

# Our Galaxy

## Correlated Standards by Grade

### Grade 1 & 2

#### **NGSS**

1-PS4-2. Make observations to construct an evidence-based account that objects can be seen only when illuminated.

1-ESS1-1. Use observations of the sun, moon, and stars to describe patterns that can be predicted.

#### **ACOS**

SC.1.2. Construct explanations from observations that objects can be seen only when light is available to illuminate them.

SC.1.8. Observe, describe, and predict patterns of the sun, moon, and stars as they appear in the sky.

#### **MSF**

2.P.2. Apply an understanding of properties of objects and materials, position and motion of objects, and properties of magnetism.

1.ES.4. Develop an understanding of the properties of Earth materials, objects in the sky, and changes in Earth and sky. E.F. G.

#### **TASS**

1.PS4.1. Use a model to describe how light is required to make objects visible. Summarize how illumination could be from an external light source or by an object giving off its own light.

#### **GSE**

S1P2. Obtain, evaluate, and communicate information to demonstrate the effects of magnets on other magnets and other objects.

### Grade 4

#### **NGSS**

4-PS4-2. Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.

#### **ACOS**

SC.4.8. Construct a model to explain that an object can be seen when light reflected from its surface enters the eye.

#### **MSF**

4.P.2.E. Describe how light behaves.

#### **GSE**

S4E1. Obtain, evaluate, and communicate information to compare and contrast the physical attributes of stars and planets.

S4E2. Obtain, evaluate, and communicate information to model the effects of the position and motion of the Earth and the moon in relation to the sun as observed from Earth.

## **GPS**

S4E2. Students will model the position and motion of the earth in the solar system and will explain the role of relative position and motion in determining sequence of the phases of the moon.

## **Grade 5**

### **NGSS**

5-ESS1-1. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.

### **ACOS**

SC.5.12. Defend the claim that one factor determining the apparent brightness of the sun compared to other stars is the relative distance from Earth.

### **MFS**

5.ES.4.E. Predict the movement patterns of the sun, moon, and Earth over a specified time period. F. Compare and contrast the physical characteristics of the planets.

### **TASS**

5.ESS1.1. Explain that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from the Earth.

## **Middle School**

### **MFS**

6.ESS4.F. Differentiate between objects in the universe.

7.ESS.4.F. Distinguish the structure and movements of objects in the solar system.

8.ESS.4.E. Explain how the tilt of Earth's axis and the position of the Earth in relation to the sun determine climatic zones, seasons, and lengths of the days.

8.ESS,4.F. Describe the hierarchical structure of the universe and examine the expanding universe to include its age and history and the modern techniques used to measure objects and distances in the universe.

### **TASS**

8.ESS1.2. Explain the role of gravity in the formation of our sun and planets. Extend this explanation to add gravity's effect on the motion of celestial objects in our solar system and Earth's ocean tides.

### **GSE**

S6E1. Obtain, evaluate, and communicate information about current scientific views of the universe and how those views evolved. a. Ask questions to determine changes in models of Earth's position in the solar system, and origins of the universe as evidence that scientific theories change with the addition of new information (including the Big Bang as it describes the formation of the universe). S6E1.b. Analyze and interpret data to compare and contrast the planets in our solar systems in terms of size relative to Earth surface and atmospheric features, relative distance from the sun, and ability to support life.

S6E2. Obtain, evaluate, and communicate information about the effects of the relative positions of the sun, Earth, and moon.

**GPS**

S6E1. Students will explore current scientific views of the universe and how those views evolved.

S6E2. Students will understand the effects of the relative positions of the earth, moon, and sun.

**High School****NGSS**

HS-ESS1-3. Communicate scientific ideas about the way stars, over their life cycle, produce elements.

**ACOS**

ESS.HS.1. Develop and use models to illustrate the lifespan of the sun, including energy released during nuclear fusion that eventually reaches Earth through radiation.

ESS.HS.3. Evaluate and communicate scientific information in reference to the life cycle of stars using data of both atomic emission and absorption spectra of stars to make inferences about the presence of certain elements.

**MFS**

HS.A.2. Develop an understanding of theories pertaining to the history of the universe and concepts related to the interaction of celestial bodies.

**TASS**

ESS.ESS1.4. Communicate scientific ideas to explain the nuclear fusion process and how elements with an atomic number greater than helium have been formed in stars, supernova explosions, or exposure to cosmic rays.