

Power Up: Science ACT Prep, Week 7

Scientific Method





Essential Question

How can I improve my ACT score?



Learning Objectives

- Identify steps in the scientific method.
- Evaluate experiments for whether they follow the scientific method.

Scientific Method

Analyze the Data

Ask a Question

Conduct the Experiment

Design an Experiment

Draw Conclusions

Make a Hypothesis

Scientific Method

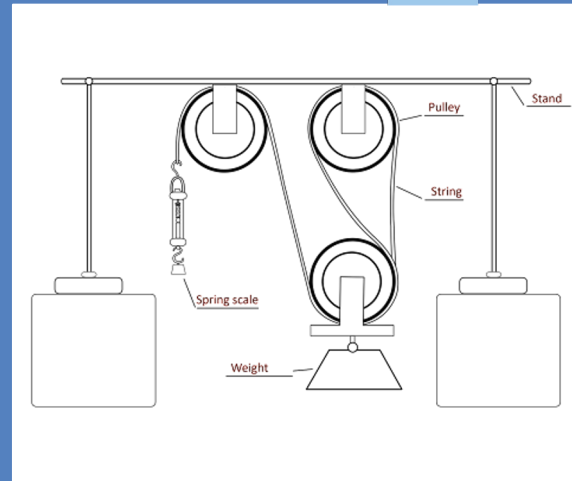
- Ask a Question
- Make a Hypothesis
- Design an Experiment
- Conduct the Experiment
- Analyze the Data
- Draw Conclusions

Fiction in the Facts

Part 1: A student wants to learn how using a pulley changes the force needed to move an object.

Part 2: He sets up an experiment as illustrated on the right, adding a new pulley each time, and uses the spring scale to measure and record the force. He then creates a bar graph to analyze the data, finding that using the pulley system results in using less force to move the weight.

Part 3: He hypothesizes that more pulleys require less force.

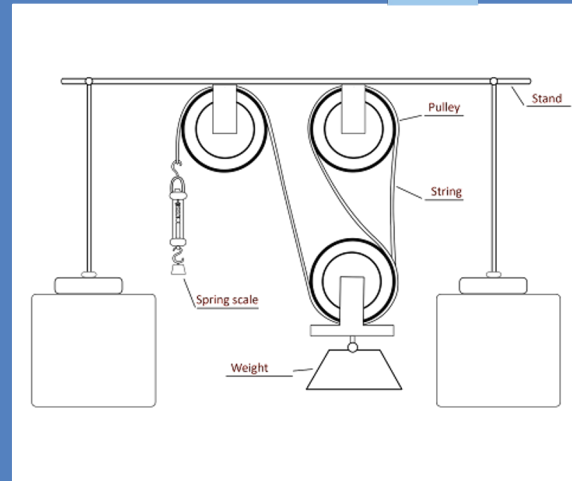


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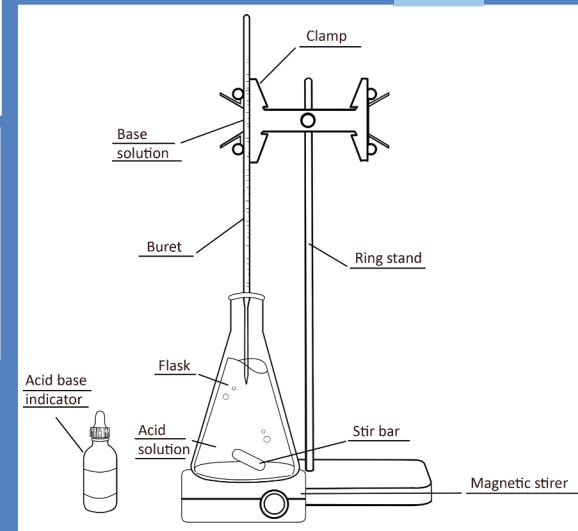


Fiction in the Facts

Part 1: A scientist sets up an experiment as illustrated on the right. He hypothesizes that if he adds a known base he can determine the acid content by when the solution is neutralized.

Part 2: Then he uses the buret to slowly add the base to the acid. He wants to determine the concentration of an acid.

Part 3: He notes the volume of the base that is required to neutralize the acid. He uses this volume to determine the acidity of the original solution.

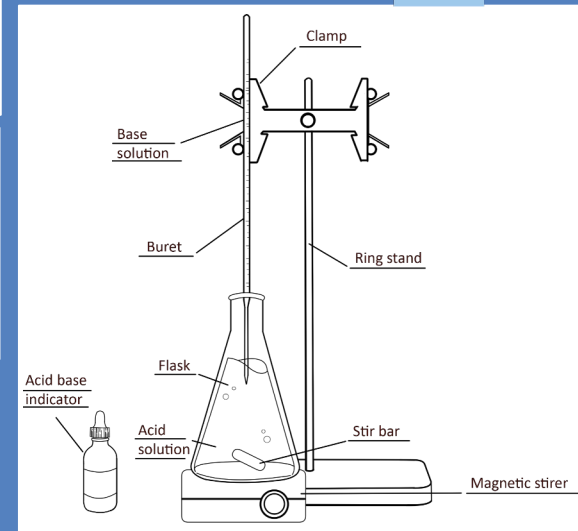


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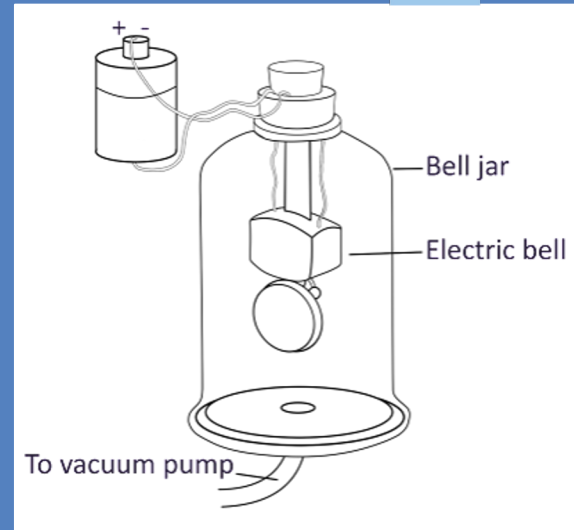


Fiction in the Facts

Part 1: A scientist wonders how a vacuum affects sound. She hypothesizes that without air, you will not hear sound.

Part 2: She concludes sound needs something to travel through.

Part 3: She turns on the bell, followed by the vacuum, to remove air from the bell jar. As the air is removed, the sound becomes more faint and then stops.

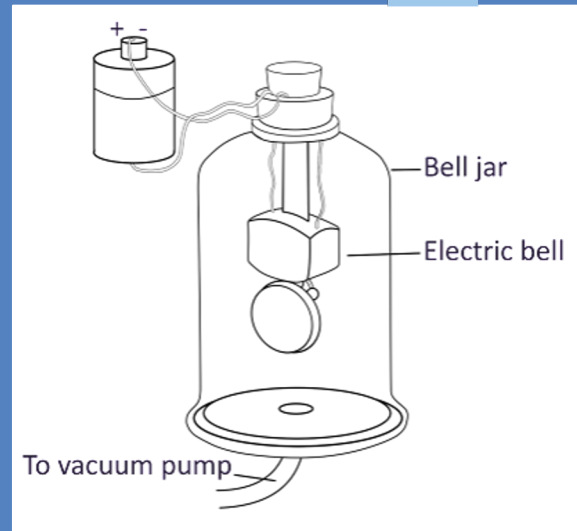


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It's Electrifying! - Answer Key

Figure 1

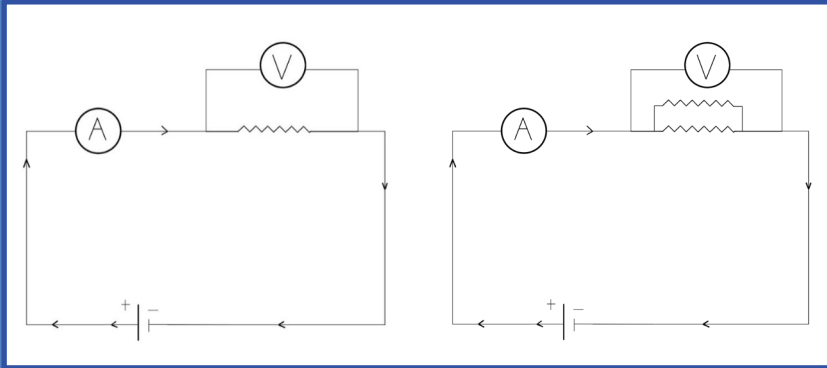
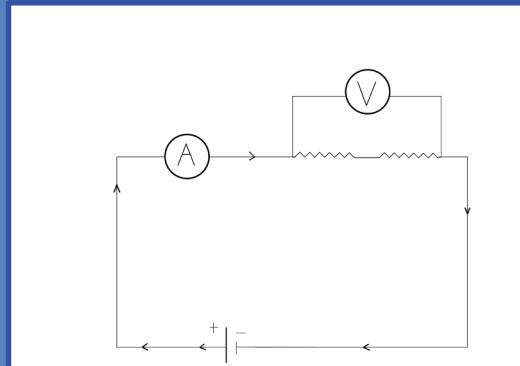


Table 1

Replacing the Resistors			Parallel Resistors		
Resistance (ohms)	Current (amps)	Power (volts)	Resistance (ohms)	Current (amps)	Power (volts)
10	0.9	9	10 & 10	1.8	9
20	0.45	9			

Figure 2



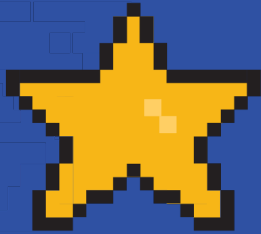
It's Electrifying! - Answer Key

- 1) B
- 2) E
- 3) C

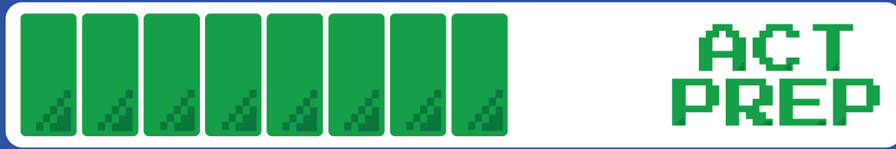
Pacing Practice



10-Minute Timer



You Powered Up!



K20
L•E•A•R•N