06-01 Thermal Expansion Stations *Name: _____*

Objective

- Experience thermal expansion.

Materials

- Ring and Ball demonstration
- Bimetallic strip demonstration
- Beakers of boiling water
- Bimetallic discs

Procedure

Station 1 – Ring and Ball

1. The ring and ball should both be at room temperature. Pass the ring over the ball. The fit should be tight.
2. Hypothesize what will happen when the ball is heated. _____
3. Hold the ball in the boiling water for a minute. Pass the ring over the ball. What happened? _____
4. Let the ball cool to room temperature.
5. Hypothesize what will happen when the ring is heated (will the hole get bigger or smaller). _____
6. Hold the ring in the boiling water for a minute. Pass the ring over the ball. What happened? _____
7. What will happen when both the ring and ball are hot? _____
8. Hold both the ring and ball in the boiling water for a minute. Pass the ring over the ball. What happened? _____
9. How could this be used in real life? _____

Station 2 – Bimetallic Strip

1. A bimetallic strip is made of two metals with different coefficients of linear expansion.
2. Look at the strip. Describe its shape. _____
3. Hold the strip in the boiling water for a minute. Describe its shape now. _____
4. Why did the shape change? _____
5. How could this be used in real life? _____

Station 3 – Bimetallic Disc

1. The bimetallic disc is curved. Try to press it inside out. What happens? _____
2. Warm the disc by rubbing it vigorously with your hands.
3. Quickly press it inside out and set logo side up on the desk.
4. What happened? _____
5. Why? _____