Exoplanet Explorers

Icebreaker Activity

You are planning a journey beyondour solar system in search of a planet that can support life.

You and your crew have a ship that's prepared to go the distance, but there's one problem...you don't know which planet to go to!

Use scientific reasoning to **justify** which of the following Exoplanets your crew should explore first.

Use the Exoplanet cards to make your decision.

Earth is included as a reference.

Earth

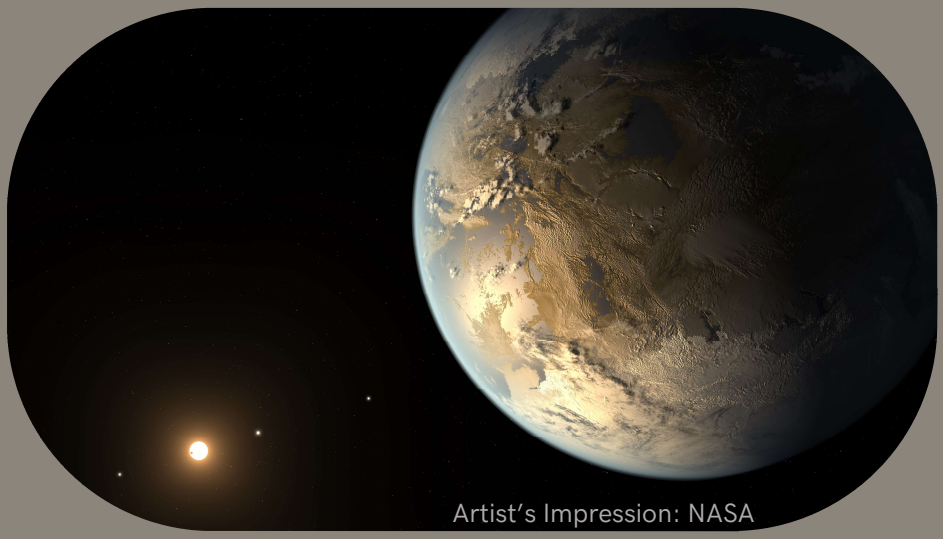
Statistics

Distance to Earth	0 Light Years		
Base Temperature	-18 °C		
Atmosphere	78% N	21% O	1% other
Gravity	100% of Earth's		
Length of Year	365 Days		

Fast Facts

- The Earth's Base Temperature is -18°C (in the absence of any atmosphere or Greenhouse Effect). Our atmosphere allows heat to become 'trapped' close to the planet, meaning our surface temperature is higher in reality.
- The Earth rotates on a 23.4 degree tilt, which causes seasonal changes in weather and temperature.

Kepler-186f



Artist's Impression: NASA

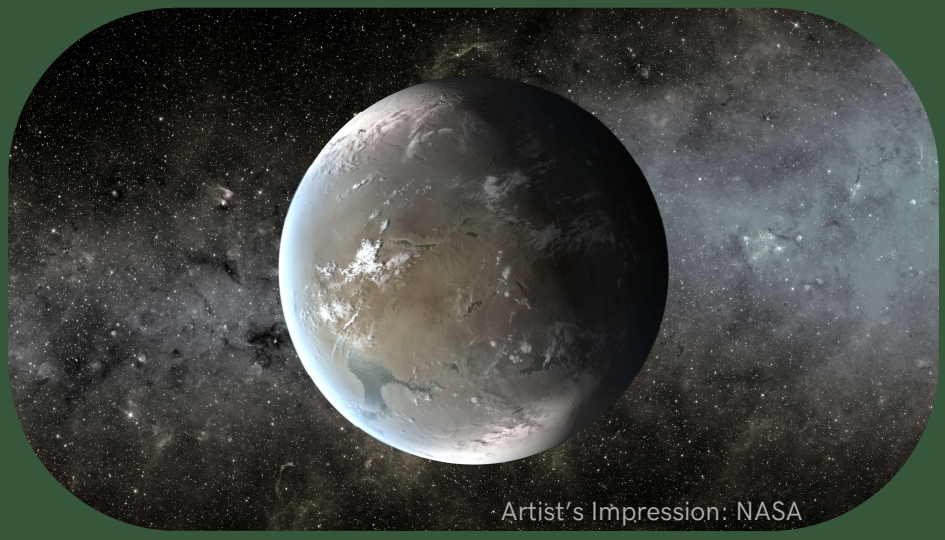
Statistics

Distance to Earth	557 Light Years
Base Temperature	-85 °C
Atmosphere	Unknown
Gravity	117% of Earth's
Length of Year	130 days

Fast Facts

- Kepler-186f receives one-third the energy that Earth does from the sun.
- If you could stand on the surface of Kepler-186f, the brightness of its star at high noon would appear as bright as our sun is about an hour before sunset on Earth.

Kepler-62e



Statistics

Distance to Earth	1200 Light Years
Base Temperature	-3 °C
Atmosphere	Unknown
Gravity	160% of Earth's
Length of Year	122 Days

Fast Facts

- Kepler-62e may be a 'water world' with large expanses of ocean.
- The exoplanet is roughly 60% larger in size than the Earth.

Kepler-442b

Artist's Impression: Shutterstock

Statistics

Distance to Earth	1115 Light Years
Base Temperature	-40 °C
Atmosphere	Unknown
Gravity	130% of Earth's
Length of Year	112 Days

Fast Facts

- Kepler 442b is over 2.3 times the Mass of the Earth.
- It orbits a star less massive and cooler than our Sun, but sits much closer at just 0.4 AU.