

KE Plot

Question: How do the **mass and speed** of a vehicle affect its kinetic energy?

Today, your challenge is to use the data collected in the previous two lessons to graph the impact of mass and speed on the kinetic energy of moving objects.

Step 1: Review your CERs

- Refer back to the data charts, data analysis, and scientific reasoning you completed in the earlier lessons.
- What do you notice?



Step 2: Plot the data

- Use the two blank charts below to plot your data.
- Be sure to label the axes appropriately (based on the variables you selected to measure).

Name _____ Class _____ Date _____

Step 3: Examine your Graphs

- Carefully examine the lines on both graphs.
- What do they tell you about the amount of energy possessed by the balls of different mass?

- What do they tell you about the amount of energy possessed by the balls moving different speeds?

Step 4: Making Comparisons/Relating Cause and Effect

- Use arrows to fill in the table below:

Cause	Effect
↑ mass (speed constant)	___ kinetic energy
↓ mass (speed constant)	___ kinetic energy
↑ speed (mass constant)	___ kinetic energy
↓ speed (mass constant)	___ kinetic energy

Step 5: Return to Phenomenon of the Two Trucks and the Telephone Pole

- So far in your testing, you have focused on how mass and speed affect kinetic energy independently. So does this help you understand why the lighter truck caused more damage than the heavier truck? Please explain.

This form is your EXIT TICKET. What did you learn? Is it possible for a lighter car to have more energy than a heavier car? Remember: each of you should write your thinking in your own words and turn the form in at the end of the lesson.
