

MATERIALS & SETUP

- Planet name tags
- **Fact Card:** The Planets
- **Student Worksheet:** The Planets
- **Music:** *The Planets, Op. 32* by Gustav Holst
 - “Mercury, the Winged Messenger”
 - “Venus, the Bringer of Peace”
 - “Mars, the Bringer of War”
 - “Jupiter, the Bringer of Jollity”
 - “Saturn, the Bringer of Old Age”
 - “Uranus, the Magician”
 - “Neptune, the Mystic”

CONNECTIONS TO
OH STANDARDS

FINE ARTS



- **2CE** Listen to, identify, and respond to music of different composers, historical periods and world cultures.
- **5CE** Identify elements of music including tonality, dynamics, tempo and meter, using music vocabulary.

(continued)

The Planets

Learning Objective: Students will be able to identify and describe characteristics of the planets and compare them to “The Planets” musical suite.

ACTIVITY

1. Ask eight students to be volunteers to model our solar system. Hand out name tags each labelled with a planet to each of the students and also an information card which they will read to their classmates.
2. Pass out the Student Worksheet. The students should take notes in the “Planet Notes” column as they actively listen to their peers.
3. Introduce the sun, the celestial body that all the planets orbit. Then introduce each of the planets, from the closest to the farthest planet orbiting the sun (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune) and allow each student to read their “Fact Card” about their respective planets.
4. Ask your eight volunteers to return to their seats.
5. In the 1800s, before we could study the planets by sending equipment into space, a composer named Gustav Holst composed a suite (a collection of short musical pieces) called *The Planets*. Holst wrote this music to convey his ideas and emotions with the planets as inspiration.
6. Play a thirty-second clip of each movement, allowing time for the students to write down three descriptors for the music representing each planet.
7. Discuss as a class: how do the musical qualities of each movement compare to the physical characteristics of each planet?

REFLECTION

1. Did the student identify eight planets in this solar system?
2. Did the student identify physical characteristics of each planet?
3. Was the student able to compare the planet’s physical features with the musical features of Holst’s suite?

SCIENCE



- The solar system includes the sun and all celestial bodies that orbit the sun. Each planet in the solar system has unique characteristics.
- The distance from the sun, size, composition and movement of each planet are unique. Planets revolve around the sun in elliptical orbits. Some of the planets have moons and/or debris that orbit them.

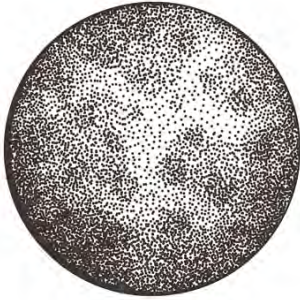


The Planets Student Worksheet

Name: _____ Date: _____

Planet	Planet Notes (Physical Characteristics)	Musical Characteristics (Tempo, Dynamic, Instrumentation)
Mercury	_____ _____ _____	_____ _____ _____
Venus	_____ _____ _____	_____ _____ _____
Earth	_____ _____ _____	
Mars	_____ _____ _____	_____ _____ _____
Jupiter	_____ _____ _____	_____ _____ _____
Saturn	_____ _____ _____	_____ _____ _____
Uranus	_____ _____ _____	_____ _____ _____
Neptune	_____ _____ _____	_____ _____ _____

FACT CARD: **MERCURY**



SMALLEST

Mercury is the smallest planet in our solar system—only slightly larger than Earth's Moon.

ROUGH SURFACE

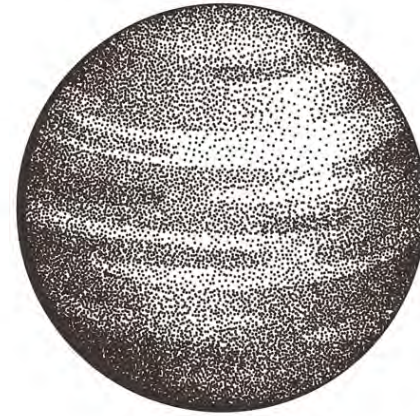
Mercury is a rocky planet, also known as a terrestrial planet. Mercury has a solid, cratered surface, much like the Earth's moon.

CAN'T BREATHE IT

Mercury's thin atmosphere, or exosphere, is composed mostly of oxygen (O₂), sodium (Na), hydrogen (H₂), helium (He), and potassium (K).

(<https://solarsystem.nasa.gov/planets/mercury/overview/>)

FACT CARD: **VENUS**



EARTH-SIZED

If the sun were as tall as a typical front door, the Earth and Venus would each be about the size of a nickel.

DIVERSE TERRAIN

Venus' solid surface is a volcanic landscape covered with extensive plains featuring high volcanic mountains and vast ridged plateaus.

MOONLESS AND RINGLESS

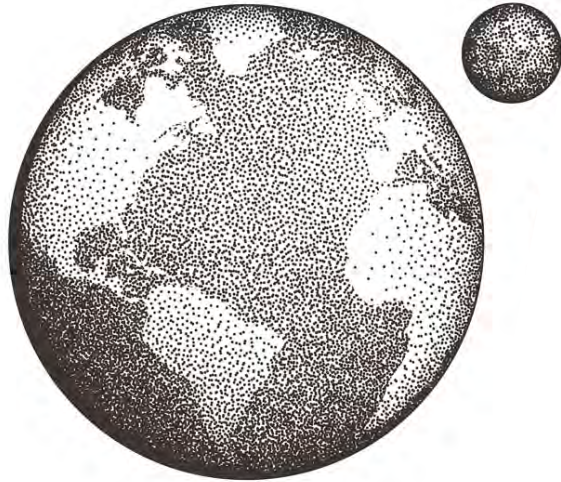
Venus has no moons and no rings.

WATER ON VENUS

Many scientists believe water once existed on the surface. Future Venus explorers will search for evidence of an ancient ocean.

(<https://solarsystem.nasa.gov/planets/venus/overview/>)

FACT CARD: **EARTH**



MEASURING UP

If the Sun were as tall as a typical front door, Earth would be the size of a nickel.

WE'RE ON IT

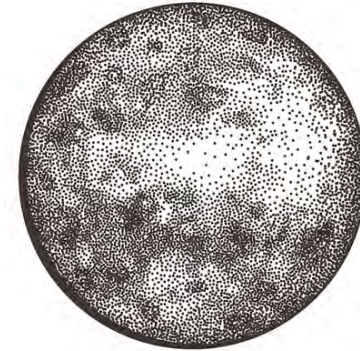
Earth is a rocky planet with a solid and dynamic surface of mountains, canyons, plains and more. Most of our planet is covered in water.

PROTECTIVE SHIELD

Our atmosphere protects us from incoming meteoroids, most of which break up in our atmosphere before they can strike the surface.

(<https://solarsystem.nasa.gov/planets/earth/overview/>)

FACT CARD: **MARS**



SMALL PLANET

If the Sun were as tall as a typical front door, Earth would be the size of a dime, and Mars would be about as big as an aspirin tablet.

RUGGED TERRAIN

Mars is a rocky planet. Its solid surface has been altered by volcanoes, impacts, winds, crustal movement and chemical reactions.

RUSTY PLANET

Mars is known as the Red Planet because iron minerals in the Martian soil oxidize, or rust, causing the soil and atmosphere to look red.

DOUBLE MOONS

Mars has two moons named Phobos and Deimos.

(<https://solarsystem.nasa.gov/planets/mars/overview/>)

FACT CARD: **JUPITER**



THE GRANDEST PLANET

Eleven Earths could fit across Jupiter's equator. If Earth were the size of a grape, Jupiter would be the size of a basketball.

WHAT'S INSIDE

Jupiter is a gas giant and so lacks an Earth-like surface. If it has a solid inner core at all, it's likely only about the size of Earth.

WORLDS GALORE

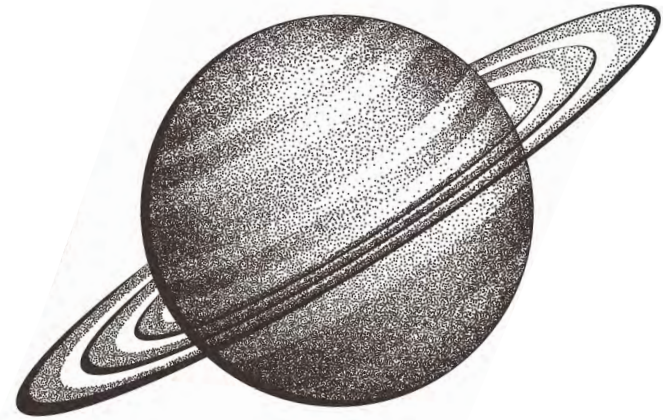
Jupiter has 53 known moons, with many additional moons to be confirmed and named.

SUPER STORM

Jupiter's Great Red Spot is a gigantic storm that's about twice the size of Earth and has raged for over a century.

(<https://solarsystem.nasa.gov/planets/jupiter/overview/>)

FACT CARD: **SATURN**



A COLOSSAL PLANET

Nine Earths side by side would almost span Saturn's diameter. That doesn't include Saturn's rings.

GAS GIANT

Saturn is a gas-giant planet and therefore does not have a solid surface like Earth's. But it might have a solid core somewhere in there.

GLORIOUS RINGS

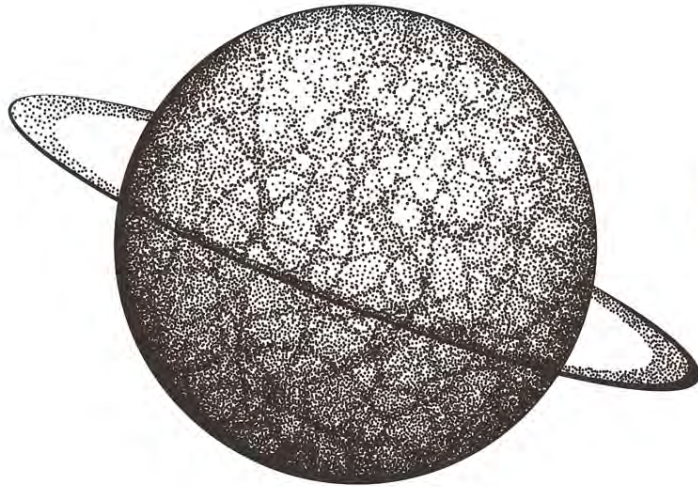
Saturn has the most spectacular ring system, with seven rings and several gaps and divisions between them.

MINI SOLAR SYSTEM

Saturn has 53 known moons with an additional nine moons awaiting confirmation of their discovery—that is a total of 62 moons.

(<https://solarsystem.nasa.gov/planets/saturn/overview/>)

FACT CARD: URANUS



HUGE

Uranus is about four times wider than Earth. If Earth were a large apple, Uranus would be the size of a basketball.

ICE GIANT

Uranus is an ice giant. Most of its mass is a hot, dense fluid of “icy” materials – water, methane and ammonia – above a small rocky core.

THE OTHER RINGED WORLD

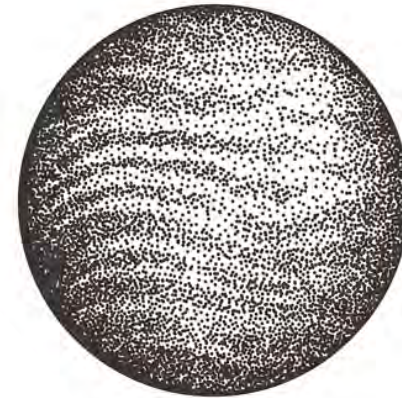
Uranus has 13 known rings. The inner rings are narrow and dark and the outer rings are brightly colored.

ONE COOL FACT

Like Venus, Uranus rotates east to west. But Uranus is unique in that it rotates on its side.

(<https://solarsystem.nasa.gov/planets/uranus/overview/>)

FACT CARD: NEPTUNE



GIANT

Neptune is about four times wider than Earth. If Earth were a large apple, Neptune would be the size of a basketball.

ICE GIANT

Neptune is an ice giant. Most of its mass is a hot, dense fluid of “icy” materials – water, methane and ammonia – above a small rocky core.

LIFELESS

Neptune cannot support life as we know it.

GASSY

Neptune’s atmosphere is made up mostly of molecular hydrogen, atomic helium and methane.

(<https://solarsystem.nasa.gov/planets/neptune/overview/>)