

NAME: _____

DATE: _____



1. What are exoplanets also known as?

- dwarf planets
- sunspots
- extrasolar planets
- gas giants

2. When was the first exoplanet discovered?

- 2007
- 1610
- 1875
- 1995

3. How many methods are there for detecting exoplanets?

- one
- two
- three
- four

4. What does the exoplanet transit method measure?

- star brightness
- gravitational lensing
- star wobble
- all of the above

5. How many exoplanets have been discovered in a habitable zone?

- dozens
- hundreds
- thousands
- none

6. About how far away is the closest exoplanet from our sun?

- 1 light year
- 4 light years
- 11 light years
- 50 light years

Discuss these questions with a friend or classmate.

1. What information in the lecture did you find the most interesting? Why?
2. Do you think it is important to find exoplanets? Why? / Why not?
3. When was the last time you saw a star in the sky?
4. Have you ever looked at the moon through a telescope? If yes, when?
5. Do you think there may be life on planets in habitable zones of other stars?
6. What three questions would you like to ask a person who studies exoplanets?

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Audio Script

When Galileo first pointed his telescope towards the heavens in 1610, he made a shocking discovery! The moon and all the other planets in our solar system were not just pretty lights in the sky, they were entire worlds! Soon afterwards, scientists began to theorize the existence of other worlds or planets orbiting around other stars. We now call these planets extrasolar planets - or exoplanets.

The first exoplanet was discovered by Swiss astronomers Michel Mayor and Didier Queloz in 1995. It is now known as 51 Pegasi b, a planet about 50 light years away from us. They detected the planet using the radial velocity method. This method measures the wobble of a star as it is tugged by the gravity of an orbiting planet. The discovery opened up a whole new field of research. It has since led to the detection of thousands of exoplanets over the years.

In addition to the radial velocity method, scientists also use three more methods to detect exoplanets. The transit method involves measuring the decrease in the brightness of a star as an orbiting planet passes in front of it. The microlensing method involves measuring the gravitational lensing effect of a planet on the light of its background star. And the direct imaging method involves actually taking a picture of an exoplanet . . . which is extremely difficult due to the brightness of the star that it orbits.

These planets come in all shapes and sizes, ranging from gas giants similar to Jupiter to rocky planets similar to Earth. Some exoplanets have even been discovered orbiting binary stars - or double star systems!

One of the most exciting areas of exoplanet research is the search for planets in the habitable zone of their star. The habitable zone is the region around a star where temperatures are just right for liquid water to exist on the surface of a planet. Liquid water is a key ingredient for life as we know it, so finding planets in this zone is a major goal of exoplanet research. So far, several dozen exoplanets have been found in the habitable zone. And more are being discovered all the time.

The closest known exoplanet to our Sun is Proxima Centauri b. It is located just over four light-years away in the Alpha Centauri star system. This planet is a rocky Earth-sized planet in the habitable zone of its star. This makes it a prime target for future exploration. Another close exo-planet is Ross 128 b, which is located just over 11 light-years away and is also a potentially habitable, planet.

ANSWER KEY

1. extrasolar planets
2. 1995
3. four
4. star brightness
5. dozens
6. 4 light years