8th grade Unit 6 The Universe

Teacher Information

**Objectives**

**Ⓡ SCI.8.8A** Describe components of the universe including stars, nebulae and galaxies, and use models such as the Hertzsprung -Russell diagram for classification.

Ⓢ **SCI.8.8B** Recognize that the Sun is a medium-sized star near the edge of a disc-shaped galaxy of stars and that the Sun is many thousands of times closer to Earth than any other star.

Ⓢ **SCI.8.8C** Explore how different wavelengths of the electromagnetic spectrum such as light and radio waves are used to gain information about distances and properties of components in the universe.

Ⓢ **SCI.8.8D** Model and describe how light years are used to measure distances and sizes in the universe.

**SCI.8.8E** Research how scientific data are used as evidence to develop scientific theories to describe the origin of the universe.

**Activity 1 Life Cycle of Stars**

 **Materials:**

* Description Cards, Star pictures, glue
* H-R diagram, colored pencils

Focus: I can describe components of the universe including stars, nebulae and galaxies, and use models such as the Hertzsprung -Russell diagram for classification.

*Language Objective*: I can watch a video and write notes to help me remember.

**Activity 2 What are Galaxies?**

**Materials:**

* Large red balloon, large sheets of aluminum foil – enough to cover the blown up balloon, sharp pin, electronic balance, calculator

Focus: I can recognize that the Sun is a medium-sized star near the edge of a disc-shaped galaxy of stars and that the Sun is many thousands of times closer to Earth than any other star.

*Language Objective*: I can watch a video and write notes to help me remember.

**Activity 3 Learning About Light Years**

**Materials:**

* calculator

Focus: I can model and describe how light years are used to measure distances and sizes in the universe.

*Language Objective:* I can watch a video and write notes to help me remember.

**Activity 4 Tools of an Astronomer**

**Materials:**

* Markers, red bulb, blue bulb, clear bulb
* Spectroscope, red, blue and clear bulbs, markers

Focus: I can explore how different wavelengths of the electromagnetic spectrum such as light can be seen through a spectroscope.

*Language Objective*: I can use a classroom presentation to take notes about telescopes.

**Activity 5 The Electromagnetic Spectrum**

**Materials:**

* Scissors, glue, EMS symbols
* Spectrum analysis power supply, tubes of various elements, spectroscope
* Spectral Analyzer, scissors

Focus: I can explore how different wavelengths of the electromagnetic spectrum such as light and radio waves are used to gain information about distances and properties of components in the universe.

*Language Objective:* I can use a classroom presentation to take notes about space objects.