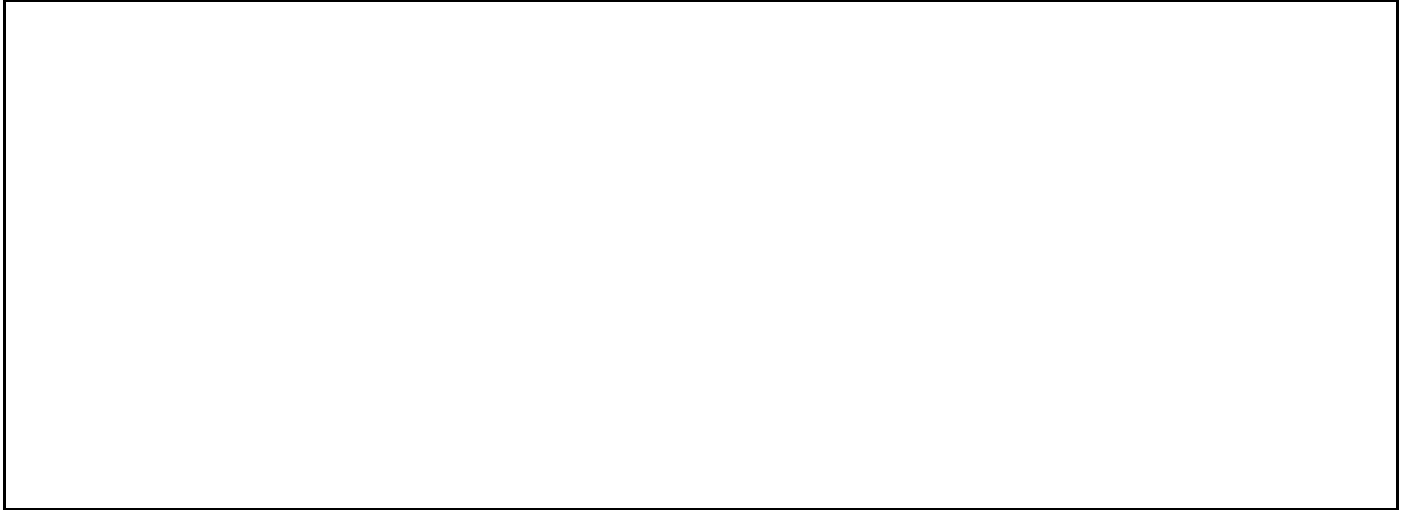


## Notes: Impulse and Momentum

**Learning Objective:** SWBAT bring together impulse and momentum to problem solve.

Impulse



Momentum



Impulse and Momentum



### How to Solve a Word Problem

1. Read the following problem
2. Highlight your "proof" for assigning variables
3. List the givens
4. Solve
5. Write your answer with the proper units

What average force is required to push a 20-kg stroller with your toddler in it for 5 seconds if the mass of the toddler is 15 kg? You push the stroller up to a speed of 1 m/s from rest.

- Initial velocity - m/s, starting from rest, initially/beginning, how fast...
- Final velocity - m/s, comes to a stop/rest, finally/end, how fast...
- Acceleration -  $m/s^2$
- Time - s, how long...
- Force - N, a push or pull

Givens

Work

Answer

A 0.350 kg volleyball is spiked so that its incoming velocity of -3.70 m/s is changed to an outgoing velocity of 18.0 m/s. If the volleyball player is able to exert 30 N of force, how long does her hand need to be in contact with the ball?

- Initial velocity - m/s, starting from rest, initially/beginning, how fast...
- Final velocity - m/s, comes to a stop/rest, finally/end, how fast...
- Acceleration -  $m/s^2$
- Time - s, how long...
- Force - N, a push or pull

Givens

Work

Answer