FLINN SCIENTIFIC

Name_____

The Resonator Worksheet

Observations
Demonstration #1

1. Record the length of each wooden dowel used in Demonstration #1.

2. Which dowel resonated first (at the lowest frequency)?

3. Which dowel resonated last (at the highest frequency)?

4. As a wooden dowel achieved resonance, what did you observe about the other dowels?

5. At any point during the demonstration, did two or more dowels resonate at the same time?

6. Other than the length of the dowel, what variable affects the resonance of each dowel?

Demonstration # 2

1. Record the diameter and length of the wooden dowels used in Demonstration #2.

2. Which dowel(s) resonated first (at the lowest frequency)?

3. Which dowel(s) resonated last (at the highest frequency)?

4. At any point during this demonstration did two or more dowels resonate at the same time? Explain your observation.

5. What caused the different dowels to resonate at different times?

Post-Lab Analysis

1. Based on your observations in Demonstration #1, do any of the dowels share the same natural frequency? Explain your answer.

2. Based on your observations in Demonstration #2, do any of the dowels share the same natural frequency? Explain your answer.

3. What characteristics are necessary in order for two dowel rods to resonate at the same time?

4. Using the same dowels provided in this demonstration kit, describe how an experiment could be set up to test if dowels of different lengths and different diameters share the same natural frequency.

5. Describe the relationship between the length of an object and the frequency causing the object to resonate.