The Little Star That Could

Grades 3 - 6 Education Guide

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"The Little Star That Could"
Grades 3 – 6 Education Guide

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* The State Standards included are standards that are included in 20 or more states' core science standards according to "Astronomy in the K-8 Core Curriculum: A Survey of State Requirements Nationwide" written by Stacey Palen and AmyJo Proctor, Weber State University

National Core Curriculum Standards in Science:

- The Sun has properties that can be observed and described. (K - 4 Standard)
- The Sun provides the light and heat necessary to maintain the temperature of the Earth. (K - 4 Standard)
- The Earth is the third planet from the Sun in a system that includes the Moon, the Sun, seven other planets and their moons, and smaller objects, such as asteroids and comets. The Sun, an average star, is the central and largest body in the Solar System. (5 – 8 Standard)
- Gravity is the force that keeps planets in orbit around the Sun and governs the rest of the motion in the Solar System. (5 – 8 Standard)

The AAAS Benchmarks for Literacy in Science:

- The Earth is one of several planets that orbit the Sun. (3- 5 Benchmark)
- Stars are like the Sun, some being smaller and some larger, but so far away that they look like points of light. (3 – 5 Benchmark)
- Eight planets of very different sizes, composition, and surface features move around the Sun. Some planets have a great variety of moons and even flat rings of rock and ice particles orbiting around them. The Earth is orbited by one moon. (6 – 8 Benchmark)
- Large numbers of chunks of rock orbit the Sun. (6 – 8 Benchmark)
- The Sun's gravitational pull holds the Earth and other planets in their orbits. (6 – 8 Benchmark)

Astronomy State Science Topics (grade level varies based on state):

- Sun properties
- Planets/Solar System
- Inner/Outer planet characteristics
- Earth's position in the Solar System
- Gravitational attraction
- Asteroids
- Star properties
- Galaxies

Pre-Program Lesson Plans:

- Pre-Survey Questionnaire
- Lesson 1 – "The Little Star That Could" Vocabulary With Assessment
- Lesson 2 – "The Little Star That Could" Compare and Contrast Planets and Stars With Assessment
- Lesson 3 – "The Little Star That Could" Sun-Earth Connection Storyboard and Assessment
- Lesson 4 – "The Little Star That Could" Stellar Temperature and Color (**Use Assessment as a Post-Program Activity**).

Post-Program Lesson Plans:

- Lesson 4 – "The Little Star That Could" Stellar Temperature and Color **Assessment**
- Lesson 5: Multiple Intelligence (Howard Gardner's Theory) Mini-Lessons and Assessments on the Solar System
- Post-Survey Questionnaire

The pre- and post- survey questionnaire may be used to help determine the overall effectiveness of this program and the supplemental educational tools provided. Students should be given the survey prior to any instruction or exposure to the program and/or the educational materials included. Student pre-survey scores should be recorded.

Upon completion of the program and the utilization of the educational tools provided, the same group of students should be given the same survey. The post-survey scores can be compared to the pre-survey scores to help determine the overall effectiveness of this program and the supplemental materials.

Name _____Grade_____

"The Little Star That Could" Survey

1) A large body that revolves around the Sun in the solar system is called a:
   a) Star
   b) Moon
   c) Planet
   d) Galaxy

2) Stars and planets are similar because:
   a) they are both round in shape
   b) they are both members of a solar system
   c) they can both come in different colors
   d) all of the above

3) The Sun is considered to be
   a) an average star
   b) a hotter than average star
   c) a cooler than average star
   d) a planet

4) What color are the hottest stars?
   a) red
   b) blue
   c) yellow
   d) white

5) What color are the coolest stars?

a) red
b) blue
c) yellow
d) white

6) Which object provides the heat and light for the solar system?

a) The Moon
b) The Earth
c) The Sun
d) The stars

7) The dwarf planet that is located past the planet Neptune is called:

a) Ceres
b) Pluto
c) Earth
d) Jupiter

8) The only planet in the solar system that we know supports life.

a) Ceres
b) Pluto
c) Earth
d) Jupiter

9) A natural body visible in the sky especially at night that gives off light is called a:

a) planet
b) moon
c) dwarf planet
d) star

10) Which planet comes next starting from the Sun out to Pluto: Mercury, Venus, Earth, Mars, Jupiter, _____.

a) Saturn
b) Uranus
c) Neptune
d) Pluto

"The Little Star That Could" Survey Answer Key

1) c – planet

2) d –all of the above

3) a – an average star

4) b – blue

5) a - red

6) c – The Sun

7) b – Pluto

8) c – Earth

9) d – star

10) a - Saturn

Name _____

Grade ____

"The Little Star That Could"
Vocabulary Web Search

Objectives: Students will write their preconceived definitions of "The Little Star That Could" vocabulary terms. Students will search the web for the formal definitions of these vocabulary terms. Students will reflect on their preconceived definitions as they compare them to the formal definitions. Students will match each vocabulary term to its correct formal definition.

Procedures:

1. Explore prior knowledge – Ask students to write down what they believe is the definition of each term on the worksheet. This should be done with no outside help.
2. Explore formal definitions – Have students search the web for the formal definition of each term. They should write the formal definition on the second line for each term on the worksheet.
3. Reflection – Have students compare their preconceived definition to the formal definition for each term. They should follow the directions on the worksheet to indicate how close their preconceived definition was to the formal definition. Use this self-reflection activity as a way to determine the overall prior knowledge of the class with these terms.
4. Class discussion and summary – As a class review the formal definitions that were found on the web. Place an overhead of "The Little Start That Could" Vocabulary Answer Key up for students to see. Compare these definitions to the definitions that students found on the web.

Assessment: Students will independently match (by drawing a connecting line) each correct word to its definition.

Modification/ Accommodations: If access to the web is difficult, supply the class with dictionaries or encyclopedias. Students may work in groups to assist with this modification.

Name _____

Grade ____

"The Little Star That Could"

Vocabulary Web Search

Directions: On the first line, write what you think is the definition of the term. Next, search the web to find the formal definition of each term and write it on the line below your definition.

When you complete your web search do the following:

Circle "Little Star" if your definition matched the formal definition
Circle "Big Daddy" if your definition was close to the formal definition
Circle "Pearl" if your definition was not close to the formal definition

Average –

Your Definition_____

Formal Definition_____

_____



Planet –

Your Definition_____

Formal Definition_____

_____



Star–
Your Definition_____

Formal Definition_____

_____



Sun –
Your Definition_____

Formal Definition_____

_____



Moon –
Your Definition_____

Formal Definition_____

_____



Gravity –
Your Definition_____

Formal Definition_____

_____



Milky Way Galaxy –
Your Definition_____

Formal Definition_____

_____



Globular Cluster –
Your Definition_____

Formal Definition_____

_____



Lesson 1: "The Little Star That Could" Vocabulary Answer Key (From the Merriam-Webster Dictionary)

Average – (adjective) being about midway between extremes, not out of the ordinary: Common

Planet – any of the large bodies that revolve around the sun in the solar system

Star – **a:** a natural luminous body visible in the sky especially at night **b:** a self-luminous gaseous spheroidal celestial body of great mass which produces energy by means of nuclear fusion reactions

Sun – the luminous celestial body around which the earth and other planets revolve, from which they receive heat and light, which is composed mainly of hydrogen and helium

Moon – the earth's natural satellite that shines by reflecting light from the sun and revolves about the earth in about 29½ days

Gravity – a force of attraction between particles or bodies that occurs because of their mass, is stronger as mass is increased, and is weaker as the distance between the objects is increased

Milky Way Galaxy – the galaxy of which the sun and the solar system are a part and which contains the myriads of stars that create the light of the Milky Way

Globular Cluster - any of various approximately spherical clusters of gravitationally associated stars that typically populate galactic halos

Name _____

Grade ____

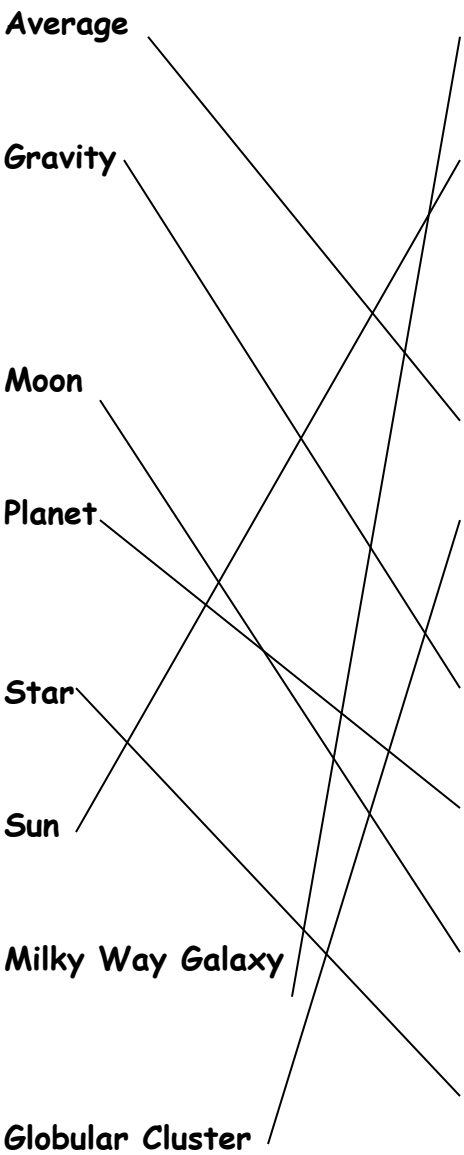
"The Little Star That Could"
Vocabulary Assessment

Directions: Match the word to its definition by drawing a line to the correct definition.

Average	a) the galaxy of which the sun and the solar system are a part and which contains the myriads of stars
Gravity	b) the luminous celestial body around which the earth and other planets revolve, from which they receive heat and light, which is composed mainly of hydrogen and helium
Moon	c) being about midway between extremes, not out of the ordinary
Planet	d) any of various approximately spherical clusters of gravitationally associated stars that typically populate galactic halos
Star	e) a force of attraction between particles or bodies that occurs because of their mass
Sun	f) any of the large bodies that revolve around the Sun in the solar system
Milky Way Galaxy	g) the earth's natural satellite that shines by reflecting light from the sun and revolves about the earth in about 29½ days
Globular Cluster	h) a self-luminous gaseous spheroidal celestial body of great mass which produces energy by means of nuclear fusion reactions

Lesson 1: "The Little Star That Could" Vocabulary Assessment Answer Key

Directions: Match the word to its definition by drawing a line to the correct definition.



a) the galaxy of which the sun and the solar system are a part and which contains the myriads of stars

b) the luminous celestial body around which the earth and other planets revolve, from which they receive heat and light, which is composed mainly of hydrogen and helium

c) being about midway between extremes, not out of the ordinary

d) any of various approximately spherical clusters of gravitationally associated stars that typically populate galactic halos

e) a force of attraction between particles or bodies that occurs because of their mass

f) any of the large bodies that revolve around the Sun in the solar system

g) the earth's natural satellite that shines by reflecting light from the sun and revolves about the earth in about 29½ days

h) a self-luminous gaseous spheroidal celestial body of great mass which produces energy by means of nuclear fusion reaction

Name _____

Grade ____

"The Little Star That Could"
Compare and Contrast Planets and Stars

Objectives: Students will list characteristics of stars and planets. Students will be able to identify five characteristics of planets and stars (each) that are different from one another. Students will be able to identify five characteristics that are similar between planets and stars.

Procedures:

1. Explore prior knowledge – Give each student a "Compare and Contrast Planets and Stars" worksheet. Ask them each to fill out the worksheet independently for 5 -7 minutes. They should write down as many characteristics as they can in each of the columns on the worksheet.
2. Cooperative sharing – Separate students into groups of 2 or 3. Students should share their answers with the other members of their groups. Students should add any new information that they learned from another group member to their worksheet.
3. Determine student confidence with prior knowledge – By looking at the groups' worksheets, determine the approximate number of correct answers they have listed in each column.
4. Create a master Compare and Contrast worksheet – Have each group report their answers to the class. Record all correct characteristics on the master. Have students include all of the class answers on their worksheet.

Assessment: Students will independently fill out the assessment worksheet.

Modification/ Accommodations: If students struggle with coming up with 5 characteristics, allow them to reference books or the Internet.

Name _____

Grade ____

"The Little Star That Could"

Compare and Contrast Planets and Stars

Directions: In the table below, list characteristics that are unique to planets in the left column, characteristics that are unique to stars in the right column, and characteristics that are shared by planets and stars in the middle column.

Planets	Planets and Stars	Stars

Lesson 2: "The Little Star That Could"
Compare and Contrast Planets and Stars Answer Key

Directions: In the table below, list characteristics that are unique to planets in the left column, characteristics that are unique to stars in the right column, and characteristics that are shared by planets and stars in the middle column.

Planets	Planets and Stars	Stars
Orbit a star	Are objects in space	Are relatively stationary objects in the Universe
Do not produce their own visible light	Are round in shape	Produce their own light
Reflect light from a star	Are members of a solar system	Burn through nuclear fusion
Relatively small objects in the Universe	Can have objects orbiting them	Relatively large objects in the Universe
Can be composed of solid, liquid or gaseous materials	Can be different colors	Usually made of the gases hydrogen and helium
Can have orbiting moons	Form from nebulae	Can have orbiting planets
Can have ring systems		"Live" for millions to billions of years
		Can "die" through explosions or fading out over time

Name _____

Grade ____

"The Little Star That Could"
Compare and Contrast Planets and Stars Assessment

Directions:

1. Put a number "1" in the boxes next to the five characteristics below that are unique to planets.
2. Put a number "2" in the boxes next to the five characteristics below that are unique to stars.
3. Put a number "3" in the boxes next to the five characteristics below that are shared by both planets and stars.

Orbit a star ☐	Produce their own light ☐
Round in shape ☐	Are objects in space ☐
Are relatively stationary objects in the Universe ☐	Do not produce their own visible light ☐
Relatively small objects in the Universe ☐	Burn through nuclear fusion ☐
Can be composed of solid, liquid or gaseous materials ☐	Can have ring systems ☐
Usually made of the gases hydrogen and helium ☐	Can be different colors ☐
Members of a solar system ☐	Can "die" through explosions or fading out over time ☐
	Form from nebulae ☐

Lesson 2: "The Little Star That Could"
Compare and Contrast Planets and Stars Assessment Answer Key

Directions:

1. Put a number "1" in the boxes next to the five characteristics below that are unique to planets
2. Put a number "2" in the boxes next to the five characteristics below that are unique to stars
3. Put a number "3" in the boxes next to the five characteristics below that are shared by both planets and stars

Orbit a star [1]	Produce their own light [2]
Round in shape [3]	Are objects in space [3]
Are relatively stationary objects in the Universe [2]	Do not produce their own visible light [1]
Relatively small objects in the Universe [1]	Burn through nuclear fusion [2]
Can be composed of solid, liquid or gaseous materials [1]	Can have ring systems [1]
Usually made of the gases hydrogen and helium [2]	Can be different colors [3]
Members of a solar system [3]	Can "die" through explosions or fading out over time [2]
	Form from nebulae [3]

Name _____

Grade ____

"The Little Star That Could"
Sun-Earth Connection Research

Objectives: Students will be able to state three ways that the Sun affects life on Earth.

Procedures:

1. Explore prior knowledge – As a class, discuss how the Sun and Earth are connected (the Earth orbits the Sun, the Earth receives heat and light from the Sun which is needed to sustain life on Earth, etc.).
2. Further explore topic – Have students research facts on how the Sun affects life on Earth. Students will fill out the research notes page listing facts that they find through their research. *(Answers will vary)*
3. Summary – As a class, discuss what students learned about the Sun-Earth connection from their research. Discuss the national standard, "The Sun provides the light and heat necessary to maintain the temperature of the Earth" and how this is important for life on Earth.

Assessment: Writing across the curriculum – Using their research notes students will write a one-paragraph summary (in their own words) describing how the Sun affects life on Earth. They should include at least three facts that they found in their research.

Modification/ Accommodations: If students do not have access to computers have them research the Sun-Earth connections using books and magazines.

Name _____

Grade ____

"The Little Star That Could"
Sun-Earth Connection Research

Directions: Using the web, research facts on how the Sun affects life on Earth. List the facts that you found on the lines below.

Fact 1: _____

_____

_____

Fact 2: _____

_____

_____

Fact 3: _____

_____

_____

Fact 4: _____

_____

_____

Fact 5: _____

_____

_____

Name _____

Grade ____

"The Little Star That Could"
Sun-Earth Connection Assessment

Directions: Using your Sun-Earth connection research notes, write a one-paragraph summary (in your own words) describing how the Sun affects life on Earth. You paragraph should include at least three different facts from your research.

Name _____

Grade ____

"The Little Star That Could"
Stellar Temperature and Color

Objectives: Students will discover that there is a relationship between a star's color and its temperature. Students will see that this relationship is displayed on a Hertzsprung-Russell (H-R) Diagram. Students will create their own H-R Diagram demonstrating their understanding of the relationship between stellar temperature and color.

Procedures:

1. Introduction – As a class, discuss ways that stars can appear different from one another. List the students' answers on the board. These may include brightness, size and color. This lesson will focus on how stellar color, like the color of a flame, is related to its temperature.
2. Class discussion – Give each student a copy of the "Stellar Temperature and Color Hertzsprung-Russell Diagram (H-R Diagram)" worksheet. Review the colors of the stars that correspond with the various noted temperatures on the H-R Diagram. Discuss the location of the stars on the diagram, in particular the Main Sequence. Discuss how scientists use this diagram to help determine the relative age of a star. For more information, students may visit: http://www.kidsastronomy.com/academy/lesson210_assignment4_7.htm

Assessment: Give each student copies of the "The Little Star That Could" Stellar Temperature and Color Hertzsprung-Russell Diagram Assessment worksheets (The star images and H-R Diagram worksheets). Have students cut out each star on the Images worksheet. Next, students should glue the star images onto the H-R Diagram at the approximate location the star should be placed.

Modification/ Accommodations: Students may work in small groups or if preferred.

Name _____

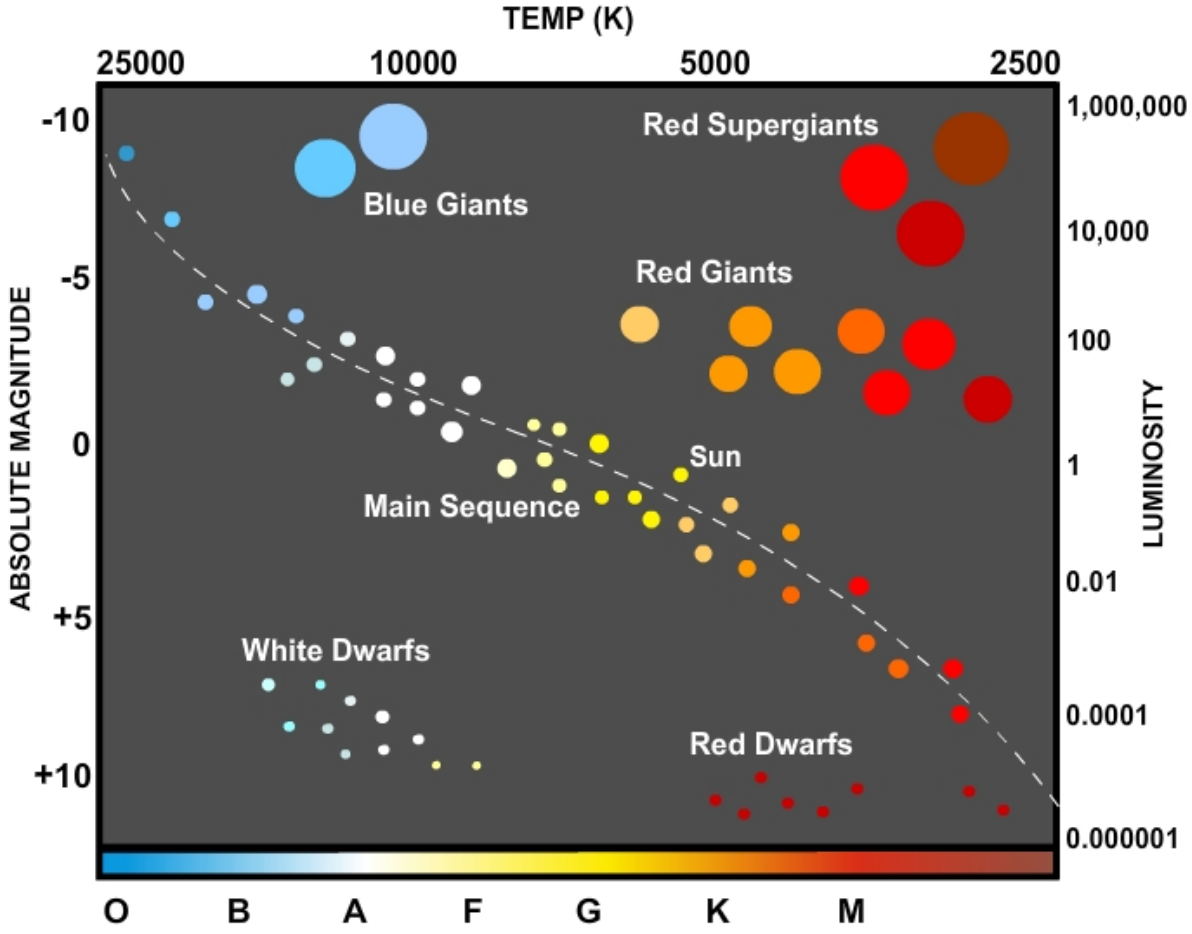
Grade ____

"The Little Star That Could"

Stellar Temperature and Color

Hertzsprung-Russell Diagram (H-R Diagram)

The H-R Diagram shows the relationship between the magnitude, color, luminosity, classification and temperature of star. This diagram helps scientist understand the evolution of stars ("life of" a star). The hottest (and younger) stars are towards the left of the diagram (blue in color) and the coolest (and older) stars are to the right of the diagram (red in color).

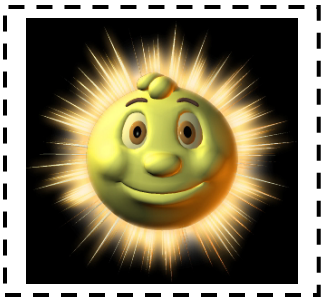


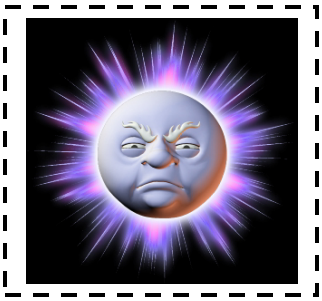
Name _____

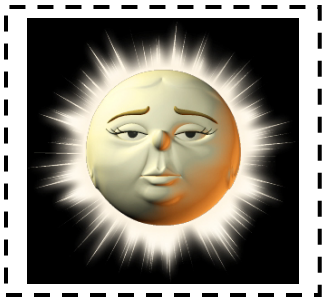
Grade ____

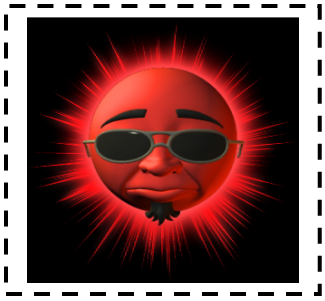
"The Little Star That Could"
Stellar Temperature and Color
Hertzsprung-Russell Diagram (H-R Diagram) ***Assessment***

Directions: Create an H-R Diagram with the stars below by cutting them out and placing them on "The Little Star That Could" H-R Diagram page. Assume all of the stars are Main Sequence, except for "Pearl" who is a Supergiant. Use the stars' colors to guide you.









Name _____

Grade ____

"The Little Star That Could"
Stellar Temperature and Color
Hertzsprung-Russell Diagram (H-R Diagram) **Assessment**

"The Little Star That Could" H-R Diagram

20,000	14,000	10,000	7,000	5,000	3,500	2,500

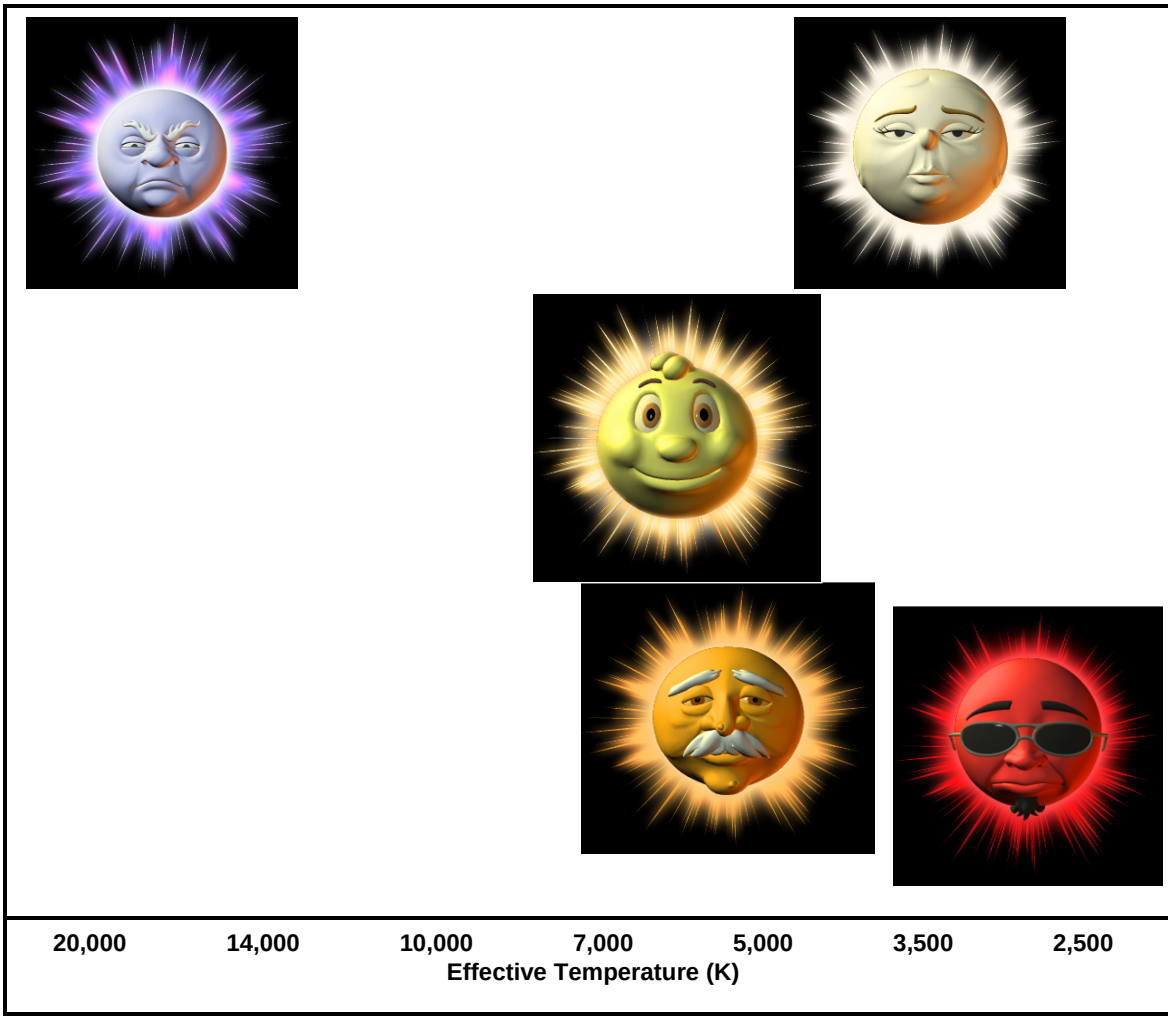
Effective Temperature (K)

Name _____

Grade ____

"The Little Star That Could"
Stellar Temperature and Color
Hertzsprung-Russell Diagram (H-R Diagram) **Assessment Key**

"The Little Star That Could" H-R Diagram



Name _____

Grade ____

"The Little Star That Could"
Multiple Intelligence
(Howard Gardner's Theory) Mini-Lessons of the Solar System

Objectives: Students will select one or more of the multiple intelligence mini-lessons to recognize characteristics of objects in our solar system. Students will complete a "project appendix page" for their selected mini lesson. These "project appendix pages" may be used an assessment on solar system knowledge. (Note: some solar system knowledge, or access to knowledge, will be necessary for these lessons.)

Procedures:

1. As a class discuss the following solar system topics. (This can be done through a class brainstorming list or teacher lead lecture.)

- The order of the planets from the Sun to Neptune
- Jupiter is the largest planet in the solar system
- Earth is the only planet that we know of with life
- The existence of dwarf planets, in particular Ceres (the largest object in the Asteroid Belt between Mars and Jupiter) and Pluto
- The distinction between the inner and outer planets. Inner planets include Mercury, Venus, Earth and Mars. These planets are relatively small, rocky planets with no or few moons. Outer planets include Jupiter, Saturn, Uranus and Neptune. These planets are relatively large, gaseous planets with many moons and ring systems.

2. Students select one or more of the following mini-lessons and follow the directions on the corresponding "project appendix page". These lessons are

designed to meet various learning styles. The learning styles have been categorized and defined by Howard Gardner.

- Visual/Spatial – Create a visual model of the solar system (Appendix A)
- Verbal/Linguistic – Match solar system object characteristics (Appendix B).
- Logical/Mathematical – Classify solar system objects (Appendix C).
- Body/Kinesthetic – Role play solar system objects (Appendix D)
- Musical/Rhythmic - Create a solar system song (Appendix E)
- Interpersonal – Share solar system information cards (Appendix F)
- Intrapersonal – Independent KWL of the solar system (Appendix G)
- Naturalist – Solar system surveillance (Appendix H)

Note: Each mini-lesson includes or assesses the following solar system information:

- The correct order of these solar system objects from the Sun out to Pluto (Sun, Mercury, Venus, Earth, Mars. Ceres, Jupiter, Saturn, Uranus, Neptune, Pluto)
- Jupiter is the largest planet in the solar system
- Ceres and Pluto are the two objects that are included that are Dwarf Planets
- The Earth is the planet that supports life
- The Sun provides the light and heat for the solar system
- The division between the inner and outer planets is between Mars and Jupiter (near Ceres)

Assessment: Each mini-lesson has an activity or project that can be used as an assessment.

Modification/ Accommodations: The number of mini-lessons assigned to each student can be designed to meet individual students' abilities.

Name _____

Grade ____

"The Little Star That Could"
Appendix A (Visual/Spatial)
Create a Model of the Solar System

Create a visual 2-dimensional model of the solar system including the following objects: Sun, Mercury, Venus, Earth, Mars, Ceres, Jupiter, Saturn, Uranus, Neptune, and Pluto.

Directions:

1. Cut out each of the solar system object cards.
2. Review the information on each of the 11 solar system object cards.
3. Paste the objects in the correct order from closest to the Sun out to Pluto.
4. Put a circle around the largest planet.
5. Put triangles around the two Dwarf Planets.
6. Put a square around the planet that supports life.
7. Put a rectangle around the object that provides the light and heat for the solar system.
8. Place a line at the separation between the inner planets and the outer planets (near Ceres).

Name _____

Grade ____

"The Little Star That Could"
Appendix B (Verbal/Linguistic)
Matching Solar System Objects

Directions:

1. Match each solar system object to its unique characteristic. *The objects are listed in order from the Sun out to Pluto.*
2. Put a circle around the name of the largest planet.
3. Put triangles around the two names of the Dwarf Planets.
4. Put a square around the name of the planet that supports life.
5. Put a rectangle around the name of the object that provides the light and heat for the solar system.
6. Place a line at the separation between the inner planets and the outer planets (near Ceres).

Sun	____	a. The closest planet to the Sun
Mercury	____	b. Contains the famous "red spot"
Venus	____	c. Neptune's "twin" planet
Earth	____	d. Known for its large ring system
Mars	____	e. The planet farthest from the Sun
Ceres	____	f. The hottest planet
Jupiter	____	g. At the center of the solar system
Saturn	____	h. Covered with lots of liquid water
Uranus	____	i. Largest object in the asteroid belt
Neptune	____	j. The red planet
Pluto	____	k. Dwarf planet located past Neptune

Lesson 5: Appendix B (Verbal/Linguistic)
Matching Solar System Objects Answer Key

Sun	g	a. The closest planet to the Sun
Mercury	a	b. Contains the famous "red spot"
Venus	f	c. Neptune's "twin" planet
Earth	h	d. Known for its large ring system
Mars	j	e. The planet farthest from the Sun
Ceres	i	f. The hottest planet
Jupiter	b	g. At the center of the solar system
Saturn	d	h. Covered with lots of liquid water
Uranus	c	i. Largest object in the asteroid belt
Neptune	e	j. The red planet
Pluto	k	k. Dwarf planet located past Neptune

Name _____

Grade ____

"The Little Star That Could"
Appendix C (Logical/Mathematical)
Classifying Solar System Objects

Classify each solar system object using the "Classifying Solar System Objects Chart".

Directions:

1. Cut out each of the solar system object cards.
2. Review the information on each of the 11 solar system object cards.
3. Paste each solar system object in the correct place on the "Classifying Solar System Objects" chart.
4. Put a circle around the largest planet.
5. Put a square around the name of the planet that supports life.
6. Write the name of the object that does not fit on the chart. This object provides the light and heat for the solar system. _____
7. On the lines below, write the name of all of these solar system objects in the correct order from the Sun out to Pluto. Place a line at the separation between the inner planets and the outer planets.

_____ _____

_____ _____

_____ _____

_____ _____

_____ _____

_____

Name _____

Grade ____

"The Little Star That Could"
Appendix C (Logical/Mathematical)
Classifying Solar System Chart

Inner Planets	Outer Planets	Dwarf Planets

Lesson 5: Appendix C (Logical/Mathematical)
Classifying the Solar System Chart Answer Key

Inner Planets	Outer Planets	Dwarf Planets
Mercury	Jupiter	Ceres
Venus	Saturn	Pluto
Earth	Uranus	
Mars	Neptune	

Name _____

Grade ____

"The Little Star That Could"
Appendix D (Body/Kinesthetic)
Role-Playing the Solar System

Each student will be assigned one of the following solar system objects to role-play: Sun, Mercury, Venus, Earth, Mars, Ceres, Jupiter, Saturn, Uranus, Neptune, and Pluto. Students will receive a **large** solar system object card to identify their object.

Directions:

1. Review the information on your solar system object card.
2. Hold up your solar system object card for the class to see.
3. As a group, line up in the correct order from the Sun out to Pluto.
4. Each student, from the Sun out to Pluto, will present the information on his/her solar system object card to the class.
5. Each student representing a planet or a dwarf planet will take a turn to revolve around the Sun.
6. As a group students will complete the following tasks:

    - Put a circle around the name of the largest planet.
    - Put triangles around the two names of the Dwarf Planets.
    - Put a square around the name of the planet that supports life.
    - Put a rectangle around the name of the object that provides the light and heat for the solar system.
    - Place a book at the separation between the inner planets and the outer planets (near Ceres).

Name _____

Grade ____

"The Little Star That Could"
Appendix E (Musical/Rhythmic)
Singing the Solar System

Create a song about objects in the solar system. Instruments are optional. Students will submit a written version of their song and perform it for the class.

Directions:

1. Fill in the blanks for the solar system information lyrics below. Use the words in the word bank to fill in the blanks.

Word Bank		
Dwarf Planets	Mercury	Sun
Earth (used twice)	Neptune	Uranus
Jupiter (used three times)	Pluto	Venus
Mars (used twice)	Saturn	

a) _____ is the largest planet in the solar system.

b) Ceres and Pluto are considered to be _____ _____.

c) The only planet in our solar system that we know supports life is _____.

d) The _____ provides the light and heat for the solar system.

e) The inner planets include the following: _____, _____, _____, and _____.

f) The outer planets include the following: _____, _____, _____, and _____.

g) The separation between the inner and outer planets is between which two planets? _____ and _____.

2. Create a song about the solar system that includes three of the solar system information lyric sentences. Your song should also include the correct order of the solar system objects as stated below.

   Sun, Mercury, Venus, Earth, Mars, Ceres, Jupiter, Saturn, Uranus, Neptune, and Pluto

Name _____

Grade ____

"The Little Star That Could"
Appendix F (Interpersonal)
Solar System Sharing Cards

Working in groups of 4, each student will be responsible for mastering two or three of the solar system object cards. Students will present their solar system objects to the group. Students will work together to answer the questions at the bottom of this sheet.

Directions:

1. Each student will select 2 or 3 of the solar system cards.
2. Students will review the information on their cards.
3. Students will present the information on their cards to their group.
4. After each group member has shared their cards with the group, the group will work together on the following tasks:
   - Put your solar system object cards in order from the Sun out to Pluto.
   - Put a circle around the largest planet's name.
   - Put a triangle around the two Dwarf Planets' names.
   - Put a square around the planet where humans live.
   - Put a rectangle around the name of the object that provides the light and heat for the solar system.
   - Place a book at the separation between the inner planets and the outer planets (near Ceres).

Name _____

Grade ____

"The Little Star That Could"

Appendix G (Interpersonal)

Independent KWL of the Solar System

Fill in the solar system KWL chart independently.

Directions:

1. Using the KWL chart, fill in any information that you currently know about the solar system in the "K" column.
2. Think about and write anything that you want to know about the solar system in the "W" column.
3. Review the information on the 11 solar system object cards.
4. Pick 6 solar system object facts that you learned from the solar system cards. Write these learned facts in the "L" column.
5. Complete the following tasks:
    - Put your solar system object cards in order from the Sun out to Pluto.
    - Put a circle around the largest planet's name.
    - Put a triangle around the two Dwarf Planets' names.
    - Put a square around the planet where humans live.
    - Put a rectangle around the name of the object that provides the light and heat for the solar system.
    - Place a book at the separation between the inner planets and the outer planets (near Ceres).

Name _____

Grade ____

"The Little Star That Could"

Appendix G (Interpersonal)

Independent KWL of the Solar System

Solar System KWL Chart		
	L	
	W	
	K	

Name _____

Grade ____

"The Little Star That Could"
Appendix H (Naturalistic)
Solar System Surveillance

Search for visible solar system objects in the sky. The planets that are visible in the night sky without the aide of a telescope are Mercury, Venus, Mars, Jupiter and Saturn. The Sun of course can be seen during the day and the Moon can be seen during the day or night. The following solar system objects need some type of visual aide, like a telescope, to be seen: Ceres, Uranus, Neptune and Pluto.

Directions:

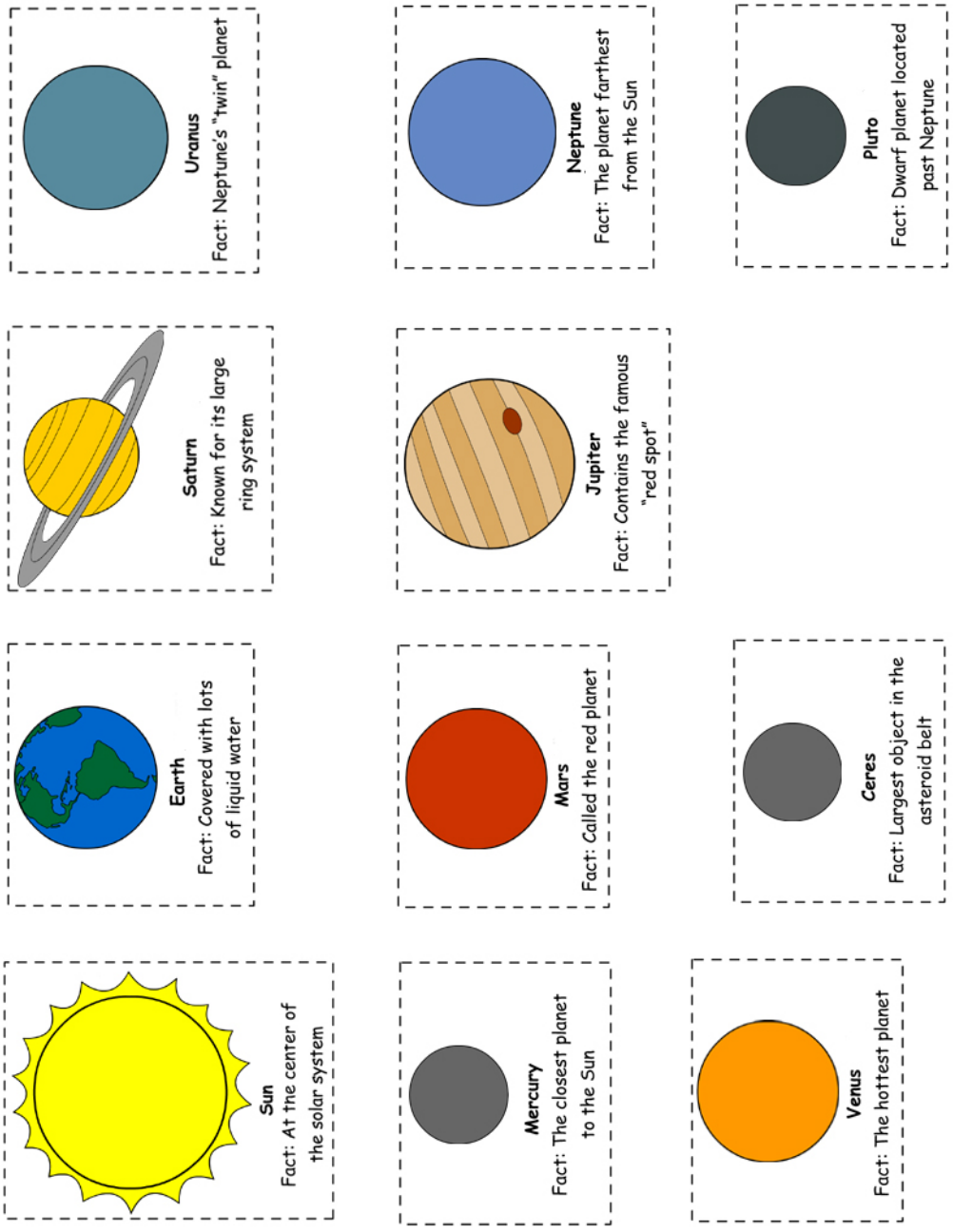
1. Using the internet, search to find out which planets are currently visible in the night sky at your location. Below are some possible websites to search:
   - http://www.space.com/spacewatch/sky_calendar.html
   - http://www.skyandtelescope.com/observing/ataglance
2. Circle the planets below that can be currently seen in the night sky at your location:

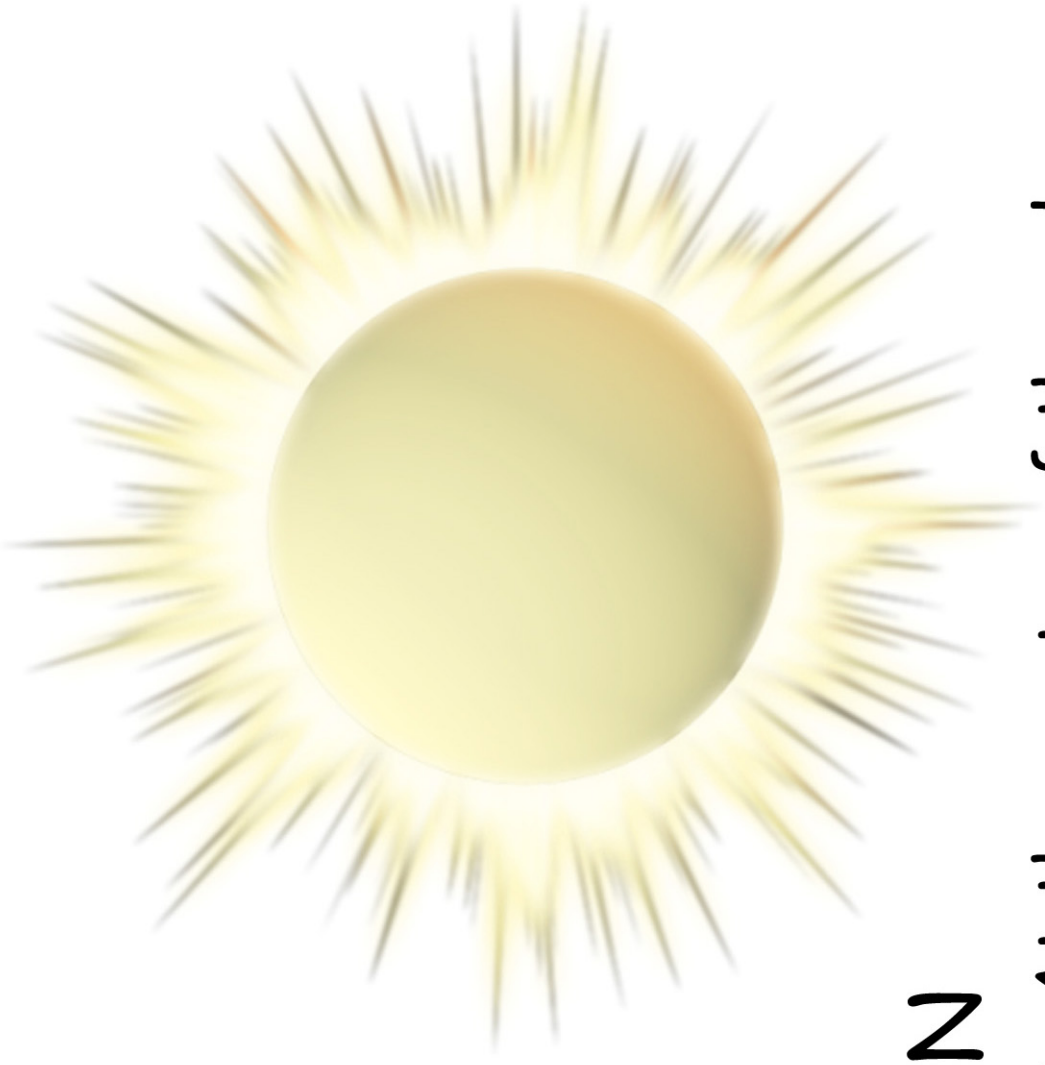
Mercury Venus Mars Jupiter Saturn

3. Review the information on all of the solar system object cards.
4. Complete the following tasks:

   - Put your solar system object cards in order from the Sun out to Pluto.
   - Put a circle around the largest planet's name.
   - Put a triangle around the two Dwarf Planets' names.
   - Put a square around the planet where humans live.
   - Put a rectangle around the name of the object that provides the light and heat for the solar system.
   - Place a book at the separation between the inner planets and the outer planets (near Ceres).

Solar System Object Cards





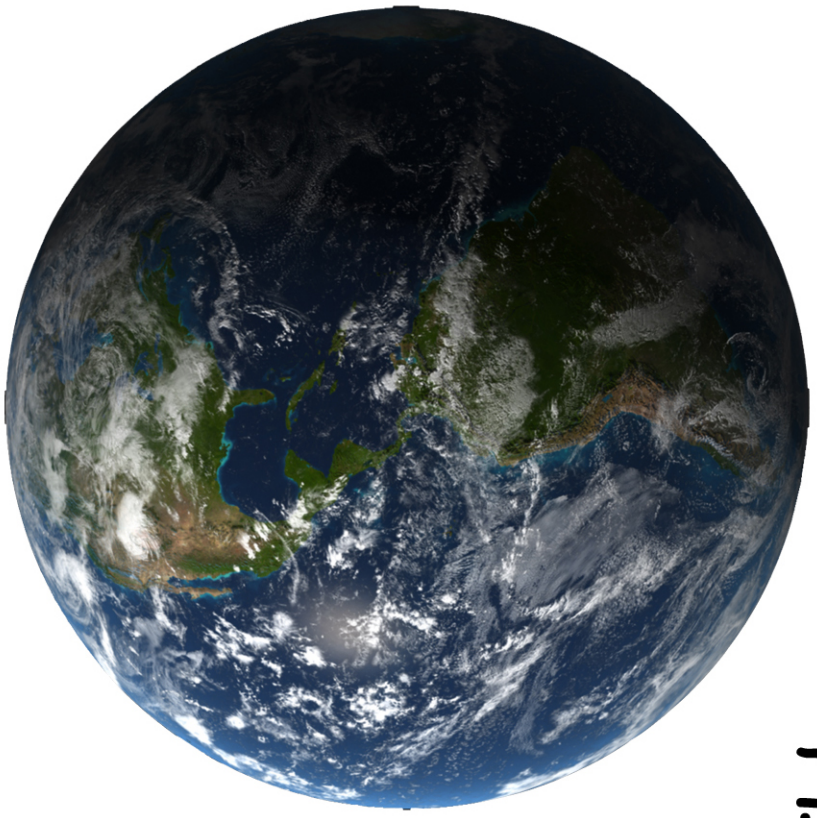
SUN

Fact: At the center of the solar system

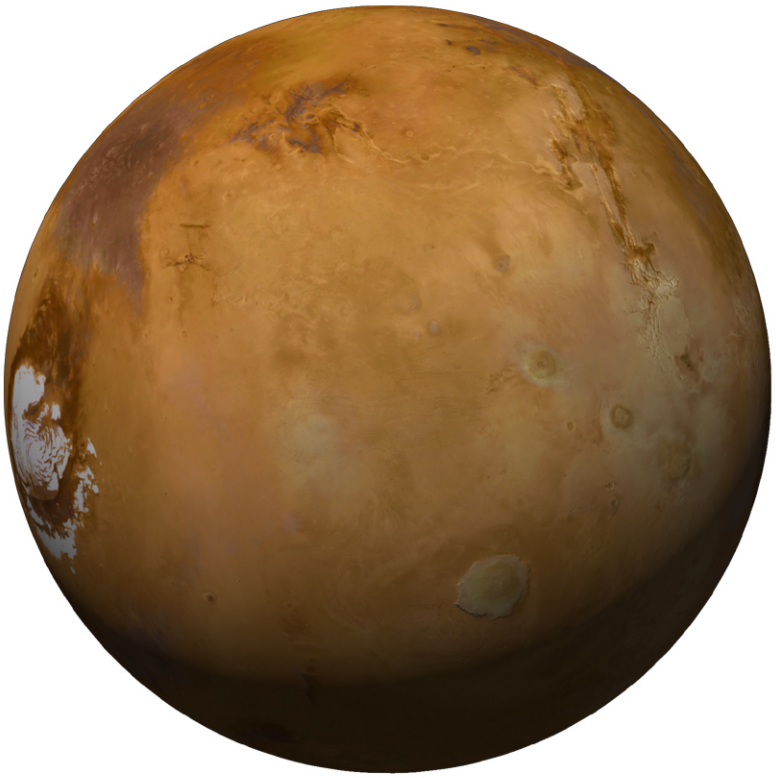
MERCURY

Fact: The closest planet to the sun

VENUS
Fact: The hottest planet



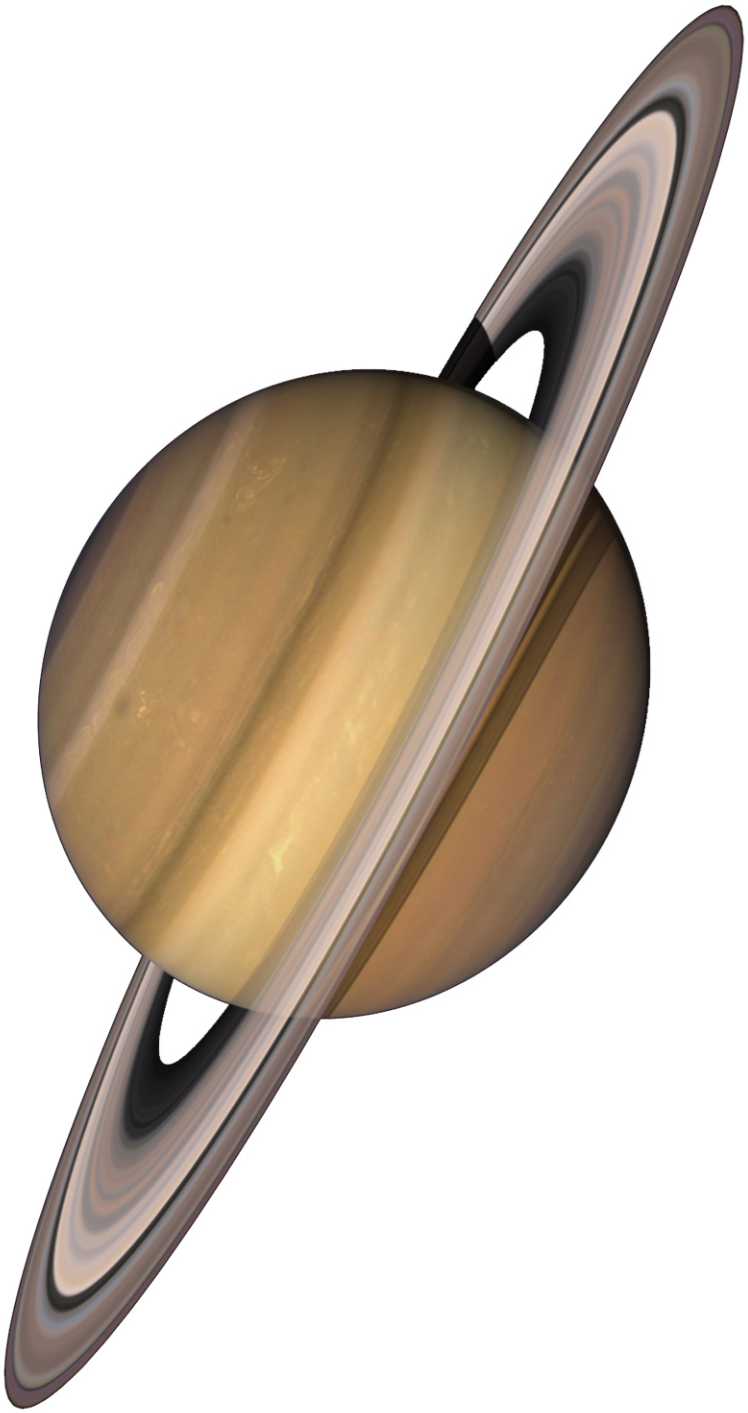
EARTH
Fact: Covered withlots of liquid water



MARS
Fact: Called the Red Planet

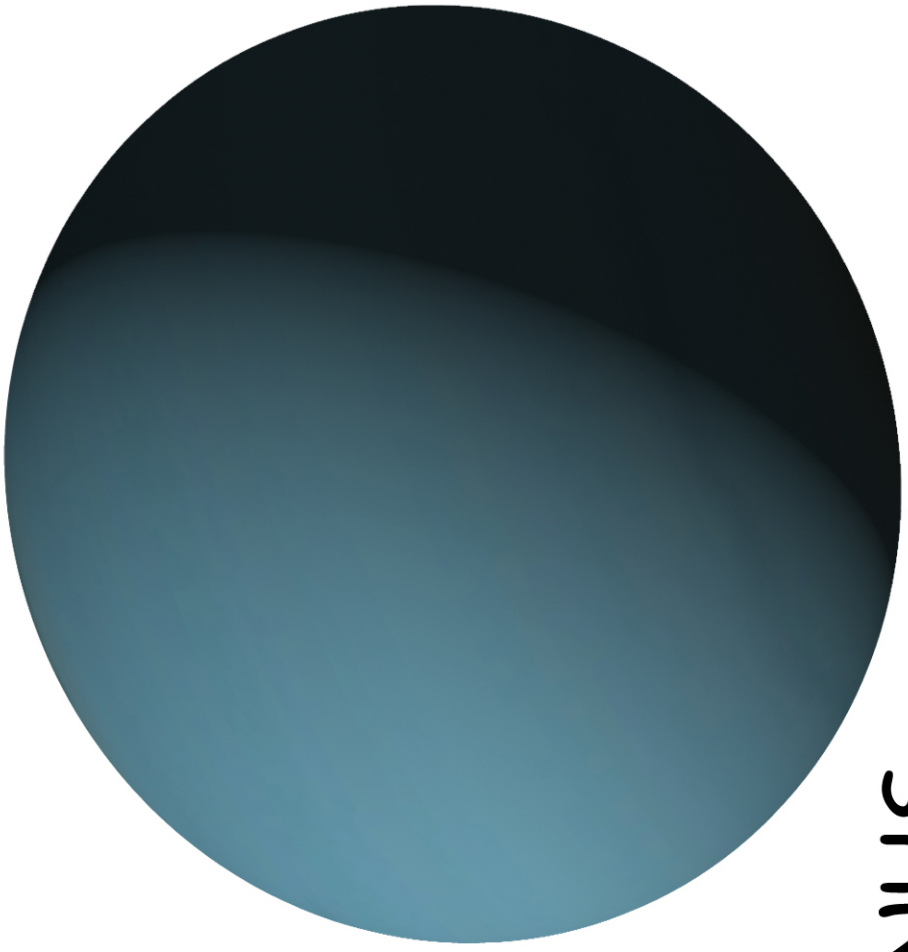
CERES
Fact: Largest object in the asteroid belt

JUPITER
Fact: Contains the famous "red spot"



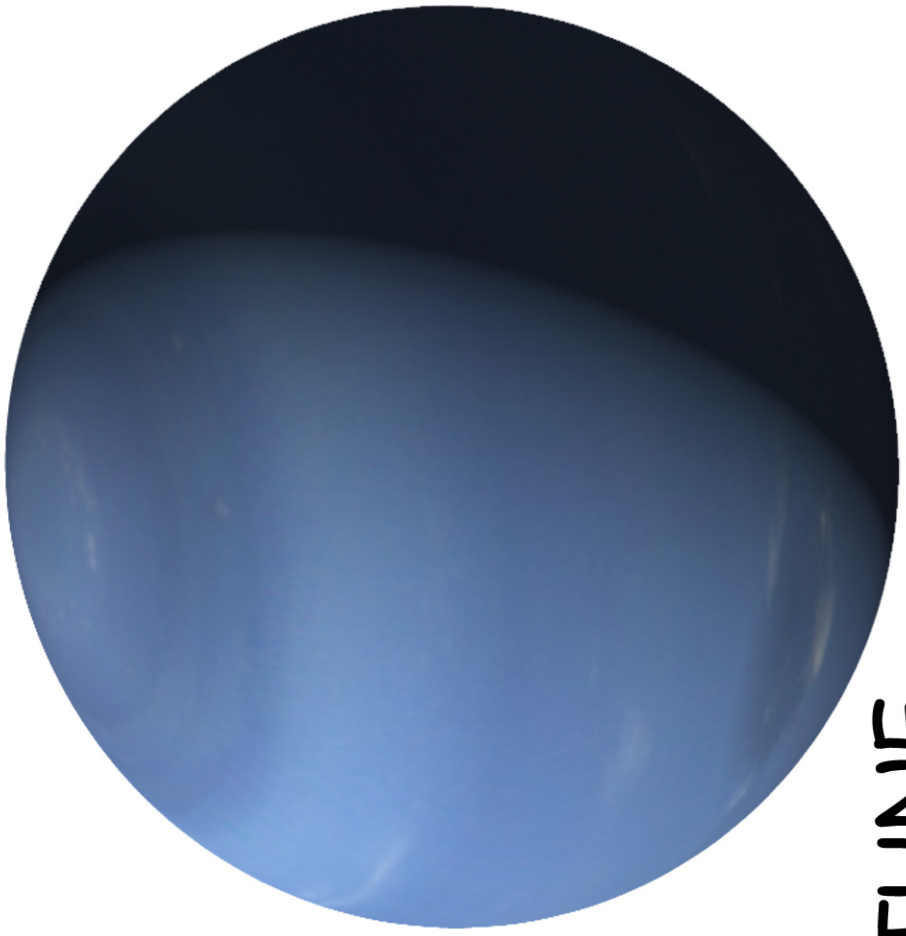
Saturn

Fact: Known for its large ring system



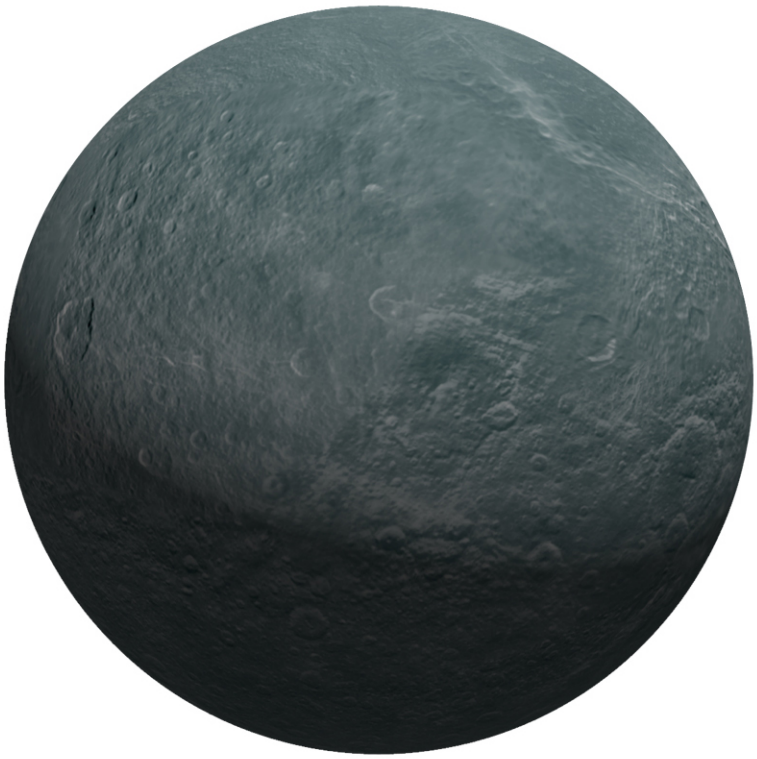
URANUS

Fact: Neptune's "twin" planet



NEPTUNE

Fact: The planet farthest from the Sun



PLUTO
Fact: Dwarf planet located past Neptune

