

# Activity Design for PhET simulations

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<b>Traditional Lesson:</b>	<b>Inquiry based Lesson:</b>
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?	In a grocery store, we weigh our vegetables on spring scales. a. If you tried to hang from the vegetable scale to measure your mass, this would not work. Explain why you think it would fail? b. Open the Masses and Springs sim. Explore all the features. c. (Work with your group to) develop an approach for using these tools as a scale (like the vegetable scale) where you can measure the mass of the colored masses. Describe your approach and why your approach makes sense, including the physics principles that support your reasoning. d. What do you measure for the mass of the red mass? e. How does the behavior of the scale depend on the spring constant (stiffness) of the spring used? Under what conditions would you want to use a spring with a small spring constant versus one with a large spring constant? Include your reasoning that supports your answer. f. What change could you make to the vegetable scale so that it could be used to measure your weight? Explain your reasoning.

## Creating Activities using a Guided Inquiry Approach

1. Specific learning goals
2. Students reason and make sense
3. Connects to students' knowledge
4. Connects to real-world experiences
5. Collaborative activities
6. Minimal directions for simulations
7. Students self-check understanding

## Write an activity using by using this planning guide:

*1. Brainstorm some learning goals that the simulation would support.*

*2. Write one goal.*

*3. Which guidelines would you like to use?*

*4. Outline or map your lesson.*

*5. Draft your activity.*