




# 8th Science: Amplify

## Unit 1 Lesson 3.2

### Investigating Collision Forces

Mr. Sumner  
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# Do Now

5:00

- Expectations, **ALL SILENT (VL = 0)**
  - Get computer from cart and paper from green bin
  - Go to [mistersumner.weebly.com](http://mistersumner.weebly.com)
  - Click on **Collision SIM 3.2 LINK**
  - Work on Do Now questions related to the SIM
  - Try out Part #1 Trial #1 if you get done early

# Do Now: Review and Demo

- Expectations, **ALL SILENT (VL = 0)**
  - Raise hand to participate/ask questions
  - Be ready to answer cold call questions
  - Fill out Trial #1 along with me
    - Important for you to be able to do the rest of the work!

-How do you change the velocity before running the SIM? \_\_\_\_\_

\_\_\_\_\_

-What do you click to start the SIM? \_\_\_\_\_

-Where do you find the data for our tables? \_\_\_\_\_

-How do you find the direction and strength of a force? \_\_\_\_\_

\_\_\_\_\_

# Today's Objective

- I can use evidence from the simulation to write a CER explaining the relationship between mass and strength/direction of forces during collisions

# Today's Schedule

1. Part #1 SIM
2. Part #2 SIM
3. CER
4. Pack Up

# Part 1: Trials #2 and #3



## WHAT TO DO (VL = 1.5)

- In 5 min you need to have trials #2 and #3 complete
- If you get done move onto part 2 (next page)
- Ask partner question before asking Mr. Sumner

**Trial # 2**

*Initial velocity for Object A = 5 cm/s right*

*Initial velocity for Object B = 2 cm/s left*

Effect on A: speed up, slow down, stop, start, change direction?	Effect on B: speed up, slow down, stop, start, change direction?	Direction of Force on A: right/left	Direction of Force on B: right/left	Strength of Force on A: number	Strength of Force on B: number

**Trial # 3**

*Initial velocity for Object A = 5 cm/s right*

*Initial velocity for Object B = 2 cm/s right*

Effect on A: speed up, slow down, stop, start, change direction?	Effect on B: speed up, slow down, stop, start, change direction?	Direction of Force on A: right/left	Direction of Force on B: right/left	Strength of Force on A: number	Strength of Force on B: number

# Part 2: Trials #1-#3

## WHAT TO DO (VL = 1.5)

- **MAKE SURE YOU ARE ON DIFFERENT MASSES!!**
- In 8 min you need to have trials #1-#3 complete
- If you get done move onto CER (bottom of page)
- Ask partner question before asking Mr. Sumner



8:00

### **Part 2: Different Mass Collisions**

#### **Trial # 1**

**Initial velocity for Object A = 5 cm/s right**

**Initial velocity for Object B = 0 cm/s**

Effect on A: speed up, slow down, stop, start, change direction?	Effect on B: speed up, slow down, stop, start, change direction?	Direction of Force on A: right/left	Direction of Force on B: right/left	Strength of Force on A: number	Strength of Force on B: number

#### **Trial # 2**

**Initial velocity for Object A = 5 cm/s right**

**Initial velocity for Object B = 2 cm/s left**

Effect on A: speed up, slow down, stop, start, change direction?	Effect on B: speed up, slow down, stop, start, change direction?	Direction of Force on A: right/left	Direction of Force on B: right/left	Strength of Force on A: number	Strength of Force on B: number

#### **Trial # 3**

**Initial velocity for Object A = 5 cm/s right**

**Initial velocity for Object B = 2 cm/s right**

Effect on A: speed up, slow down, stop, start, change direction?	Effect on B: speed up, slow down, stop, start, change direction?	Direction of Force on A: right/left	Direction of Force on B: right/left	Strength of Force on A: number	Strength of Force on B: number

# CER

## WHAT TO DO (VL = 1.5)

- In 5 min complete CER
- If you get done move challenge Blue SIMS
- When done with CER *raise hand* for feedback

✓ = good keep going

○ = use feedback to fix

5:00

**CER:** Explain the relationship between mass and strength/direction of forces during collisions.

**Claim:** Circle the correct claim

- During a collision, forces are exerted at the same strength and in opposite directions if the masses are equal.
- During a collision, forces are exerted at the same strength and in opposite directions if the masses are different.
- During a collision, forces are exerted at the same strength and in opposite directions for all masses.

**Evidence:** In part 1 (same masses) and part 2 (different masses) of the sim you see that

\_\_\_\_\_

\_\_\_\_\_

**Reasoning:** Since \_\_\_\_\_

this proves \_\_\_\_\_

\_\_\_\_\_



## 2 +'s and 1 $\Delta$

+'s	$\Delta$

