= Kepler @-@ 6 =

Kepler @-@ 6 is a yellow giant situated in the constellation Cygnus . The star lies within the field of view of the Kepler Mission , which discovered it as part of a NASA @-@ led mission to discover Earth @-@ like planets . The star , which is slightly larger , more metal @-@ rich , slightly cooler , and more massive than the Sun , is orbited by at least one extrasolar planet , a Jupiter @-@ sized planet named Kepler @-@ 6b that orbits closely to its star .

= = Nomenclature and history = =

Kepler @-@ 6 was named for the Kepler Mission , a NASA project launched in 2009 that aims to discover Earth @-@ like planets that transit , or cross in front of , their home stars with respect to Earth . Unlike stars like the Sun or Sirius , Kepler @-@ 6 does not have a common and colloquial name . The discovery of Kepler @-@ 6b was announced by the Kepler team on January 4 , 2010 at the 215th meeting of the American Astronomical Society along with planets around Kepler @-@ 4 , Kepler @-@ 5 , Kepler @-@ 7 , and Kepler @-@ 8 . It was the third planet to be discovered by the Kepler spacecraft ; the first three planets to be verified by data from Kepler had been previously discovered . These three planets were used to test the accuracy of Kepler 's measurements .

The discovery of Kepler @-@ 6 was confirmed by follow @-@ up observations made using the Hobby Eberly and Smith telescopes in Texas ; the Keck 1 telescope in Hawaii ; the Hale and Shane telescopes in southern California ; the WIYN , MMT , and Tillinghast telescopes in Arizona ; and the Nordic Optical Telescope in the Canary Islands .

= = Characteristics = =

Kepler @-@ 6 is a star that is approximately 1 @.@ 209 Msun , or some five @-@ fourths the mass of the Sun . It is also wider than the sun , with a radius of 1 @.@ 391 Rsun , or seven @-@ fifths of that of the Sun . The star is approximately 3 @.@ 8 billion years old , and has an effective temperature of 5647 K ( 9 @,@ 705 ° F ) . In comparison , the Sun has a slightly warmer temperature of 5778 K. Kepler @-@ 6 has a metallicity of [ Fe / H ] = + 0 @.@ 34 , making it 2 @.@ 2 times more metallic than the Sun . On average , metal @-@ rich stars tend to be more likely to have planets and planetary systems .

The star , as seen from Earth , has an apparent magnitude of 13 @.@ 8 . It is not visible with the naked eye . In comparison , Pluto 's apparent magnitude at its brightest is slightly brighter , at 13 @.@ 65 .

= = Planetary system = =

Kepler @-@ 6 has one confirmed extrasolar planet ; it is a gas giant named Kepler @-@ 6b . The planet is approximately .669 MJ , or some two @-@ thirds the mass of planet Jupiter . It is also slightly more diffuse than Jupiter , with a radius of approximately 1 @.@ 323 RJ . Kepler @-@ 6b orbits at an average distance of .0456 AU from its star , and completes an orbit every 3 @.@ 234 days . The eccentricity of the planet 's orbit is assumed to be 0 , which is that of a circular orbit .