

Student Name: _____

2022 Western Colorado Elementary Science Fair

Student Guided Packet



Testable Question:

- How does _____ affect _____?
- What is the effect of _____ on _____?

Example Questions:

- [How does the time of day affect how many birds are in the trees?](#)
- What is the effect of the type of ball on how high it will bounce?
- What is the effect of type of nail polish on how resistant it is to chipping?
- How does the amount of water affect how tall a sunflower grows?
- What is the effect of battery type on how long it can light a bulb?
- How does the temperature affect how active lizards are in the desert?
- How does the amount of yeast affect the height of a loaf of bread?
- What is the effect of the type of shoe on how high someone can jump?
- How does the type of surface cleaner affect the amount of bacteria killed?
- How does the type of bubble gum affect the size of the bubble blown?
- What is the effect of the type of cloth on how well it prevents particles from traveling when a person coughs?
- What is the effect of the number of fins on how fast a fish can swim?
- How does the concentration of ionize affect the taste or water?
- What is the effect of the volume of water on the velocity it travels in a river?

My testable question is...

Independent Variable:(Cause, the thing you are changing and testing)

Example: Time of day

Dependant Variable: (Effect, the thing you are measuring)

Example: Number of birds

Controls: (What stays the same)

Example: The tree, temperature, weather

Materials:

- What materials do you need to conduct this investigation?

Example:

- 1 tree

- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____
- _____

Procedure:

- Write out detailed steps for what you will need to do to conduct your investigation. (This is similar to a cooking recipe, so be sure to be as detailed as possible!)
 - Example:
 1. Collect all required materials.
 2. Observe the tree and count the number of birds in it. Record the data.
 3. Repeat step 2 at 7AM, 12PM, and 6 PM, for 5 days in a row.

Data Table:

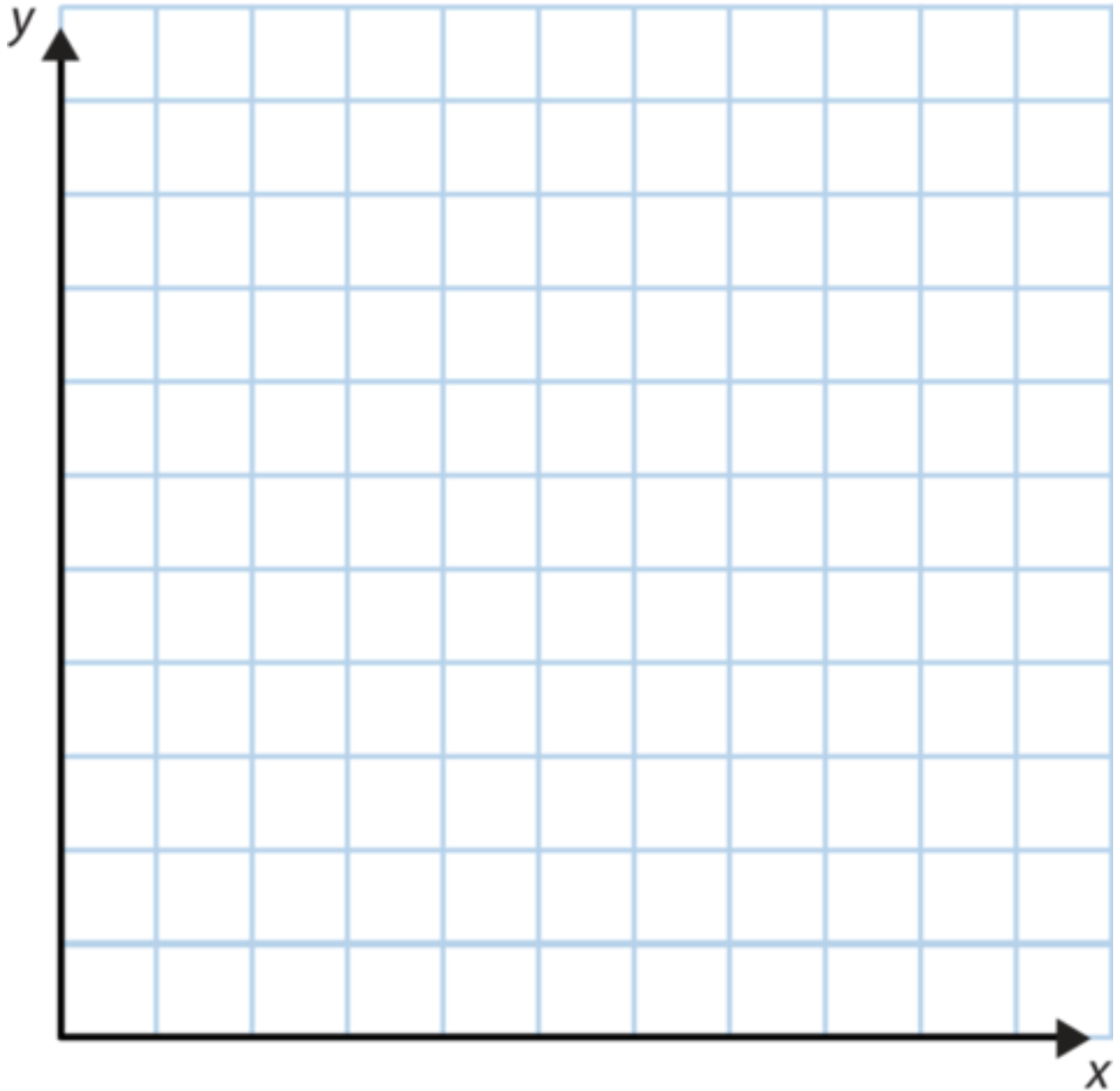
- Create a data table for you to record your observations and data.

- Example:

Date	Time	Number of Birds
Dec 1, 2021	7:02 AM	1
Dec 1, 2021	12:07 PM	8
Dec 1, 2021	6:05 PM	5
Dec 2, 2021	7:00 AM	3

Graphs:

- The IV should be on the X-axis and DV on the Y-axis. Be sure all numbers are written with a constant interval.

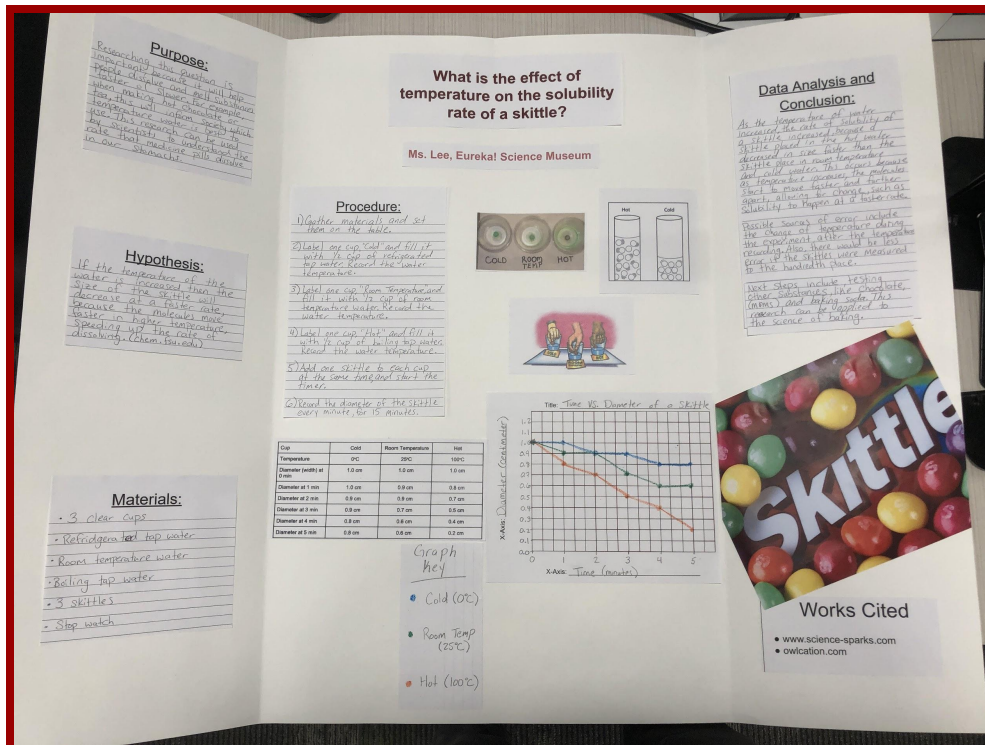


Works Cited:

- List any websites or books you took information or images from.

Poster:

- Each section you previously wrote will need to be typed up into the digital template.
- There should be no spelling or grammar mistakes.
- All poster sections need to be placed using the diagram below.
- Images are important, and can either be photos you take from the experiment, photo data, or images that relate to your investigation.



<input type="checkbox"/> <p><u>PURPOSE</u></p> <p>This section describe why your research is important and how it could impact society. Discuss how your topic could be applied to real life situations.</p>	<input type="checkbox"/> <p><u>HYPOTHESIS</u></p> <p>Your educated prediction before conducting your experiment.</p>	<input type="checkbox"/> <p>LIST OF MATERIALS</p> <p>A list of supplies used to conduct your experiment</p>
<input type="checkbox"/> <p>TITLE</p> <p>Your scientific testable question.</p>	<input type="checkbox"/> <p>STUDENT NAME(S) AND SCHOOL</p>	<input type="checkbox"/> <p><u>PROCEDURE</u></p> <p>Detailed steps of what you did during your experiment.</p>
<input type="checkbox"/> <p>Independent and Dependent Variables</p> <p>Controls</p>	<input type="checkbox"/> <p>PHOTOS</p> <p>Photos related to your experiment.</p>	<input type="checkbox"/> <p>DATA TABLE AND/OR GRAPH</p> <p>Your experiment data and graphs.</p>
<input type="checkbox"/> <p><u>ANALYSIS AND CONCLUSION</u></p> <p>A summary of your results and how they compare with your hypothesis.</p> <p>Discuss possible sources of error within your experiment.</p> <p>What are the next steps with this experiment? Does it need to be repeated? What would you change if repeated?</p>	<input type="checkbox"/> <p>WORKS CITED</p> <p>A list of websites, papers, or books used during your project.</p>	

Scoring:

Judges will score posters based on this following tentative scoring rubric:

Project Title: _____

Project Elements			Possible Score	Score
Testable question references a cause and effect relationship and a measurable change	OR	Proposed solution/invention references a specific outcome and a measurable change	10	
Purpose is clear and discusses the importance of this project/topic			15	
Hypothesis is based on background research or prior knowledge			10	
Variables and Controls are clearly defined			5	
Materials are appropriate and a detailed list is given			10	
Procedure is sequential and describes the investigation process clearly			10	
Data is clearly provided as either graphical, quantitative, or observational			10	
Analysis and Conclusion describes the trends and patterns found in the data. Clearly states acceptance or rejection of hypothesis, possible sources of error, and suggestions for further efforts			10	
Presentation <ul style="list-style-type: none"> • Clear and Concise • Summarizes the main steps and purpose of the project • Presenter makes eye contact with audience or camera • Presenter shows a clear understanding of their project Poster Visual <ul style="list-style-type: none"> • The digital poster is clean, neat, and easy to read • It includes images related to the project topic 			20	
Total Score			100	

This scoring sheet has been modified from the sciencefaircentral.com resource