Science In Action 9

Unit 5 — Space Exploration

Section 1.0 — Understanding of Earth and Space has Changed over Time

- **Ancient cultures** – myths and legends
- Technology to study space has evolved through history
- Earth orbits a star (billions of stars in the **Milky Way Galaxy**)
- Accurate data & telescope technology improve understanding
- Star position – uses compass direction (**azimuth**) and altitude

Section 2.0 — Technological Developments to Explore Space

- **Rocketry** has advanced over time
- Humans basic needs must be met in order to live in space
- Satellites provide information on weather, communications and global positioning as well as identify natural resources on the Earth
- Applied in communications, medicine, entertainment, transportation

Section 3.0 — Telescopes and other Space Technologies

- **Reflecting** (mirrors) and **Refracting** (lenses) telescopes focus light
- **Electromagnetic Spectrum**: visible light, infrared, X-ray, ultraviolet, gamma radiation
- **Star spectrum shift** determines if it is moving away or towards us
- **Triangulation** and **Parallax** used to measure distance in space

Section 4.0 — Space Exploration & Tech. affect Society & the Environment

- Dangers of space exploration: **debris, radiation**
- Canadian contributions – history of research and exploration
- Space Ownership issues: political, environmental and ethical