EXERCISE 1

METEORITES

Due September 14, 2012

In this exercise, you will go to the Geology Museum, which is located on the 4th floor of the Science Building, rm. 416. The museum is open only during the workday (~9am – 5pm). When you walk in the door, the first display case you encounter (to the right) contains several meteorites. You can do this exercise on your own (the text book will help you), but my office is down the hall (room 429) and Miché and Shehandeh will be in the museum to help Monday – Thursday afternoons ~2-4 pm.

Please write down the obvious characteristics of each of the 7 meteorites. Include whether it is an iron, stony, or stony-iron meteorite, description of the exterior (this may be difficult to see in the display, but look at the sides of the samples), and characteristics of the rock itself.

The meteorites are numbered by position in the case as so:

1. Canyon Diablo
2. Canyon Diablo
3. Canyon Diablo
4. Plainview, TX
5. Gilgoin
6. Allende
7. Pallasite

8. Which of the meteorites display a Widmanstätten pattern? What causes this pattern?
9. What characteristics of meteorite #4 might lead you to identify it as a meteorite if you saw it on the ground?

10. What circumstances led to the formation of the pallasite (specimen #7)?

11. Which of the specimens is the most primitive?

12. What are tektites?

Below is a table that describes the percentage of meteorite types:

<table>
<thead>
<tr>
<th></th>
<th>Stones</th>
<th>Stony-irons</th>
<th>Irons</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of Falls</td>
<td>95.7%</td>
<td>1.1%</td>
<td>3.2%</td>
</tr>
<tr>
<td>Frequency of Finds</td>
<td>52.3%</td>
<td>5.4%</td>
<td>42.1%</td>
</tr>
</tbody>
</table>

13. Based on your observations of meteorites and the iron you held in class, what accounts for the difference in percentages?

14. Are falls or finds better representatives of the types of meteoroids in space?

PS. The meteorites begin a story about the Earth in this display case. I encourage you to look through the rocks and read the story in the case now and during the semester. We will discuss each of these types of rocks in the next few weeks.