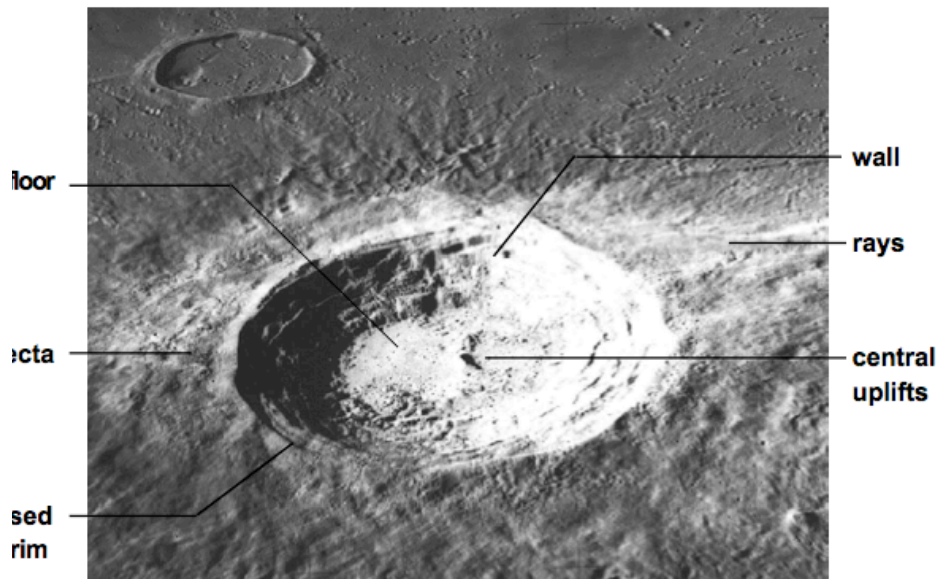


Meteors and their Craters

When people of ancient times saw a streak of light moving across the sky, they thought a star was falling. While we still use the terms falling star and shooting star to describe these streaks, scientists today realize that these are actually meteors. Meteors are made up of stone and/or metallic pieces. Meteors can be the dust left over from comets, asteroids from the asteroid belt or other debris left over from the formation of the solar system. Meteors are smaller than asteroids.

Meteors have three possible stages. When they are far out in space and not yet in the Earth's atmosphere, they are called meteoroids (like asteroids). If they enter into Earth's atmosphere, they are called meteors. And, the few meteors that survive the journey and actually reach earth's surface are called meteorites. If a meteorite strikes our planet, its impact may cause a large hole in the ground. This hole is known as a crater.



When the meteorite hits the ground something interesting happens. The soil below it explodes out of the crater and falls on top of the ground. This is called **ejecta**. Sometimes the ejecta spreads out evenly and sometimes it goes out in **rays**. Impact craters always have a **raised rim**, a **wall** and a **floor**.

Look for these structures in your impact craters.

Materials: Cocoa powder, flour, rectangular cake pan, 3 small rocks, 3 large rocks, newspaper, ruler

What To Do:

1. Your teacher will have filled the cake pan about $\frac{1}{2}$ full of flour and spread out the cocoa powder on top in a thin layer using a ruler so the top is smooth.
2. Spread several sheets of newspaper on the floor and place the pan in the center of the newspaper.
3. Have a volunteer stand on a chair above the pan of flour.
4. The volunteer should drop a small rock into the pan.

DO NOT THROW THE ROCK!!!!

5. Repeat two more times with small rocks.
6. Draw and color what you see in the observations on the next page.
7. Measure the diameter of each crater in cm. Place the measurements in the table under each observation.
8. Smooth out the cocoa powder and flour and repeat with 3 large rocks.



Small Rock Craters

| | | |
|---|--|--|
| Crater 1 Drawing Label the floor. | Crater 2 Drawing Label the raised rim. | Crater 3 Drawing Label the ejecta. |
| Crater Diameter: | Crater Diameter: | Crater Diameter: |

Large Rocks Craters

| | | |
|---|--|------------------|
| Crater 1 Drawing Label a ray of ejecta. | Crater 2 Drawing Label the wall. | Crater 3 Drawing |
| Crater Diameter: | Crater Diameter: | Crater Diameter: |

Questions:

1. What is the name of a piece of rock out in space?

2. What is the name of a piece of rock from space that lands on the earth? _____
3. What is the name of the soil that has exploded out of a meteor crater? _____
4. What happened to the size of the crater with a larger rock?



OUTER SPACE

N U C L E U S D C V I O M B H A D P N F
N E O S T Z I Z R A K O N E O R I F V G
Q G N A C O G O A F O R H C R F O E K F
K M F O R Z W B T N K O U L G O R P B U
A B F E T R M U E D Y Y Q A K N O N U X
U R T S T S E W R U M U O R M F E N C E
K S H I D U S T E C I A W B N U T B P L
A T B S S M P V R D S J P N N U E C B A
B R A E U A U W U T A A Y U R G M V M T
O T W V D E H T E M O C E K H H U W C E
J L J J U P T R Z U H R K J H S L F B M
Q M F H L V O I O F M C A X M Z C G A Z
O V E A P I M I R R R P O I X M T H E R
K T N T D M W A Q O B R A M N X X K R A
Y E D B E B K P G R E V X Y A C H K W J
T O E P V O C R P U Q T I E T V U X K S
S L O Q T Q R X L Z F Q E C T S I O L H
T U Y E L L A H T E M O C M A B T F V U
I L I Q W B D V U X H R T V I B W V Z W
H J P K I Q Y B L G K X M T L E X T J K

Asteroid
Asteroid Belt
Comet Halley
Meteor
Meteoroid
Planet

Coma
Crater
Ice
Meteorite
Nucleus
Stone

Comet
Dust
Metal
Moon
Orbit
Tail

Name _____ period _____

EXIT TICKET

Meteors and their Craters

1. Which of the following is NOT a stage of a meteor?

- A. meteor
- B. meteoroid
- C. meteored
- D. meteorite

2. Large impact craters are typically caused by _____ meteorites.

- A. large
- B. small
- C. medium
- D. any size

Conclusion: (metal, stone, meteoroids, meteorites, meteors, craters)

Meteors can be made of _____ , _____ or a combination of both. When they are out in space they are called _____. When they enter the earth's atmosphere they are called _____. When meteors actually hit the earth they are called _____. When meteorites land on the earth they can cause _____.

Name _____ period _____

EXIT TICKET

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