Space Research

Use internet resources to complete this worksheet.

Objects in space

1) What is…

i) *a planet?* *a spherical object which orbits a star*

ii) *a moon?* *a natural object that orbits a planet*

iii) *a star?* *a gaseous object which produces visible light*

iv) *a comet?* *an object consisting of rock and ice which orbits the Sun in a very elliptical orbit, and develops a tail when it is close to the Sun. The tail always points away from the Sun.*

v) *an artificial satellite?* *a man-made object in orbit around the Earth*

vi) *a galaxy?* *a collection of 100s of billions of stars*

vii) *the Milky Way galaxy?* *the galaxy in which we live*

viii) *the universe?* *everything!*

2) **Comets**

Describe how the orbit of a comet is different to that of a planet.
Explain how the speed of a comet varies in its orbit.
The orbit is highly elliptical. When the comet approaches the Sun, it speeds up. When it moves away it slows down.
http://www.classzone.com/books/earth_science/terc/content/visualizations/es2706/es2706page01.cfm?chapter_no=visualization

3) **The Solar System**

See if you can build a solar system using this simulator. Choose one planet at a time. Choose the 'click and drag' method to launch it. Experiment until you get planets moving in nice stable orbits.
The important thing here is that highly elliptical orbits for planets are not a solution – they tend to collide with each other. This explains why planets are found in roughly circular orbits.
http://highered.mcgraw-hill.com/olcweb/cgi/pluginpop.cgi?it=swf::800::600::/sites/dl/free/0072482621/78780/Solar_Nav.swf::Solar%20System%20Builder

4) **Astronomical size**

What is the distance i) across the Solar system? 6 billion km (this is to the orbit of Pluto – actually, the edge of the Solar System is approximately 4 times this distance), ii) across the Milky Way? 100,000 light years, iii) to the nearest galaxy?180,000 light years http://www.classzone.com/books/earth_science/terc/content/visualizations/es2808/es2808page01.cfm?chapter_no=visualization