Nitinol Procedure

The goal of this demonstration is to demonstrate and explain Nitinol's shape memory properties.

Materials Needed:

- 2 or more pieces of Nitinol
- Hair dryer
- Clear container

Nitinol Museum Show

Set-up:

- Check to make sure you have all the supplies.
- Make sure the Nitinol is in its original shape, whether straight or spring. Use the blow dryer to reset it if it is not.

The Demonstration:

1. Hand pieces of Nitinol to visitors. Tell them that this wire is made of a material called Nitinol [*pronounced night-in-all*] and is a mixture of nickel and titanium. Its name comes from **Ni**ckel, **Ti**tanium, and the **N**aval **O**rdnance **L**aboratory, where it was discovered during the 1960s. Tell them that the wire's other name is memory metal. Ask why they think it might be called memory metal.
2. Ask visitors to bend the wire. Then ask them to try to put it back exactly in its original shape.
3. Ask visitors if there is any way to get the wire exactly back in shape. Ask them if they think a blow dryer could help. Explain that you will raise the temperature of the wire using the hair dryer. Put the wire in the container so it doesn't blow away. Use the blow dryer to reset the shape of the Nitinol. Make sure all the visitors can see.
4. Let the wire cool so it will be safe for visitors to touch. Then repeat the demonstration, allowing visitors to use the hair dryer.
5. Explain that Nitinol is a smart material that remembers its shape, and that, when heated above a certain temperature called its transition temperature, it will always bounce back to its original shape. This has made Nitinol very useful in products like: wires for braces, appliance switches, robotics, scultures that can move with heat or electricity (see FAQ for more information.)

Clean-up:

- Make sure the Nitinol is in its original shape. Use the blow dryer if it is not.
- Gather all materials and return to storage.