

COMPARE AND CONTRAST THE PLANETS

Prep Time: 15 minutes

Teaching Time: 1 hour

INSTRUCTIONS
Grade 7



Science Concept:

Planets have different compositions.

Objectives:

The student will:

- perform basic research;
- compare and contrast two planets; and
- communicate findings.

GLEs Addressed:

Science

- [7] SA1.1 The student demonstrates an understanding of the processes of science by asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating.
- [7] SD4.1 The student demonstrates an understanding of the theories regarding the origin and evolution of the universe by comparing and contrasting characteristics of planets and stars (i.e., light reflecting, light emitting, orbiting, orbited, composition).

Writing

- [7] W3.2.4 The student writes for a variety of purposes and audiences by using diagrams, charts or illustrations with captions or labels in research projects or extended reports.

Vocabulary:

composition- the elements of a compound (the composition of rubber)

orbit- the path taken by one body circling around another body (the orbit of the earth around the sun)

planets- a heavenly body other than a comet, asteroid, or satellite that travels in orbit around the sun

Materials:

- Balls, such as: basketball, volleyball, softball, baseball, whiffleball, etc.
- STUDENT WORKSHEET: "Compare and Contrast Planets"

Activity Procedure:

Gear Up

Process Skill: communicating

1. What is composition? Record student answers on the board and discuss as a class.
3. Show students how objects can vary in composition by displaying different balls, such as a basketball, volleyball, softball, baseball, and whiffleball. Lead students through a discussion of the composition of each ball (e.g., basketballs are made of..., etc.).
4. Create a chart to compare and contrast the varying compositions of the balls. As a class, fill in the chart.
5. Lead students through the creation of a compare/contrast graphic organizer. Instruct students to fold a sheet of paper in half by folding the top half down. Next, fold the paper in half again by folding the left side over the right. Unfold the last fold so that there is a crease in the middle. Cut up the valley of the crease so that there are two tabs. Instruct students to label one tab "Compare" and the other tab "Contrast." Provide students time to fill in their graphic organizer.

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Explore

Process Skills: classifying, communicating, and investigating

6. Distribute the STUDENT WORKSHEET: "Compare and Contrast Planets." Instruct students to find the necessary information on four of the planets. Students may use websites, the library, and classroom textbooks to find information.
7. Instruct students to create a second compare/contrast graphic organizer and use it to compare and contrast two of the planets they researched using the information they gathered.

Generalize

Process Skills: communicating, interpreting data, and classifying

8. Divide students into groups, placing those that chose the same planets to compare/contrast in the same group.
9. Ask each group to share within the group, and then ask groups to share with the class. Groups should answer the following questions:
 - A. How are the planets similar?
 - B. How are they different?
 - C. Which planets have the same compositions?
 - D. Which planets have different compositions?

Apply/Assess

Process Skills: communicating and interpreting data

10. Instruct students to write a report on the compositions of the planets. The report should include one or more photos/images of each planet. Display students' graphic organizers on the class bulletin board or wall.

Extension Idea:

Process Skills: communicating, observing, and interpreting data

Group students in pairs and ask them to pick objects in the room to compare and contrast. Students should share their findings with other groups.

Answers to Student Worksheet:

Answers will vary depending on the planets selected.

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RUBRIC

Objective	GLE	Emergent	Developing	Proficient	Advanced
The student communicates findings in a written report.	[7] SA1.1	The student has not completed the assignment.	The student has written a report that includes a description of either atmosphere or solid planetary material but not both.	The student has written a report that includes a description of atmosphere and/or solid planetary material. At least one photo/image is present.	The student has written a report that includes a description of atmosphere and solid planetary material. Several photos/images are included.
The student performs simple research.	[7] SA1.2	The student does not collect any data.	The student is missing some data or all source information.	The student is missing some data and/or source information.	The student has collected all required data and source information.
The student compares/contrasts characteristics of planets.	[7] SD4.1 [7] W3.2.4	The student has not written a comparison.	The student has written a comparison but has only included one or two characteristics.	The student has written a comparison that includes three or more characteristics.	The student has written a comparison that includes three or more characteristics and includes characteristics not explicitly mentioned.

NAME: _____

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Directions: Select four planets in our solar system. Using the Internet and/or books from the library or classroom, complete the following chart.

Planet	Distance from sun (include units)	Radius (include units)	Mass (include units)	Density (include units)	Characteristics of surface	Composition of interior