

Worlds Made to Order in *Planet Mechanic*

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Game Description

Planet Mechanic is a game about the Earth-Sun-Moon system. In *Planet Mechanic*, fickle aliens ask the player to modify their planet to produce a variety of climates, seasons, and tides (see Figure 1). To fill each request, the player modifies characteristics of the planet, including its orbital distance and speed, atmospheric density, rotation speed, tilt, and whether it has a moon. Interdependencies between planetary characteristics are front and center as players decide how to fill each order (see Figure 2).

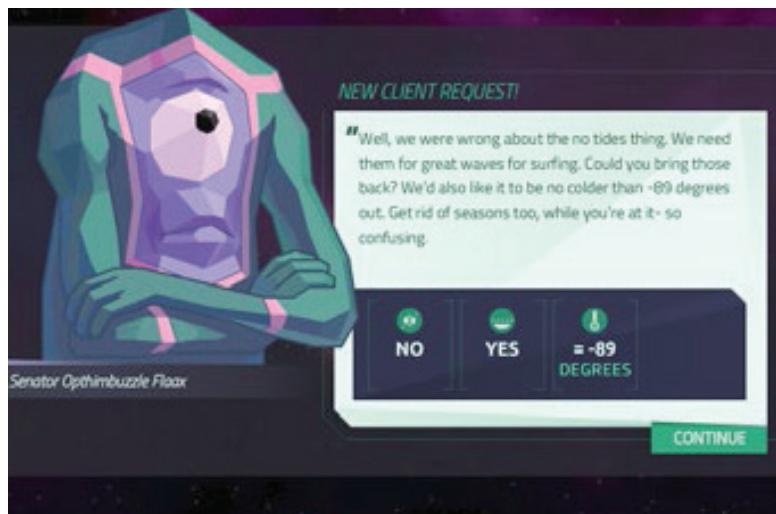


Figure 1: Order up! Eliminate seasons, and make sure it stays warmer than -89 degrees!



Figure 2: Change features of the planet and see how other features are affected

Learning Objectives

Students will be able to use a model of the Earth-Sun-Moon system to describe the cyclic patterns of lunar phases, eclipses of the Sun and Moon, and seasons.

Target Population

Planet Mechanic targets 6th - 8th grade students in classroom environments.

Next Generation Science Standards (2013)

MS-ESS1-1: Develop and use a model of the Earth-Sun-Moon system to describe the cyclic patterns of lunar phases, eclipses of the Sun and Moon, and seasons.
(NGSS Lead States, 2013)

Development Process and Teacher Feedback

Planet Mechanic is a lean game, meaning that it targets a small number of learning objectives efficiently so that development resources can be conserved to allow the game to be iteratively refined through more cycles of development and feedback than a larger game could sustain. Filament developed this game through the AGILE process, in which each development cycle aims to produce a complete feature or set of features that can be evaluated. This game is part of a series of lean games targeting STEM standards that Filament developed in consultation with teachers during each development cycle.

Planet Mechanic Demo Video and Launch Page

A video demo of *Planet Mechanic* is available on the Filament Games website:
<https://www.filamentgames.com/products/planet-mechanic>

References

NGSS Lead States (2013). *Next Generation Science Standards: For States, By States*. Washington, DC: The National Academies Press.

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