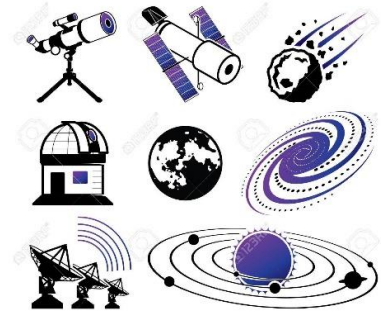
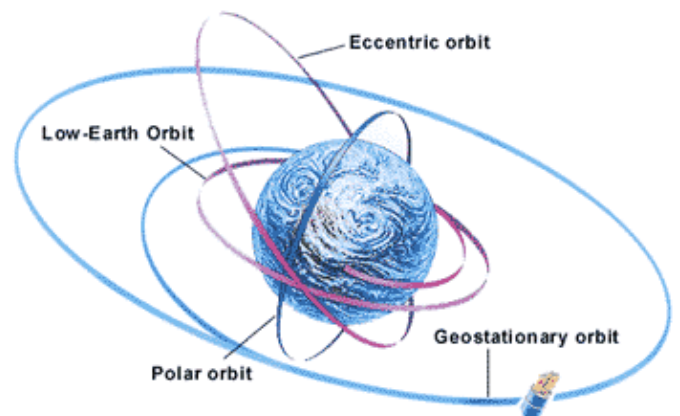


Space Technology

The study of space and space technology is **not** an abstract or novel thing. Exploration of space and space technology is now becoming a giant industry around the world (NASA, SpaceX, Mars Exploration, communication satellites, etc.). Watch the video and examine the links under “Other Resources” and then answer the following questions:



1. At what **university** is the first student built satellite in Canada being developed at?
2. What is the primary **purpose** of the satellite that is being developed by the students at the university mentioned above?
3. Name **5 Canadian Universities** listed on the second link that have programs related to space technology.
4. What is the **name** of the former **Whistler Secondary Student** who is currently a leader on the Queen’s University Rocket team (see third link).
5. GeoEye© is one of the satellites that **Google** used for **Google maps**. This satellite has incredible high resolution optic equipment that can capture detailed images of items as small as 0.5 meters. WOW! It operates at the height of about **690km above the earth’s surface**. Really close to the earth’s surface compared to a geostationary orbit.



- a) Determine how fast GeoEye© must be travelling in order to maintain a circular orbit at this height of about **690km above the earth’s surface**.
- b) Determine the period of GeoEye© (how long it takes the satellite to get around the earth).

By the way...these numbers are real! Room to work and Answers on next page.

5.

6. Communication satellites, spy satellites, and others may travel in an even lower orbit! **low Earth orbit (LEO)**.

- LEO's are able to see the surface of the Earth more clearly.
- Are easily accessible. International Space Station, Shuttle, and the Hubble Space Telescope have orbit relatively close to the earth's surface, so we can get to them more efficiently.

(LEO) satellites can orbit as low as **160 km** above the earth's surface!

- a) Determine **the speed** a satellite would have to go to maintain an orbit at only **160km** above the earth.
- b) Determine the **period** of such a satellite (how long to get around earth once).

Answers:

5. a) 7511 m/s

b) 5914.2 seconds, 98.57 minutes! Wow fast

6. a) 7809.5 m/s

b) 87.5 minutes (orbits earth in about the same time as one school period)