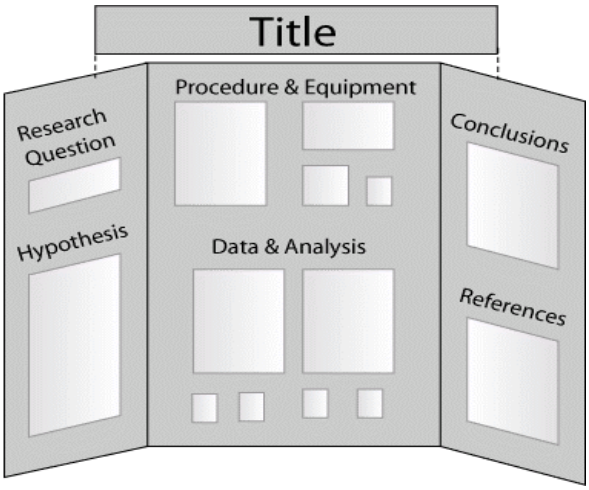
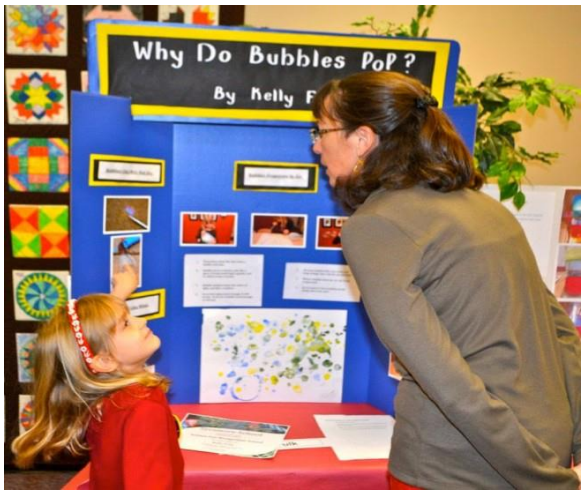
IRVINGTON NY PTSA

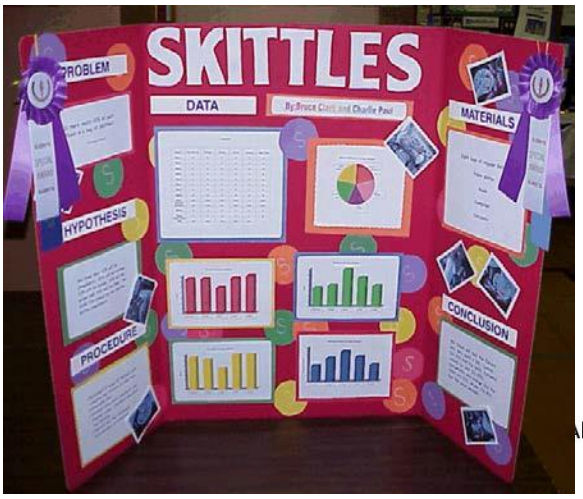
Welcome to the Irvington Science Fair!!!

Our goal is for students to have an opportunity to participate in a science fair during their K-12 academic life. A science fair is a great way for students to become more knowledgeable about the world around them and is a great opportunity for the whole family to explore interactive science exhibits from students in our community.

Examples of what a display board at the Irvington Science Fair should look like:







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Science Experiment Guide Lines for Dows Lane School and Main Street School

What should an elementary science fair project be? "SCIENCE SHOW AND TELL"

Elementary students should learn about the world around them through observations and experiments by using use their five senses to observe describe changes in the natural world.

An elementary science fair project should follow the Scientific Method which is a series of steps that says:

Step 1: Ask a question.

How do you ask a question? **Look**

What do you see? Ask a **question** about the world around you or about a problem.

Example question: Why do leaves change color in Fall ?

Step 2: Hypothesis

How do you come up with a hypothesis? **Think**

What do you think will happen? Come up with an idea

Example Hypothesis: Leaves change color in Fall because cold temperature causes a change in green leaves

Step 3: Experiment

How do you do an experiment? **Act**

Test it out by doing an experiment/ project. Describe what is happening during your experiment/ project using your senses

Example experiment: Obtain multiple green leaves and expose to each to different temperatures over a period of time.

Step 4: Results

How do you come up with results? **Say**

Explain what happened during your experiment/ project.

Example results: Take pictures and write down observations to document what happened.

Step 5: Conclusions

What are your conclusions? **Answer**

Answer your question. Why did it happen?

Example conclusions: Cold temperatures causes green leaves to turn yellow and orange.

Please note: Students might have already known the answer to their question but the act of demonstrating their knowledge or scientifically proving it is the point of a science project.

Rules

- Your name must be on the tri-fold 36" tall by 48" wide display board
- Acknowledgements of the people who helped you
- Your project must be organized and presented on your tri-fold display board using the scientific method
- Projects done at school are allowed to be presented
- The experiment and display should be child-led not parent led
- Experiments may be individual or in a group of maximum 3 students

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Science Experiment Guide Lines for Irvington Middle School and High School

Below are the basic concepts for a successful science experiment and poster (display) board. The level of depth varies depending on the age level. Younger children may have only visuals while an older student should have wording, visuals, and data analysis.

- Ask a question about a topic that you are interested in
- Construct your hypothesis
- Test your hypothesis by doing an experiment
- Analyze your data
- Make a conclusion based on the data you collected
- Communicate your results at the Irvington Science Fair on your display board

How to ask a question

Once you find a general topic that interests you, write down the question that you want to answer. A scientific question usually starts with: How, What, When, Who, Which, Why, or Where. For example, if you are interested in robots, your question might be "How much current does a robot's arm use to lift a weight?"

- Can you design a fair or unbiased test to answer your question? A "fair or unbiased test" requires that you change only one factor (or variable) and keep all other conditions the same. If you cannot design a fair test, then you should change your question.
- Your science fair project question should involve factors (or variables) that you can easily measure using a number. Or, factors that are easily identified, like colors.

Construct your hypothesis

A hypothesis is an educated guess about how things work.

- Most of the time a hypothesis is written like this: (fill in the blanks with the appropriate information from your own experiment.)
  "If_____[I do this]_____[this]_____will happen."

Your hypothesis should be something that you can actually test, what's called a "testable" hypothesis. In other words, you need to be able to measure both "what you do" and "what will happen."

Test your hypothesis by doing an experiment

- Use a notebook to record all of your observations during your experiment.
- Before starting your experiment, prepare a data table so you can quickly write down the changes exactly as you made them.
- Be consistent, careful, and accurate when you take your measurements. Numerical measurements are the best.
- Take pictures of your experiment for use on your display board if you can (keeping visual records are very helpful for younger students)

Analyze your data

Review your data. Try to look at the results of your experiment with a critical eye. Ask yourself these questions:

- Is it complete, or did you forget something?
- Do you need to collect more data?
- Did you make any mistakes?
- Calculate an average for the different trials of your experiment, if appropriate.
- Make sure to clearly label all tables and graphs. And be sure to include the units of measurements (volts, inches, grams, ect.)

Make a conclusion

Your conclusions summarize how your results support or contradict your original hypothesis:

- Summarize your science fair project results in a few sentences and use this summary to support your conclusion. Include key facts from your background research to help explain your results as needed.

For older students

- State whether your results support or contradict your hypothesis. (Engineering & Programming Projects should state whether they met their design criteria.)
- If appropriate, state the relationship between the independent and dependent variable
- Summarize and evaluate your experimental procedure, making comments about it's success and effectiveness.
- Suggest changes in the experimental procedure (or design) and/ or possibilities for further study.

Communicate your results

You need to prepare a display board (poster board) to communicate your work to others. You will use a standard, 3 panel display board that unfolds to be 36" tall by 48" wide.

Organize your information like a newspaper so that your audience can quickly follow your experimental and thought process by reading top to bottom, then left to right. Include each step of your science fair project: Abstract, question, hypothesis, variables, background research, and so on.

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