



Bot Miner

STEM Sims

Lesson 1: Controlling the Rocket/Asteroid Rendezvous

Without knowing the speed of the asteroid and without a steady speed from the rocket, we must experiment to find the perfect balance of thrust and timing to land on an asteroid.

Doing the Science

1. Start the Bot Miner Simulation by clicking on the “Sim” tab.
2. Select the Controller option on the main screen.
3. Experiment by clicking the Thrust button multiple times in order to try to land on an asteroid.
4. Each time that you land on an asteroid, record the Bot Miner Rocket Speed and the number of hours into the appropriate table cells in Table 1.
5. Once you land on an asteroid, click OK and then immediately on the next screen, click New Asteroid and then return to Controller.
6. Repeat steps 3-5 until your table is completely filled out.

Table 1.

Asteroid	Bot Miner Rocket Speed (km/hr)	Hours
Alpha (α)		
Beta (β)		
Gamma (γ)		
Delta (Δ)		

Do You Understand?

1. Since you know the distances the rocket and asteroid traveled as well as the number of hours it took for the two to impact, how would you calculate the speed of the asteroid?
2. Calculate the speeds of the four asteroids, round to the nearest whole number.

Asteroid	Speed (km/hr)
Alpha (α)	
Beta (β)	
Gamma (γ)	
Delta (Δ)	

3. Which travels faster in each instance, the rocket or the asteroids?