

Evaluating Sim-coupled Activities – Masses and Springs: COMPARING USES

Sample Activity A:

1. Open the Masses and Springs sim.
 - a. Hang the 50 g mass on Spring #1 and make sure it is at rest. How much is the spring stretched from its original equilibrium position?
 - b. What is the spring constant for this spring?
 - c. Now use this same spring to measure the mass of the red mass. What is its mass?
 - d. If you make the spring constant larger (stiffer spring) or smaller, how does the distance of the stretch change?

Sample Activity B

1. In a grocery store, we weigh our vegetables on spring scales. Describe how you think the scale works when you put on a bag of apples.
2. Open *Masses and Springs*. Explore all the features.
 - a. How does the simulation compare to a vegetable scale?
 - b. How could you use the tools in the simulation to measure the mass of the cylinders with no numbers?
3. Test your ideas by finding the mass of the red cylinder.
 - a. Check your answer with another group and discuss with them how they found the mass.
 - b. Compare and contrast the two methods that were used and the resulting answers.
 - c. Write a paragraph explaining why your plan makes sense; include the physics principles that support your reasoning.
4. Why do you think you can't weigh yourself on a grocery store scale? What changes do you think you could make to the vegetable scale so that it could be used to measure your weight?
 - a. Test your ideas by exploring in the simulation. Explain what you discovered. Use physics principles to describe why your discoveries make sense.
 - b. Give an example of something that you could weigh with a spring that has a small constant and explain your reasoning.



1. Which guidelines do you feel are applied in this activity?

2. What changes were made to align this activity with the guidelines?

2. How do you think aligning the activity with the guidelines will affect student learning? Discuss your thinking with your partner.