



Science Virtual Learning

6th Grade Science: Momentum

April 22, 2020



6th Grade Science
Lesson: April 22, 2020

Objective/Learning Target:

I can explain and demonstrate how energy is transferred to or from an object as it moves.

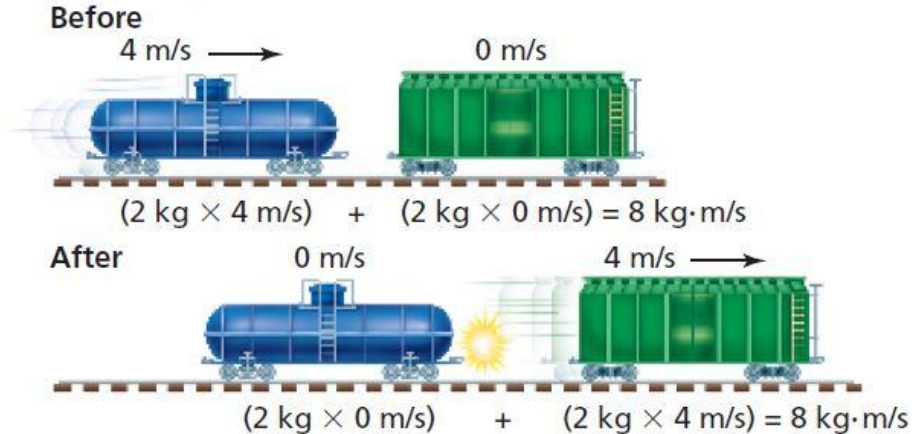
Essential Question:

How can you determine the amount of motion of an object?

Warm-Up:

Before the cars collide, the blue car has a momentum of $8\text{kg}\cdot\text{m/s}$. Afterwards, what is its momentum? Why?

B One Moving Object



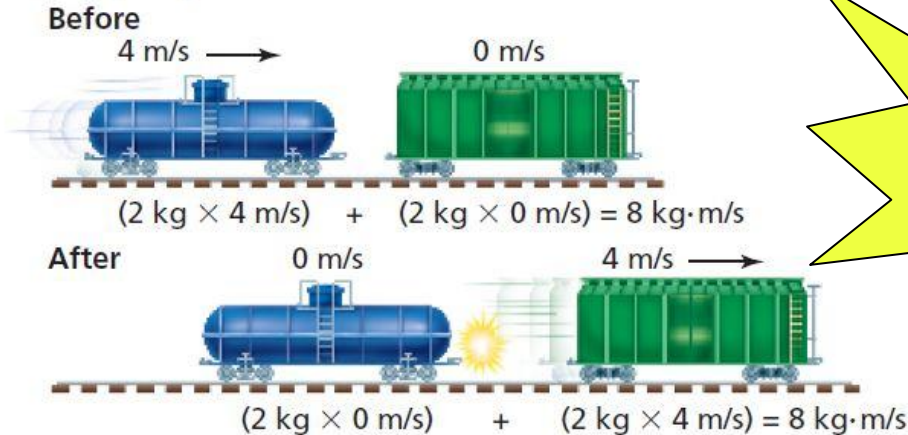
Warm-Up: **Answer**

Before the cars collide the blue car has a momentum of $8\text{kg}\cdot\text{m/s}$. Afterwards, what is its momentum? Why?

Answer:

No momentum. All of the momentum of the blue car was transferred to the green car. This is The Law of Conservation of Momentum.

B One Moving Object



Notice the equation for momentum ($p=mv$)

Key Terms:

- force- a push or a pull. The strength of a force is measured in Newtons (N).
- mass- the amount of matter in an object
- momentum- a measurement of the amount of motion an object has.
 - momentum= mass x velocity ($p=mv$)
- velocity- speed in a certain direction

Background:

- Momentum is a measurement of an object's motion.
- Momentum is calculated with the equation $p=mv$; p stands for momentum, m stands for mass and v stands for velocity (speed and direction).
- Momentum isn't destroyed, only transferred to other objects.

[Watch a really short video](#)





Background:

- Last week you completed a lesson on Newton's Third Law of Motion, which is called the Law of Momentum.
- You also learned how to calculate momentum.
- If you haven't done so, you may want to go back and do those lessons now. Use the links below:

[Last Week's Lesson on the Third Law of Motion](#)

[Last Week's Lesson on Calculating Momentum](#)

Practice 1:

Ducksters: Physics for Kids

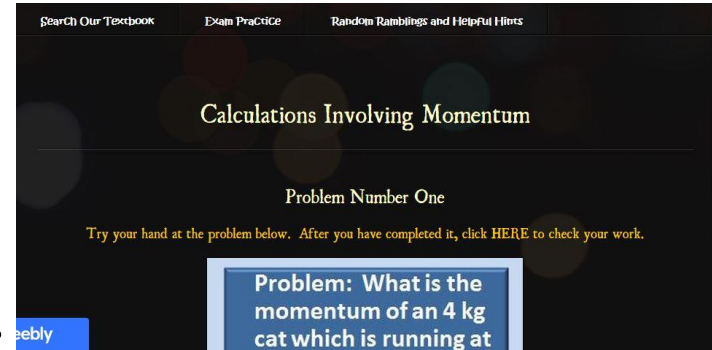
The screenshot shows the Ducksters Education Site interface. At the top, there are five cartoon duck characters and the site's logo. Below the logo are navigation buttons for History, Biography, Geography, Science, and Games. The main content area is titled "Physics for Kids" and "Momentum and Collisions". It includes a definition of momentum, the equation $p = m \cdot v$, and a poll asking "Which superpower would you want if you were a Superhero?". The poll options are Super Strength, Flying, Super Speed, Invisibility, and Super Stretch. A "Vote" button is next to the poll, and a "Mass.eds" link is at the bottom right of the poll area.

Read the Ducksters article on [Momentum and Collisions.](#)

Do the practice quiz at the bottom of the page.

Practice 2: Calculations Involving Momentum

Go to [Calculations Involving Momentum](#).



Solve the problems using the formula for momentum (you may want to use scratch paper).

Click the link below each problem to check your answer.



Summary:

- Momentum is the amount of motion an object has (think “kinetic energy”)
- Momentum of an object can be mathematically calculated with the equation $p=mv$
- Momentum is never created or destroyed but can be transferred from one object to another.

Additional Practice: *I recommend you at least watch the video experiment.

Momentum Virtual Lab: PBS Learning Media

**Allow Flash Player by clicking on the lock icon in the upper left.*

Click “Launch” to begin the lab.

[Link to Data Table](#)
[Momentum Calculator](#)

The screenshot shows a web browser window displaying the PBS Learning Media website. The page title is "Momentum" and it is categorized as an "Interactive" resource for "Grades: 8-12" from the "VITAL NY State Test Prep" collection. The main content area features a video player titled "Elastic Collisions: smaller mass" with a "Launch" button overlaid on the video. To the left of the video player is a sidebar with options: "Share to Google Classroom", "Assign or Share", "Support Materials", and "Favorite". To the right of the video player is a "You May Also Like" section with three recommended resources: "Carnival Physics: Midway Games", "Collisions on an Air Track", and "Virtual Car: Velocity and Acceleration". The browser's address bar shows the URL: pbslearningmedia.org/resource/isp07.sci.phys.maf.momentum/momentum/support-materials/.