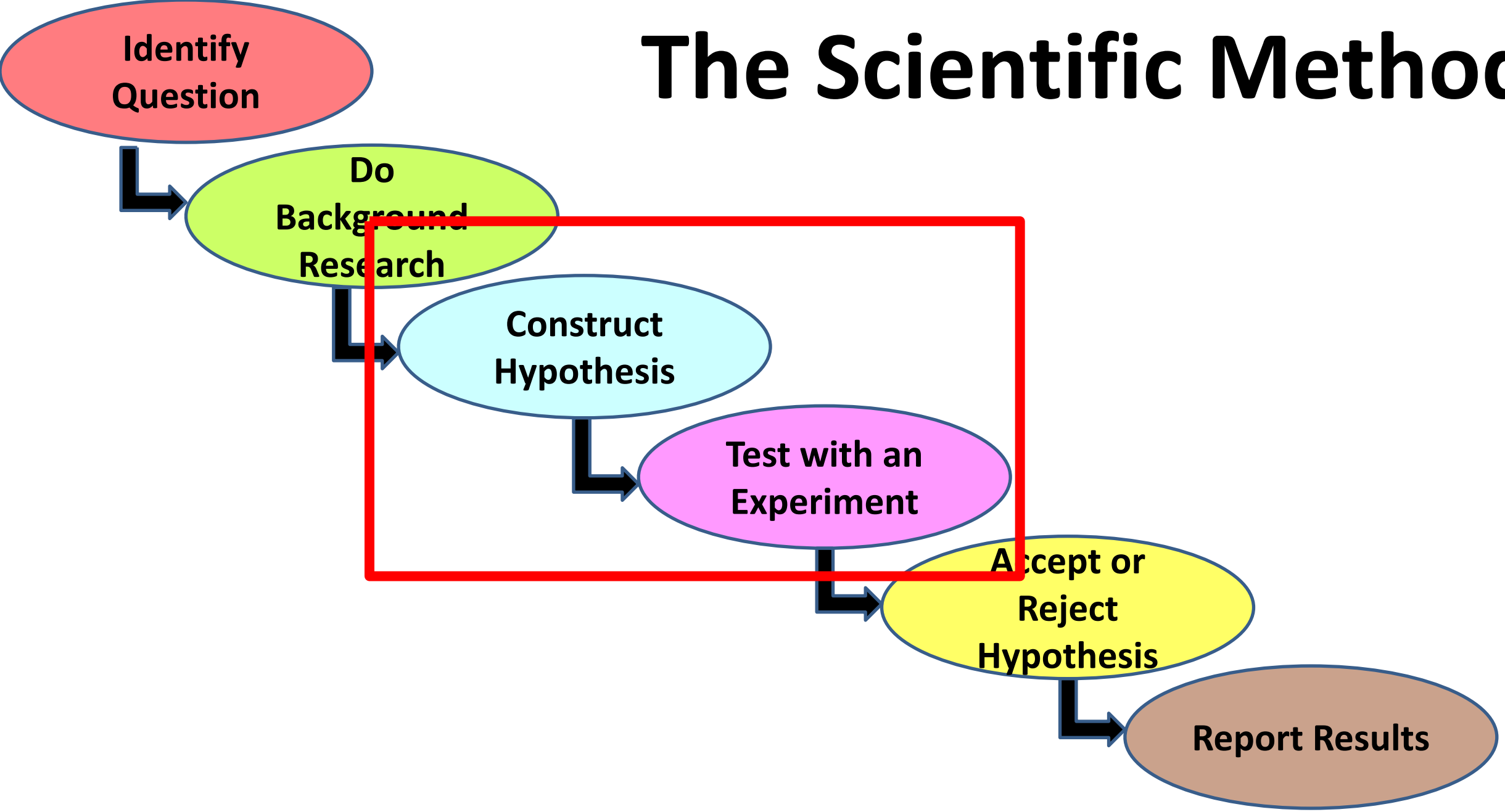
So far, all participants should have:

1. Completed and submitted a Student Entry and Information Form
2. Conducted Background Research
3. Made a Bibliography with 5 sources

What's Next?

1. Visit the Rules Wizard and determine forms needed
2. Create a Research Plan
3. Fill out all forms (Do this with Parents!)
4. Submit forms and Research Plan for approval

The Scientific Method



Your Research Plan outlines everything you propose to do. It should include:

Title: Descriptive of experiment

Purpose: What do you hope to accomplish?

Hypothesis: Clear, well worded

Independent and Dependent variables: identify how each will be measured

Materials: List all items to be used

Procedures: DETAILED!. List in order. Be specific.

Safety Procedures: The more you address, more likely project is to be approved

Bibliography with 5 sources

WHAT WOULD IT LOOK LIKE?

Title: Music! Harmful or Helpful?

Purpose: To determine if listening to different types of music has an affect on human heart rate and blood pressure

Hypothesis: If there is a relationship between the type of music a subject is exposed to and their heart rate and blood pressure, then a subjects heart rate and blood pressure will be highest when listening to heavy metal (high BPM) and lowest when listening to dub (low BPM).

Independent variable: type of music played (beat measured in BPM)

Dependent variable: heart rate (measured beats per minute) and blood pressure (millimeters of mercury –mmHg, systolic over diastolic) of human subjects

Materials: iPod with: "Go Go Gadget Gospel"- Gnarls Barkley (hip hop)
"The Word"- Junkyard Band (go-go)
"I am Ahab"- Mastodon (heavy metal)
"Robot Rock"- Daft Punk (house)
"Tidal Wave"- Lee "Scratch" Perry (dub)

Recliner
Sphygmomanometer (to measure blood pressure)
Stethoscope
Stopwatch
Twenty human subjects, 10 male, 10 female, all between 13 and 43 years old

Safety precautions : I will set the iPod volume to one-half bar (50-60dB, less than a normal conversation at 1m) to prevent hearing damage. I will screen all subjects to make sure that none suffer from high blood pressure, hypertension, irregular heart rate. I will have all students under the age of 18 fill out a parental consent form. I will have my project approved by a registered nurse who will serve as my adult sponsor.

Procedures:

1. Create a quite environment for experiment with no distractions (no TV, other people, no talking).
2. Select twenty human subjects. Do not select subjects with any health issues that might affect their safety or impact results. Have subjects fill out consent form. Identify each by a number. Keep forms in binder.
3. Place subject in reclining position, resting, with legs uncrossed.
4. Wrap blood pressure cuff securely around the subject's left upper arm. Arm will be extended, palm up, and resting on chair.
5. Set iPod volume to one-half bar. Place the iPod earphones into the subjects ears.
6. Take subject's blood pressure and pulse rate before first song and record.
7. Play first song for two minutes.
8. Take subject's blood pressure and heart rate after song. Record.
9. Allow subject to relax for five minutes before playing next song. Subject may read, but should not do any activity that would increase heart rate or blood pressure.
10. Follow steps 2-8 for other songs.
11. Repeat steps 1-10 for all twenty human subjects.

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NEW!!! Information related to submitting forms online:

Document Administration Instructions

Need help setting up a Dropbox?

scifair@outlook.com

Determine what forms you will need for your project:

Rules Wizard

All Science Fair Forms:

Landrum Middle School Science Fair 2014

Science Fair Checkpoint Meetings will be on Tuesdays from 2:00-3:00 in the Auditorium. Come register for the Science Fair and discuss requirements. See you there!

NOTICE: You must first complete a Student-entry-form-2014 to get your project reviewed and approved. Complete and bring to next meeting if you have not!

Did you miss the SECOND Checkpoint Meeting (9/9/14) ? Still want to participate? Please do the following:

1. View the Week 2 Checkpoints Power point discussion

Science Fair?

Research Plan

Detailed Research Plan Instructions

Sample research plan

Research Plan Instructions for Projects Requiring SRC or IRB Approval:

Human Subjects Research Plan

Vertebrate Animals Research Plan

Microorganisms and Potentially Hazardous Biological Agents Research Plan

BSL-1safety checklist

Use of Hazardous Chemicals,

Step 1: Come up with a unique project idea. Register at after school Checkpoint Meetings (Tuesdays 2:00-3:00).

Step 2: Set up a Dropbox account to access your personal folder for submitting paperwork. Instructions here: Document administration instructions

Step 3: Attend Checkpoint Meetings through September. Conduct background research, develop a research plan, and get project approval. See Checkpoint Schedule below.

Step 4: Carry out your experiment, construct a backboard, and compete on November 21st!

Checkpoints for Landrum Science Fair

DATE	AFTER SCHOOL AGENDA (Meetings held 2-3 in Auditorium)	TASKS TO COMPLETE	POWER POINT PRESENTATION OF DISCUSSION
Sept. 2nd (Tues.)	1. First Contact: Discuss project requirements	■ Complete Student Entry Form ■ Begin Project	Week 1 Checkpoints

Research Plan

Detailed Research Plan Instructions

Sample research plan

Research Plan Instructions for Projects Requiring SRC or IRB Approval:

Human Subjects Research Plan

Vertebrate Animals Research Plan

Microorganisms and Potentially Hazardous Biological Agents Research Plan

BSL-1safety checklist

Use of Hazardous Chemicals, Activities, or Devices Research

Science Fair!

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Which Forms Do I Fill Out?

GET YOUR PARENTS to HELP!!!

ALL projects require:

- **Form 1: Checklist for Adult Sponsor**
- **Form 1A: Student Checklist**
- **Form 1B: Approval Form**
- **Research Plan (Not really a form; it's a separate typed document)**

MANY projects require:

*** Form 3: Risk Assessment Form**

Use blue ink for forms and signatures.

Checklist for Adult Sponsor (1)

This completed form is required for ALL projects and must be completed before experimentation

To be completed by the Adult Sponsor in collaboration with the student researcher:

Student's Name: _____

Project Title: _____

1) ☐ I have reviewed the ISEF Rules and Guidelines.

2) ☐ I have reviewed the student's completed Student Checklist (1A) and Research Plan.

3) ☐ I have worked with the student and we have discussed the possible risks involved in the project.

4) ☐ The project involves one or more of the following and requires prior approval by an SRC, IRB, IACUC or IBC:
   - ☐ Humans
   - ☐ Vertebrate Animals
   - Potentially Hazardous Biological Agents:
     - ☐ Microorganisms
     - ☐ rDNA
     - ☐ Tissues

5) Forms to be completed for **ALL Projects**:
   - ☐ Adult Sponsor Checklist (1)
   - ☐ Research Plan
   - ☐ Student Checklist (1A)
   - ☐ Approval Form (1B)
   - ☐ Regulated Research Institutional/Industrial Setting Form (1C) (when applicable)
   - ☐ Continuation Form (7) (when applicable)

6) **Additional forms required if the project includes the use of one or more of the following** (check all that apply):

☐ **Humans** (Requires prior approval by an Institutional Review Board (IRB), see pp. 13-16 for full text of the rules)
- ☐ Human Subjects Form (4)
- ☐ Qualified Scientist Form (2) (if applicable and/or required by the IRB)

☐ **Vertebrate Animals** (Requires prior approval, see pp. 17-20 for full text of the rules)
- ☐ Vertebrate Animal Form (5A) - for projects conducted in a non-regulated research site (SRC prior approval required.)
- ☐ Vertebrate Animal Form (5B) - for projects conducted at a Regulated Research Institution. (Institutional Animal Care and Use Committee (IACUC) approval required prior experimentation.)
- ☐ Qualified Scientist Form (2) (Required for all vertebrate animal projects at a regulated research site or when applicable)

☐ **Potentially Hazardous Biological Agents** (Requires prior approval by SRC, IACUC or Institutional Biosafety Committee (IBC), see pp. 21-24 for full text of the rules.)
- ☐ Potentially Hazardous Biological Agents Form (6A)
- ☐ Human and Vertebrate Animal Tissue Form (6B) - to be completed in addition to Form 6A when project involves the use of fresh tissue, primary cell cultures, blood, blood products and body fluids.
- ☐ Qualified Scientist Form (2) (when applicable)

☐ **Hazardous Chemicals, Activities and Devices** (No prior approval required, see pp.25-27 for full text of the rules.)
- ☐ Risk Assessment Form (3)
- ☐ Qualified Scientist Form (2) (required for projects involving DEA-controlled substances or when applicable)

Adult Sponsor's Printed Name _____ Signature _____ Date of Review (Must be prior to experimentation.) _____

Phone _____ Email _____

You fill out the top two lines! Project Title must match backboard!

ADULT SPONSOR checks appropriate boxes

Your ADULT SPONSOR—the adult person who will be supervising you while you are doing your experiment.

ADULT SPONSOR signs here

Student Checklist (1A)

This form is required for ALL projects.

1) a. Student/Team Leader: _____ Grade: _____

Email: _____ Phone: _____

b. Team Member: _____ c. Team Member: _____

2) Title of Project: _____

_____

3) School: _____ School Phone: _____

School Address: _____

_____

4) Adult Sponsor: _____ Phone/Email: _____

5) Is this a continuation from a previous year? ☐ Yes ☐ No

If Yes:

a) Attach the previous year's ☐ **Abstract** ☐ **Form 1A and** ☐ **Research Plan**

b) Explain how this project is new and different from previous years on ☐ **Continuation Form (7)**

6) **This year's** laboratory experiment/data collection will begin: **(must be stated (mm/dd/yy)**

Projected Start Date: _____ Projected End Date: _____

ACTUAL Start Date: _____ ACTUAL End Date: _____

7) ☐ Research Institution ☐ School ☐ Field ☐ Home ☐ Other: _____

8) List name and address of all non-school work site(s):

Name: _____ _____

Address: _____ _____

_____ _____

Phone: _____ _____

9) **Complete a Research Plan as described on page 31 and attach to this form.**

10) **An abstract is required for all projects after experimentation (see page 28).**

STUDENT fills out this form!
Decide on a project TITLE SOON —it has to go on all forms and match what goes on your board!

IMPORTANT !
Don't fill out ACTUAL start and end dates until later! They should match the start and end dates of your experiment in your journal

Part 1:
You and your parents must sign here.
This form must be dated BEFORE the ACTUAL start date of your experiment recorded in your log book and on Form 1A.

Part 2:
This section will be completed by the IRB/SRC if your project requires prior approval.
This section must be dated BEFORE the ACTUAL start date of your experiment recorded in your log book and on Form 1A.

Approval Form (1B)

This completed form is required for each student, including all team members.

1) To be completed by student and parent

a) **Student Acknowledgment:**

☐ I understand the risks and possible dangers to me of the proposed research plan. I have read the ISEF Rules and Guidelines and will adhere to all International Rules when conducting this research.

☐ I have read and will abide by the following Ethics statement:

Scientific fraud and misconduct are not condoned at any level of research or competition. Such practices include plagiarism, forgery, use or presentation of other researcher's work as one's own, and fabrication of data. Fraudulent projects will fail to qualify for competition in affiliated fairs or the ISEF.

Student's Printed Name	Signature	Date Acknowledged (Must be prior to experimentation.)

b) **Parent/Guardian Approval:** I have read and understand the risks and possible dangers involved in the **Research Plan**. I consent to my child participating in this research.

Parent/Guardian's Printed Name	Signature	Date of Approval (Must be prior to experimentation.)

2) To be completed by the fair SRC

(Required for projects requiring prior SRC/IRB approval. Sign 2a or 2b as appropriate.)

a) **Required for projects that need prior SRC/IRB approval BEFORE experimentation**
(humans, vertebrates or potentially hazardous biological agents)

The SRC/IRB has carefully studied this project's **Research Plan** and all the required forms are included. My signature indicates approval of the **Research Plan** before the student begins experimentation.

SRC/IRB Chair's Printed Name

Signature | Date of Approval (Must be prior to experimentation.)

OR

b) **Required for research conducted at all Regulated Research Institutions with no prior fair SRC/IRB approval.**

This project was conducted at a regulated research institution (**not home or high school, etc.**), was reviewed and approved by the proper institutional board before experimentation and complies with the ISEF Rules. **Attach (1C) and required institutional approvals (e.g. IACUC, IRB)**

SRC Chair's Printed Name

Signature | Date of Approval

NOTE: If a stamp is used, it must be initialed by the chairperson.

3) Final ISEF Affiliated Fair SRC Approval. (Required for ALL Projects)

SRC Approval After Experimentation and Shortly Before Competition at Regional/State/National Fair
I certify that this project adheres to the approved **Research Plan** and complies with all ISEF Rules.

Regional SRC Chair's Printed Name	Signature	Date of Approval
State/National SRC Chair's Printed Name *(where applicable)*	Signature	Date of Approval

Which Projects Require Additional Forms?

Working with:

- Vertebrate animals? Form 5A (and sometimes Form 5B)
- Human Subjects? Form 4 (2 pages, including Informed Consent Form)
- Conducting your experiment in a Lab? Form 1C.
- A professional scientist? Form 2.
- Potentially dangerous chemicals or activities? Form 3.
- Microorganisms or Human Tissues? Form 6A or 6B.

Risk Assessment: Form 3

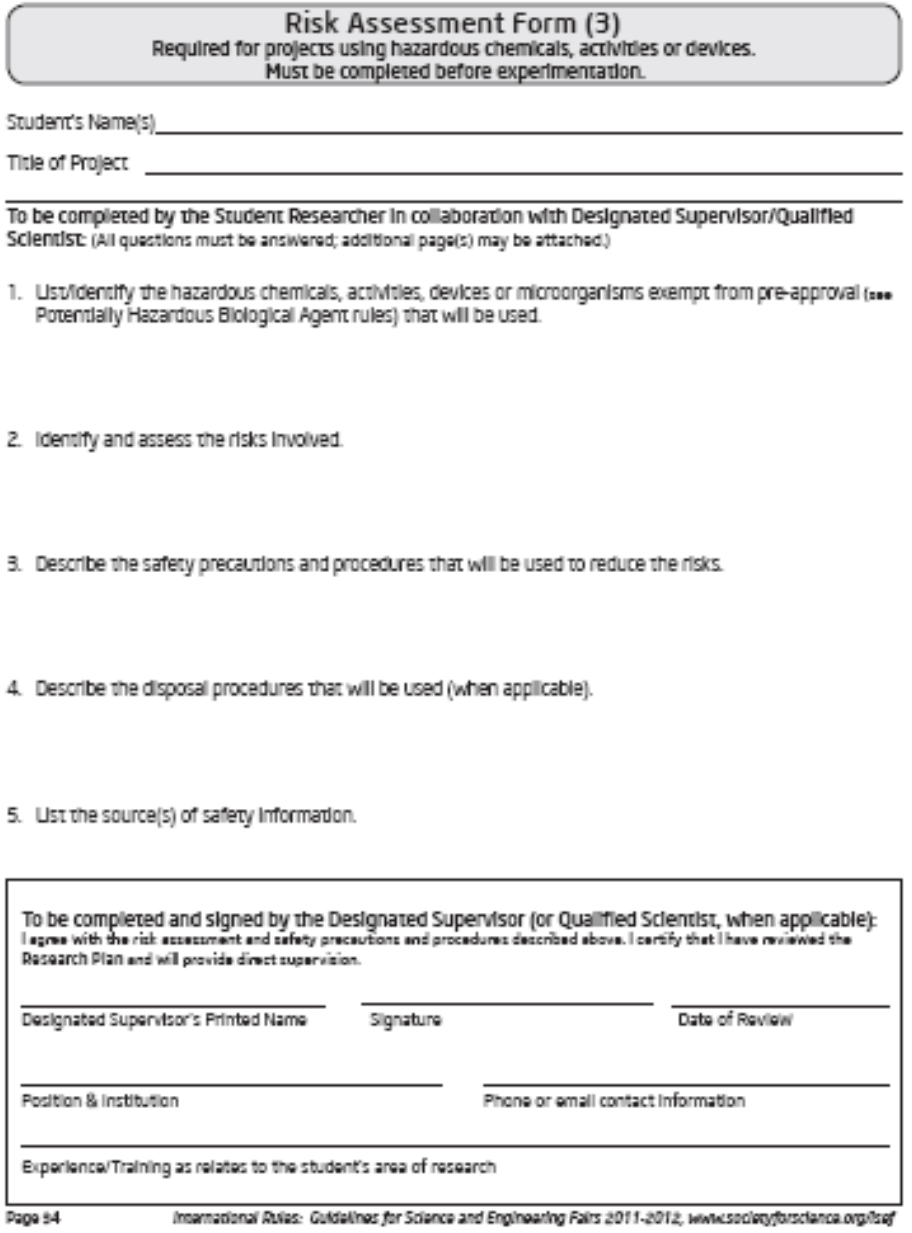
Should YOU fill it out? FIRST, you need to write a DETAILED Research Plan.

Using Chemicals: Describe all safety precautions. Attach MSDS sheet

Electricity: Detail safety and voltage

Dangerous Activities: Explain in detail what you will be doing and the safety measures you will follow.

WHEN IN DOUBT, FILL IT OUT!



Risk Assessment Form (3)
Required for projects using hazardous chemicals, activities or devices.
Must be completed before experimentation.

Student's Name(s)_____

Title of Project _____

To be completed by the Student Researcher in collaboration with Designated Supervisor/Qualified Scientist: (All questions must be answered; additional page(s) may be attached.)

1. List/identify the hazardous chemicals, activities, devices or microorganisms exempt from pre-approval (see Potentially Hazardous Biological Agent rules) that will be used.

2. Identify and assess the risks involved.

3. Describe the safety precautions and procedures that will be used to reduce the risks.

4. Describe the disposal procedures that will be used (when applicable).

5. List the source(s) of safety information.

To be completed and signed by the Designated Supervisor (or Qualified Scientist, when applicable):
I agree with the risk assessment and safety precautions and procedures described above. I certify that I have reviewed the Research Plan and will provide direct supervision.

Designated Supervisor's Printed Name | Signature | Date of Review

Position & Institution | Phone or email contact information

Experience/Training as relates to the student's area of research

Page 94 *International Rules: Guidelines for Science and Engineering Fairs 2011-2012, www.societyforscience.org/isef*

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1. View the Week 2 Checkpoints Power point discussion

Determine what forms you will need for your project:

Rules Wizard

All Science Fair Forms:

Science Fair Forms

Confused by the forms? The links below offer some clarification:

Forms Summary

Detailed Forms summary

Second Detailed Forms Summary

Power Point for Forms 1, 1A, 1B

All ISEF Rules:

ISEF Rules and Guidelines Link

bring to next meeting if you have not!

Did you miss the SECOND Checkpoint Meeting (9/9/14) ? Still want to participate? Please do the following:

1. View the Week 2 Checkpoints Power point discussion.
2. Develop a set of essential questions to guide your background research in your Project Journal.
3. Create a bibliography with a minimum of 5 sources which help answer your research questions.
4. Visit the Rules Wizard with a parent to determine which forms you will need to complete. Start to fill them out digitally (be sure to SAVE!)
5. Review important dates on the schedule below.

Did you miss the FIRST Checkpoint Meeting (9/2/14)? Still want to participate? Please do the following:

1. View the Week 1 Checkpoints Power point discussion and start a Project Journal.
2. Download the Student-entry-form-2014 Fill it out and bring it next week.
3. Review important dates on the calendar below.

What Next?

Before next week……

1. Complete a detailed (and typed) Research Plan.
2. Complete all forms WITH PARENT
3. Print out PAPER copies of completed forms and Research Plan and bring next week.