

[Educator Guide: Planetary Travel Time | NASA/JPL Edu](#)

As the hook, I would use the provided lithograph set to get students attention and just do some basic discussion about the solar system and the distances of the planets. Students will first use the data provided on their student worksheet and their understanding of equations to calculate each planets' distance from the Earth. Next students will use this data to calculate the length of time (in hours) it would take to walk, ride a bike, drive a car, ride on a rocket, or travel at the speed of light.

Student Worksheet: [https://www.jpl.nasa.gov/edu/pdfs/traveltime\\_worksheet.pdf](https://www.jpl.nasa.gov/edu/pdfs/traveltime_worksheet.pdf)

**Measurable Activity:**

- Representing the problems to be solved using equations with a letter standing for the unknown quantity.
- Computing the distance from Earth to each of the planets and Pluto.
- Determine actual travel times by each mode of transportation to a given planet.

**Objectives:**

Students will use average straight-line distances to the planets and average rate of travel of several modes of transportation to compute the length of time it would take a spacecraft launched from Earth to travel to another planet.

**Standards:**

CCSS.MATH.CONTENT.6.EE.B.6

Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

#### CCSS.MATH.CONTENT.6.EE.C.9

Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation  $d = 65t$  to represent the relationship between distance and time.

#### CCSS.MATH.CONTENT.6.NS.B.2

Fluently divide multi-digit numbers using the standard algorithm.

#### **Evidence:**

If I were currently in class, I would give students 2-3 minutes to write 2 sentences or 4 bullets on an index card summarizing this activity. Then they would “pair and share” for 1 minute each. I would circulate around the room and listen to their discussion. I would collect their cards at the end.