

Amelia Earhart Elementary
Science Fair Project Approval Form
K -4th Grade

Name: _____ Teacher: _____

Scientific question:

Circle the category this fall under:

Physical Science Life Science Earth Science Engineering

I will be...

working alone: _____

With a partner: _____

Partner's name: _____

Parent Signature

Date

Teacher Signature

Date

Choosing the Best Science Project for Me

The key is to find an experiment/topic that you are passionate about! A great science project does NOT have to be a huge task, it can be simple, straight forward, and CONTROLLED.

- First list 5 things you are interested in or problem(s) that you would like to fix/make easier
 - Example: Music, Football, Shopping, Animals, A Community Problem
- Pick one of your 5 interests and ask yourself 5 questions about it. Make sure you're writing questions you'd really like to answer.
 - If I picked Football as my favorite topic, an example of a question I might like to answer could be: Does the type of cleat affect an athlete's ability to run _____ meters?
- Decide which of your 5 questions you'd like to answer the most. Make sure it is a question you can actually answer and have resources to perform.
- After choosing your main question, figure out how you are going to answer it.
 - ****Make sure you only have 1 variable that you are testing, and that the rest of the experiment is as controlled as possible.**
 - Remember an experiment has a variable that you are manipulating or changing in some way, it is NOT simply a demonstration of something.
- After deciding what question you'd like to ask and how you plan to answer your question, create a good hypothesis! A hypothesis is simply **an educated guess** about what you think will happen AND a reason, based on research you have done.
 - Your hypothesis should be a statement, not a question
- Repetition
 - Repeat your experiment a few times (3-4 times) so you have multiple measurements to create an average -- the repetition also removes any random things that only occurred one time.
- Other tips:
 - Avoid using words such as bigger, smaller, longer, etc., use measurements to create comparisons.
 - Have fun! The more you enjoy the question or problem you are trying to solve the more involved you will want to be with your project. It will become a FUN experience that you learn from and will always remember.

How to Pick a Project You'll ENJOY!

STEP #1

List five things you are interested in.

Examples: Music, Football, Rock-Climbing, Computers, Horses, or Shopping

- 1.
- 2.
- 3.
- 4.
- 5.

STEP #2

Pick one of the items you listed and ask yourself five questions about it. Be sure these are questions you'd really like to know the answers to.

For example, let's say you like football. Your questions might be: "Can I write a computer program to predict the outcome of next year's NFL games?" "Do players with thicker necks suffer fewer injuries?" "Does artificial turf help or hinder a team's performance?" "What is the relationship between body fat and running speed?" Get the idea? Now it is your turn!

MY QUESTIONS ARE:

- 1.
- 2.
- 3.
- 4.
- 5.

STEP #3

Now decide which question interests you the most and, after you fill in the next blank, you're on your way!

THE QUESTION I WILL TRY TO ANSWER FOR MY SCIENCE PROJECT IS:

STEP #4

In choosing your topic, be sure to not take on more than you can handle. Narrow it down, take an in-depth look at a single aspect of the problem that interests you. Tackle something that hasn't been done over and over again.

Before you go onto the next section, re-write your question as a working title, one that simply and accurately describes your research.

THE TITLE OF MY PROJECT WILL BE:

*Remember, your project must involve actual experimentation. It should not be simply a report, a description, a model or a system (however advanced) built from someone else's plans.

Projects Often Done by Students

Projects should be experiments, NOT demonstrations and should reflect the student's own work and ideas. As an experiment the project is a collection and analysis of data. The following list outlines topics that are commonly seen at science fairs and are not necessarily unique ideas or projects. If your student does a similar project make sure it is well thought out with a lot of data and multiple trials (more than 2 or 3) and a creative twist.

1. Effect of music on plants
2. Effect of talking to plants
3. Effect of dark vs. light on plants or colored lights, etc.
4. Effect of liquids on plants other than water, e.g. milk, soda, salt water, etc.
5. Effect of cola, coffee, etc. on teeth; tooth decay, coloring, etc.
6. Effect of running, jumping, music, video games, movies, etc. on blood pressure
7. Balanced diets (data usually unreliable)
8. Strength/absorbency of paper towels (and other products)
9. "Which is best?" -- Approach generally without scientific merit (which popcorn pops better, which soap, fertilizer, etc.)
10. Basic maze running
11. Any project which boils down to simple preference; what do girls/boys/cats/dogs like better...
12. Effect of color on memory, emotion, mood, etc.
13. Effect of color on food taste, e.g. changing the color of Jell-O to effect the taste
14. Optical illusions
15. Reaction times in general and distractions effecting reaction speed
16. Many male/female comparisons, especially if bias shows
17. Basic planaria regeneration
18. Detergents vs. stains
19. Basic solar collectors
20. Acid rain projects (Important: to be considered, thorough research into the composition of acid rain and a scientifically accurate simulation of it would be necessary.)
21. Basic flight tests, e.g., planes, rockets
22. Battery life (plug in and run down)
23. Basic popcorn volume tests
24. Taste comparisons, e.g., Coke vs. Pepsi can you tell the difference?
25. Sleep learning
26. Music affecting learning
27. Taste or paw-preferences of cats, dogs, etc.
28. Color choices of goldfish, etc.
29. Basic chromatography
30. Wing or fin shape comparison with mass, surface area, etc. not considered
31. Ball bounce tests with poor measurement techniques
32. Fingerprints and heredity
33. Hovercraft design
34. Colonizing bacteria from doorknobs, student's hands, places around the school, etc.
35. Memory Tests
36. Penny polishing; what cleans pennies the best
37. Insulation effectiveness
38. Coke & Mentos
39. Hand sanitizers and bacteria; which sanitizer is best?

Science Fair Projects: Keeping a Lab Book

The lab book is perhaps the most important part of your science fair project. Keeping a detailed lab notebook proves to the judges that *you* did the work you say you did, that your data actually exists and is valid, and that you followed the scientific method.

You should write in your lab book anytime and every time you work on, talk about, or even think about your project. It is critical that you:

- Write neatly in black or blue ink. Do *not* use pencil.
- Do *not* erase or white-out anything. If you make a mistake, simply line it out like this: ~~I made a mistake~~. Judges get suspicious if they see lots of have erasures or white-out. It makes them ask "What is this student trying to hide?"
- Record the date, time, and place where you are working. Make mention of any other people who you might be talking to or working with.
- Write down anything you observe, what you do, and any data you collect.

Here is an example of what a page in your lab notebook might look like:

	Date: 2 December, 2005 Time: 4:03 pm Place: Canoas Creek People: me and my dad
Observations:	
<ul style="list-style-type: none">• Raining really hard; creek is about 5 feet deep.• Birds and frogs are nowhere to be seen.	
Procedures:	
<ul style="list-style-type: none">• Collected 5 water samples, labeled them 1 through 5.• Measured turbidity of samples• Put samples in cooler.	
Data:	
<ul style="list-style-type: none">• Sample 1 turbidity: 12 JTU• Sample 2 turbidity: 10 JTU• Sample 3 turbidity: 15 JTU• Sample 4 turbidity: 5 JTU• Sample 5 turbidity: 7 JTU	

Keeping a lab book isn't hard, and it can really pay off. Remember, you may have discovered a cure for cancer, but if you don't write down how you did it then who cares? Write down *everything* related to your project. You can even paste in pictures, photographs, charts, newspaper clippings, magazine articles, photocopied pages from a book . . . the list is endless. Moral of the story: the better the lab notebook you keep, the better the chance that your project will win!