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**Trajectory Deflection Worksheet**

Conduct the following experiments to find out which factors affects the path of the spacecraft during a planetary flyby.

1. Use different-sized spacecraft (ball bearings) to fly past the planet (magnet). Does this change the path of the spacecraft? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Change the initial speed of the spacecraft by raising the launch ramp. Does this change the path of the spacecraft? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Try using a different-sized planet (magnet). Does this change the path of the spacecraft? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
4. Try moving the launch ramp away from the planet. Does this change the trajectory of the spacecraft? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Which items from above would your engineering team use to design a launch for a spacecraft trying to get to the outer planets? (Example: Spacecraft size, spacecraft initial velocity, planet size, distance of launch from planet.)

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