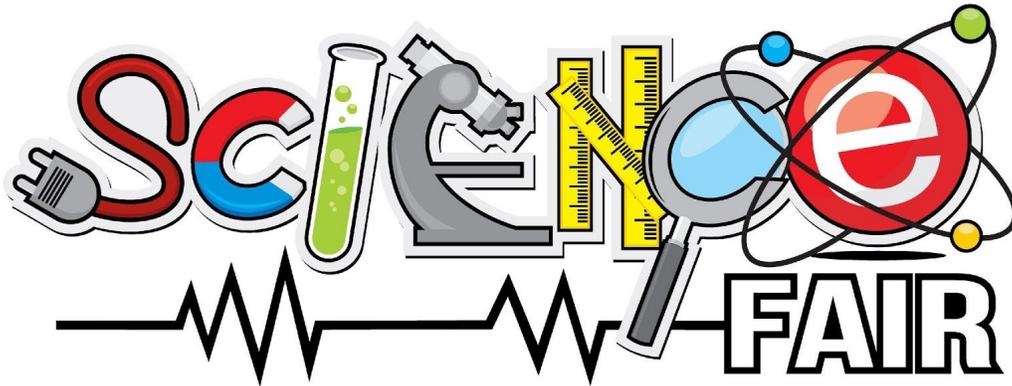


SCIENCE FAIR BRAINSTORMING GUIDE

Name: _____

Date: _____



It's that time of the year, time to start thinking about your Science Fair topic for the 2019-2020 school year. Please complete this guide and have it turned in to your science teacher by August 23, 2019. Complete this assignment in pencil, as you may want to erase and edit something if you change your mind. Remember, pick a topic to explore that solves a problem. Projects that solve a problem generally win science fair awards, and I know you want to win.

You might need some help during the summer. If so, you can visit the ADHUS Middle School Science Google Site:

<https://sites.google.com/adhus.fau.edu/middleschoolscience>

General Guidelines and Rules for Science Fair Projects:

Science Fair competitions have certain rules and guidelines that every student must follow. Here is a couple of things to keep in mind when coming up with your project ideas and designing your experiment:

1. Do not test on any animal with a vertebrae: That means any animal with a backbone (which is pretty much all the animals you'd be thinking about). That's right, that means you can't experiment on your pet dog, pet cat, a bird, a hamster, a fish, etc. Certain insects are ok, such as certain types of ants. But you CANNOT test on flies, or any other insect that can carry diseases, hurt you, or that you are allergic to. Remember, your safety is the most important thing.
2. Do not test on mold, bacteria, viruses, or funguses: These things can be pretty dangerous to your health and would need to be conducted in a regulated science laboratory with some pretty strict supervision. We don't want you to get sick or hurt, so to play it safe, your science teachers won't approve any projects that test on these dangerous topics. (That includes trying to see how long food takes to rot, because food gets moldy and then that means you'd be experimenting on mold).
3. Do not design an experiment that requires dangerous chemicals. That's another safety concern that your teachers are not going to approve. To play it safe, if it is not an ingredient that you can find in your kitchen cabinet to cook with, you're not going to be able to use it.

4. Do not design an experiment that involves any weapons or dangerous tools that could hurt you or others! We can't stress this enough. If your project requires you to solder, weld, nail, or use any kind of construction tool that could injure you, you're going to need an adult to help you and directly supervise your investigation. Make sure to let your teacher know if you plan on using any tools. You'll need some extra guidance and some safety procedures and paperwork. Plus, we have to make sure to talk to that adult.
5. Do not test brands just to see which one is best: Remember, you are investigating a problem. Testing brands or products to figure out which one works best isn't really a science fair idea. (That means, you can't see which paper towel absorbs the most water, or which brand of glue makes the best slime. While we're at it, making slime isn't a science fair project idea either.)
6. No models: that means, you can't build a volcano and watch it 'explode'.
7. Avoid human testing if you can: Testing on human participants means you need their parent's signed permission (if they are under the age of 18). This can be pretty hard to do. Also, you'll need to test on at least 50 people. That can be super challenging. Make sure to talk to your teacher if a behavioral science (meaning psychology investigation) is something you really want to do. You'll definitely need some teacher guidance and you'll have some extra paperwork to complete.
8. Don't buy a science fair pre-purchased kit to experiment on. Remember, your project needs to be unique, and not something I can buy on Amazon.



Have a question?

You can always email your teachers over the summer:

6th Grade: Mrs. Daniels (coliveir@fau.edu)

7th Grade: Dr. Feit (kfeit@fau.edu) or Ms. Milu (smilu@fau.edu)

8th Grade: Ms. Milu (smilu@fau.edu)

Need Ideas? Try these science fair websites

Please remember that your project should be unique though, and not just a copy of a project you read about. Nonetheless, this should provide you with a good start.

- Science Buddies: <https://www.sciencebuddies.org/science-fair-projects/science-projects>
- Google Science Fair: <https://www.google-sciencefair.com/student-resources>
- Science fair Project Ideas: <https://www.education.com/science-fair/>
- ScienceBob: <https://sciencebob.com/>

- Science Fair Central: <https://www.sciencefaircentral.com/>

COMING UP WITH YOUR PROJECT IDEA...

STEP 1 - BRAINSTORMING: *First, you need to think of things that actually interest you in science.* Do you like plants? Do you have a particular hobby? Do you like chemistry? Do you play sports? Are you interested in helping the environment? This is the place to start brainstorming. Start by answering the brainstorming questions below. These questions should help guide your thinking towards what you are interested and curious about.

- **Brainstorming question #1:** What are things you like and are interested in?

- **Brainstorming question #2:** Think of all of the things you said you are interested in, can you think of any problems that you can explore further? (List as many as you can think of...)

- **Brainstorming question #3:** Out of all the problems that you listed above, which problem (or problems) do you think you're the most curious about solving or exploring further?

- **Brainstorming question #4:** Which idea/problem from the previous questions do you think you can design and conduct an experiment on? It's ok if you're not quite sure how to design an experiment just yet but try to identify an idea that you think you'd like to work on the most.

- **Brainstorming question #5:** Think of the idea/problem you identified as your favorite in question #4. Now think of this topic like a question you are trying to answer by conducting your experiment. What would that question be?



EVALUATE: IS IT A GOOD PROJECT IDEA?

STEP 2 -*Answer the questions below to evaluate if you have a good topic/question to explore.*

- 1) **Does it meet guidelines?** (*Take a look at the first page: no models, avoid human testing, no animal testing, no product testing, no brand testing, no projects that come from a pre-purchased kit, etc.*)
 - *Yes, I know it meets guidelines because*
- 2) **Am I interested in the answer?**
 - *Yes, I am interested in the answer because*
- 3) **Can I find research on the topic?**
 - *Yes. I did some research over the summer, and I found the following 4 websites that had really great information on my topic. It helped me learn a lot more about my topic and interest.*
- 4) **Does it solve a problem or address a concern or need? (circle one)**
 - *Yes, the problem/concern/need is*
- 5) **Can I do all or most of the project on my own?**
 - *Yes, I can do the following on my own:*
But I'll need adult supervision for _____
- 6) **All projects need an experiment so that you may collect data. What kind of experiment do I think I can do and what kind of data can I collect?**
 - *The experiment I can do is*
 - *The data I can collect is*
 - *In order to collect this data, I would need to measure*

7) What are the materials I think I'll need?

- *I think I will need the following materials in order to conduct the experiment:*

- I think I will need the following tools to measure my data:

8) Will my parents and teacher approve of it?

- *Yes, I'm sure they will approve my project choice because*

What category can you compete in?

STEP 3 - CHOOSING A CATEGORY: Every science fair project fits into a category based on what your experiment or investigation is all about. The categories are organized by the Intel ISEF organization.

The category you choose will be the category you will be competing in. Sometimes, your project may fit into more than one category, but pick the category you think fits it best. This can be a bit challenging, but don't worry, you can always ask your teacher or read more about each category by going to <https://student.societyforscience.org/intel-isef-categories-and-subcategories>

There will be winners in the various categories you see below within our school's science fair. If you win in our school's science fair, you're then eligible to compete in the Palm Beach Regional Science Fair, and then the Florida State Science Fair.



INCLUDEPICTURE

"http://sdepacor.org/sdepacorHome/wp-content/uploads/2016/09/isef_logo.png" * MERGEFORMAT

Available categories and their description from the Intel ISEF website. Each category has subcategories that you can read more about on their website:

Animal

Sciences:

This category

includes all aspects of animals and animal life, animal life cycles, and animal interactions with one another or with their environment. (Just remember, at this level, you can only experiment on animals without a vertebrae).

Environmental Engineering: Studies that engineer or develop processes and infrastructure to solve environmental problems in the supply of water, the disposal of waste, or the control of pollution.

Behavioral & Social Sciences: The science or study of the thought processes and behavior of humans and other animals in their interactions with the environment studied through observational and experimental methods.

Robotics and Intelligent Machines: Studies in which the use of machine intelligence is paramount to reducing the reliance on human intervention.

Biomedical & Health Sciences: This category focuses on studies specifically designed to address issues of human health and disease.

Systems Software: The study or development of software, information processes or methodologies to demonstrate, analyze, or control a process/solution.

Cellular/ Molecular Biology: This is an interdisciplinary field that studies the structure, function, intracellular pathways, and formation of cells. Studies involve understanding life and cellular processes specifically at the molecular level.

Biochemistry: The study of the chemical basis of processes occurring in living organisms, including the processes by which these substances enter into, or are formed in, the organisms and react with each other and the environment.

Chemistry: Studies exploring the science of the composition, structure, properties, and reactions of matter not involving biochemical systems.

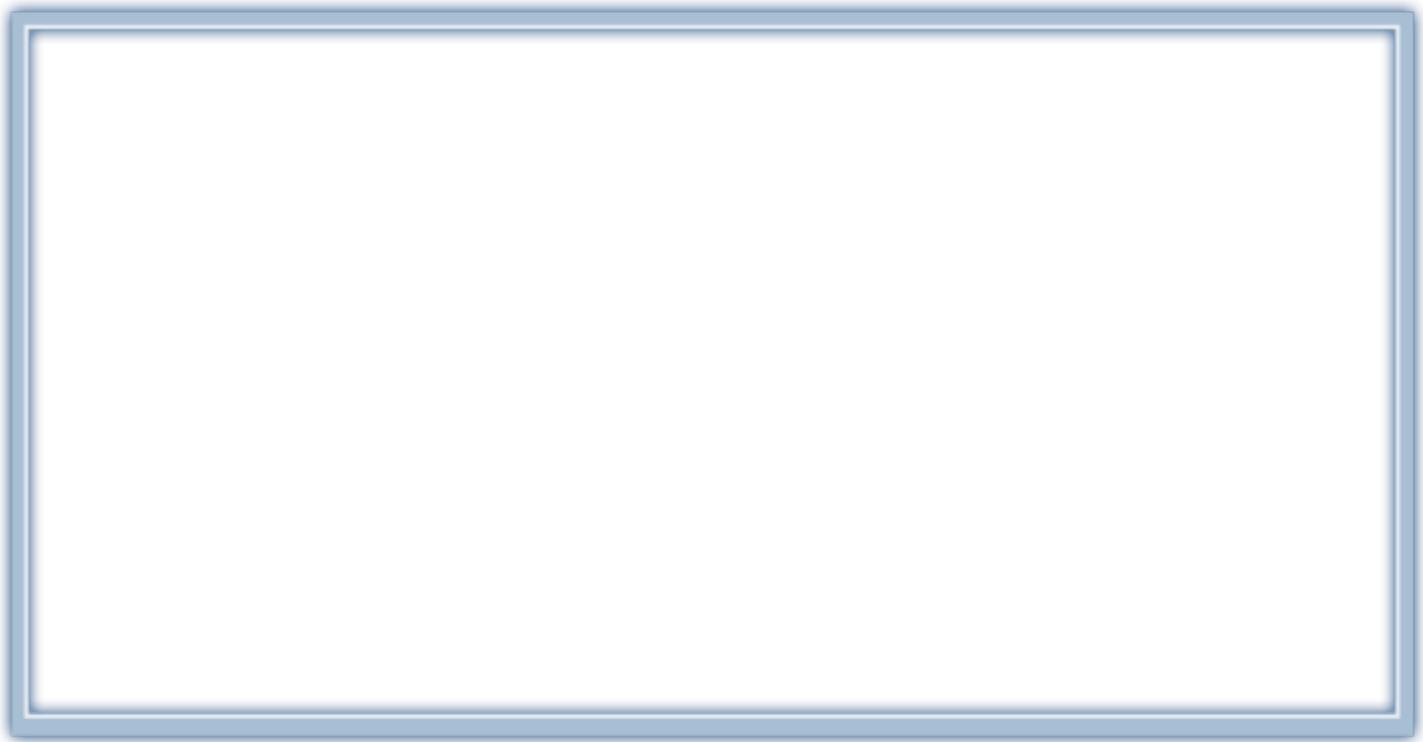
Mathematics: The study of the measurement, properties, and relationships of quantities and sets, using numbers and symbols. The deductive study of numbers, geometry, and various abstract constructs, or structures.

Earth & Environmental Sciences: Studies of the environment and its effect on organisms/systems, including investigations of biological processes such as growth and life span, as well as studies of Earth systems and their evolution.

Physics & Astronomy: Physics is the science of matter and energy and of interactions between the two. Astronomy is the study of anything in the universe beyond the Earth.

Engineering: Studies that focus on the science and engineering that involve movement or structure. The movement can be by the apparatus or the movement can affect the apparatus.

Plant Sciences: Studies of plants and how they live, including structure, physiology, development, and classification. Includes plant cultivation, development, ecology, genetics and plant breeding, pathology, physiology, systematics and evolution.



What category do you think your project should compete in?

I think my project can compete in _____

I think that this would be a good category because _____

The subcategory I can compete in is _____

(Remember to research the subcategories on the ISEF website link from the previous page)