A Search for Exomoons
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Exomoons 101

• **WHAT?** An “exomoon” is simply the moon of a planet which is outside of our Solar System.

• **WHY?** Exomoons may be common habitable environments in the Universe.

• **HOW?** Exomoons are tough to find, but we can spot them by looking for wobbles in a planet’s motion.

• **WHERE?** Planets which eclipse their host star allow us to measure their positions and velocity very accurately, so this is a good place to start!

• **WHEN?** If moons of the same size and mass as the Earth are common, we can detect them with *Kepler* in the near future. Otherwise we may have to wait.
The moon gravitationally tugs on the host planet, causing its position and velocity to vary (see below).

When a planet eclipses its star, the star becomes dimmer for a short time. These eclipses allow us to measure positions and velocity (see above).
Moons can be detected by looking for wobbling planets.

**BUT** we can also look for the eclipse of the moon itself!

When the planet **AND** moon eclipse, we get complex patterns for the dimming of the star (see right).

Those bumps in the middle of the eclipse events are due to the moon eclipsing the planet!