Meteoritics in the Middle School Classroom. E. F. M. Albin, Department of Space Sciences, Fernbank Science Center, 156 Heaton Park Dr, Atlanta GA 30307 (ed.albin@fernbank.edu).

Introduction: Results are presented describing a classroom / lab activity about meteorites for middle school students (6th Grade). The project was piloted as a "single visit" session at the Fernbank Science Center in Atlanta, GA. Our findings suggest that middle school-aged children are naturally interested in meteors and meteorites. Such interest may be linked to the luminous nature of fireballs and bolides that drop stones from space onto the surface of our planet [e.g., 1].

Background: Since meteorites provide a first hand look at material from the early history of our Solar System, they are objects of considerable scientific importance. To this end, students are given a brief introduction to the field of meteoritics, which includes a PowerPoint style presentation and a look at larger hand samples of meteorites (Figure 1). Participants are then separated into groups of four or five students and encouraged to examine / characterize a suite of specimens.

Lab Activity: A classroom program is designed to further student knowledge concerning these celestial samples. A set of specimens (Figure 2) was gathered that introduces students not only to meteorites but to stones often confused for meteorites ("meteor-wrongs"). Materials associated with impact craters were also include in these sets. Individual sample cases include the following fourteen specimens: four meteorites (iron, stony, stony-iron, carbonaceous chondrite), five "meteor-wrongs" (slag, ironstone, diabase, magnetite, illmenite), and five impact crater materials (shattercone, breccia, impactite, impact melt, tektite). The accompanying activity sheet allows students to catalog characteristics of meteorites and how to distinguish them from non-meteorites. A final "mystery sample" serves as a check on how well students have digested the skill of meteorite identification.

Conclusions: This activity seeks to provide middle school students with a hands-on appreciation for meteorites and the craters they can form. Students also become aware of how to distinguish meteorites from ordinary terrestrial rocks.

References: [1] Norton, O. R., 1998, Rocks from Space, Mountain Press Pub. Co., 447 p.

Figure 1. Iron meteorites in our museum display.

Figure 2. Meteorite sample set used in lab activity.

Meteorite Activity Sheet

PART A. Meteorite Samples. Please examine the four meteorites in the first row of the sample box. Answer the four questions about each meteorite sample. Be sure to use the magnet and hand lens as you look at each of the rocks.

Sample Name	What Color is it?	Is it Light or Heavy?	Does a Magnet Stick to it?	Is it Metallic or Non-Metallic?
Iron Meteorite	?	Light / Heavy	Yes / No	Yes / No
Stony Meteorite	?	Light / Heavy	Yes / No	Yes / No
Stony-Iron Meteorite	?	Light / Heavy	Yes / No	Yes / No
Carbonaceous Chondrite	?	Light / Heavy	Yes / No	Yes / No

PART B. Meteor-wrong Samples. Examine the five meteor-wrongs in the second row of the sample box. Answer the four questions about each meteorite sample. Be sure to use the magnet and hand lens as you look at each of the rocks.

Sample Name	What Color is it?	Is it Light or Heavy?	Does a Magnet Stick to it?	Is it Metallic or Non-Metallic?
Slag	?	Light / Heavy	Yes / No	Yes / No
Ironstone	?	Light / Heavy	Yes / No	Yes / No
Magnetite	?	Light / Heavy	Yes / No	Yes / No
Diabase	?	Light / Heavy	Yes / No	Yes / No
Illmenite	?	Light / Heavy	Yes / No	Yes / No

PART C. Mystery Sample. Use the information above to help identify your unknown sample as a meteorite or meteor-wrong. What is the specific name of the sample?

Sample Name	What Color is it?	Is it Light or Heavy?	Does a Magnet Stick to it?	Is it Metallic or Non-Metallic?
?	?	Light / Heavy	Yes / No	Yes / No