



Benefits of Play: Cognitive, Communication, Creative, Social

Actively explore astronomy concepts through inquiry and play.

STEAM Skills: Science, Art, Technology, and Math

Grades: 2+

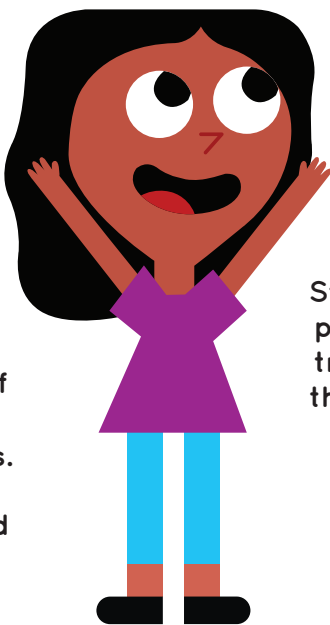
Materials:

- baking pan
- flour and cocoa powder
- sifter
- kitchen scale
- ruler
- different sized balls (bouncy balls or marbles)
- paper and pencils
- drop cloths or newspapers to contain the mess

Step 1: Have your students watch these videos on [Comets and Asteroids](#) and [Impact Craters](#).

Step 2: Separate your students into groups and hand out the materials. Pour flour in the bottom of the baking pan and spread it out to an even depth (about 1" deep). Then use the sifter to sprinkle just enough cocoa powder to cover the surface (less than 1/8").

Step 3: Have students weigh each of the different sized balls using the kitchen scale and record their weights. Have students pick a height (maybe 1 yard) from which to drop the balls and record that height. All balls should be dropped from that height at first.



Step 4: The students can then take turns dropping the different sized balls in the flour/cocoa powder mix, noting the results.

Step 5: Students measure the diameter of the impact craters from each of the different sized balls and record their results. Students can draw or color pictures of the impact craters too.

Challenge Lesson:

Drop different sized balls from different heights or even the same ball from different heights.

Students can also toss the balls into the pan from different heights to see how the trajectory of the object would change the impact crater.