



## Trip Around the Triangle

What can be seen in the Summer Triangle? Where did the Kepler Mission search for Earthlike planets?

### About the Activity

Visitors to a star party use a printed handout to take a trip through the telescopes to view to view the variety of naked-eye and telescopic treats that occupy this very popular area of the night sky: the Summer Triangle, including the area of the sky where the Kepler Mission monitored over 150,000 stars in a search for Earth-like planets

### Location and Timing

This activity is perfect for use at the telescopes during a star party. The "Trip Around the Triangle" can be used for the duration of the star party, typically one or two hours.

The stars in the Summer Triangle are visible in the evening sky from June through January and in the pre-dawn sky February

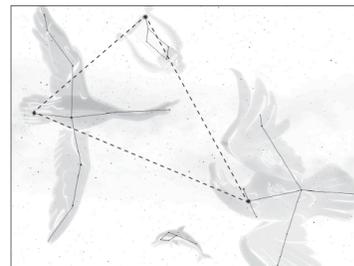
### Participants

Appropriate for families, the general public, and school groups ages 7 and up.

### Topics Covered

- What can be seen with and without a telescope in and around the Summer Triangle asterism
- The location of the Kepler Mission's target field of view and its primary mission
- Finding the stars of a selection of constellations

### TAKE A TRIP AROUND THE TRIANGLE!



SEE DISTANT STARS • FIND THE CONSTELLATIONS • VIEW AMAZING NEBULAE

### Materials Needed

- Telescopes
- Pens or pencils
- Double sided printouts of the handout
- Stickers or small prizes (optional)

### Included in This Packet

	<u>Page</u>
Set Up Instructions	2
Background Information	2
Detailed Activity Description	3
"Trip Around the Triangle" Handout Master	4-5



## Set Up Instructions

- Make enough copies of the Trip Around the Triangle handout for each visitor.
- Have pencils or pens on hand.
- *Optional:* Supply completion stickers or small prizes.
- Give each participating club member a copy of the handout. Explain that your visitors will have these and be on a “Trip” to look at objects on the handout. Members operating telescopes are not limited to the objects listed or just to the area surrounding the Summer Triangle. Your visitors will just be asking the operator whether or not the object being viewed is on the handout.
- One or two members may want to volunteer to point out constellations or other naked-eye objects on the “Trip”.

## Background Information

### Trip around the Triangle objects

Gliese 777 (also known as HD 190360): Star 52 light years away with at least 2 planets and one companion star:

<https://exoplanets.nasa.gov/newworldsatlas/1491/>

Xi (or ksi) Aquilae: A gas giant planet orbiting a K-type star:

<https://exoplanets.nasa.gov/newworldsatlas/4232/>

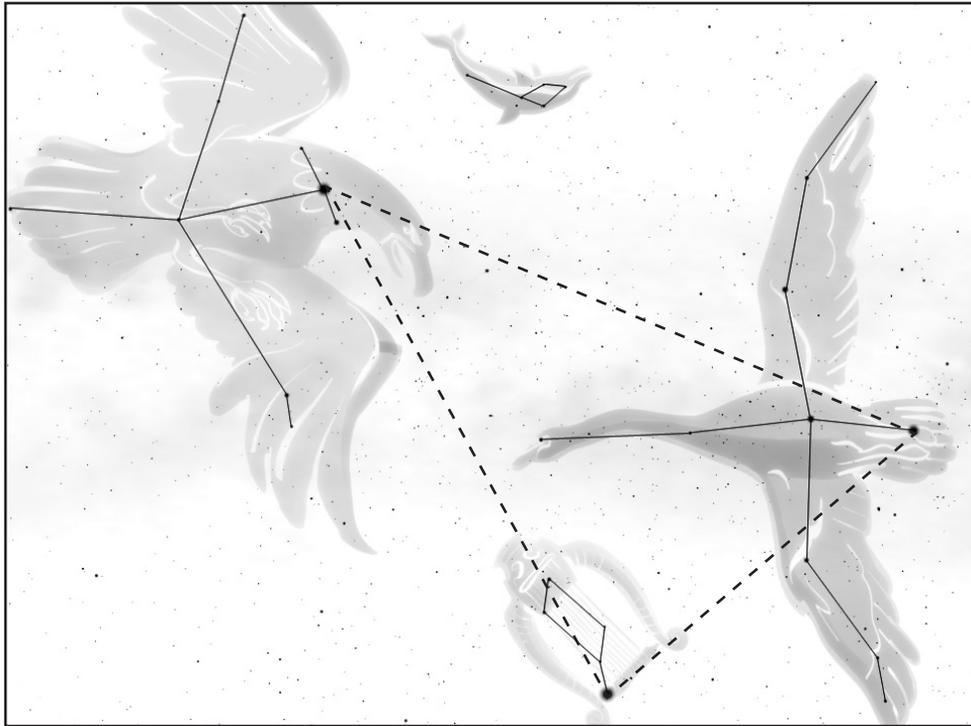
Kepler Search Area: For more information on the Kepler Mission and its target field of view:

<http://kepler.nasa.gov/>

To locate other objects on the handout, refer to star maps in any astronomy-related magazine or observing manual.







# TAKE A TRIP AROUND THE TRIANGLE!

## The Search for Exoplanets

The centuries-old quest for other worlds like our Earth has been reignited by the discovery of hundreds of planets orbiting other stars, called *exoplanets*. Scientists are just beginning to better understand the variety of planetary systems in our stellar neighborhood thanks to improved instruments and technology.

**NASA's Kepler Mission**, a space-based telescope, monitored more than 150,000 stars in a star field in the Summer Triangle for over four years. Scientists are searching for Earth-like exoplanets, especially those in the habitable zone of their stars where liquid water and possibly life might exist.

Kepler was designed to find exoplanets by looking for tiny dips in the brightness of a star when a planet crosses in front of it and blocks a little bit of the star's light — we say the planet *transits* the star.

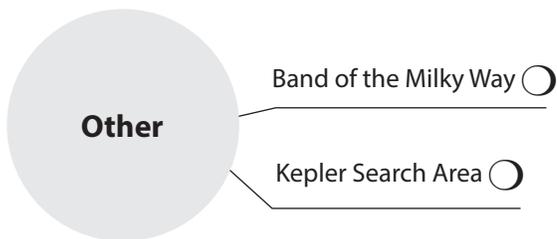
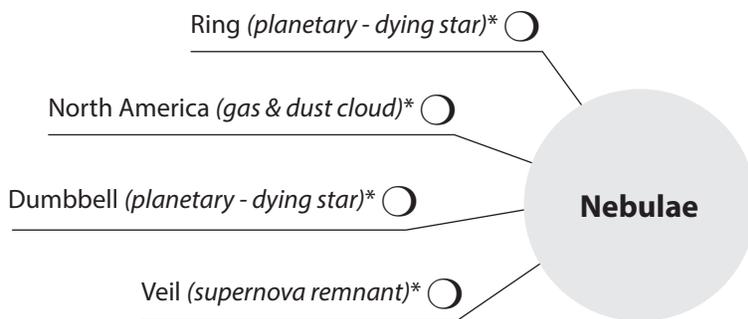
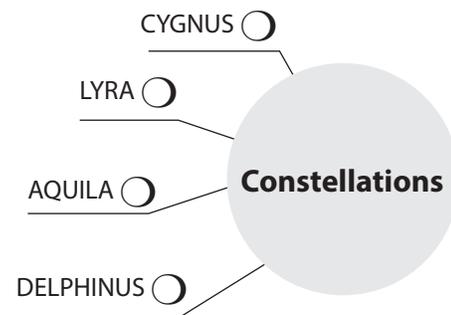
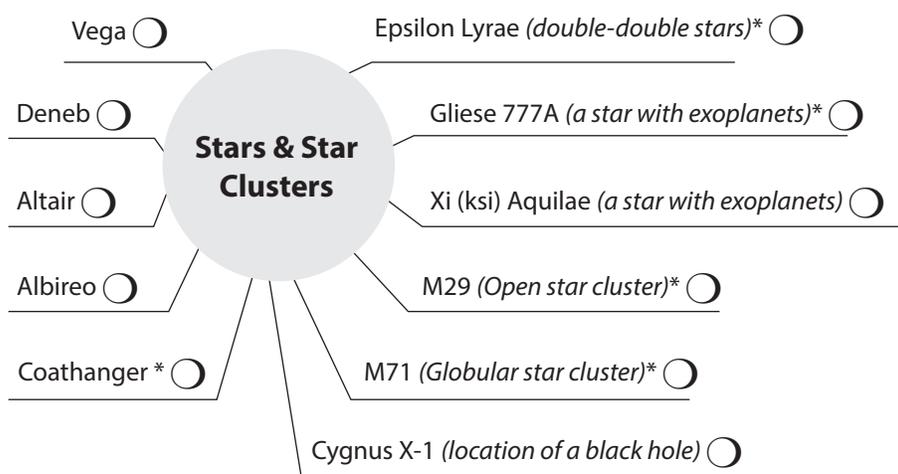
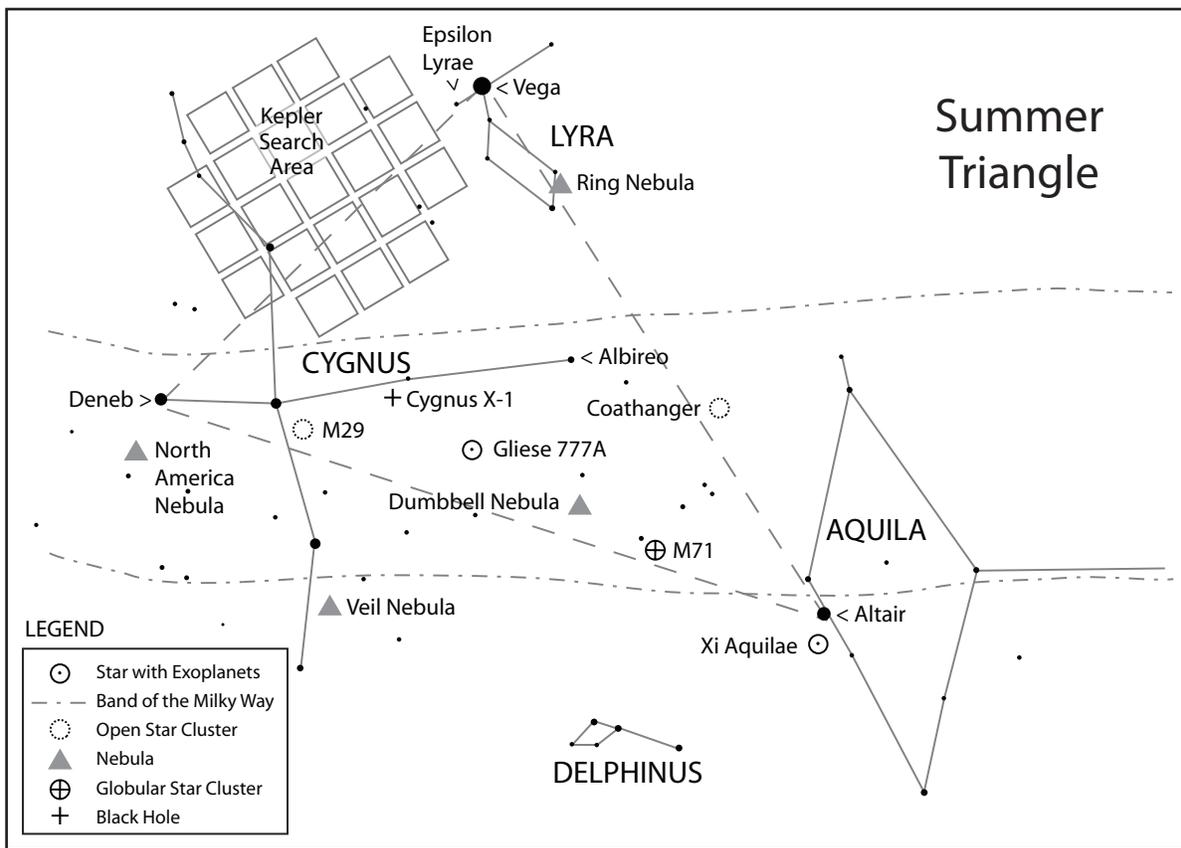
“... the ways by which men arrive at knowledge  
of the celestial things are hardly less wonderful  
than the nature of these things themselves”  
— Johannes Kepler



For more information on NASA's *Kepler Mission*  
to search for Earth-size planets:

<http://Kepler.NASA.gov>

# WHAT CAN YOU FIND IN THE TRIANGLE?



The area of the sky that Kepler monitored is just a little larger than your fist held at arm's length.

\* Visible in the telescope or binoculars (depending on sky conditions)