Name: _____ Date: _____

Exit Ticket

After using the launcher with carts, a student wonders what might happen if the launcher was used with other types of objects that don't have wheels. The student decides to try the launcher with a golf ball and a ping pong ball that are the same size. Even though the launcher applies the same force to both balls, the ping pong ball is shot from the launcher at a faster speed.

How can you explain the change in motion of each of the balls and the differences in their speeds?

Use a picture to show your thinking.

Other students wonder about different ways to apply force with a launcher and want to try to launch a golf ball with rubber bands or springs. One student makes a launcher with a spring, and another student uses a rubber band. Both students launch golf balls with their launchers. The golf ball seems to go at a slower speed from the rubber band launcher than from the spring launcher. The student with the rubber band launcher adds additional rubber bands until there are four. When the golf ball is launched again with four rubber bands, it is shot from the launcher faster than from the spring launcher.

What are the rubber bands doing that could explain this outcome?

Use a picture to show your thinking.

What results would you expect if you used the rubber band launcher to...

...launch a golf ball and a ping pong ball using 1 rubber band? Why?

...launch a golf ball and a ping pong ball using 4 rubber bands? Why?

If the golf ball and the ping pong ball shot from the 4 rubber band launcher accidentally hit your cell phone screen, which one is more likely to damage your phone? Why?