

RESULTS

Table

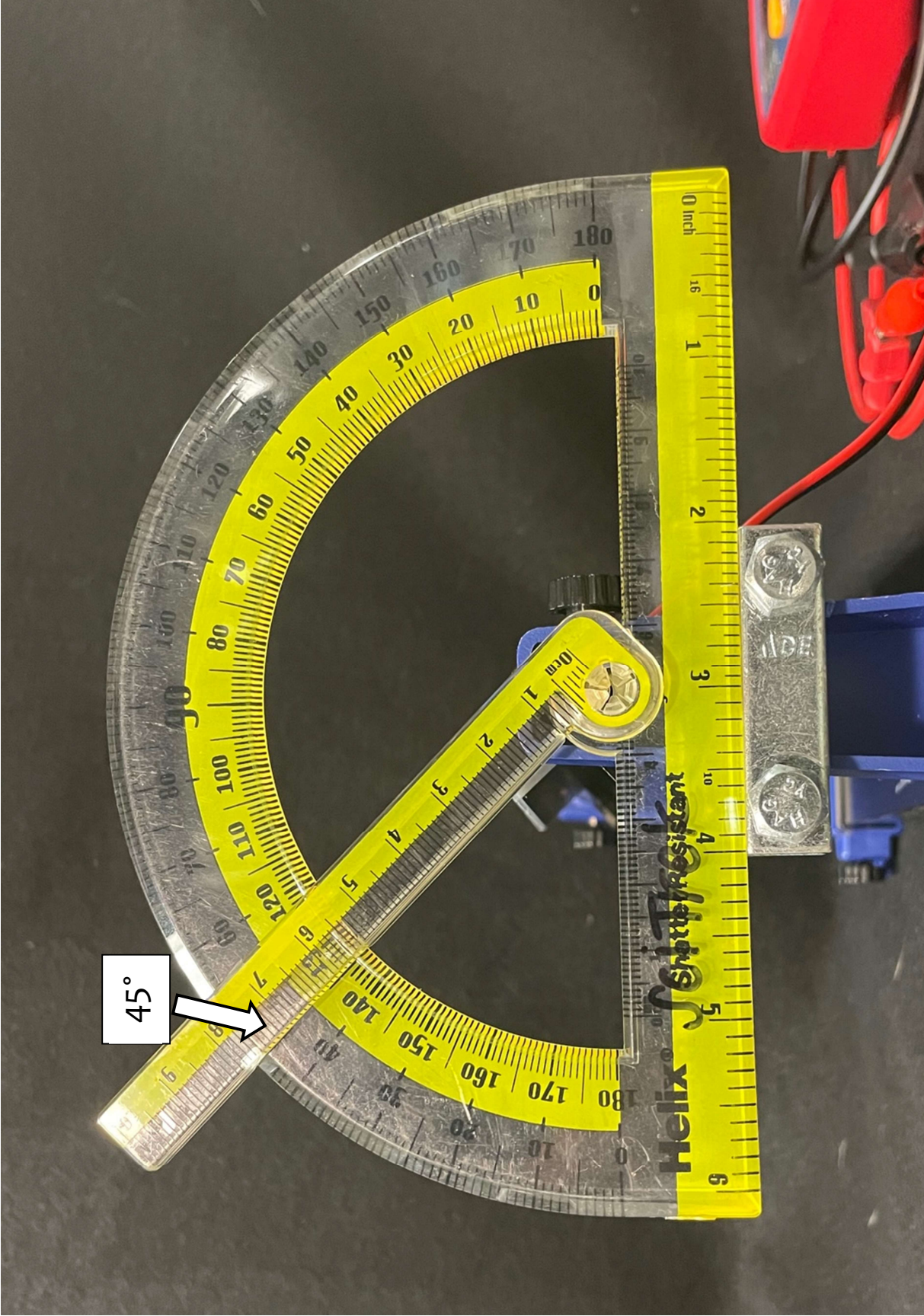
Check the box of your subgroup control and write your subgroup symbol on the line. Then, fill out the chart for each of your trials. For the variables that remain constant, write the value in Trial D and then draw an arrow through each box indicating the variable is a control. Remember to record data measurements to the nearest tenth (Ex. 4.1 mA), calculate power to the nearest tenth (Ex. 13.2 mW), and percentages to the nearest whole number (Ex. 75%).

Subgroup Control: Panel Angle Shading Amount Temperature Subgroup Symbol: △

Underline controls, circle changing variables, and box information about data collection.

Variables	Trial D	Trial E	Trial F	Trial G	
<u>Power Source:</u>	1 solar panel	2 solar panel	3 solar panel	4 solar panel	
<u>Panel Angle:</u>	50°	→			
<u>Shading:</u>	0/8	→			
<u>Temperature:</u> Room Temp: 22°C	RT	→			
<u>Light Height:</u> <small>other variable</small>	14 cm	→			
Predictions	Trial E	Trial F	Trial G	Trial H	
Put an "S" in the trial that will give the smallest power and an "L" in the trial that will give the largest power.	L			S	
Data and Calculations	Trial D	Trial E	Trial F	Trial G	
<small>Measurements</small>	Current (mA):	5.2 mA	6.0 mA	6.7 mA	7.7 mA
	Voltage (V):	1.9 V	1.9 V	2.0 V	2.0 V
<small>Calculations</small>	Percent CV: (get values from pg. 20)	25%	50%	75%	100%
	Power (mW): $P = I \times V$	$5.2 \text{ mA} \times 1.9 \text{ V}$ = 9.9 mW	$6.0 \text{ mA} \times 1.9 \text{ V}$ = 11.4 mW	$6.7 \text{ mA} \times 2.0 \text{ V}$ = 13.4 mW	$7.7 \text{ mA} \times 2.0 \text{ V}$ = 15.4 mW

The independent variable is the changing variable and the dependent variables are the current and voltage.



Use the clear scale to measure the angle.

FINDINGS

Experiment 1

Conclusion Summaries:

Experimental Design:

CLASS PLAN

Subgroup: The original people you worked with.

Team: Multiple subgroups that are investigating the same changing variable.

Class Control: A control that everyone in the class has the same value for.

- The class picks this value together.

Team Control: A control that everyone in a team has the same value for, but values vary for different teams within a class.

- Teams pick this value together.

Subgroup Control: A control that everyone in a subgroup has the same value for, but values vary for different subgroups within a team.

- Subgroups pick this value on their own, with team input.

Changing Variable: The variable that is purposely changed in an experiment.

- Each subgroup picks multiple values on their own

Class Control

Team Panel Angle

Orange 1

Blue 1

Green 1

Orange 2

Blue 2

Green 2

Team Shading Amount

Orange 1

Blue 1

Green 1

Orange 2

Blue 2

Green 2

Team Temperature

Orange 1

Blue 1

Green 1

Orange 2

Blue 2

Green 2

RESULTS Graph

Modified Name of Changing Variable:
 Panel Angle: Percent Angled
 Shading Amount: Percent Shaded
 Temperature: Percent Heated

Set up your graph. (Check off the steps as you complete them.)

- Write the title for your graph by filling in the blanks.
- Label the y-axis (vertical) with what you calculated, including units (Ex: Power (mW)).
- Label the x-axis (horizontal) with your modified name of changing variable, including units (Ex: Percent Angled (%)).
- Select your subgroup control in the legend by checking the appropriate box. Then, put your subgroup control value next to your subgroup symbol.

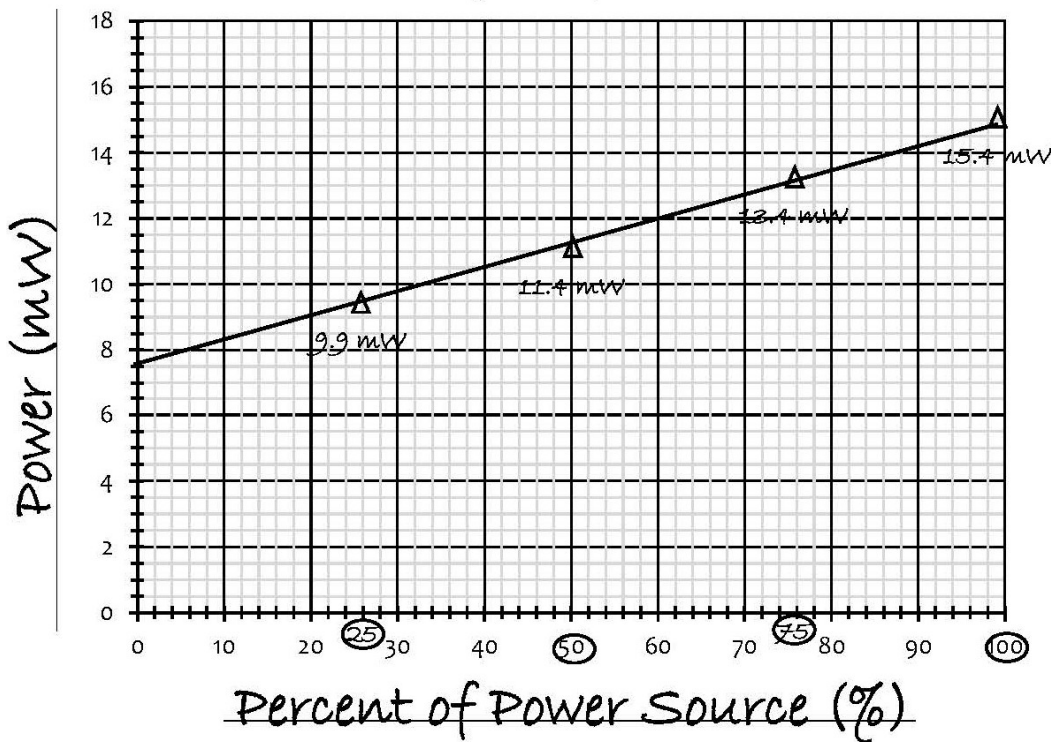
Plot your data.

- On the x-axis, circle your 4 changing variable values (as percentages). If a value is not there, write it in.
- Starting with the smallest changing variable value, determine the power, and put your subgroup symbol at the appropriate level. Write the power next to the point.
- Once you have plotted all 4 points, draw a trend line that best fits your data.

Plot the data collected by the other subgroup in your team.

- Complete the legend for the other subgroup in your team by writing their subgroup control value next to their subgroup symbol.
- Graph the other subgroup's 4 points using their symbol as the markers (**do not label these points**). Then, draw a trend line that best fits their data.

Effects of power source insert changing variable and panel angle insert subgroup control
 on the power insert what you calculated



Legend	
Subgroup Control:	
<input checked="" type="checkbox"/>	Panel Angle
<input type="checkbox"/>	Shading Amount
<input type="checkbox"/>	Temperature
Subgroup Symbol	Subgroup Control Value
○	
△	50°

RESULTS Graph

Modified Name of Changing Variable:
 Panel Angle: Percent Angled
 Shading Amount: Percent Shaded
 Temperature: Percent Heated

Set up your graph. (Check off the steps as you complete them.)

- Write the title for your graph by filling in the blanks.
- Label the y-axis (vertical) with what you calculated, including units (Ex: Power (mW)).
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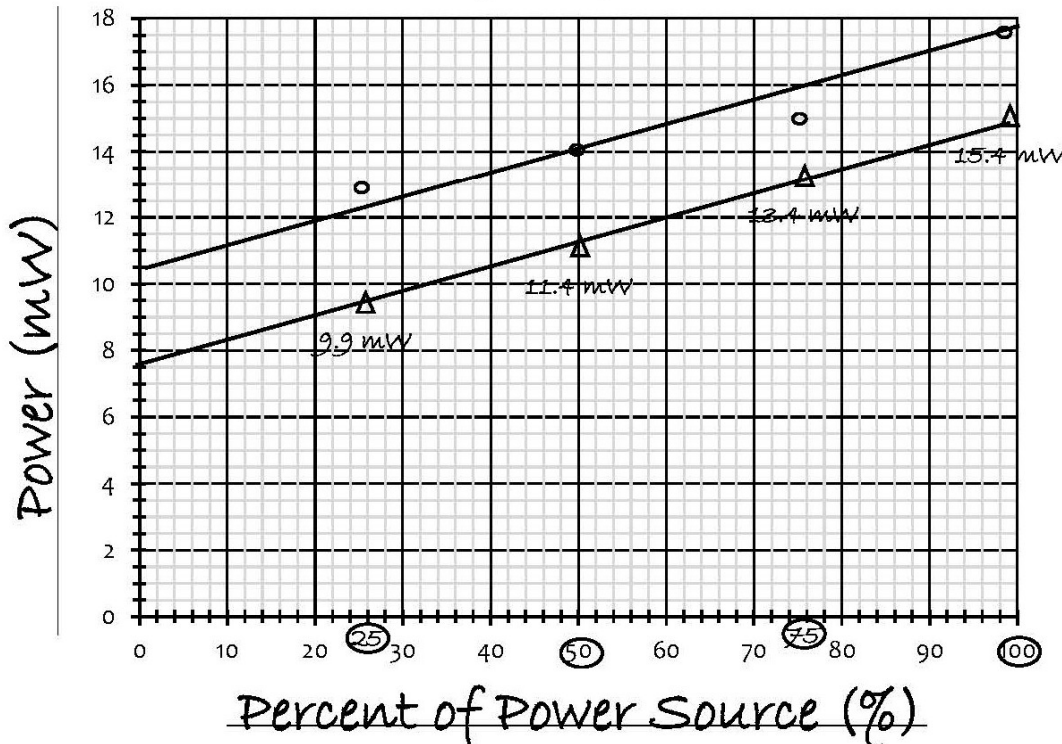
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- On the x-axis, circle your 4 changing variable values (as percentages). If a value is not there, write it in.
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Effects of power source insert changing variable and panel angle insert subgroup control
 on the power insert what you calculated



Legend	
Subgroup Control:	
<input checked="" type="checkbox"/>	Panel Angle
<input type="checkbox"/>	Shading Amount
<input type="checkbox"/>	Temperature
Subgroup Symbol	Subgroup Control Value
○	30°
△	50°

NOTES ON PRESENTATIONS

What variables affect the power produce by a solar panel?

Percent Changing Variable:	<input type="checkbox"/> Panel Angle <input type="checkbox"/> Shading Amount <input type="checkbox"/> Temperature				
Power (mW):					

Summary: _____

Percent Changing Variable:	<input type="checkbox"/> Panel Angle <input type="checkbox"/> Shading Amount <input type="checkbox"/> Temperature				
Power (mW):					

Summary: _____

Percent Changing Variable:	<input type="checkbox"/> Panel Angle <input type="checkbox"/> Shading Amount <input type="checkbox"/> Temperature				
Power (mW):					

Summary: _____

