**5E Template- Science**

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| **Name: Sarah Parton** | | **Date:** |
| **Content Area: Earth Science** | **Grade Level(s): 9 – 12** | **Topic(s): Solar System** |

**Standards (SOL): ES 4c**

*The student will investigate and understand the characteristics of the Earth and the solar system.*

*c. characteristics of the sun, planets and their moons, comets, meteors, a*

*and asteroids; and*

**Objectives (UKD’s)**

*Students will understand how and what gear they need to be able to travel through space. They will also understand what a planet needs to be sustainable for life on the planet.*

**Materials & Resources**

Computers

Teacher Plant Model

Cardboard

Modeling Clay

Cars/space crafts

Worksheets for evaluation process

Digital cameras

Memory sticks for cameras

Scissors

If the teacher has a planet that a student does not cover, then the teacher may want to do a movie to cover that particular planet and show it to the class.

**Safety Considerations**

*Gloves for modeling clay, safety scissors*

**Engage – Time Estimate: 10 minutes**

Have a model of the Earth, moon and the sun. In the model the teacher will show how the Earth sun and moon are all related. Also there will be a quick glance at how a space shuttle would have to fly into space to get to the moon.

**Explore – Time Estimate: 10 minutes**

*Students will be given balls of different sizes and a car to use as their space craft. They will then have the opportunity to create their own mission to different planets.*

**Explain -- Time Estimate: 10 minutes**

*The teacher will explain how they were to investigate all the planets in their time allotted. The teacher will go over the concepts they need to cover in their models. Students may either make a model planet, and then take pictures of it for their movie or they may do research on the computer, but they must use only pictures/videos that are allowed to be copied. They must also cite their sources.*

**Extend -- Time Estimate: 50 minutes**

*Students will choose a planet and then research it on the computer. Students will create a movie using the movie option on Microsoft movie maker. In their movies they will have a mission to their planets, and information about their mission: how long it would take to get there, how far is it from Earth, how long it takes to orbit around the sun, how large the planet is, what does the planet need to sustain life.*

**Evaluate -- Time Estimate: 10 minutes**

*Students will be separated by the planet they chose. The students will then be given a worksheet to match the planet with the place it belongs in orbit; they will also have to match the size of the planet and what it needs to sustain life. Students will pair up with another student to fill out their worksheets. They will continue to switch to work with different people until their worksheet is completed. The students are to compare and contrast the differences of their respective planets.*

**Plans for Diversity**

*Dygraphia – no accommodations are needed if the student uses the computer for everything (including the paper process) this student should be allowed to use Microsoft word to complete the worksheet. The teacher can send it to the student via email or already have a copy of it on the computer.*

Visually Impaired – student may need the computer screen zoomed in for easier viewing.

Hearing Impaired – no accommodations needed except for the interpreter explaining what the teacher expects from the assignment, until the student must change with another student. Then the hearing impaired student may need a quiet place in order to discuss the differences in their planets.

ADHD – student may need extra time to organize thoughts and data.

LD – student may need time to process cognitively before beginning the project. The student should be allowed extra time to finish the project.

ID – student may need guidance from teacher or other students in order to finish the project.

ELL – student may need to ask peers questions for understanding, teacher should re-iterate to student and check for student’s understanding.

**Connections**

*The lesson would expand on the student’s knowledge of the solar system, and it could be used to extend into NASA’s space program. The teacher could do a lesson on the different places the space shuttle has gone; the discovery mission being done on Mars, and other missions NASA has run to explore space. The teacher could use the NASA website to find current news; show the NASA television for the students to understand what the astronauts go through. The teacher could also pick a NASA television show that would fit into the solar system, and show it a precursor to the student’s mission to a planet.*

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| **Planet** | **Size** | **Sustainable Life** |
|  |  | **1.**  **2.**  **3.** |
|  |  | **1.**  **2.**  **3.** |
|  |  | **1.**  **2.**  **3.** |
|  |  | **1.**  **2.**  **3.** |
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