



Experimental
Design
Division B/C
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Kathy Meloche
Kathy.mso.email@gmail.com



The most important this to do is...

- Go to the National Science Olympiad Web Site and make copies of the Rubric, write-up packet, and the supporting documents provided.
- THIS YEAR THE C RUBRIC/WRITE-UP IS DIFFERENT FROM THE B RUBRIC/WRITE-UP
- Use ONLY the appropriate rubric and write-up for training.
- This rubric defines the event and the scoring of the event.
- It also guides the students through the event—if they follow the rubric, they will not lose as many points.



<https://www.soinc.org/experimental-design-b>


<https://www.soinc.org/experimental-design-c>

<https://www.youtube.com/watch?v=HDAtW5yUYGA> this website helps students distinguish between the different types of variables.



To be successful in this event you must...

- Work together using Face Time or some other media. You must be able to talk to one another and see one another!
- 1. Complete the experiment through data tables in 20 minutes or less.
- 2. Divide up the tasks. Decide which of you is to do which part BEFORE you take the exam. Each of you should jot down the problem statement and hypothesis. Each of you should receive a picture of the data tables from the person who makes them. You will refer to these over and over again.
- 3. Your procedure pictures, data tables, statistic data tables, and graphs should be photographed and emailed to me.
- 4. You must practice. Time your practices. Only allow 50 minutes to complete the exam.



When practicing with your students, give them a scenario, then have them create and write-up an experiment per the rubric. Only allow 50 minutes to complete the experiment and write-up!!!



Example experiments:

1. Conduct and write-up an experiment which demonstrates the relationship between exercise and heart rate.
2. ~~Conduct and write-up an experiment which demonstrates the effect of shape on the time it takes for an object to drop to the floor.~~
3. Conduct and write-up an experiment which demonstrates the effects of non-moving charges.
4. Conduct and write-up an experiment which demonstrates how the height of a ramp affects the speed of a toy car.
5. You are to design and conduct an experiment which demonstrates the effect of temperature on the rate at which a gel cap dissolves.



Need more experiments? Try these websites...

- mommypoppins.com
 - sciencebob.com
 - <https://www.scholastic.com/teachers/articles/teaching-content/40-cool-science-experiments-web/>
- For all of these you will have to set up parameters so that the experiment is measurable and is repeated three times.



Helpful Hints:

- **Time your students when they practice.**
- Teach your students to divide up the tasks. One person might write the problem, hypothesis, materials, and variables. Another might write the procedure, etc.
- The scenarios can come from ANY branch of science.
- Practice, Practice, Practice

Claim, Evidence, Reasoning

- <https://www.youtube.com/watch?v=5KKsLuRPsvU>

