

SCIENCE FAIR PROCEDURES

(Grades 4-5)

TOPIC

1. Select a topic that can be answered **only by experimenting**.
2. Write your topic as a question to be investigated.

SELECTING A TOPIC

1. Help in finding a topic:
 - READ in science books, magazines, newspapers
 - TALK to your teacher, family, friends
 - VISIT professional people, museums, zoos
2. Select a topic you know nothing about. Something new may arouse your curiosity.
3. Select a topic that you know something about, but you want to investigate further.
4. Select a topic that genuinely interests you.

****Don't forget to come up with a catchy title for your project.

PURPOSE

You will formulate a testable question for your experiment. When you are formulating the question, think of your independent variable.

HYPOTHESIS

A hypothesis states what you think is going to happen when you investigate a question.

Here is an example:

Question: Does light affect the way plants grow?

Hypothesis: If light affects the way plants grow, then, plants will grow toward the light.

Hypothesis: If light affects the way plants grow, then, plants will grow away from the light.

Hypothesis: If light affects the way plants grow, then, light will make no difference in the way plants grow.

MATERIALS

List all materials used in your investigation. Include what, how much, and what kinds of materials you used. Keep in mind quantities are important. Be sure to use only metric units.

PROCEDURE

STEP-BY-STEP DIRECTIONS

Your step-by-step directions are like a recipe. Anyone who reads them will be able to duplicate your investigation and get the same results.

*****VARIABLES

Variables (What is being kept the same and what is being changed in the experiment?) *This must be on the 4th and 5th grade projects.

1. Independent Variable (Manipulated Variable) - What are you testing, what is changing in your experiment - remember you can only change 1 thing.
2. Controlled Variables (Held Constant) - What thing or things are you keeping the same.

EXAMPLES OF VARIABLE

Purpose Question is: Which surface will cause more friction? So the variables are:

Independent Variable (Manipulated Variable): types of surfaces

Controlled Variables (Held Constant - the same): the marble or toy car being used will be kept the same so that mass of the object stays the same.

MAKING A DATA TABLE

In your data table, you will include what you are testing and your trials. If it is numerical data, find the average to give your more accurate data. **Remember that a good scientist will always conduct a minimum of three trials. If you are testing humans, you must have a minimum of 10 trials.**

MAKING A GRAPH

Title: The Title is a short description of the data being displayed.

Horizontal Axis (X-Axis):

The Independent Variable (Manipulated- what you changed on purpose)

Vertical Axis (Y-Axis): The Results

(Dependent/Responding Variable- what happened as a result of what you changed)

***In your science project, you must include pictures of you testing your hypothesis.

CONCLUSION (5 to 6 sentence paragraph):

Your conclusions should be written in paragraph format answering the following questions:

What was your investigation about?

What was your hypothesis? Were you correct or incorrect?

Explain your results.

What did you learn? (This is where you make a scientific statement)

***Remember to use science vocabulary when writing your conclusion.

RESEARCH PAPER - You must include a 1-page report on your science project topic.

APPLICATION (2-3 sentences) - How does this experiment/investigation apply to your everyday life.

RESOURCES (At least 3, one needs to be a book)

List alphabetically all books, articles, people, or other sources used for researching and writing your paper.

PHYSICAL DISPLAY

