

## **Manitoba**

### **Grade 1: Daily and Seasonal Changes**

- 1-4-02 Recognize that the Sun is a source of light and heat.
- 1-4-03 Recognize that a day is divided into day time and night time based on the presence or absence of sunlight.
- 1-4-04 Sequence and record events and activities that occur over the course of a day, a week, or a year.
- 1-4-05 Recognize that shadows are caused by blocking light.
- 1-4-06 Observe and describe how the Sun appears to change position over the course of a day.
- 1-4-07 Record, describe, and compare changes in temperature at different times of the day.
- 1-4-08 Investigate and describe changes that occur in characteristics and behaviours of living things throughout a day.
- 1-4-09 Compare characteristics of the four seasons.

### **Grade 6: The Solar System**

- 6-4-01 Use appropriate vocabulary related to their investigations of Earth and space.
- 6-4-02 Identify technological developments that enable astronauts to meet their basic needs in space.
- 6-4-05 Describe positive and negative impacts arising from space research programs.
- 6-4-06 Identify technological devices placed in space that help humans learn more about the Earth and communicate more efficiently.
- 6-4-07 Describe how the conception of the Earth and its position in space have been continuously questioned and how our understanding has evolved over time.
- 6-4-08 Recognize that the Sun is the centre of the solar system and it is the source of energy for life on Earth.
- 6-4-09 Identify the planets in the solar system and describe their size relative to the Earth and their position relative to the Sun.
- 6-4-10 Classify planets as inner or outer planets, based on their position relative to the asteroid belt, and describe characteristics of each type.
- 6-4-11 Recognize that mass is the amount of matter in an object, that weight is the force of gravity on the mass of an object, and that the force of gravity varies from planet to planet.
- 6-4-12 Explain, using models and simulations, how the Earth's rotation causes the cycle of day and night, and how the Earth's tilt of axis and revolution cause the yearly cycle of seasons.
- 6-4-13 Use the design process to construct a prototype that tells the time of day or measures a time span.
- 6-4-14 Explain how the relative positions of the Earth, moon, and Sun are responsible for moon phases and eclipses.
- 6-4-15 Identify points of reference in the night sky and recognize that the apparent movement of celestial objects is regular, predictable, and related to the Earth's rotation and revolution.
- 6-4-16 Identify and describe how people from various cultures, past and present, apply astronomy in daily life.
- 6-4-17 Differentiate between astrology and astronomy, and explain why astrology is considered unscientific.

## **Senior 1 Science Learning Outcomes (Grade Nine)**

### **Specific Learning Outcomes**

#### **Exploration of the Universe**

S1-4-01 Use a coordinate system to locate visible celestial objects, and construct an astrolabe to determine the position of these objects.

S1-4-02 Observe the motion of visible celestial objects and organize collected data.

S1-4-03 Investigate how various cultures used knowledge of the position and motion of visible celestial objects for navigation.

S1-4-04 Compare and contrast historical perspectives on the relationship between Earth and space.

S1-4-05 Explain reasons for the apparent motion of the Sun, stars, planets, and the Moon as seen from Earth.

S1-4-06 Differentiate between units of measure used for astronomical distances, and perform simple calculations using these units.

S1-4-07 Compare and contrast scientific and cultural perspectives on the origin and evolution of the universe.

S1-4-08 Differentiate between the major components of the universe.

S1-4-09 Explain how various technologies have extended our ability to explore and understand space.

S1-4-11 Evaluate the impact of space science and technologies in terms of their benefits and risks to humans.