

LTImage


1. Once you've found your asteroid note it's position in image 1:

Pixel position: x = y =



2. Did you find any other asteroids? If so, tell us about them:

Measuring distance:

- i. Open the "Size and Distance" tool under the "Astro" menu at the top of the window.
- ii. Ensure you have the first image selected in the "Image Selection" panel by clicking on the button  next to 1.
- iii. Hover your mouse over the asteroid position **but do not click**.
- iv. Use the arrow button on your keyboard to move to image 4.
- v. Click and hold the left mouse button and drag your mouse to the new position of the asteroid in image 4 – a blue triangle should appear.
- vi. Release the mouse button when you're in position and the triangle should turn yellow.

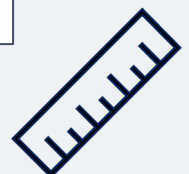
3. Note down the **total size** value in the right menu. This is the distance the asteroid has travelled:

4. Now Open the "Image Properties" I under the "Astro" menu.
Select "Calibration" from the box in the tool menu on the right.

Note down the **pixel scale** (at the object):

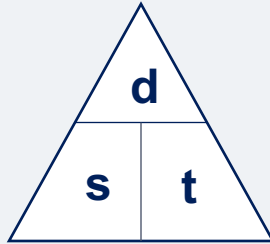
5. Now multiply the pixel scale with the pixels your asteroid has travelled to get the **distance** in real units:

$$\begin{array}{ccccccc}
 \boxed{} & \times & \boxed{} & = & \boxed{} & \text{km} \\
 \text{total size} & & \text{pixel scale} & & \text{distance} & &
 \end{array}$$



Calculating Speed:

- i. We will use the speed-distance-time triangle to work out the speed.



d = distance
s = speed
t = time

- ii. We have distance but we still need to know time. To find this go to *"Image Properties"* under the *"Astro"* menu.
- iii. Select *"The Observation"* from the menu in the tool panel on the right.

- iv. Note down the time of observation 1:

- v. Note down the time of observation 4:

- vi. Work out the difference in time between images (remember there are 60 seconds in every minute):

minutes = seconds

- vii. Now you know the time and distance you can calculate the speed:

$$\text{speed} = \frac{\text{distance}}{\text{time}}$$

- vii. The approximate speed the asteroid is travelling =

Km/s

