**Learning Goals**

By the end of this unit you should be able to:

* Give examples of how astronomers use astronomical and space exploration technologies to advance understanding of the universe and solar system: radio telescopes, background microwave radiation, red/blue shift (Doppler), mars rover, SNOLAB, ISS, Canadarm/Dextre
* Describe formation of the universe (big bang)
* Identify galaxies, star clusters/types, planet, constellation, nebulae according to their distinguishing characteristics
* Identify components of universe over time: changes to energy, matter, fundamental forces
* Relate mass to different stages in the life cycle of stars
* Describe the processes that generate and events that distribute the energy of the Sun and other starts (eg, nuclear fusion, solar flares and prominences, sun spots, solar wind)
* Give examples of how astronomers use astronomical and space exploration technologies to advance understanding of the universe and solar system (eg, using parallax to measure diameter)
* Identify and describe a range of instruments that are used in astronomy (telescopes, spectroscopes, satellites, probes, robotic devices)
* Give examples of different ways of knowing: ways of know refer to the various beliefs about nature of knowledge that people have. They can include, First Peoples, gender-related, subject/discipline related, cultural, embodied and intuitive beliefs about knowledge