

# The Universe

## Background Information

This is a good activity to assess the knowledge of your students at the beginning of the unit. Throughout the activity try to help students formulate and explain their own ideas and concepts. That is how they will most effectively confront their misconceptions.

Our Solar System is composed of the Sun (named Sol), surrounded by 8 planets and 1 dwarf planet, their moons, several asteroids, meteoroids, and comets. A galaxy is a large grouping of stars (about 100 billion), bound by gravity. Our Sun is part of the Milky Way, a spiral galaxy. The universe is made up of everything that exists anywhere. There are billions of galaxies and nebulae (clouds of gas and dust) in the universe.

### Solar System

Star – Sun

Planets:

Mercury

Venus

Earth

Mars

Jupiter

Saturn

Uranus

Neptune

Dwarf Planet:

Pluto

Asteroids

Meteoroids

Comets

Dust

Gas

### Galaxy

Solar Systems

Black holes

### Universe

Galaxies

Nebula

## Objectives

By the end of this activity, students will be able to:

- create an illustration to define the concept words: solar system, galaxy, universe.
- compare and contrast their illustration definition with definition provided by teacher.
- continue to develop fine motor skills through their drawings.

## Instruction Time

30-45 minutes

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## Materials

- Astronomer Journal pages 2-4
- Crayons
- Book – *Is the Blue Whale the Biggest Thing?* (optional)

## Procedure

1. (Optional) Read *Is the Blue Whale the Biggest Thing?* as an introduction to the idea of the universe.
2. Tell students that they are going to draw pictures about space. You are going to ask them to draw a picture of some things in space.
3. On the first paper, have students find the words “Solar System” and then draw a picture of the Solar System. Allow approximately 5 minutes for drawing.
4. On the second paper, have students find the word “Galaxy” and then draw a picture of a galaxy. Allow approximately 5 minutes for drawing. (Note: Some students may get confused if they don’t understand a difference between Solar System and galaxy, or they may get frustrated if they don’t know what a galaxy is. Just reassure them that it is okay and to be creative and take some guesses.)
5. On the third paper, have students find the word “Universe” and then draw a picture of the universe. Allow approximately 3-5 minutes for drawing.
6. Lead a discussion to find out what students already know about each of these concepts:
  - a. Ask how each of the three drawings was similar.
  - b. Ask how each of the drawings was different.
  - c. Ask what kinds of things we could find in the Solar System. (Make a list on the board or overhead.)
  - d. Ask what kinds of things we could find in a galaxy. (List on the board.)
  - e. Ask how Solar Systems and galaxies are different.
  - f. Ask what kinds of things we could find in the universe. (List on the board.)
  - g. Ask how the universe is different from a galaxy or the Solar System.
7. If students run out of ideas for things to put into each category, refer to the lists in the Teacher Background Information section and ask students where they think each item belongs. (Again, students may not know for sure about each object. Allow them to place items in the wrong category or guess if they don’t know. They will eventually go back and revise their table.)
8. Have students copy down information from the board into their Astronomers Journals.

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## **Expected Results & Explanations**

Upon completion of this activity, students should have an understanding of the items that are located within our universe, galaxy and solar system. When students hear a word from the chart, they should be able to determine quickly which category the word is from.

## **Extensions**

Use three 3x5 cards to write solar system, galaxy, and universe with one heading on each card and place a different color sticker under each of the headings. Using as many 3x5 cards as items on the list compiled by the students write one item on each card. Create a self-check system by placing the same color of sticker on the back of the cards that match with their category. Place all items in an envelope. Allow students to shuffle the cards, then place them in their proper category. When finished they can flip the cards over to check their answers. Provide scrap paper for them to record the number right and return to the teacher when they have finished.