

LESSON PLAN

1) Introduce the topic of how big the planets are, and assess the students' basic knowledge. First, ask students to name all of the bodies within the solar system. Then, ask them to put them in order from largest to smallest. Finally, ask the students specifically about certain planetary ratios, particularly: SUN to EARTH, or JUPITER to EARTH (i.e., How much bigger is the Sun to the Earth?).

2) Tell students that they will be exploring a Minecraft Edu model of the solar system to help them understand the relative sizes of the sun and planets. Tell students that they will be able to SEE the relative sizes of the planets and the sun in the Minecraft world. PLEASE INFORM STUDENTS of the following caveats: a) the sizes of certain planets (Mercury, Mars, and Pluto) are not accurate, as they are smaller than the Earth (the Earth is 1 block in this world); and b) the distances between the sun and the planets is not to scale (in fact, it is kept constant, at about 30 blocks between consecutive planets). Tell students that there are NPCs (non player characters) in this world they should INTERACT or TALK with them to learn interesting facts about each of the bodies.

3) Print and pass out the Note-taking sheet (Page 2 and 3 of this lesson plan). Students should try to collect as much information on the Note-taking sheet as possible. They will have a limited time (perhaps 45 minutes) to collect that information. Tell students that they will have to take an assessment afterwards, based on the information that they collect on their Note-taking sheets.

*Note: for students who have difficulty reading or writing, it may be a good idea to partner them with students who are proficient readers/writers, so that all students can benefit from the written information in the world.

4) Activate the world. Please make sure that it is set to "Minecraft Edu" mode, and that students CANNOT build, but they CAN ALWAYS FLY (it may be necessary to fly to access some parts of the map).

5) At the end of the time session, FREEZE the players, and have them disconnect.

6) To assess student understanding, teachers may have students play a Kahoot (for basic understanding) or a Socrative (for more detailed understanding). Alternatively, teachers may give other forms of assessment, like a written reflection, or having them create a physical scaled model of some sort, or having them recreate the scaled model in another Minecraft world (not included in this lesson).

7) To supplement or deepen understanding of this topic, students could read books or visit sites on planetary sizes. I would also recommend the site, "The Scale of the Universe 2" (<http://htwins.net/scale2/>), and have a scavenger hunt to find the different planets, and list down objects that are all relatively the same size as specific planets.

NAME _____

DATE _____

SCALE OF PLANETS NOTE-TAKING SHEET

Draw a picture of each Object below.	Diameter of Object (in kilometers)	Interesting Facts about this Object	Ranking in terms of Size (1=biggest, 9=smallest)
SUN			
MERCURY			
VENUS			
EARTH			
MARS			

JUPITER			
SATURN			
URANUS			
NEPTUNE			
PLUTO			