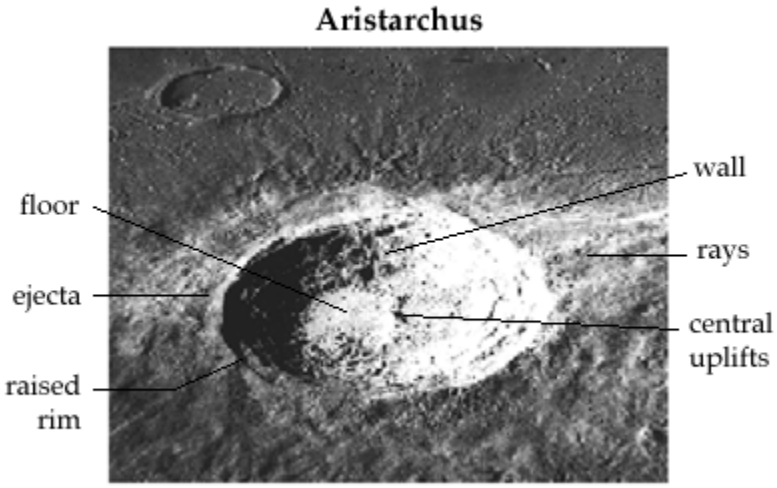
Name/LP _____ Date _____

Impact Craters Activity

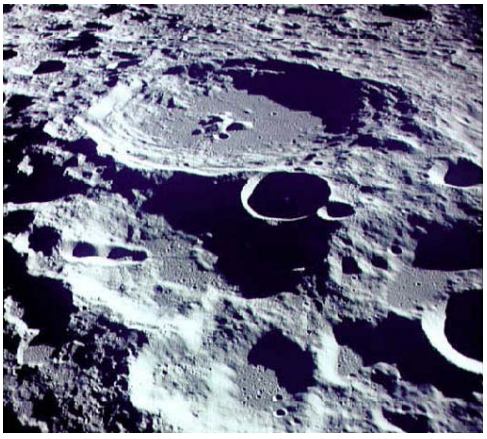


Materials per group of 4 students:

- **2 meter sticks**
- **Magnetic marbles**
- **Magnet**
- **Small ruler**
- **Rectangular Plastic Tupperware container with lid**
- **Mixture of flour (75%) & laundry detergent (25%) topped with milk chocolate powder**

Procedure:

1. **Using your meter stick, measure 30 cm above the "moon surface".**
2. **Place the marble next to the 30 cm mark then let the marble fall straight down. Be careful, move the ruler out of the way so that the marble does not hit it.**
3. **Using the magnet, remove the marble without disturbing the crater.**
4. **Measure the diameter, depth, and the lengths of 3 rays in cm.**
5. **Repeat 2 more times for 30 cm.**
6. **Add up the total and determine the average.**
7. **Repeat steps 1-6, this time using 60 cm.**
8. **Repeat steps 1-6, using 90 cm.**
9. **Repeat steps 1-6, using cm of your choice.**
10. **Graph and answer questions at end.**



Original lesson from http://exploration.jsc.nasa.gov/education/Activities/ExpMoon/ImpactCraters.pdf , modified by Liz LaRosa @ www.middleschoolscience.com 2004

Drop height 30 cm	Trial 1	Trial 2	Trial 3	Total	Average
Crater diameter					
Crater depth					
Lengths of 3 rays					

Drop height 60 cm	Trial 1	Trial 2	Trial 3	Total	Average
Crater diameter					
Crater depth					
Lengths of 3 rays					

Drop height 90 cm	Trial 1	Trial 2	Trial 3	Total	Average
Crater diameter					
Crater depth					
Lengths of 3 rays					

Drop height _____ cm	Trial 1	Trial 2	Trial 3	Total	Average
Crater diameter					
Crater depth					
Lengths of 3 rays					

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Figure 1 – Bar Graph of Crater Averages in cm. Each box = 1cm.

Diam	**Dep**	**Ray**	**Diam**	**Dep**	**Ray**	**Diam**	**Dep**	**Ray**	**Diam**	**Dep**	**Ray**
30 cm			**60 cm**			**90 cm**			**_____ cm**		

Analysis/Results:

1. Which drop height had the largest average diameter? _____ cm with _____ cm.
2. Largest average depth? _____ cm with _____ cm
3. Largest average rays? _____ cm with _____ cm

4. How can you explain what happened for questions # 1, 2, & 3? _____
   _____
   _____
   _____

5. Where did the rays come from? Explain in detail. _____
   _____
   _____

6. In this experiment, we used magnetic marbles that were still intact after impact, what do you think happens to real meteors after impact? _____
   _____
   _____

7. What would happen if the meteors hit at an angle? Try it if you are done! _____
   _____

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