

Steve Hennessey

as

Dr. Planet

Teacher's Guide



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Introduction: Steve Hennessy as Dr. Planet is a fun musical and educational journey through the solar system. This curriculum based program includes interactive songs which will have the students singing along through the solar system and the planets. The program is designed for audiences from K-6th grade.

Pennsylvania Standards for Science and Technology

3.4.4D. Describe the composition of the universe and the earth's place in it.

- Recognize earth's place in the solar system.
- Identify planets in our solar system and their general characteristics.
- Describe the solar system motions and use them to explain time (e.g., days, seasons), major lunar phases and eclipses.

Learning Objectives:

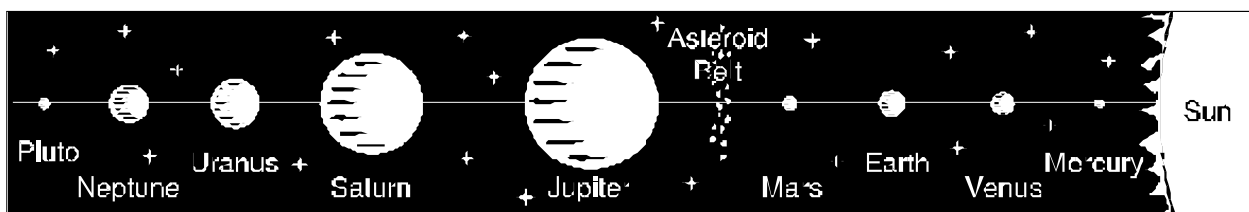
After viewing the school assembly and participating in various activities, students will be able to....

- Define "planet" and "solar system".
- Identify specific characteristics of each planet in our solar system.
- Define, identify, and compare characteristics of our solar system and its planets.

Summary of the Assembly Program:

Dr. Planet blasts off into an exciting musical adventure around the solar system. Nine original interactive songs investigate properties of each of the planets and the solar system. The Solar System Slide encourages student curiosity and allows students to use their imagination as they join the exciting adventure. Information about the solar system and 8 planets are presented through a variety of musical styles. The songs include:

The Solar System Slide
Jupiter Jump
The Saturn Song
Neptune Lullaby
You'll be Famous On the Planet Uranus
Venus (Disco)
Mercury Rap
Mars Rocks
Fiesta Pluto



Teacher Preparation

Review the blackline masters that are provided and duplicate those that you think will be helpful. As you review the instructional materials in this program, you may find it necessary to make some changes, deletions, or additions to fit the specific needs and time constraints of your class. Feel free to tailor this program to your students to obtain the maximum instructional benefits afforded by the materials. An answer key for the blackline masters is provided in this guide.

Student Preparation and Evaluation

Pre-activity:

You may want to expose students to the vocabulary words addressed in the assembly program prior to watching the presentation. This may be accomplished by using the blackline masters, which include, Solar System Crossword Puzzle, Solar System Word Search, and Solar System Bingo. These activities enable students to show what words they know well, and become aware of the words they need to learn. By exposing the students to the vocabulary prior to viewing the program, students will be prepared to listen for these words in the program.

Post-activity: Solar System Bingo

Use this game to check with students for understanding after the Dr. Planet assembly. This game is played like BINGO. Instead of using numbers, the playing board has words that apply to our Solar System. Using the word bank on the game board students arrange the Solar System vocabulary words in each of the empty spaces. Students write the words in any order they wish.

Directions for Playing: Cut out the 16 “clue” cards. Have a student read the “clue”. Students cover the space with the matching vocabulary term. The player who is first to fill a row horizontally, vertically, or diagonally is the winner. The winning row should be checked against the definitions.

Learning Extensions

Science, Creative Writing and Music Connection:

Have students pick one of the nine planets and write their own original song. Provide students with Blackmaster Chart 1, Planets in our Solar System. Using the chart students can incorporate information about the planet they choose.

Solar System Vocabulary:

- Asteroid:** Objects revolving around the sun that are too small and too numerous to be considered planets.
- Asteroid Belt:** The region of the solar system between the orbits of Mars and Jupiter, where many asteroids are found.
- Big Dipper:** The Big Dipper is a group of 7 stars (an asterism) contained in the Northern Hemisphere constellation Ursa Major (The Great Bear). The two brightest stars in the Big Dipper (Dubhe and Merak) "point" to the North Star, Polaris.
- Comet:** A ball of ice and dust whose orbit is a long, narrow ellipse.
- Density:** Density is a measure of how massive an object is per unit volume.
- Fahrenheit:** Temperature is a measure of how hot or cold something is - how much heat energy it possesses. Fahrenheit is a temperature scale in which 32 °F is the freezing point of water and 212 °F is the boiling point of water.
- Helium:** Helium is an element with the atomic number 2. It is the second most abundant element in the universe. It is created from hydrogen atoms in the process of nuclear fusion that occurs within stars. Saturn is made mostly of gases: hydrogen and helium.
- Hydrogen:** Hydrogen is the element with the atomic number 1. It is the lightest element and the most abundant in the universe. Saturn is made mostly of gases: hydrogen and helium.
- Meteor:** A streak of light in the sky produced by the burning of a meteoroid in Earth's atmosphere.
- Meteoroid:** A solid body, moving in space, that is smaller than an asteroid.
- Methane:** Methane (CH₄) is an odorless, colorless, flammable gas.
- Moon:** A moon is a large body that orbits around a planet. Many planets have moons.
- Mystical:** Involving some secret meaning.
- Outer Space:** The region of space immediately beyond the Earth's atmosphere.
- Planet:** A planet is a large celestial body that orbits a star and does not shine on its own. There are nine planets orbiting the sun in our solar system.

Polar Icecaps: A mass of ice and snow that permanently covers the land of the north and south pole.

Potassium: Potassium is an element with the atomic number 19.

Reflector: A surface that reflects or brings back light.

Rings: Many planets are orbited by rings of rock, ice and/or dust. Saturn, Jupiter, Uranus, and Neptune have rings.

Rotation: The spinning motion of a planet about its axis.

Sodium: Sodium is an element with the atomic number 23.

Solar System: A solar system is a group of planets, moons, asteroids, and comets that orbit around a sun. In our solar system, nine planets, over 61 moons, and many other objects orbit around our Sun.

Sphere: A globular body or ball.

Star: Each star in the sky is a glowing ball of gas. Our sun is a medium-sized star.

Voyager: NASA launched the two Voyager missions in 1977 to explore the solar system. They transmitted images of the outer planets and their moons back to Earth.

Weather: Weather is the state that the atmosphere such as how hot or cold it is, or if there is precipitation (like rain).

NAME: _____

Solar System Word Search Challenge

A M R U M B A V L F D R M S W
R S E E T U O R A G I O G O Y
O Y T F P Y I H G N N T U L B
E C W E A P R L G P T C B A A
T V O G R E I N E E I E G R L
E T E M N O E D N H E L C S Y
M R J H E G I A G G K F X Y M
A W E D O T L D J I G E P S E
Q I D R W P Y I B K B R M T T
T W D E C A P S R E T U O E H
H Y Q U N R A T S D L K O M A
H L A R B S P H E R E T N X N
T R O T A T I O N P M O J J E
R S Y M U L B T A U V A F F S
R E H T A E W E Y L R H X E Y

WORD BANK

ASTEROIDBELT
BIGDIPPER
COMET
DENSITY
FAHRENHEIT
HELIUM
HYDROGEN

METEOR
METHANE
MOON
OUTERSPACE
PLANET
REFLECTOR
RING

ROTATION
SOLARSYSTEM
SPHERE
STAR
VOYAGER
WEATHER

Solar System Word Search

Answer Key

A + R + M + + V + F + R + S +
 R S + E + U O + A + I O + O +
 O + T + P Y I H + N + T + L +
 E C + E A P R L G + T C + A +
 T + O G R E I N E E + E + R +
 E + E M N O E D N H + L + S +
 M R + H E G I A G + + F + Y M
 + + E + O T L D + I + E + S E
 + I D R + P + + B + B R M T T
 T + D E C A P S R E T U O E H
 + Y + + N R A T S + L + O M A
 H + + + + S P H E R E T N + N
 + R O T A T I O N + + + + + E
 + + + + + + + T + + + + + + +
 R E H T A E W + Y + + + + + +

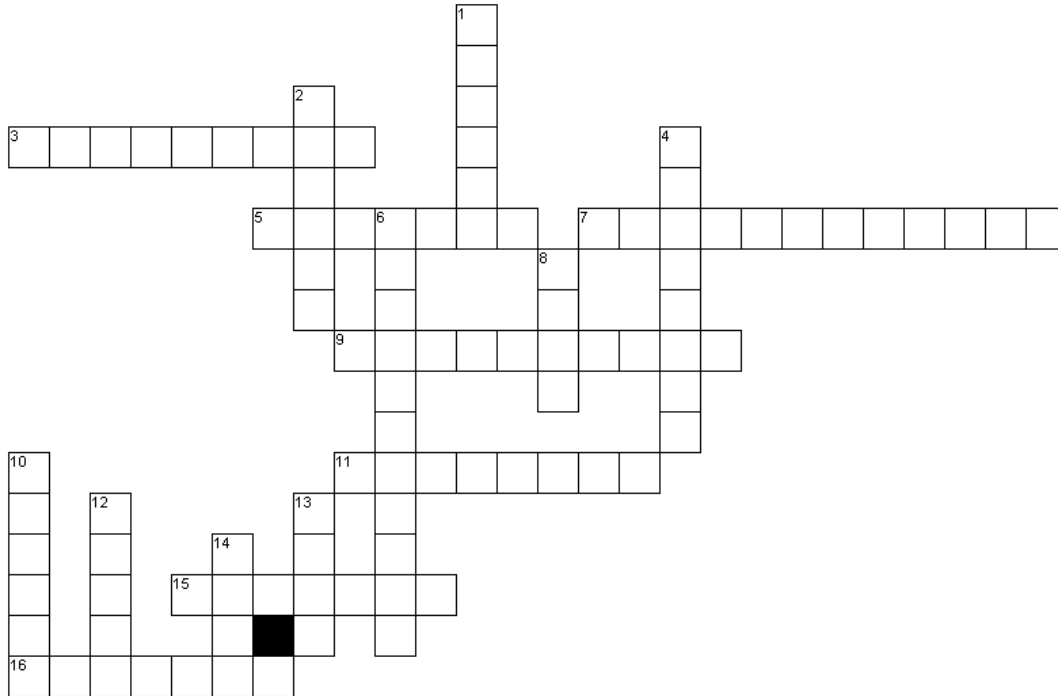
Word Location (Over,Down,Direction)

ASTEROIDBELT(1,1,SE)
 BIGDIPPER(11,9,NW)
 COMET(2,4,SE)
 DENSITY(3,9,SE)
 FAHRENHEIT(10,1,SW)
 HELIUM(10,6,NW)
 HYDROGEN(1,12,NE)
 METEOR(1,7,N)
 METHANE(15,7,S)
 MOON(13,9,S)

OUTERSPACE(13,10,W)
 PLANET(6,9,NE)
 REFLECTOR(12,9,N)
 RING(12,1,SW)
 ROTATION(2,13,E)
 SOLARSYSTEM(14,1,S)
 SPHERE(6,12,E)
 STAR(9,11,W)
 VOYAGER(8,1,SW)
 WEATHER(7,15,W)

NAME: _____

Solar System Crossword Puzzle



Across

3. A group of 7 stars in the constellation Ursa Major
5. The mass of an object related to volume
7. A region of the solar system between the orbits of Mars and Jupiter
9. A temperature scale
11. An element with the atomic number 1
15. NASA launched these missions to explore the solar system
16. An odorless, colorless, flammable gas

Down

1. A large celestial body that orbits a star
2. A streak of light in the sky made by a meteoroid in the earth's atmosphere
4. A spinning motion of a planet about its axis.
6. A group of planets, moons, asteroids, and comets that orbit around the sun
8. Planets orbited by rocks, ice and/or dust have these features
10. An element with the atomic number 2
12. A ball of ice and dust
13. A glowing ball of gas
14. A planet's satellite

Solar System

Crossword Puzzle Answer Key

```

                P
                L
                A
    M            N            R
B I G D I P P E R    E            O
                T            E            O
                D E N S I T Y    A S T E R O I D B E L T
                O O            R A
                R L            I T
                F A H R E N H E I T
                R            G O
                S            N
H            H Y D R O G E N
E            S
L            M            T
I            V O Y A G E R
U            O            M
M E T H A N E

```

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Solar System Bingo

Mercury
Venus
Moon
Mars

Neptune
Pluto
Asteroid
Saturn

Uranus
Jupiter
Comet
Planet

Star
Meteor
Ring
Voyager

Solar System Bingo

Mercury
Venus
Moon
Mars

Neptune
Pluto
Asteroid
Saturn

Uranus
Jupiter
Comet
Planet

Star
Meteor
Ring
Voyager

Solar System Bingo Clues

These are found between Mars and Jupiter	A ball of ice and dust whose orbit is a long, narrow ellipse	A streak of light in the sky	A large body that orbits around a planet
A large body that orbits a star	Rock, ice and dust that orbits a planet	A glowing ball of gas	NASA launched two missions to explore the solar system
Planet with a Great Red Spot	Planet with many rings	Planet that glows blue	Planet that is 7th from the Sun
Planet second from the Sun	Hot Planet	The Red Planet	Planet furthest from the Sun

Solar System Bingo Answers

Asteroids	Comet	Meteor	Moon
Planet	Rings	Star	Voyager
Jupiter	Saturn	Neptune	Uranus
Venus	Mercury	Mars	Pluto

Planets in Our Solar System

Name	Distance from Sun (miles)	Diameter (miles)	Orbit (In Earth hours, days, or years)	Rotation (Earth hours and days)	Moons	Color
Mercury	36,000,000	3,030	88 days	59 days	0	BRIGHT GRAY
Venus	67,000,000	7,520	225 days	243 days	0	PALE YELLOW
Earth	93,000,000	7,925	365.26 days	24 hours	1	BLUE-GREEN
Mars	142,000,000	4,222	1.9 years	24 hours	2	RED
Jupiter	484,000,000	88,750	11.8 years	10 hours	18 named	MULT-COLOR BANDS
Saturn	887,000,000	74,600	29.5 years	10 hours	18 named	GOLD
Uranus	1784,000,000	32,600	84 years	18 hours	5 large and many small (13)	BLUE
Neptune	2,794,000,000	30,200	165 years	19 hours	3 main and 5 small	BLUE-GREEN
Pluto	3675,000,000	1,413	248 years	6 days	1	DULL GRAY