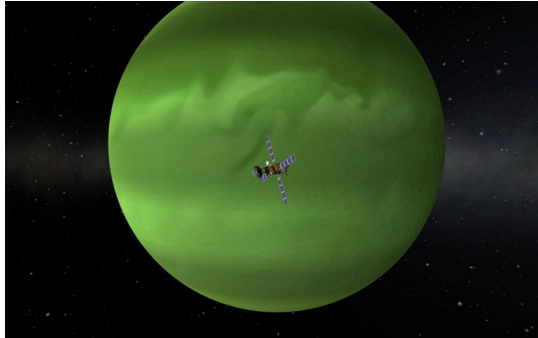




The Importance of Video Games in Education



The planet Jool from *Kerbal Space Program*

The video game *Kerbal Space Program* has built in tutorial sections which help the player teach him or herself how to play the game without anyone's aid.

Each player was allowed 80 minutes of play time with these tutorials. The tutorials consist of 2 distinct types, construction tutorials and flight tutorials. The construction tutorials could be skipped by the player. It is the flight tutorials that we were most interested in as they exposed the player to the specific physics concepts we were targeting.

The video game *Kerbal Space Program* was created by Squad in 2011 and had its full release in 2015.



I completed a case study of three individuals for the purpose of demonstrating the usefulness of video games in education. As a control to find the participants' base knowledge of the subject of kinematics, I first asked them to take a pretest consisting of 10 questions, all of which were basic kinematics questions. These questions were designed to show if the test-taker had any misconceptions about the laws of motion. For example, one question was based on the misconception that acceleration due to gravity is dependent on mass. The post-test consisted of the same 10 questions.

In each case, the participants showed improvement in their understanding of basic physics concepts. One notable example that all three participants got wrong on the pretest but correct on the post-test is the direction of travel of an object at the end of a spinning rope once that rope is released.

