

**RECOMMENDED GRADES: 4-12**



**TIME NEEDED: 40 MINUTES**

### Description

Students work in teams to investigate and describe the features of comets, asteroids, meteors, and galaxies. Then students complete a relay race to accurately match planet fact cards to each planet on the map.

### Learning Objectives

Students will:

- describe differences between comets, asteroids, meteors, and galaxies
- identify major features of the eight planets in the solar system
- describe main physical differences between inner and outer planets

### Materials

- Colored lanyards (40 total, 10 of each: red, yellow, green and blue)—optional
- Objects in Space Cards (4)
- Planet Feature Cards (40 total, 10 per group)

### Preparation

*5 minutes*

- Part One: Place one Objects in Space Card in each correct corner of the map.
- Part Two: Place lanyards that match the color of the Planet Feature Card sets in each of the four corners of the map.

### Tips/Modifications

#### *Tips*

- This game could be used as a pre-assessment activity or an assessment after studying the solar system and the map.
- Students may play this game multiple times playing with a different set of cards; i.e., switch team mascots so that the asteroid team plays with the comet team's cards.
- Students may want to use the Planet Feature Cards for the "Space in Space" activity as reference.

#### *Modification*

- Reduce the number of cards in each set for younger students.

### Rules



Have students remove shoes before walking on the map.

## DIRECTIONS

### PART ONE: COMETS, ASTEROIDS, METEORS, AND GALAXIES

1. Divide the class into four teams and gather each group of students at one of the four corners of the map.
2. Ask each team to pick up the Objects in Space Card at their corner—comet, asteroid, meteor, or galaxy. This space object will be their team “mascot.” Give each team their lanyards, having each student of the team wear the same color of lanyard.
3. Give students time to read through the description of each feature and prepare how they would like to present the information to the rest of the class. Suggest that students could perform a skit, a cheer, or a song using the information on the card to introduce their “mascot.”
4. When students are ready, have each group present their team “mascot” to the entire class.
5. After all presentations are finished, have a quick discussion with the class about the differences between comets, galaxies, asteroids, and meteorites. Ask:
  - *Which is the biggest?* (Galaxy)
  - *How does location help define them?* (Various possible answers: Asteroids are in the asteroid belt between Mars and Jupiter.)
  - *Have you seen one in the sky?* (various answers)
  - *Do you know which space object is closest to Earth?* (meteor)

### PART TWO: PLANET FACT RELAY RACE

1. Have students walk over the map, noting different features and information that are included (especially if this is one of the first activities students do on the map).
2. Redirect students to stand in their team corner. If they are not already, have each student on a team wear the same color of lanyard. Explain that students are going to compete in a relay race to explore the different features of the map and space. The first student in line will pick a Planet Feature Card, read the description, deliver the card to the correct planet on the map, and return to their team corner. When the first student returns to the corner, that student tags who is next in line. That student repeats the actions of the first student with the next card in the team’s Planet Feature Card deck and so on until all the cards have been delivered. When the team has delivered all of their Planet Feature Cards, they should sit down in their corner to show they are done. As a class, determine if team

## RACE TO THE PLANETS

members are allowed to help each other out and discuss a possible answer before leaving the corner. Establish the other rules of the game:

- No running.
- Only one team member may be out of the corner at a time.
- When a team member returns to the corner, they must tag the next student before another team member leaves the corner.

Stress to students the importance of accuracy and not just speed. Explain that you will use a point system to determine the winner. There are both speed and accuracy points. The team with the most points after delivering all of their cards is the winner.

- Speed points
    - 1st place = 3 points
    - 2nd place = 2 points
    - 3rd place = 1 point
    - 4th place = 0 points
  - Accuracy points
    - 1 point for every correct card placed
    - 0 points for every incorrect card placed
3. To start the game, put a pile of ten Planet Feature Cards face down on the map in each team's corner. Each team's Planet Feature Cards are color coded to their lanyards. When all teams are in line and ready, begin!
  4. When all four corners have delivered all the cards, have a team travel to a planet and report out the information that has been gathered for that planet. Use the answers provided in the Planet Feature Cards Answer Key, found at the end of this activity, to ensure that all cards were placed correctly on the map and have teams calculate their accuracy points.
  5. Review the characteristics of each planet with students and discuss the major differences between the inner planets and the outer planets. Have students share what they discovered: What was the most amazing feature? Which planet is Earth's sister planet? Which planet do you hope astronauts might travel to?

## RACE TO THE PLANETS

### Planet Feature Cards Answer Key

Use this answer key to calculate accuracy points at the end of the game.

#### RED CARDS (METEOR)

Clue	Hint	Answer
Largest volcano in solar system (Olympus Mons)	Red planet	Mars
Smallest planet without a moon	Closest to the Sun	Mercury
Planet with the largest number of rings	Gas giant	Saturn
Planet considered to be Earth's sister planet	Planet is nearly the same size as Earth	Venus
Terrestrial planet that rotates in 24 hours	The only planet we know with life	Earth
Planet that has the strongest gravity in solar system	Largest planet	Jupiter
Planet farthest from the sun	Deep blue color	Neptune
Planet with large dust storms	Red planet	Mars
Planets moons have names after characters created by William Shakespeare	Planet looks like it rotates on its side	Uranus
Rings made of ice and dust	Second largest gas giant	Saturn

#### BLUE CARDS (COMET)

Clue	Hint	Answer
Largest planet in solar system	Gas giant	Jupiter
Planet is considered the hottest in the solar system	Earth's sister planet	Venus
The planet that has the largest canyon in the solar system	Red planet	Mars
Planet that is one AU from the sun	Planet has a large amount of water	Earth
Coldest planet in solar system	Blue-green color	Uranus
Seasons last for 40 years	Deep blue planet	Neptune
Planet with iron core and a wrinkle-like surface	Closest to the Sun	Mercury
Planet has a moon larger than Mercury	Gas giant	Jupiter
Planet that takes 365.25 days to revolve around the sun	Only planet with lots of liquid water on the surface	Earth
Planet that orbits 9.5 AU from the sun	Known for its beautiful rings	Saturn

**YELLOW CARDS (ASTEROID)**

Clue	Hint	Answer
Smallest terrestrial planet	Closest to the Sun	Mercury
Planet that is known to have 67 moons	Largest planet	Jupiter
Planet with two small moons	Red planet	Mars
Consider to be the smallest gas giant	Deep blue color	Neptune
Surface of planet is covered in craters	Smallest planet	Mercury
Brightest object in night sky (other than our moon)	Earth's sister planet	Venus
"Third Rock" from the sun	Has one moon	Earth
Most distant planet seen without a telescope	Is known for its beautiful rings	Saturn
Planet's north pole receives sunlight for 42 years; then is in darkness for 42 years	Planets looks to rotate on its side	Uranus
Planet that is an average of 30 AU from the sun	Planet has a beautiful blue color	Neptune

**GREEN CARDS (GALAXY)**

Clue	Hint	Answer
Planet contains a giant storm called "The Great Red Spot"	Largest planet	Jupiter
First planet discovered using a telescope	Planet is blue-green and can look almost featureless	Uranus
Planet that has two moons	Red planet	Mars
Takes 88 days to revolve around the sun	Closest to the Sun	Mercury
Planet that has 13 known rings; some dark and some brightly colored	Planet looks to tilt on its side	Uranus
Atmosphere mostly made of carbon dioxide	Earth's sister planet	Venus
Cassini, the largest interplanetary spacecraft ever built, orbited this planet	Planet has beautiful rings	Saturn
Only planet with one moon	Astronauts have landed on this planet's moon	Earth
The windiest planet—as stronger winds and storms than Jupiter	Beautiful blue planet	Neptune
Sun rises in the west and sets in the east	Planet has a beautiful blue color	Venus