

Meteorites and the Early Solar System

There's a lot more to the Solar System than just planets! In the Hall of Meteorites at the Museum of Natural History, we can learn about the other solid bodies that orbit the Sun. Although smaller, they have played a role in the evolution of life on Earth, and they carry records that tell the history of the Solar System going all the way back to the formation of the planets and even further.

After taking time to explore all of the exhibits in the Hall of Meteorites, then answer the questions below in your lab book. Some answers require you to combine information from more than one exhibit.

I. The Ahnighito Meteorite

1. What makes this meteorite so special for it to be the centerpiece of the collection here at AMNH?
2. Diagram the relative size of the Ahnighito meteorite by making a rough sketch of its profile along with a person standing next to it.
3. What is the meteorite mostly made of? How heavy is the Ahnighito meteorite? If you assume that an average person weighs 150 lbs, and a ton is 2000 lbs, then how many people does it take to be as heavy as this relatively compact meteorite?
4. What is the difference between a meteorite and a meteor?
5. Give an example of a good place on the Earth to search for meteorites.

II. Impacts

6. Why is the Moon's face covered in craters, while we only see a few on Earth? Explain.
7. How does the impact of a large body lead to a mass extinction, as in the case of the dinosaurs?
8. When and where do scientists think Chicxulub (the dinosaur-killing impact) occurred? What is the evidence for it being responsible for this mass extinction?
9. Describe one plausible way to divert the path of an asteroid on a collision course with Earth that does not involve Bruce Willis.
10. Briefly explain the leading theory of how the Moon formed.

III. The Early Solar System

11. What is the solar nebula?
12. If you were to take a small amount of the solar surface and cool it to room temperature, it would have a composition similar to what objects? Why?
13. All in all, what do *you* consider to be the main reasons scientists would want to study meteors/meteorites? Please cite two reasons.

IV. Worlds Beyond Earth (Post space-show questions)

14. What did you learn about the early solar system from space show?
15. Describe something about the evolution of the solar system that you didn't know before.

V. Reflection

16. Write a brief (2-4 sentences) reflection on what you took away from this lab. If you need some inspiration, what was your favorite part of visiting The Rose Center for Earth and Space and why? Alternatively/in addition, describe something new you learned.