Do you think you've found a meteorite?

Your name: _____

Your contact information: _____

Where you found the rock: _____

What you need:

Kitchen scale
Measuring cup
Unglazed tile
Magnet
Magnifying glass

Meteor-rights

	Yes	No
1. Does your rock have a fusion crust – a thin, black, glassy coating?	☐	☐
2. Does your rock have metal in it?	☐	☐
3. Does your rock attract a magnet?	☐	☐
4. Is your rock heavy for its size (dense)? (*use worksheet on other side*)	☐	☐

Meteor-wrongs

	Yes	No
5. Is your rock round or aerodynamic?	☐	☐
6. Does your rock have small holes in it?	☐	☐
7. Can you see crystals or quartz in your rock?	☐	☐
8. Did your rock land on the ground still hot?	☐	☐
9. Does your rock leave a streak? (*use worksheet on other side*)	☐	☐
10. Does your rock have metal but not attract a magnet?	☐	☐

Based on your tests, do you think your rock is a meteorite? Why or Why Not?

Created by Dr. Barbara Cohen, NASA Marshall Space Flight Center
For more information, please see http://planetary.msfc.nasa.gov/Found.html

4. Is your rock heavy for its size (dense)?

a. **Measure the weight** of your rock on a balance or scale. Make sure your answer comes out in grams. (1 oz = 28 g; 1 lb = 454 g)

Weight of rock = _____g

b. **Measure the volume** of the rock. Put the rock in a household measuring cup or bowl with measuring marks. Make sure the cup is bigger than the rock. Fill the cup with water. Measure the level in milliliters (mL). Take the rock out of the cup. Measure the water level again in milliliters (mL). Subtract the second number from the first to get the rock volume. (1 fl oz = 30 mL; 1 cup = 237 mL)

Volume of rock = _____mL

If your rock is too big to put in a measuring cup, then measure it with a ruler, making sure your measurement is in centimeters (1 inch = 2.54 cm). Measure the longest side and the shortest side, then one more length perpendicular to both sides. Calculate a rough volume by multiplying all three lengths together. When you multiply the three lengths together, you will get your answer in mL.

c. **Calculate the density** of the rock (the weight divided by the volume).

Weight _____g ÷ Volume _____mL = **Density** _____ g/mL

d. **Compare your rock's density**: Terrestrial rocks have a density around 3 g/mL and iron meteorites have a density around 8 g/mL.

9. Does your rock leave a streak?

Find a piece of common ceramic tile, such as a bathroom or kitchen tile, that has a smooth glazed slide and an unfinished dull side which is stuck to the wall when installed. If you don't have a ceramic tile, you can also use the inside of your toilet tank cover (the heavy rectangular lid on top of the tank) - it is heavy, so be careful.

Take the rock and scratch it vigorously on the unglazed side of the tile, like a crayon. If it leaves a black-gray streak the sample is almost certainly magnetite, and if it leaves a red-brown streak it is almost certainly hematite. A meteorite, unless it is very heavily weathered, will not leave a streak on the tile.