

# Worlds Everywhere We Look

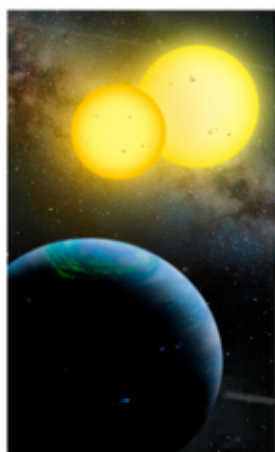
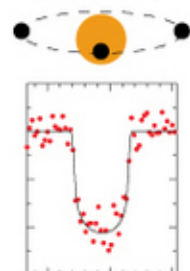
The latest statistical study shows that it is likely that, on average, every one of the 100 billion stars in our galaxy has at least one planet in orbit around it. Some new discoveries:

## "Circumbinary" planets: Orbiting a double star

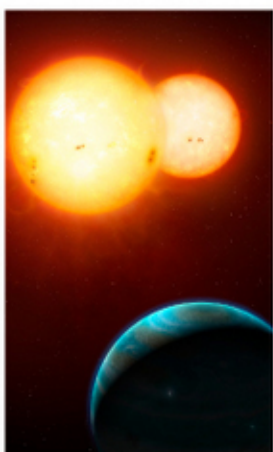
In the fictional "Star Wars" universe, the desert planet Tatooine orbits two suns. Such planets are called "circumbinary." In reality, the first double star found to have a system of planets was Kepler-16. Now two more circumbinary systems have been located using the *transit method* of detection.

### Transit method:

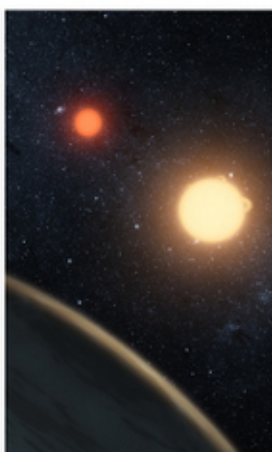
as a planet orbits in front of its star as seen from Earth, the intensity of starlight drops measurably.



Planet Kepler-34b



Planet Kepler-35b

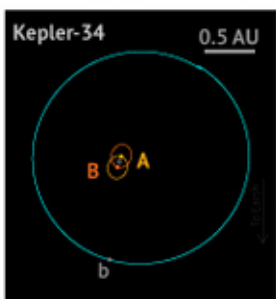


Planet Kepler-16b

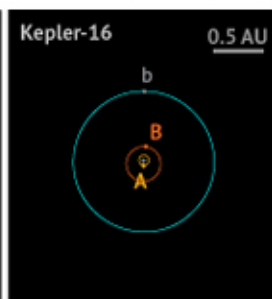
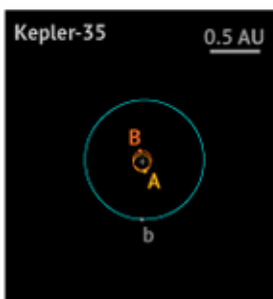
Mass compared to Jupiter	0.220	0.127	0.333
Orbital distance compared to Earth's	1.09	0.6	0.7
Year (in Earth days)	289	131	229
Planet type	Gas giant closer to stars than habitable zone	Gas giant closer to stars than habitable zone	Gas giant farther from stars than habitable zone

### Circumbinary solar systems compared to scale: 1 A.U.

(astronomical unit) is the distance from the Earth to our sun. The planet and the two stars all orbit a common center of gravity, indicated as a small cross.



Planets not shown to scale with distance



## 160 billion planets and counting

Astronomers have confirmed about 700 planets beyond our solar system as of early 2012, but the latest statistical analysis suggests that our galaxy likely harbors more than 100 billion alien worlds. One in six of the Milky Way's 100 billion stars may have a Jupiter-size planet, while nearly two-thirds may host a world slightly larger than Earth. But the search continues for a true "Earth twin" — a rocky planet the size of ours that is capable of supporting life as we know it.

