

# TOI 700 d

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**Context:** NASA's Transiting Exoplanet Survey Satellite( TESS) has discovered roughly Earth-size planet in the habitable zone of its host star

- For the first time, NASA's Transiting Exoplanet Survey Satellite (TESS) has discovered a roughly Earth-size planet in the habitable zone of its host star, the zone of orbital distances where liquid water could be stable on a world's surface
- The newfound exoplanet, known as TOI 700 d, lies just 101.5 light-years from Earth, making it a good candidate for follow-up observations by other instruments
- TOI 700 d is just 20% larger than Earth and completes one orbit every 37 days. The alien world receives 86% of the stellar energy that Earth gets from the sun, putting TOI 700 d in the habitable zone

## **Transiting Exoplanet Survey Satellite( TESS)**

- Project of NASA
- TESS, which launched in April 2018, hunts for planets using the "transit method," looking for telltale dips in stellar brightness caused by orbiting worlds crossing stars' faces from the satellite's perspective.
- This same strategy was used to great effect by NASA's Kepler space telescope, which discovered about 70% of the roughly 4,000 known exoplanets.
- TESS found three different planets circling the star TOI 700 (TOI is short for "Tess Object of Interest").
  - One of the other planets is a red dwarf
  - The innermost world, TOI 700 b, is roughly Earth-sized and completes one orbit every 10 Earth days.
  - The center planet, TOI 700 c, is 2.6 times bigger

than our planet, and zips around TOI 700 every 16 days.

- TOI 700 d, the outermost known planet in the system
- TESS isn't the only spacecraft that has spotted evidence of TOI 700 d. A different team of researchers used NASA's Spitzer Space Telescope to confirm the existence of the alien planet.