

## **Student directions *Resonance* activity**

### **High School Version**

**Learning Goals:** Students will be able to:

1. Describe what resonance means for a simple system of a mass on a spring.
2. Identify, through experimentation, cause and effect relationships that affect natural resonance of these systems.
3. Give examples of real-world systems to which the understanding of resonance should be applied and explain why.

**Directions:**

1. Find a definition of resonance and cite it.
2. Use the simulation to test ideas you might have about what resonance for a mass on a spring means, then write a description for resonance that is specific including what are the necessary components.
3. Design experiments using the tools provided in the sim to identify what affects the natural resonance for mass-spring systems. Organize your experiments and findings in data tables.
4. Pretend you are helping a student who doesn't have access to this simulation. Write what you would tell them what you learned in your use of the sim including illustrations that could be helpful.
5. Give examples of at least one real-world system to which the understanding of resonance could be applied and explain why understanding resonance would help you (or someone else) use the system more effectively.