LESSON 12:
WATER COLOR PLANETS

SUPPLIES

PENCIL BOX
- Pencils
- Markers

TEACHER BRINGS
- Water (if no sink)

LESSON KIT #12
- Waxed Paper Plates (20)
- Paintbrushes (20)
- Cups (10)
- Paper towel (1)
- Water color paint (10 palettes)
- Tablecloth (2)

OBJECTIVES
- ☑ Students will learn about the different planets in the solar system
- ☑ Students will learn about the different properties of each planet

HOOK
2-3 min

Look at images of different planets and think:
- Why does Mars look red?
- Why do Jupiter and Saturn have stripes?
- If you could create your own planet, what colors and patterns would it have?

Today, you'll use watercolors to design your own unique planet inspired by the amazing worlds in space!

INTRODUCTION
5 min

Planets come in many different colors, shapes, and sizes, and each one has unique features. Mercury is small, rocky, and gray, Venus has thick yellowish clouds, Earth appears blue and green because of its oceans and land, and Mars is known as the Red Planet because of its dusty surface. Jupiter has colorful cloud bands and a giant storm, Saturn has icy rings, Uranus looks blueish green and spins on its side, and Neptune is deep blue with powerful storms.

A planet's appearance is shaped by what it is made of and what happens on its surface, such as storms, dust, ice, gases, and volcanoes. By mixing watercolors, we can create new colors, patterns, and textures to design pr replicate our very own planets!

LET'S LEARN ABOUT THE GREAT RED SPOT

The Great Red Spot is a gigantic, swirling storm on the planet Jupiter that has been raging for hundreds of years. Think of it like the biggest, most powerful hurricane you can imagine, but on a cosmic scale! It is so huge that one whole Earth could fit right inside it with room to spare! In the past, it was even bigger—large enough to swallow three Earths. While hurricanes on Earth usually last a few days or weeks, the Great Red Spot has been spinning for at least 150 to 300 years (and maybe even longer). Scientists still aren't exactly sure why it's red. They think cosmic rays and sunlight react with chemicals like ammonia and phosphorus in Jupiter's atmosphere, turning it a rusty, reddish color.



Copyright iSTEAM After School 2027

WATER COLOR PLANETS

DISCUSSION

10 min

Planets are unique worlds with different sizes, colors, atmospheres, and surface features. A planet's appearance can provide clues about its environment, including what materials it is made of and what is happening on its surface. For example, gases in an atmosphere can create different colors, while ice, dust, storms, and volcanic activity can change how a planet looks. If you discovered a new planet, you could imagine what it would look like, what it would be made of, and what features would make it different from other planets. Discuss as a class:

- How are planets different from each other?
- What can the colors of a planet tell us about what it's made of or what happens on it?
- If you discovered a new planet, what would it look like and what would it be made of?

Encourage students to share ideas and think creatively about what makes each planet unique. Then, review planetary descriptions as a class.

- **Mercury** is a small, rocky planet with a gray, dusty surface covered in craters. Its appearance comes from the rocky materials on its surface and impacts from space rocks.
- **Venus** appears yellowish-white because its thick atmosphere is filled with clouds made of chemicals that reflect sunlight. Its surface is hidden beneath these clouds and contains volcanoes and rocky terrain.
- **Earth** looks blue, green, and white because of its oceans, land, clouds, and atmosphere. It is the only known planet with liquid water and life.
- **Mars** is called the Red Planet because iron minerals in its dusty soil create its reddish color. Its surface includes craters, mountains, valleys, and giant dust storms.
- **Jupiter** has colorful bands of white, orange, and brown clouds caused by gases moving through its thick atmosphere. Its most famous feature is the Great Red Spot, a giant storm larger than Earth.
- **Saturn** is a pale yellow planet with bright rings made of ice, dust, and rock. Its appearance comes from the gases in its atmosphere and the sunlight reflecting off its rings.
- **Uranus** appears blue-green because of methane gas in its atmosphere, which absorbs red light and reflects blue-green colors. It also has faint rings and rotates on its side.
- **Neptune** is a deep blue planet because of gases in its atmosphere, especially methane. It has dark storms and the fastest winds in the solar system.

Copyright iSTEAM After School 2027

WATER COLOR PLANETS

ACTIVITY DIRECTIONS

25-30 min



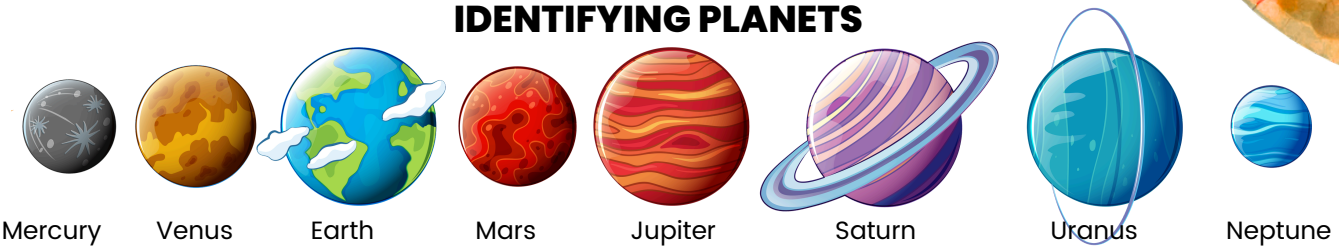
1. Begin by introducing the different features of planets and discussing how planets vary in size, composition, color, and surface features. Explain that some planets are made mostly of rock, while others are made of gas or ice. Discuss as a class how features like oceans, storms, craters, rings, and atmospheres influence what planets look like.

2. Provide each student with a white paper plate. Note: Use tablecloths or protective coverings to keep workspaces clean. Give students watercolor palettes to share and encourage them to either replicate a specific planet or design their own unique planet. Students can blend colors, create textures, and add details such as storms, craters, mountains, oceans, rings, or unusual landscapes to represent the environment of their planet.

3. Challenge students to think like Planetary Geologist by considering questions such as: What is your planet made of? Does it have an atmosphere? What weather or surface features might exist there? Encourage students to experiment with color mixing to create new shades and patterns, similar to the variety of planets found in our solar system.

4. After completing their planets, have students share their creations with the class. Students should describe their planet's features, what it is made of, and what makes their planet unique.

IDENTIFYING PLANETS



Mercury Venus Earth Mars Jupiter Saturn Uranus Neptune

EXTENSION

If students finish early, challenge them to expand their planet designs by adding details such as alien life forms, ecosystems, astronauts, or futuristic technology. Encourage them to think like scientists and imagine how living things or explorers might adapt to the planet's environment. Students can add drawings that show how these features interact with the planet's surface, atmosphere, or resources. You can also encourage students to make more planets.

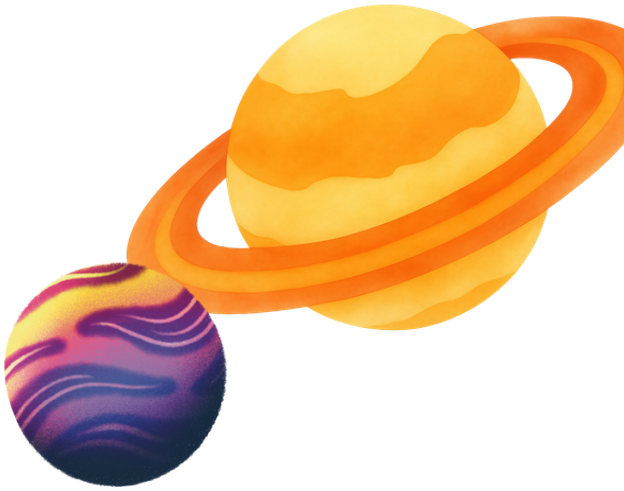
Copyright iSTEAM After School 2027

WATER COLOR PLANETS

OBSERVE & EXPLAIN

3-5 min

Ask students to share the colors, patterns, and features they used to design their planet and explain why they made those choices. Have students describe any aliens, animals, or astronauts they added and imagine what discoveries or adventures might happen on their planet. Conclude by discussing how real planets are different from one another and how their unique features help scientists learn more about the worlds in our solar system.



CLEAN UP & DISMISSAL

Students must then clean their workspace. Make sure to leave the classroom the way you found it.

- Have students carefully dump their paint water into the sink or a bucket.
- Collect brushes and cups for washing.
- Wipe down desks with paper towels to clean up any paint spills.
- Once everything is tidy, give students their paper plate planets to take home.

Exit Ticket

Ask each student one of the following questions as they walk out the door.

- How do scientists learn about what a planet is made of?
  - Examples include studying colors, atmosphere, surface features, materials, weather patterns
- Why do planets have different colors and patterns?
  - Examples include different gases, rocks, ice, storms, dust, surface materials
- How can a planet's appearance tell us about its environment?
  - Examples include colors show materials, storms show weather, surfaces show land features, atmosphere affects appearance
- What makes Saturn easy to recognize?
  - Examples include bright rings, ice and rock rings, pale yellow color, gases in atmosphere

Copyright iSTEAM After School 2027