Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_ Date \_\_\_\_\_

**Phase 1 – Choosing a Topic**

**Brainstorming**

**Due Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**For the first stage of your Science Fair Project you will:**

1. Brainstorm 3 - 5 possible subjects.

2. Come up with two investigative questions per topic

3. Consult with parents, teachers, friends and science fair mentors about project possibilities.

**How do I get Started:**

* **Find our More:** Think about scientific topics that you always wanted to know about. Maybe you are interested in sports, wind energy, music, water pollution… or cosmetics. Is the project interesting enough so that you can work on it for 3 full months?
* **Solve a Mystery:** Make a list of things that mystify you… What makes a microwave cook some foods more quickly than a conventional oven? Why are some bicycles faster than others? If the idea involves a mystery, chances are it would make a good science fair project.
* **Library:** Check out a book on Science Fair Ideas
* **Internet:** Start researching ideas on the internet.

**Investigative question**

What do you want to know about possible topic? Your investigation question is what you intend to find out about during the course of your experiment. Using the topics that you brainstormed, you will choose a related question that your experiment will answer.

*Suggestions:* Choose a topic that interests you enough to work on for 3 months.

Ask yourself, can I find information for research on the topic?

**The Search continues:**

Look up key words on you topic. For example if your topic is oil spills you could research some major spills that have occurred in the United States. What type of oil was spilled?

**Choosing the BEST Investigative Question:** The question “How does oil spill affect an ecosystem?” is too broad. But while you were researching oils spills and the effects on ducks…. you realize that plants are part of that ecosystem also… Therefore “How does oil affect plants?” is an example of a reasonable question that you can investigate.

**Avoiding Problems: Ask yourself these questions.**

* Are the materials affordable?
* Are the materials you need available?
* Does the science fair you are entering prohibit materials or specimens that you need for your experiment?
* How long will it take you to gather the necessary data?
* Is the project challenging enough?
* Do you have enough time to do your experiment before the due date?
* Is the project safe?
* Have you discussed this with your parents?

**Project Restrictions**

**Science Fair Rules and Regulations:**

The following Rules and Regulation apply to the Worcester Regional Middle School Science & Engineering Fair. These rules can also be downloaded from the [State Fair website](http://www.massscifair.com/uploads/pdfs/msmanual%202011%20vf3.pdf).

*The Science Fair projects may not involve at any stage of the project the following:*

1. Blood products, fresh tissue, teeth or bodily fluids
2. Nonhuman vertebrate animals and their parts, exception eggs
3. Ingestion or inhalation of any substance into the nose or mouth by human subjects
4. Pathogenic agents\*
5. Recombinant DNA
6. Carcinogenic or mutagenic chemicals
7. Compressed gas (including, but not limited to CO2)
8. Controlled substances\*
9. Explosive chemicals
10. Hazardous substances or devices (including, but not limited to BB guns, paint ball guns, potato cannons, air cannons)
11. High voltage equipment
12. Highly toxic chemicals
13. Lasers (any strength), exception: infrared thermometers
14. Ionizing radiation X-rays or nuclear energy
15. Radioactive materials (except non-ionizing, naturally occurring materials)

**Other Important Information**

**Large sample sizes** are critical for a successful project…..

* Can you get a lot of people to participate in your experiment? (I suggest 60 people or more)

If your project does not involve human participants, you will need **to perform at least three trials for your first experiment and repeat the entire experiment over again.**

* Do you have time to repeat the experiment which will be done in January and February?
* Is the cost to perform the experiment reasonable?

**Important Deadlines:**

* Research Plans (Forms 1A, B (required) and C, D (if needed) are due to the Regional Middle School Scientific Review Committee (SRC). Note: These forms can be submitted any time before the deadline for approval and the SRC will review upon receipt. Students may not begin experimenting until project has been approved. We will be submitting forms right after we return from Christmas Break.
* *Friday, April 11, 2014*, Registration Forms for entry to the Middle School Fair are due, along with copies approved research plans. Copies of all signed *Form C* must be submitted, if applicable.
* *Science Fair -- Monday, May 5, 2014*,  Odeum, Campus Center, [WPI](http://www.wpi.edu/about/visitors/directions.html):

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| --- |
| Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Science Fair Topic  Write down two websites you can find information about on your topic |
| Why did you choose this topic/project? |
| Question you are investigating |
| Materials you will need |
| Possible Procedure (be as detailed as possible |
| Check – Did you go through – ***What makes a good science fair project question?*** checklist? |
| Possible roadblocks and safety precautions you need to take? Explain. |