

# SCIENCE FAIR PLANNING PACKET

*Student* \_\_\_\_\_

✓	Due Date	What To Do
		Give your parent/guardian the parent letter and return to your teacher signed.
		Choose topic and propose question.
		Get your project topic approved by teacher.
		Research topic.
		Write a hypothesis.
		Design an experiment; list variables and write procedure.
		List and gather your materials.
		Conduct experiment and record data and observations. Take photos if desired.
		Create a table, chart, or graph of the data.
		Draw conclusions.
		Make the project display.
		Write and print abstract.
		Turn in planning packet to your teacher.
		Present your project at the science fair.

# Let's Experiment!

1. ask a question:

What do you want to know about?

Why do you want to know it?

2. research your question:

Has anyone asked it before?

3. form a hypothesis  
(hi-pot-the-siz):

What do you think is the answer to your question?

Can you test it?

4. test your hypothesis  
(hi-pot-the-siz):

Design and perform an experiment.

Record your data.

5. analyze your data:

See if your data matches your hypothesis.

6. draw conclusions:

What did you learn?

Was your hypothesis correct?

What questions do you have now?

# Scientific Method Vocabulary

**Abstract** - a brief overview of the investigation

**Analyze** - to examine methodically by separating into parts and studying their interrelations

**Anomalous Data (outliers)** – data that seems to be inconsistent or contradictory to the pattern established by additional data

**Bar Graph** - a type of graph used for descriptive data that comes from research questions asking about variables that will be counted

**Conclusion** - summarizes the important parts of your experiment and is a discussion of what the data, patterns, and relationships mean

**Constant Variable** - a variable that is not changed

**Controlled Variable** - a constant variable that is part of the experiment that is not being tested and is used for comparison

**Data** - factual information, especially information organized for analysis or used to reason or make decisions

**Data Analysis (interpretation)** - making sense of observations and data collected during an experiment using appropriate measures of central tendency (mean, median, mode, range) and by looking at patterns and relationships between the independent variable and the dependent variable

**Data Table** - organizes data into rows and columns

**Dependent (Responding) Variable** - the response to the independent variable that can be observed (qualitative) and measured (quantitative)

**Extraneous Data** - data that seems to be inconsistent or contradictory to the pattern established by additional data

**Hypothesis** - a special kind of prediction that forecasts how the independent variable will affect the dependent variable

**Independent (Manipulated) Variable** - variable changed by the scientist; what the investigator is testing

**Line Graph** - a type of graph used when data has taken place over time

**Observations** - anything noticed about the problem

**Operational Definition** - the method used to measure the dependent variable; the method used to describe the independent variable when testing various products

**Procedure** - a numbered, step-by-step set of directions written to conduct an investigation and to identify what data will be collected

**Scientific method** - a series of steps used by scientists/people to help find solutions to problems and/or questions

**Variable** - anything that can be changed in an experiment that could affect the results of the investigation

# SCIENCE FAIR PLANNING PACKET

*Student* \_\_\_\_\_

## 1 BRAINSTORM!

As you think of possible science fair project ideas, jot them down and write any important information you may need for those ideas!

2 QUESTION: Your question is the focus of your project and is also the title that will be displayed on your board. Your question should be able to be tested and measured. Helpful hint: Any question that can have a "yes" or "no" answer is not a scientific question.

### Project Question

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# SCIENCE FAIR PLANNING PACKET

## Observations

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### 8 DETERMINE THE RESULTS: Time to review your data and observations!

- Create a table or graph to present your numerical data. This includes bar graphs, circle graphs, pie graphs, line graphs, etc.
- All other results, such as observations, should be written into a paragraph using complete sentences.
- You may use the space below to plan for how you would like to present the data you have collected.

# SCIENCE FAIR PLANNING PACKET

## Results (Paragraph Form)

Use this space to write your data into paragraph form. Paragraphs contain at least 5-7 complete sentences.

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 **DRAW CONCLUSIONS** What is the answer to the question you asked? Was your hypothesis correct? If your hypothesis was incorrect, why do you think you were incorrect? Use information from the experiment to answer both of these questions.

## Conclusions

Answer to your original question:

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Was your hypothesis correct or incorrect? If incorrect, why?

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# SCIENCE FAIR PLANNING PACKET

If you were to complete the experiment again, what changes would you make? How would you improve this experiment?

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**100** DISPLAY BOARD: Using all of the information you have collected, put your display board together!

- Font should be easy to read and at least 16pt or greater.
- Photos should NOT include faces of students
- Information on the board can be typed or written neatly by hand
- Must be a tri-fold board

<p>Hypothesis</p> <div style="border: 1px solid black; height: 60px; width: 100%;"></div>	<p>Question</p> <div style="border: 1px solid black; height: 30px; width: 100%;"></div>	<p>Results</p> <div style="border: 1px solid black; height: 100px; width: 100%;"></div>
<p>Research</p> <div style="border: 1px solid black; height: 60px; width: 100%;"></div>	<p>Photos/Drawings</p> <div style="display: flex; justify-content: space-around;"><div style="border: 1px solid black; width: 30px; height: 60px;"></div><div style="border: 1px solid black; width: 30px; height: 60px;"></div><div style="border: 1px solid black; width: 30px; height: 60px;"></div></div>	<p>Conclusion</p> <div style="border: 1px solid black; height: 100px; width: 100%;"></div>
<p>Procedure/Materials</p> <div style="border: 1px solid black; height: 60px; width: 100%;"></div>	<p>Graphs/Tables/Etc</p> <div style="border: 1px solid black; height: 60px; width: 100%;"></div>	

# Project Presentation

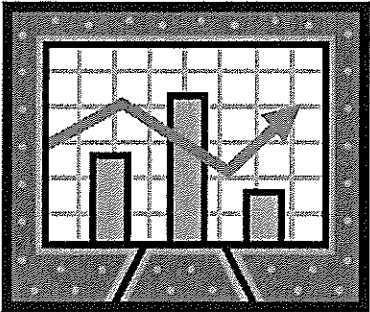
## Display board

Now that you have completed your experiment you will begin setting up your display board to communicate the results of your experiment to others.

Remember, the board is graded on the information you present, not how colorful or pretty it looks. Your display board must have ALL of the following components located in the same places.

Other board guidelines:

- Font should be easy to read and at least a size of 16pt or greater.
- Photos should not include faces of students.
- Information on the board can be typed or written neatly by hand.

<p><b>Hypothesis</b></p> <div data-bbox="167 926 469 1066"></div> <p><b>Key Words and Research</b></p> <div data-bbox="167 1167 469 1329"></div> <p><b>Procedure and Materials</b></p> <div data-bbox="167 1434 469 1688"></div>	<p><b>Question/Title</b></p> <div data-bbox="561 926 1045 995"></div> <p><b>Photos or Drawings</b></p> <div data-bbox="583 1108 1045 1249"></div> <p><b>Graphs</b></p> <div data-bbox="625 1362 992 1671"></div>	<p><b>Results</b></p> <div data-bbox="1135 926 1437 1203"></div> <p><b>Conclusion</b></p> <div data-bbox="1135 1339 1437 1617"></div>
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# SCIENCE FAIR PLANNING PACKET

**11** REFLECTION: Most of the information in your reflection has already been written in your report, so use the same information again. You must have the following five components in your reflection:

1. Introduction - Describe what your experiment was and the purpose for doing it. Why should they be interested in your project? This is your opportunity to gain the interest of your audience!
2. Project Question - Tell your audience what your question was and the reasoning for it. Why did you choose this question? What were you trying to figure out?
3. Procedures - Inform your audience of how they can replicate the experiment. What do they need and what do they do with those materials? In what order? Let them know the steps!
4. Results - What happened? What were the results of your experiment? Let them know how it worked out for you!
5. Conclusions - What did you learn? Would you like to complete the experiment again? If so, what is something you would do differently? What is something that you really enjoyed about this experiment?

You may type your reflection and print it out. If you choose to type your reflection, it must be a 12 point font. If you hand write your reflection, be sure to write neatly so that your reflection can be read.

## Reflection

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# Science Fair Reflection

Name: \_\_\_\_\_

1. What went well with your science fair project?
2. What didn't go so well with your science fair project?
3. How well did you/your group stay on task to meet deadlines?
4. What would you do differently if you were to do your science fair project over again?
5. If you worked with a group, how well did you work together?



# Science Fair Self and Peer Score

Name: \_\_\_\_\_

Reflect on how you and your group members worked together as a team. Complete the first section for yourself and then the rest for each of your group members by circling the appropriate number on the scale. 1 is the lowest score and 5 is the highest score. Provide comments to support your scores.

<b>Name:</b> Me	
Ability to work as a group, share responsibility, and solve problems appropriately.	1   2   3   4   5
Ability to stay focused and on task during science fair time.	1   2   3   4   5
Comments:	

<b>Name:</b>	
Ability to work as a group, share responsibility, and solve problems appropriately.	1   2   3   4   5
Ability to stay focused and on task during science fair time.	1   2   3   4   5
Comments:	

<b>Name:</b>	
Ability to work as a group, share responsibility, and solve problems appropriately.	1   2   3   4   5
Ability to stay focused and on task during science fair time.	1   2   3   4   5
Comments:	

# SCIENCE FAIR GRADE RUBRIC

Student \_\_\_\_\_

## Elements

Component	Points Possible	Points Received/Comments
<input type="checkbox"/> Science Fair Project Planning Packet	20 points	
Display board with: <input type="checkbox"/> Question/Title <input type="checkbox"/> Hypothesis <input type="checkbox"/> Key Words <input type="checkbox"/> Research <input type="checkbox"/> Procedure and Materials <input type="checkbox"/> Photos/Drawings <input type="checkbox"/> Chart/Tables/Etc. <input type="checkbox"/> Results <input type="checkbox"/> Conclusion	2 points each Total of 20 points	
<input type="checkbox"/> Experiment Log	10 points	
<input type="checkbox"/> Reflection	10 points	
Total	60 points	

## Content

Content	Points Possible	Points Received
Question: Relevant, testable	5 points	1 2 3 4 5
Hypothesis: Educated estimate, reasonable	5 points	1 2 3 4 5
Research: Informative, applicable	6 points	1 2 3 4 5 6
Procedure: Specific and clear	8 points	1 2 3 4 5 6 7 8
Results: Paragraph written clearly with supporting graphs/tables	8 points	1 2 3 4 5 6 7 8
Conclusion: Appropriate evaluation of data and proves or disproves the hypothesis	8 points	1 2 3 4 5 6 7 8
Total	40 points	