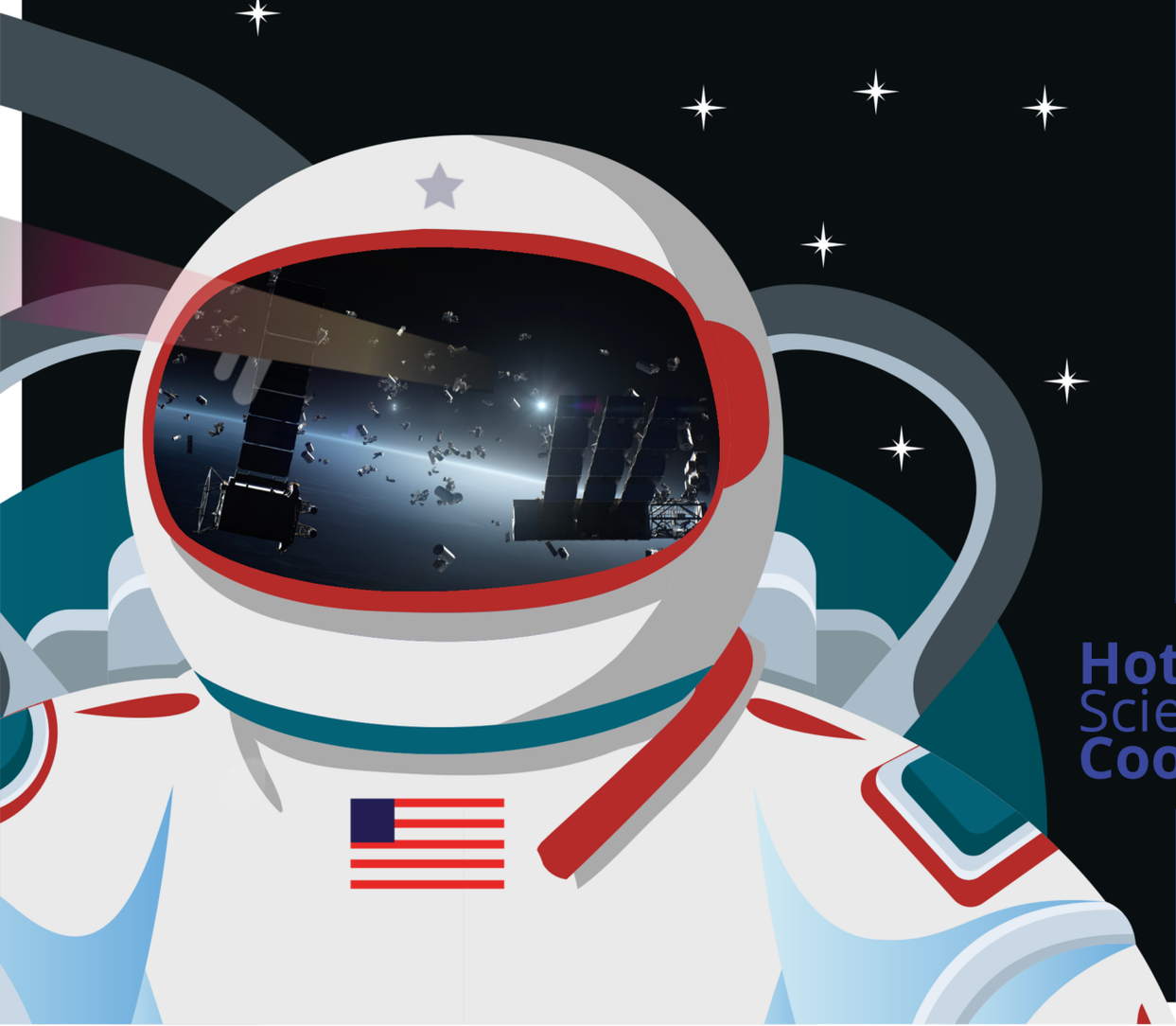
Hot Science

Space Pollution



Hot
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Cool Activities

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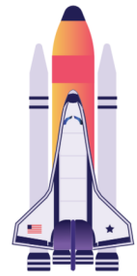
Reference Sheet



Terms to Know

- **Impact**: The force or shock that occurs when one object hits another. In space, impacts can happen when debris or meteoroids collide with spacecraft, satellites, or planets, creating craters or causing damage.

- **Mass**: The amount of matter in an object, which determines how much it resists being moved. In space, mass affects how much force an object can exert in a collision and how it interacts with gravity.

- **Space Debris**: Pieces of broken or leftover material floating in space. Space debris can include old satellites, parts of rockets, or fragments from collisions. These pieces can be dangerous because they move at high speeds and can cause damage when they collide with other objects.

- **Satellite**: A man-made object that orbits around a planet or moon. Satellites can be used for communication, weather monitoring, or scientific research. They need to be carefully monitored to avoid collisions with space debris.

Measuring Impact
Datasheet

Name _____

Date _____

Directions: In a group of 4, you will record data on the mass of the marbles and how big a dent the marbles make in the flour. Measure the **tiny** marble's mass in grams and record it on the note sheet. Drop the marble from 1.5 meters above the flour box. Measure the depth of the hole the marble makes, and record your observations on your datasheet. Reset the flour so that it is flat. Now, hold the tiny marble 1.5 meters above the flour and throw it downward with a significant amount of force. Record your observations In the chart below. Repeat this process with the **large** marble.

Tiny Marble

Mass of Marble	Dropped (D) or Thrown (T)?	Depth of Hole (mm)	Sketch the Impact

Large Marble

Mass of Marble	Dropped (D) or Thrown (T)?	Depth of Hole (mm)	Sketch the Impact

Answer
Brainstorm

1. How did you measure the “impact” that the marbles made with the flour? *Select one.*

a. The mass of the marble

b. The height at which the marble was dropped or thrown

c. The depth of the hole that the marble made in the flour

2. In your experiment with the **tiny** marble, did the marble that was dropped make a bigger “impact” than the marble that was thrown? Explain your reasoning using the data from the datasheet.

3. Compare the large marble that was dropped with the tiny marble that was dropped. Which one made a **bigger impact**? Explain your reasoning using the data from the datasheet.

3

4. Which two factors affected the impact that the marbles had on the flour? Think about your answers to the questions above.