

Odyssey Schools
Science Research and Science Fair Overview:

November 2014

The Process, aka, the Scientific Method:

1. Brainstorm ideas and areas of interest
2. Define a question based on your observations in your area of interest (“what is the effect of...”)
3. Gather background information and resources
4. Form an explanatory **Hypothesis** or a prediction – what do you think will happen and why?
“IF.....THEN.....” Remember to limit your “variables” to only one.
5. Plan and design an experiment to test your hypothesis = **Materials and Methods or Procedure**
6. Perform an experiment and collect **Data** to test your hypothesis (prediction)
7. Analyze the data, use graphs, charts, statistics = **Results**
8. Interpret the data and draw **Conclusions** from your data; does your data SUPPORT or REJECT (contradict) your hypothesis?
9. Summarize and communicate/present/publish project data, results and conclusions = your science poster!

Tips:

- Keep your experiment simple; remember to test only one variable
- Design experiments with a real-world purpose, how does this help expand or add to new knowledge in your area of interest?
- Document **all** your work in your log book, your thoughts, ideas, books read, experts you consulted,
- Use blue ink,
- Date each entry and leave some blank spaces between entries,
- Write neatly,
- Record your observations **daily**, draw diagrams, write down any changes to your original plan as they occur,
- Make quantifiable or qualitative measurements, (think height, length, width, weight, volume...)
- Use metric measurements (centimeters, grams, milliliters etc.)
- Keep your log book organized; use tabs to separate sections such as background research, data, results, conclusion,
- Use tables, charts and/or graphs to summarize your data,
- Be sure to label your graphs and charts with a title and with the units of measurement
- Use statistics to analyze data; percentages, mean, mode, range
- Take many photos of your research as you work on it to document the results
- Take photos of your materials and instruments used in the project

Minimum Requirements:

- Use a composition book (not a spiral bound book or loose-leaf paper) for your log book
- Your work is a “legal” document; do not tear out pages even if you have made a mistake, do not white-out or erase, simply cross out error neatly and correct the information
- Repeat your experiment a minimum of 10 trials or an equivalent sample size
- Write a 1 page summary of your research
- Use a minimum of 3 different reliable sources of information for your background research
- Write a bibliography (5th & 6th only, recommended for 4th)
- Construct your science board in PowerPoint as you work on the project and complete each step

- Submit your work to your teacher and the print shop electronically; by email or on a flashdrive
- No student or school names on the log book or poster
- No pictures of people on poster
- No items other than your log book, data log, or photo log can be displayed or submitted in the science fair competition

In-School Science Fair:

Friday, February 27, 2015.

1st place winners in each category, in each grade level, advance to the **district science fair** on March 11, 2015.

Sample sources of information on science research:

http://elementarypgms.brevard.k12.fl.us/science_fairs.htm

<https://student.societyforscience.org/intel-isef>

http://www.sciencemadesimple.com/scientific_method.html

<http://www.sciencebuddies.org/>

For teachers:

<http://elementarypgms.sp.brevardschools.org/Home/Shared%20Documents/Science%20Fair/CSI-Science%20Project%20Section.pdf>

Poster “Template”:

- A single PowerPoint slide,
- Pre-formatted with
 - ★ the essential sections,
 - ★ appropriate font sizes,
 - ★ correct dimensions for the final print of the poster,
- Students may change any pre-formatted designs, colors, borders, graphics,
- Remember: only documented student work can be presented on the board as part of the research,
- Do NOT change the size and orientation of the “slide” or your poster will not print correctly
- Do not add photos or graphics of someone else’s work unless you “cite” your source. Keep in mind that **plagiarism** is stealing and an act of fraud. Display only your own work and avoid the issue!
- Info on free version of Microsoft Office coming soon.
- Completed poster (PowerPoint) must be submitted to print shop as early in February as possible, no later than the first week in February.
- Email or use flash drive to bring **completed, teacher approved** poster to PIP printing/Sign Wizard (Mrs. Squire Wiggins). For best results, save your completed poster as a pdf file to eliminate any accidental changes to the file. 1480 Palm Bay Rd Ne, Palm Bay, FL 32905 and 1707 Canova St SE Ste 5, Palm Bay, FL 32909. **Phone:** (321) 951-4354. info@piccandoit.com \$9.99 special pricing for Odyssey students. More info on submitting your file coming in February.