

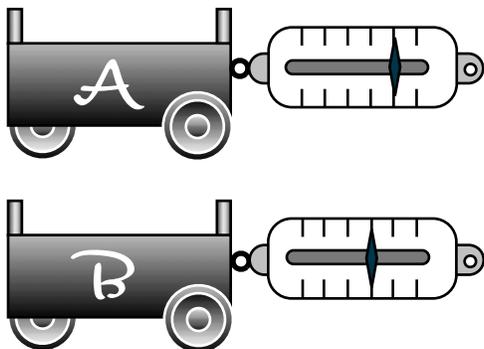
PhyzJob: A Day at the Races

$$a = \frac{F}{m}$$



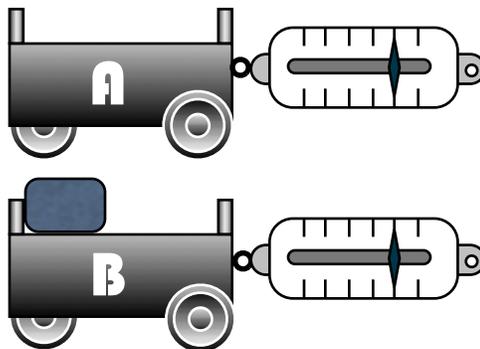
1. Cart A has a mass of 1 kg and is being pulled with a force of 1 N. Cart B has a mass of 1 kg and is being pulled with a force of 2 N. Which undergoes the greater acceleration?

A B Same for both



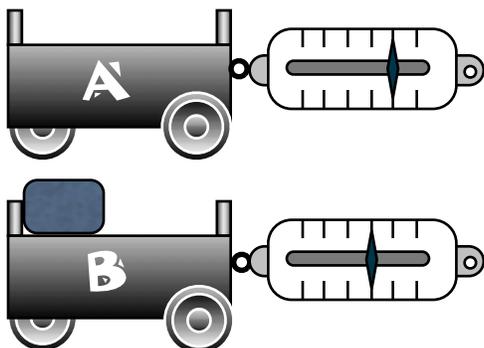
2. Cart A has a mass of 1 kg and is being pulled with a force of 1 N. Cart B has a mass of 2 kg and is being pulled with a force of 1 N. Which undergoes the greater acceleration?

A B Same for both



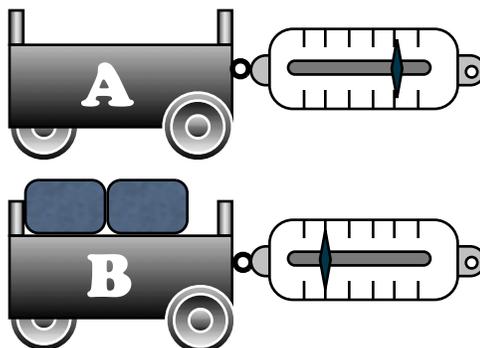
3. Cart A has a mass of 1 kg and is being pulled with a force of 1 N. Cart B has a mass of 2 kg and is being pulled with a force of 2 N. Which undergoes the greater acceleration?

A B Same for both



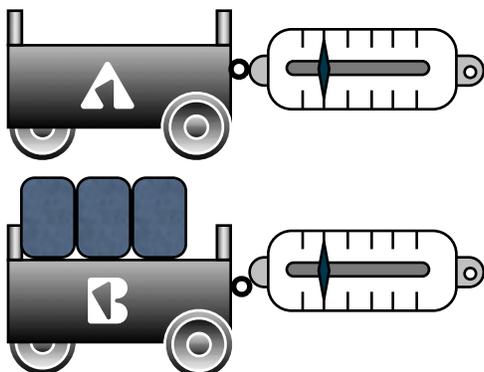
4. Cart A has a mass of 1 kg and is being pulled with a force of 1 N. Cart B has a mass of 3 kg and is being pulled with a force of 4 N. Which undergoes the greater acceleration?

A B Same for both



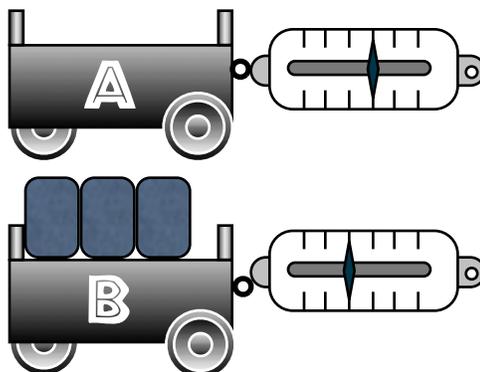
5. Cart A has a mass of 1 kg and is being pulled with a force of 4 N. Cart B has a mass of 4 kg and is being pulled with a force of 4 N. Which undergoes the greater acceleration?

A B Same for both



6. Cart A has a mass of 1 kg and is being pulled with a force of 2 N. Cart B has a mass of 4 kg and is being pulled with a force of 3 N. Which undergoes the greater acceleration?

A B Same for both



steel sphere

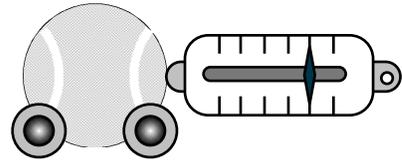
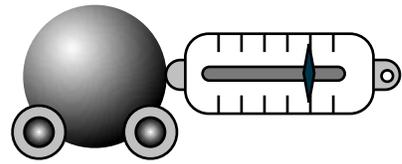
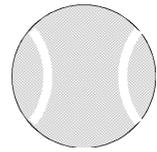
tennis ball

7. a. Which has more mass: the steel sphere or the tennis ball?

Indicate this by writing a big m next to the object with the larger mass, and a small m next to the object with smaller mass.

b. If these objects were arranged to race as shown such that both were to be pulled by the same force (in this case, one newton), which one would undergo the greater acceleration?

The steel sphere The tennis ball Same for both

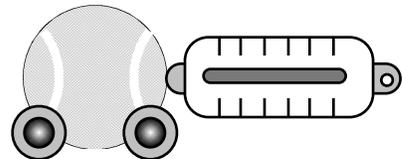
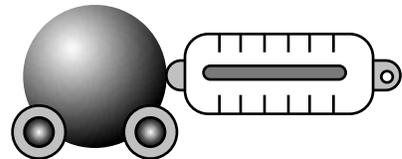
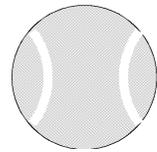


8. a. Which is acted on by a greater gravitational force (weight): the steel sphere or the tennis ball?

Indicate this by writing a big F next to the object pulled by the larger force, and a small F next to the object pulled by the smaller force. Also, draw arrows extending below the objects to indicate the size of the gravitational force.

b. If these objects were arranged to race as shown such that each was pulled by a force equal to its own weight (draw the spring scales to indicate this), which one would undergo the greater acceleration?

The steel sphere The tennis ball Same for both



9. The tennis ball and the steel sphere are dropped from the ceiling. The diagrams below show four photographs taken in rapid succession. The position of the tennis ball is shown in each photo; you must draw in the position of the steel sphere in each photo.

