

Using the Evidence Rubric: Sample Student Arguments

Directions: Rate these student arguments using the evidence rubric. Consider the evidence source, sufficiency, and relevance. Provide your ratings in the space provided. Based upon your ratings, what feedback would you provide to the student to improve their argument?

Data Collected from Classroom Simulation:

| Planet | Distance from Sun (millions of miles) | Planet Mass (kilograms) | Ball Weight (pounds) | Ball Mass (kilograms) |
|---------|---------------------------------------|-------------------------|----------------------|-----------------------|
| Earth | 93.0 | 5.972×10^{24} | 1 | .625 |
| Mars | 141.6 | 6.39×10^{23} | .3 | .625 |
| Jupiter | 483.8 | 1.898×10^{27} | 2.64 | .625 |

Question: How are the ball’s weight and mass affected when dropped on different planets?

Student Argument A

The ball’s weight and mass are affected when dropped on different planets because of the gravity pull on that planet. The mas doesn’t change when dropped on a different planet because the ball does not change. It doesn’t get bigger or smaller. The only thing that changes the ball is its weight. Since the gravity is different on different planets, the weight of the ball changes from the weight on Earth. The ball drops a certain speed on Earth because of Earth’s gravity. If the gravity changes the ball drop slower or faster than it did on Earth.

Source: Sufficiency: Relevance:

Feedback:

Student Argument B

The weight would change but the mass couldn’t. The weight would change depending on the gravitational pull of the planet or moon. The more mass the planet has the stronger the gravitational pull, as in Jupiter, being a gas giant, has 2.64 times more of a pull than Earth, causing a 1 pound Earth ball to be 2.64 lb. Though the weight changes the mass doesn’t. It doesn’t matter where you put that ball it will be made of the same items and have the same mass.

Source: Sufficiency: Relevance:

Feedback:

Student Argument C

The ball’s weight would change if it was dropped on a different planet, but the mass would not change. In the simulation, I observed that the planets were different distances from the Sun. The Earth is 93 million miles away while Neptune is 2,795.1 million miles away. I saw the movie Gravity, and in outer space, away from a planet, objects float, and weigh nothing but would fall to the ground on Earth.

Source: Sufficiency: Relevance:

Feedback: