Investigation 1: Exploring Memory Metals

Supplies

hot water
cold water
tongs
beakers
Nitinol wire (##########)

Teacher Notes

1. Students will have little or no previous knowledge of memory metals before this investigation. The first two investigations are meant to introduce students the memory metal phenomenon, and to evoke questions. The only background information that should be discussed is the definition of an alloy. More background information will be provided in later investigations.
2. Before class, prepare hot water by boiling water. Have beakers available to students.
3. Distribute "Investigation 1: Exploring Memory Metals" sheet. Students will be observing what happens to memory metal as they are heated and cooled. Students should bend (or try to bend) the metal in each phase. Tongs will be necessary to bend the wire after it has been placed in the hot water. **CAUTION** Splashing of hot water may occur as the Nitinol quickly returns to the martensite phase. Student should use caution. Splash guard safety goggles are required.
4. Students should answer the questions, and their answers should be discussed as a whole class. It is especially important for students to share questions generated by the investigation.