Student Name:_____

2026 Western Colorado Elementary Science Fair

Student Guided Packet

Testable Question:

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

Example Questions:

- How does the amount of water affect how tall a sunflower grows?
- What is the effect of water amount on how tall a sunflower grows?
- 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?
- 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 type of water affect its taste?
- What is the effect of the volume of water on the velocity it travels in a river?

My testable question is…

Purpose:

- Why is your question important to answer? How will it impact humans and society?
    - Sentence Starters:
        - Researching this topic is important, because…
        - This research can be applied to…
        - Finding an answer to this question will impact society, because…
        - This research can be used by scientists for…
        - For example…
    - Example:
      Researching this topic is important, because plants are an important part of our ecosystem, and scientists need to understand the factors that will help them grow. Finding an answer to this question will impact society, because the seeds of sunflowers are commonly eaten by humans and animals. This research can be applied to sunflower farms, to increase their production of sunflower seeds.

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

Example: Amount of water

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

Example: height, how tall the sunflower is

Constants: (What stays the same)

Example: Type of sunflower, amount of soil, type of water, amount of sunlight, Temperature, amount of plants per pot

Hypothesis (educated guess):

- (_____ will _____,because… _prior knowledge or background research_):
  Example: The sunflower will grow taller when given more water, because plants need water to grow.

Materials:

- What materials do you need to conduct this investigation?
  Example:
  - 4 plant pots (1 liter)
  - 4 sunflower seeds
  - Potting soil (6 cups per pot)
  - Tap water
  - 1 Ruler

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. Place 6 cups of potting soil into each of the 4 pots.
        3. Plant 1 seed per pot based on the seed packet's directions.
        4. Water the plant every other day with tap water with the following amounts: Pot #1: 0 cups, Pot #2: ¼ cup, Pot #3: ½ cup, Pot #4: ¾ cup
        5. Measure the height of each plant every other day for 4 weeks (28 days). Record the data in the data table.

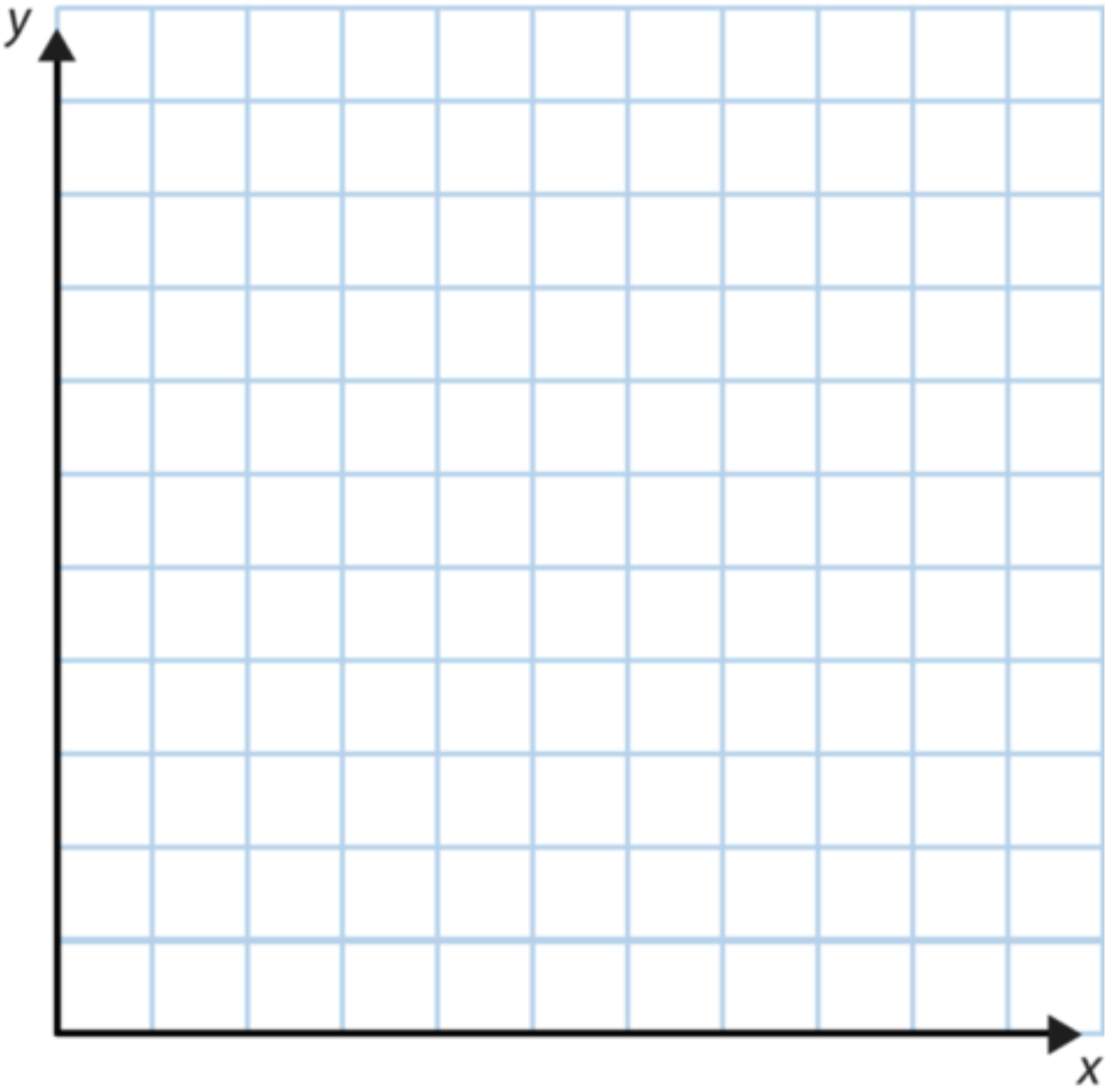
Data Table:

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

Day	Plant Height (cm)	Day	Plant Height (cm)
0	Plant #1: 0 Plant #2: 0 Plant #3: 0 Plant #4: 0	16	Plant #1: 0 Plant #2: 2.0 Plant #3: 2.3 Plant #4: 2.5
2	Plant #1: 0 Plant #2: 0 Plant #3: 0 Plant #4: 0	18	Plant #1: 0 Plant #2: 2.4 Plant #3: 2.7 Plant #4: 2.6
4	Plant #1: 0 Plant #2: 0 Plant #3: 0 Plant #4: 0	20	Plant #1: 0 Plant #2: 3.0 Plant #3: 3.2 Plant #4: 3.0
6	Plant #1: 0 Plant #2: 0.5 Plant #3: 0.5 Plant #4: 0.5	22	Plant #1: 0 Plant #2: 3.5 Plant #3: 3.8 Plant #4: 3.2
8	Plant #1: 0 Plant #2: 0.7 Plant #3: 0.7 Plant #4: 0.8	24	Plant #1: 0 Plant #2: 3.9 Plant #3: 4.5 Plant #4: 3.5
10	Plant #1: 0 Plant #2: 0.8 Plant #3: 0.8 Plant #4: 1.0	26	Plant #1: 0 Plant #2: 4.3 Plant #3: 4.9 Plant #4: 3.5
12	Plant #1: Plant #2: 0.9 Plant #3: 1.0 Plant #4: 1.2	28	Plant #1: 0 Plant #2: 4.6 Plant #3: 5.6 Plant #4: 3.5
14	Plant #1: 0 Plant #2: 1.3 Plant #3: 1.5 Plant #4: 2.0		

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.



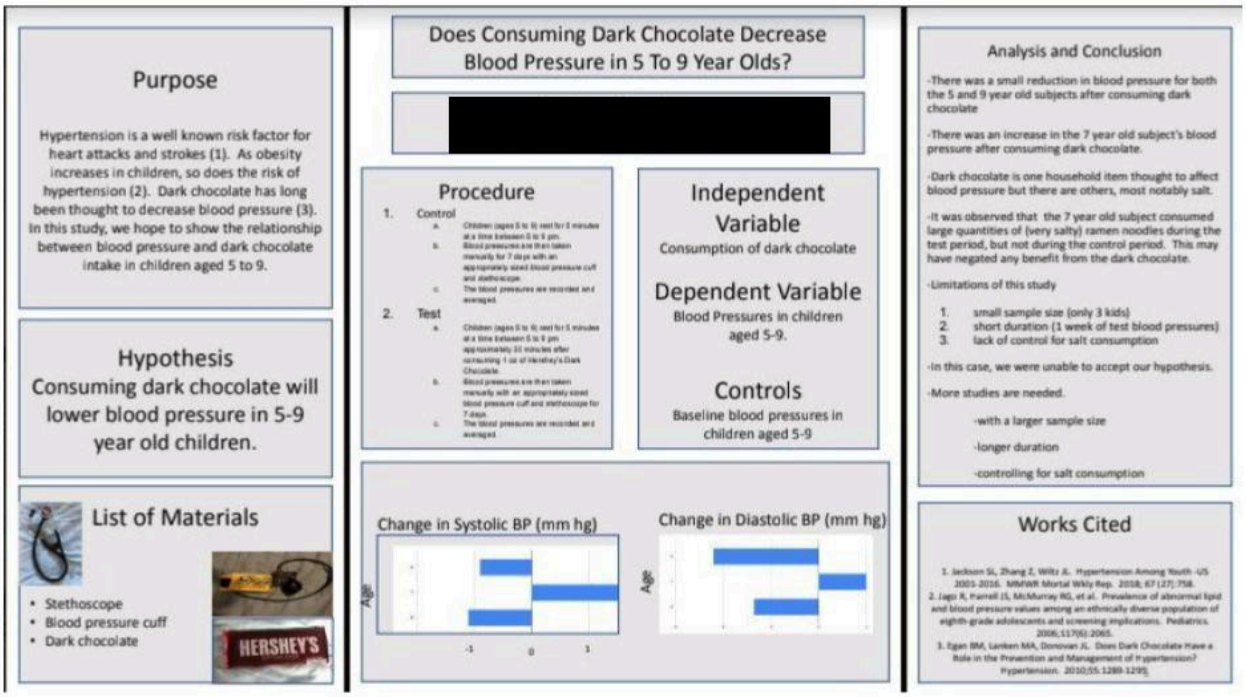
Analysis and Conclusion:

- This paragraph summarizes your findings and results.
    - Sentence Starters:
        - The data shows…
        - Observations during the experiment were…
        - Based on the data, the hypothesis was…
        - Possible sources of error are…
        - If this experiment were repeated, _____ would be changed, because…
    - Example:
        - The data shows that the sunflower that received ½ cup of water every other day grew the tallest, and the plant that did not receive any water did not grow. The second tallest was the plant that received ¼ cup of water, followed by the plant that got ¾ cup of water every other day. Observations during the experiment showed plant #4 was the tallest, until day 18, when plant #3 became the tallest. Based on the data, the hypothesis was partially correct because the plants that received more water grew taller, until a certain amount of water and time. Possible sources of error include variations of temperature throughout the day and season. If this experiment were repeated, the amount of days would be extended beyond 28, because the sunflowers did not develop flowers this early. By extending the days of data collection, it would provide more information on the plant.

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.

2026 Science Fair: **Do Not Discard**

PURPOSE

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.

HYPOTHESIS

Your educated prediction before conducting your experiment.

LIST OF MATERIALS

A list of supplies used to conduct your experiment

TITLE

Your scientific testable question.

STUDENT NAME(S) AND SCHOOL

PROCEDURE

Detailed steps of what you did during your experiment.

Independent and Dependent Variables

Controls

PHOTOS

Photos related to your experiment.

DATA TABLE AND/OR GRAPH

Your experiment data and graphs.

ANALYSIS AND CONCLUSION

A summary of your results and how they compare with your hypothesis.

Discuss possible sources of error within your experiment.

What are the next steps with this experiment? Does it need to be repeated? What would you change if repeated?

WORKS CITED

A list of websites, papers, or books used during your project.

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 • 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 • 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