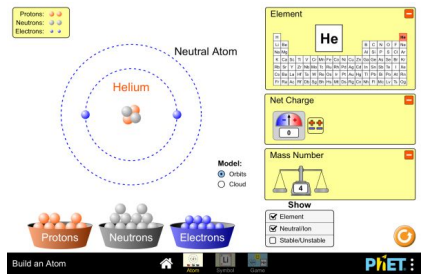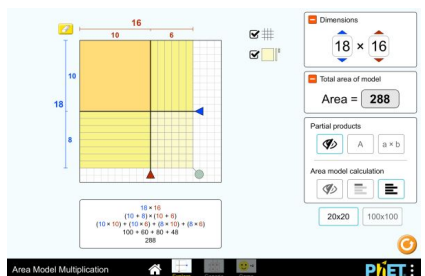# PhET Challenge Prompt Exercise for Math

For each sim activity, review the learning goal and the sample prompt.

🔊 In order to respond to the prompt, how will students use the sim?

🔊 How could you modify the prompt so that it is open-ended, but still reaches the learning goal?

Build an Atom	**Goal**: Describe the sum of additive inverses **Prompt**: Build an atom with 3 protons and 3 electrons. What is the net charge?

Updated prompt:

Build an atom with a net charge of 0. Compare with your classmates. What do you notice about the number of protons and electrons?

Area Model Multiplication	**Goal**: Explain the relationship between the partial areas and the total area of a partitioned area model **Prompt:** Make a model that is 13x17 and drag the lines to make 10+3 and 10+7. What are the four smaller areas, and how do they relate to the total area?

Updated prompt:

Build an area model and use the red and blue partitions divide up your area. What is the relationship between the four smaller areas and the total area?
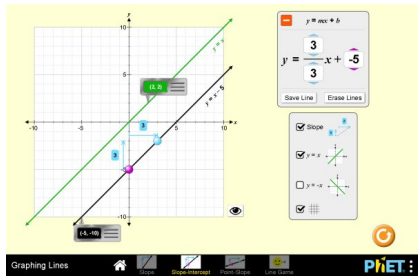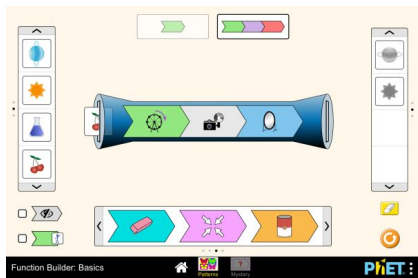
Graphing Lines	**Goal**: Identify parts of linear equations in Slope-Intercept
	Prompt: Graph a line with slope=-⅔ and y-int=2. Compare your answer with the sim and write the equation.

Updated prompt:

Use the sim to graph different lines. What is the relationship between the numbers in the equation and the graphed line?

Function Builder	**Goal:** Describe how symmetry impacts a rotation function
	Prompt: Using the Wheel icon, introduce the Butterfly and the Snowflake. How do they transform after they go through the function?

Updated prompt:

Which inputs remain unchanged after going through the ferris wheel function? Make a conjecture for determining which inputs will not change after passing through the ferris wheel function.
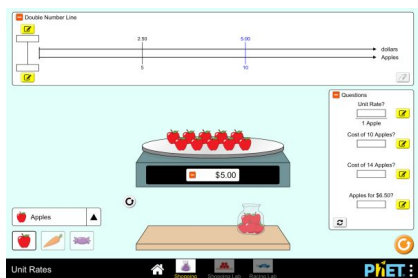
Unit Rates	**Goal:** Look for patterns in the double number line
	Prompt: Put a bag of apples in the scale. Remove an apple one at a time. What do you notice about the numbers in the double number line?

Updated prompt:

As you play with the fruit on the scale, what do you notice about the values on the double number line?