example:
 - Further from the star that it orbits - The Goldilocks planet is further away from its star so, during the day, the star will not provide the planet with as much bright light as the sun provides Earth.
 - The starlight is not as bright as sunlight on Earth - This means animals would not get as much light as on Earth. This is a problem because animals need light so they can see to find things to eat and get around.

Please contact Allison Bischoff, Director of Customer Service, at allison@rozzylearningcompany.com or 314-272-2560 with questions.

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- There is very little land. Most of the planet is covered with water – not all animals are able to live in water.

Step 2: Creating an Alien Creature (15-20 minutes)

- Explain to students that they will now create an alien creature that could live on the new Goldilocks exoplanet.
- Provide students with [Handout: Creating an Alien Creature](#). As a class, read through the steps.
- Divide students into groups of 2 or 3.
- Explain to students that they will now follow the instructions on the handout to create an alien creature that could live on the new Goldilocks exoplanet.
- As students are working, ask the following questions:
 - How will your alien live with less light and more water than there is on Earth?
 - What other important parts does your alien have?

Step 3: Presenting and Discussing Models (15 minutes)

- Have each group present their alien creature that could live on the new Goldilocks exoplanet. Ask each group to describe the important parts of their alien. Prompt students, if they don't include this information on their own, to include how their alien would live on a planet with less light and more water than Earth.

Materials List

Provided online:

- Video: Exploring Planets
- Handout: New Goldilocks Planet
- Handout: Creating an Alien Creature

Not provided:

- Art and building materials (cardboard, pipe cleaners, tissue paper, popsicle sticks)

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