

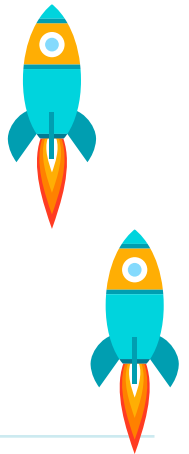
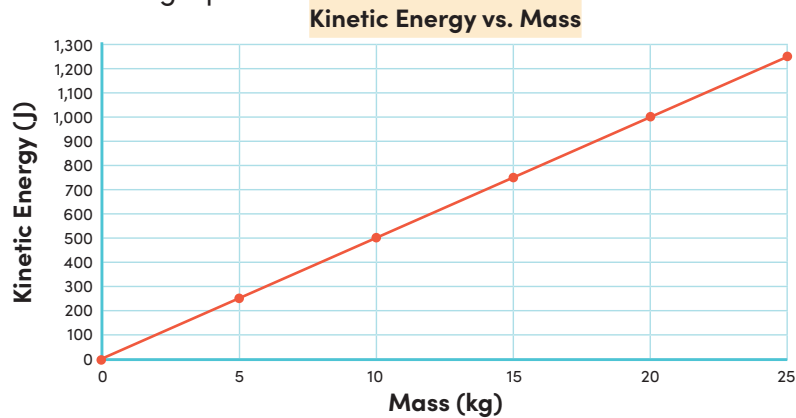
Kinetic Energy, Mass, and Speed: Part 2

Kinetic energy is energy of motion. The kinetic energy of an object depends on its **mass** and **speed**.

How do mass and speed affect kinetic energy? Let's use graphs to find out!

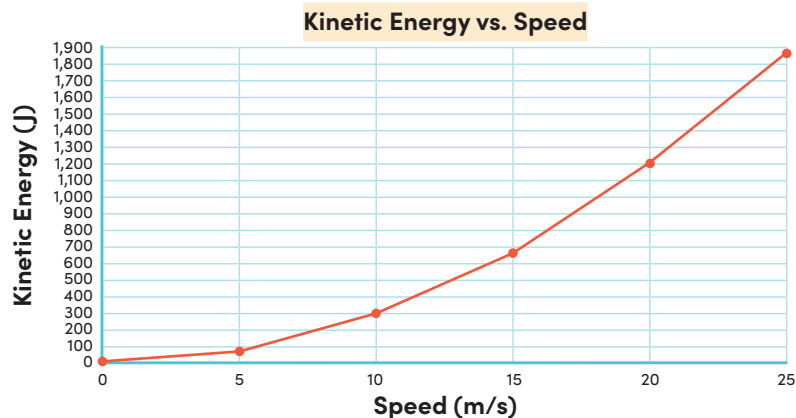
- The table below shows the mass and kinetic energy of various objects that are all moving at the same speed of 10 meters per second. Plot the points from the table on the graph. Once you have plotted all the points, connect the dots to create a line graph.

Mass (kg)	Kinetic Energy (J)
0	0
5	250
10	500
15	750
20	1,000
25	1,250



- The table below shows the speed and kinetic energy of various objects that all have a mass of 6 kilograms. Plot the points from the table on the graph. Once you have plotted all the points, connect the dots to create a line graph.

Speed (m/s)	Kinetic Energy (J)
0	0
5	75
10	300
15	675
20	1,200
25	1,875



- Fill in the blanks to finish the statements. Use the tables from problems 1 and 2 to help you.
 - If one object has twice the mass of a second object and their speeds are the same, then the kinetic energy of the first object is double the kinetic energy of the second.
 - If one object is moving at twice the speed of a second object and their masses are the same, then the kinetic energy of the first object is quadruple the kinetic energy of the second.

- Describe the shape of each graph that you created above. What do these shapes tell you about the effect of mass and speed on kinetic energy? **Sample answer**

The "Kinetic Energy vs. Mass" graph looks like a straight line, while the "Kinetic Energy vs. Speed" graph looks curved. Kinetic energy increases more rapidly as speed increases compared to when mass increases.