

# Meteorites Lab Activity

## Meteorite Impact – Creating Craters

### Background Information:

Meteorites are space rocks that can survive and fall onto the Earth's surface. Asteroids and other bodies can hit with immense force that can create craters, sometimes even huge craters. The size and depth of the craters created by an impact vary. The moon for one has millions of craters indicating how frequently these bodies enter the solar system. The Earth has craters too but has disappeared because of geological factors. Without a doubt, our planet will be hit by meteorites again, in the future.

In this simulation activity, you will investigate whether or not the size of the crater depends on the size of the meteorite.

### Learning Objectives:

At the end of this laboratory activity, students are expected to:

- Determine the relationship between the size of the object, the weight of the object, and the size of the crater the impact can create.

### Laboratory Proper:

#### Materials:

- 4 spherical-shaped objects of different sizes. (Apple, baseball, rubber ball, marble, etc.) These will serve as your meteorites.
- A box or a plastic container, way much bigger than a shoe box.
- A bag of flour or sand that can fill the plastic container or the box to at least 1.5 inches.
- Ruler
- Graphing paper

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## Procedure:

1. This lab activity can be done in groups of three.
2. Fill out the table with the objects that you are going to use in this activity.

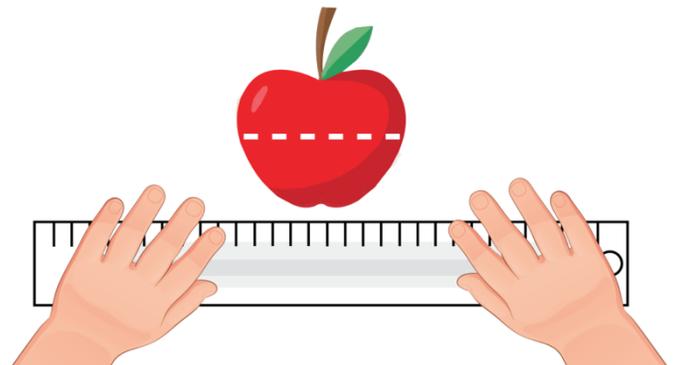
Object	Diameter of the object (in cm)	Diameter of Craters (in cm)		
		1 <sup>st</sup> Drop	2 <sup>nd</sup> Drop	3 <sup>rd</sup> Drop



3. Pour the bag of flour or sand into your plastic container or box. Make sure that you can fill it to at least 1.5 inches.

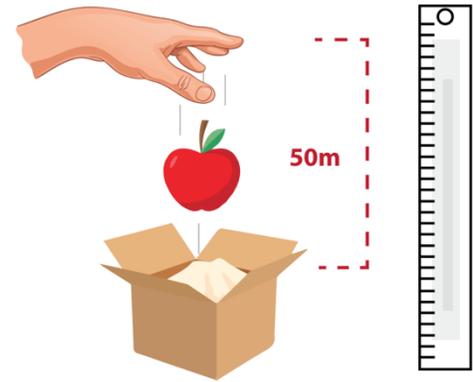


4. Using a ruler, measure the diameter of the object (in centimeters) you are using and record the measurements.



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5. Choose one out of your four objects as your first meteorite. Hold the object 50 centimeters above the box of flour or sand, and then let go. (Make sure to use a ruler in measuring the height of the object above the impact site (the box of flour))



6. After the object (Meteorite) impacts the flour or sand, remove the object carefully to not disturb the crater formed.



7. Repeat steps 5 and 6 twice using the same object. (There should be three craters for each object.) Do this in different spots in the plastic container or box. Make sure that the object is dropped the same way at the same height all throughout to keep accurate results.

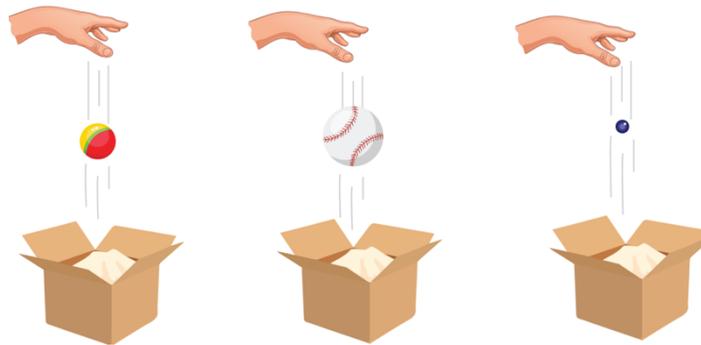


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8. Measure the diameter (in centimeters) of the craters formed from each drop. Record your measurements.



9. Do the same for the rest of the objects. Make sure to drop the objects the same way and at the same height for accurate results. Record the measurement of the diameter each time.



10. You can either make a graph by hand. The average diameter of the crater (in centimeters) is on the left axis while the diameter of the meteorite (object) is at the bottom. You can also create a graph using this website: [Create a Graph](#).

Complete the table.

Object	Diameter of the object (in cm)	Diameter of Craters (in cm)			Average Diameter of the Craters (in cm)
		1 <sup>st</sup> Drop	2 <sup>nd</sup> Drop	3 <sup>rd</sup> Drop	

Name: \_\_\_\_\_ Period: \_\_\_\_\_ Date: \_\_\_\_\_

# Meteorites Lab Activity

Discuss the following questions and answer as a group.

1. What are the sizes of the craters that smaller meteorites make?

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2. What are the sizes of the craters that bigger meteorites make?

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3. What is the relationship between the size of the crater and the size of the meteorite? Are there any patterns?

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4. What can you conclude about the size of the meteorite and the size of the craters formed upon impact?

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