

Tour of the Meteorite Mini-Kit



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The Next Generation Science Standards (NGSS) Performance Expectations include: “What makes up our solar system?” NGSS emphasizes the Crosscutting Concepts of Patterns and Scale, Portion, and Quantity. NGSS also states that the Nature of Science (NOS) should be an “essential part” of science education. NOS topics include, for example, understanding that scientific investigations use a variety of methods, that scientific knowledge is based on empirical evidence, that scientific explanations are open to revision in light of new evidence, and understanding the nature of scientific models.

The Mini-Kits lend themselves perfectly for incorporating the Nature of Science into an activity that also introduces teachers and their students to meteorites.

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Discussion Questions

- Comparing the pumice (scoria) to the Earth rock, why is one heavier than the other? **(The pumice has holes and the other does not.)**
- Why is the whole meteorite heavier than the pumice or Earth rock? **(The meteorite is made of heavier “stuff.”)**
- Why is the little meteorite attracted to a magnet (it is not magnetic!)? **(It is made of metal—iron.)**
- Are the meteorites attracted to a magnet? **(Yes.)**
- When you look at the surfaces of the two cut meteorites, what do you see? **(Little shiny flakes.)**
- Why are the meteorites attracted to a magnet? **(They contain little flakes of iron.)**
- Why are the meteorites heavier than the Earth rock? **(They contain little flakes of iron!)**

Information About the Meteorites

- All of the meteorites are older than the Earth. They are the “building blocks” that made the Earth. They are 4.56 billion years old!
- There are no Earth rocks that contain pure metal (iron and nickel) as do the meteorites (others are attracted to magnets, but the flakes of metal are unique to meteorites).
- No Earth rocks contain chondrules.
- The iron meteorite is from the core of an asteroid.
- The chondrite meteorites came from asteroids that were too small to have melted, so we are seeing the iron as it was when the Solar System was forming.

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- Determine your audience’s prior knowledge about meteorites
- Demonstrate that one way of identifying a meteorite is by weight (density) and why
- Lead your audience through a series of investigations of the rocks in the Mini-Kit, having them guess which ones they think are meteorites and why
- Look at the rocks or sketch them without picking them up
- Pick them up
- Examine the rocks with the tools they have been given (magnifier and magnets)
- For closure, tell them that this is exactly what scientists do
