

GeoDome

Script: Planets of our Solar System

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| 1 | <p>ACTION:</p> <p>1. Zoom in on the sun so it takes up the whole dome. (Note: This will light up everything so people can see when they walk in)</p> | <p>SPEAKER:</p> <ul style="list-style-type: none">• We will start our Solar System Field Trip right here at this big ball of gas at the center of our solar system.• It gives us heat, light, and energy. <div><p>Q. Does anybody know what we call this big ball of gas?</p><p>A. THE SUN</p></div> |
| 2 | <p>ACTION:</p> <p>1. Zoom Out so you can see the whole sun. <i>(add additional sun info if you like)</i></p> <p>2. Zoom Out so you can see the green and blue circles around the sun</p> | <p>SPEAKER:</p> <ul style="list-style-type: none">• The circles that you can see now are different <u>orbits</u>.• The green circles are orbits of planets.• The blue circles are orbits of dwarf planets, and we will talk more about dwarf planets a little later.• Now we are going to fly away from our solar system to see what else is in Space. |
| 3 | <p>ACTION:</p> <p>1. Zoom Out slowly until you see the Milky Way</p> | <p>SPEAKER:</p> <ul style="list-style-type: none">• Notice all the other bright dots of light that are flying by.• Those are other planets, stars, and solar systems that are around us.• With all of these other objects out there, it gives you an idea of how small we are and how much more is out there.• These bright lights that are all around our Milky Way are other planets, stars, and solar systems that we have discovered but have not explored yet. |


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| 4 | <p>ACTION:</p> <ol style="list-style-type: none"> 1. Right Click on <i>Mercury</i> 2. Click FLY TO | <p>SPEAKER:</p> <ul style="list-style-type: none"> • Now we are going to fly to our first planet. • As we fly back in to the Milky Way, notice we are not flying into the center, but towards the outskirts of the galaxy. • Some people believe that the bright center of the Milk Way is our sun, but it is not. • Scientists believe it is a collection of stars. <div data-bbox="573 418 1507 516"> <p>Q. Does anybody know the name of our first planet?</p> </div> <div data-bbox="737 496 1673 561"> <p>A. MERCURY</p> </div> |
| 5 | <p>ACTION:</p> <ol style="list-style-type: none"> 1. Rotate Mercury L to R <p>(Make sure Mercury is rotating from L to R)</p> | <p>SPEAKER:</p> <ul style="list-style-type: none"> • Mercury is the smallest planet in the Solar System. It has many characteristics that are similar with our Moon. • They are both covered in <u>craters</u>. • Both surfaces are covered in rock and dust. • Mercury is slightly larger than the moon. • Plus Mercury has very little atmosphere, while the Moon doesn't have one at all. • Even though Mercury is the <u>closest</u> planet to the sun, its lack of atmosphere prevents it from being the hottest planet in the solar system. • We are now going to fly to the hottest planet and that will be the <u>second</u> planet closest to the sun. <div data-bbox="573 967 1507 1065"> <p>Q. Does anybody know this planet?</p> </div> <div data-bbox="737 1045 1673 1110"> <p>A. VENUS</p> </div> |
| 6 | <p>ACTION:</p> <ol style="list-style-type: none"> 1. Right Click on Venus 2. CLICK FLY TO 3. SET ROTATION SPEED between 70 – 80 hrs/sec> | <p>SPEAKER:</p> <ul style="list-style-type: none"> • Venus is called “Earth’s Sister Planet” because it is our closest neighbor and they are very similar in size. • That is really where the similarities end. • Venus’s atmosphere is made mostly of <u>carbon dioxide</u>. • There are clouds that have <u>sulfuric acid</u> in them, so the term “acid rain” is literal when talking about Venus. • This thick atmosphere helps blanket the planet and hold in the Sun’s heat. • That is why it is the <u>hottest</u> planet in our solar system. |

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| | | <ul style="list-style-type: none"> • Another interesting fact about Venus is its <i>rotation</i>. • Venus is the only planet that rotates from R to L. • It also has an extremely <i>slow</i> rotation. • It takes Venus about 240 Earth days to make one rotation. • It takes around 220 Earth days for it to orbit the sun. • So on Venus, one day is actually <i>longer</i> than one year. • We had to place time on fast forward to show you the rotation of Venus. • Right now we are set at _70-80___ hrs/sec. • To give you an idea of how slow Venus's rotation is, we are going to fly to Earth to show you what it would be like if we were flying at the same speed. |
| 7 | ACTION: <ol style="list-style-type: none"> 1. FLY TO Earth 2. Set ROTATION SPEED to a setting you are comfortable working with. 3. You may also turn the CLOUDS OFF during the daylight hours. <p>(Just click CLOUDS button in the menu on the lower left of your screen)</p> | SPEAKER: <ul style="list-style-type: none"> • Now, this is what Earth would look like at ____ hrs/sec. So we will slow it down and get a good look at our planet. <p>(*NOTE: you can cover what you want about Earth for as long as you want.)</p> <p>Some suggestions would be to discuss:</p> <ol style="list-style-type: none"> 1. Night to day transition 2. Time Zones and why they are needed 3. Lights that are visible from space at night 4. Why there are more lights around water sources (Mediterranean Sea, Nile River) 5. Show the Great Lakes and try to find our location, etc. 6. Land features – see if students can guess them. |
| 8 | ACTION: <ol style="list-style-type: none"> 1. FLY TO Moon | SPEAKER : <ul style="list-style-type: none"> • We are now going to take a trip to the little rock that follows us around the sun. <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">Q. What do we call this rock?</div> <div style="border: 1px solid black; padding: 5px; margin: 10px 0;">A. THE MOON</div> |

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| | | <p>Q. What planet does the moon look like?</p> <p>A. MERCURY</p> <ul style="list-style-type: none"> Remember, we said that the Moon and Mercury had a lot of the same features in common? Both surfaces are covered in <u>rock and dust</u>. They are similar in size, with Mercury being slightly larger. Plus, Mercury has very little atmosphere, while the Moon doesn't have one at all. The gravity on the Moon is only 1/6th of Earth's gravity. So if you weighed 120 lbs. on Earth, you would weigh 20 lbs. on the Moon. |
| 9 | <p>ACTION:</p> <p>1. FLY TO Mars</p> | <p>Our next stop on our field trip will be the one nicknamed "The Red Planet".</p> <p>Q. Which one is it?</p> <p>A. MARS</p> <ul style="list-style-type: none"> Mars is nicknamed "The Red Planet" because of the reddish appearance of its surface. The reddish appearance is caused by the <u>metals in the rocks and soil</u>. Over time, these metals have begun to rust, which now makes the planet look red. There are some features on Mars that can be also found on Earth. One feature is this valley. It is called the Great Rift Valley. Scientists believe that it was carved out of the surface by <i>water</i> millions of years ago. If you look to the western edge, you can see an area that <u>resembles dried river beds</u>. If this valley were on Earth, it would stretch from New York City to San Francisco. |
| 10 | <p>ACTION:</p> <p>1. ROTATE GLOBE so that you are traveling Northwest of the Great Rift Valley.</p> | <p>SPEAKER:</p> <ul style="list-style-type: none"> Another feature of Mars that could also be found on Earth would be volcanoes. This volcano is a dormant volcano named <i>Olympus Mons</i>. It is the largest volcano and mountain in the solar system. It is approximately 89,760 ft, nearly 3 times the height of Mt. Everest. If you were to drive around the base of Olympus Mons, it would be equivalent to driving around the state of |

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| | <p>You will find Olympus Mons. It looks like this:</p> | <p>Texas.</p> <ul style="list-style-type: none"> Now we will exit the rocky planets (planets made up of rocks and metals) and head to our gaseous planets. The first of the gaseous planets is the largest planet in the solar system. <div> <div>Q. Which planet am I talking about?</div> <div>A. JUPITER</div> </div> |
| 11 | <p>ACTION:</p> <ol style="list-style-type: none"> FLY TO Jupiter PAUSE when the Great Red Spot appears Let Jupiter ROTATE until you see black dots floating across its surface | <p>SPEAKER:</p> <ul style="list-style-type: none"> Jupiter is the <u>largest</u> planet in the solar system. It is considered a <u>Gas Giant</u> because it is made up mostly of gas. Scientists believe that there may be a small rocky core in the center, but it is mostly made of gas. Scientists also say that with the gases that make up Jupiter, if it were placed in a swimming pool, it would actually float. One of Jupiter's most famous features is the <u>Great Red Spot</u>. The Great Red Spot is a <u>giant storm</u>. It similar to what a hurricane would be on Earth. However, this storm is so large,(3) <u>three</u> Earths could fit in its boundaries. <div> <div>Q. Can anyone guess what these black dots floating across Jupiter may be?</div> <div>A. MOONS</div> </div> <ul style="list-style-type: none"> Jupiter has over <u>60 moons</u> that rotate around it. One of its most popular moons is called Calisto. |
| 12 | <p>ACTION:</p> <ol style="list-style-type: none"> FLY TO Calisto | <p>SPEAKER:</p> <ul style="list-style-type: none"> Calisto has a <u>rocky</u> surface. The white dots that you see covering it are small mountain peaks. |
| 13 | <p>ACTION:</p> <ol style="list-style-type: none"> FLY TO Europa | <p>SPEAKER:</p> <ul style="list-style-type: none"> Europa is another famous moon of Jupiter. It is covered in <u>ice</u> and scientists believe that there may be a <u>salt water</u> ocean located under its icy surface. |

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| 14 | ACTION: 1. FLY TO Io | SPEAKER: <ul style="list-style-type: none"> • The most famous moon is Io. • Io is famous because it actually has <u>active volcanic activity</u> on its surface. • The next planet that we will be traveling to is famous for its rings. (Saturn) |
| 15 | ACTION: 1. FLY TO Saturn | SPEAKER: <ul style="list-style-type: none"> • Even though Saturn is famous mostly because of its rings, it is not the only planet with rings. • Jupiter actually has a set of <u>rings</u> around it, as well. • However, they are so <u>small and dark</u>, they are hard to see. • But, Saturn's rings are much bigger and brighter. • The rings of Saturn are made up <u>of rock, ice, and dust</u>. • If you notice, like most other planets, Saturn rotates from L to R. • The rings also rotate in the <i>same</i> direction. • Saturn also has more than <u>60 moons</u>, just like Jupiter. • It's most famous moon is <i>Titan</i>. |
| 16 | ACTION: 1. FLY TO TITAN | SPEAKER <ul style="list-style-type: none"> • Titan is the <u>largest</u> moon in the solar system. • It is actually larger than the planet <i>Mercury</i>. • It is the only moon that has an atmosphere. |
| 17 | ACTION: 1. FLY TO Uranus | SPEAKER <ul style="list-style-type: none"> • Our next planet also has rings that orbit it. |

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| | | <div>Q. Take a look at this planet. How is it different than Saturn?</div> <div>  <div>A. Fewer rings, Uranus's rings run from top to bottom, Uranus rotates from top to bottom, it is more egg shaped than other planets, etc.</div> </div> <ul style="list-style-type: none"> • Uranus has a solid color appearance because it is mostly covered in clouds. • Uranus also has 27 moons. |
| 18 | ACTION: <ol style="list-style-type: none"> 1. FLY TO Neptune 2. PAUSE when the Great Dark Spot appears | SPEAKER: <ul style="list-style-type: none"> • Uranus is said to be the Ice Twin of this next planet, which is the <u>last</u> planet in the solar system. • Neptune is the <u>farthest</u> planet from the sun. • It has an atmosphere made up of mostly <u>methane</u>, which is why it has a <i>bluish</i> color. • Neptune also has a spot similar to Jupiter's. It is a storm called the Great Dark Spot. • You can see it on these images, but scientist say that it has recently disappeared. • It is also reported that Neptune has 13 moons. • I mentioned that Neptune is the last planet in our solar system, but we do have one more place to visit before we head back to Earth. |
| 19 | ACTION: <ol style="list-style-type: none"> 1. FLY TO Pluto | SPEAKER: <ul style="list-style-type: none"> • As you probably all know, Pluto is no longer considered a planet. • It has been classified as a <u>dwarf</u> planet. • Pluto is large enough though to have moons, 3 to be exact. • One of its moons, <u>Charon</u>, is almost the same size as Pluto. <p><i>*Here is some additional info about dwarf planets if you care to go into more detail.</i></p> <ul style="list-style-type: none"> • There are currently (5) five official dwarf planets. • Pluto, formerly the smallest of the nine "traditional" planets, was demoted to dwarf planet status. • <u>Ceres</u>, the largest asteroid in the main asteroid belt between Mars and Jupiter, was also declared a dwarf planet. |

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| | | <ul style="list-style-type: none"> • The three other (for now!) dwarf planets are <u>Eris, Makemake, and Haumea</u>. • Pluto, Makemake, and Haumea orbit the Sun on the frozen fringes of our Solar System in the <u>Kuiper Belt</u>. • Eris, also a <i>Trans-Neptunian Object</i>, is even further from the Sun. <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>Q. What's the difference between regular planets and dwarf planets?</p> </div> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> <p>A. As you might guess, it's partly an issue of size, with dwarf planets being smaller.</p> </div> <ul style="list-style-type: none"> • But just how big does a planet need to be to become a full-fledged planet instead of a dwarf? • You might think the minimum size requirement is arbitrary, but the size cutoff is actually based on other properties of the object and its history in the Solar System. • Both <u>planets and dwarf planets orbit the Sun</u>, not other planets (in which case we call them moons). • Both must be large enough that their own gravity pulls them into the shapes of <u>spheres</u>; this rules out numerous smaller bodies like most asteroids, many of which have irregular shapes. • Planets clear smaller objects out of their orbits by sucking the small bodies into themselves or flinging them out of orbit. • Dwarf planets, with their weaker gravities, <u>are unable to clear out their orbits</u>. |
| 20 | ACTION: <ol style="list-style-type: none"> 1. RIGHT CLICK on SOLAR SYSTEM 2. Click JUMP TO 3. ZOOM into sun so it brightens up the whole dome like it was when you started | SPEAKER <ul style="list-style-type: none"> • This concludes our tour of our Solar System. • We are now going to head back to the Sun. • <u>Please stay seated</u> until we tell you how to exit the GeoDome. |
| | ADDITIONAL TIME: | NOTE: Students enjoy looking at the stars and constellations. |

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| | <p>ACTION:</p> <ol style="list-style-type: none"> 1. CLICK on BOOKMARKS and find <i>FEET ON THE GROUND</i>. 2. CLICK on STAR and CONSTELLATION DROP DOWNS to outline and label the constellations. | |
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