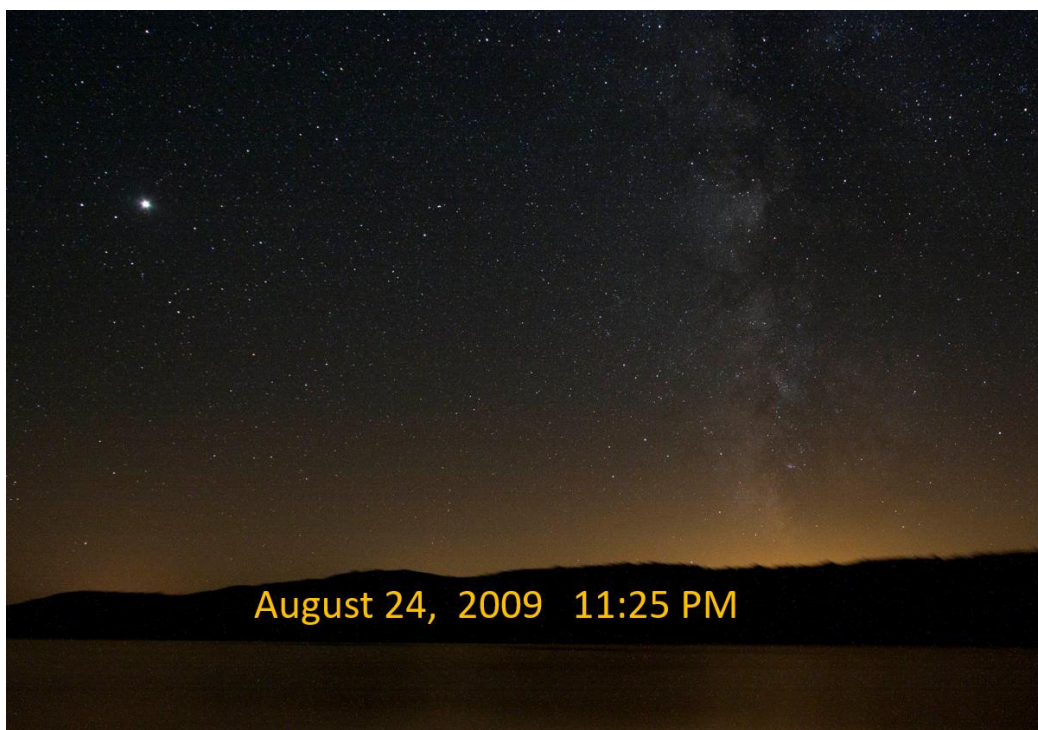
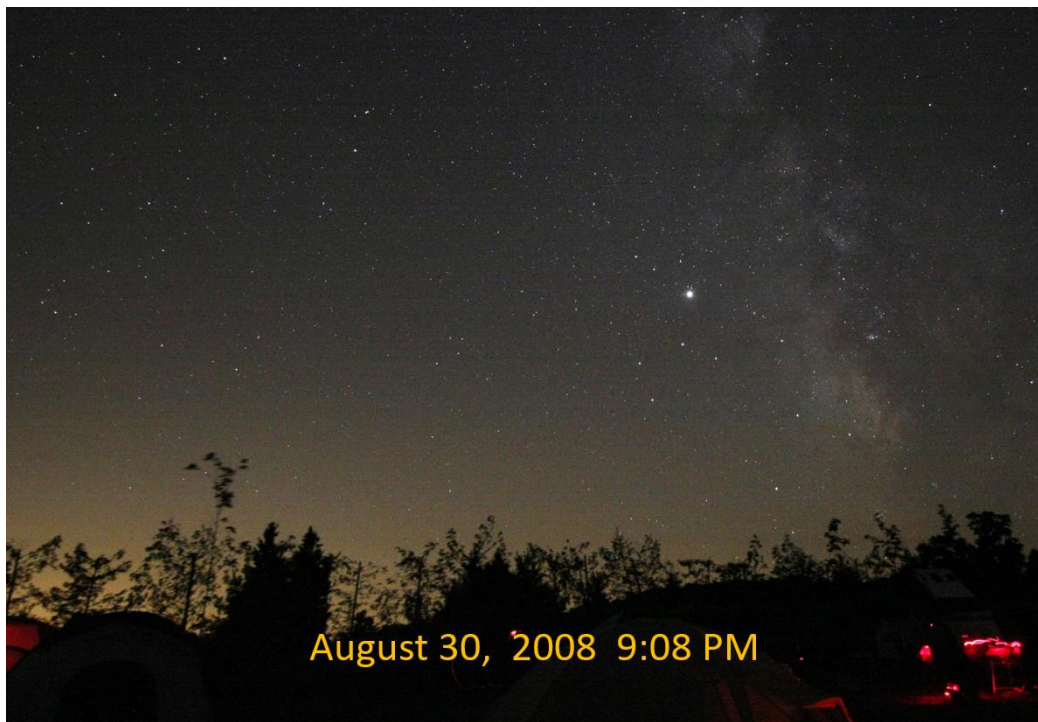


## Finding planets and asteroids

The word planet comes from the Greek word *planētai*, meaning "wanderers". While distant stars hardly change position compared to each other, planets, comets and asteroids move compared to the distant stars. Two photos show Jupiter (brightest dot) a year apart.



Hence the way to discover a new planet, asteroid or comet is to find an object which does not stay in the same place compared to the stellar background. Astronomers take several pictures of the same area and look for objects which move.

Once astronomers find the location of a newly discovered object at 3 different times, an approximate orbit can be calculated. When more images are reported, astronomers get increasingly accurate values for the 6 orbital elements. That is important if an object might hit our planet.

Here is an activity to find a moving object in a sheet of dots representing stars:

[https://nightsky.jpl.nasa.gov/download-view.cfm?Doc\\_ID=468](https://nightsky.jpl.nasa.gov/download-view.cfm?Doc_ID=468)

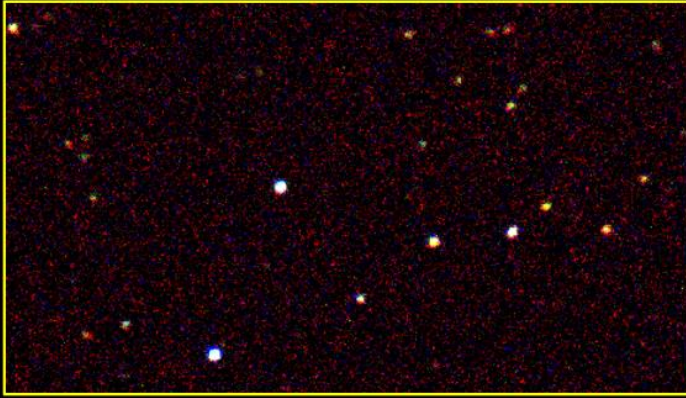
The New Horizons spacecraft flew by Pluto in July 2015.



NASA

Students enjoy trying to find the dot in one that has moved over two days. The images are slightly turned compared to the other.

## Where's Pluto?



Pluto field  
Monday July 21, 2015



Pluto field  
Two days later

Ron Macnaughton