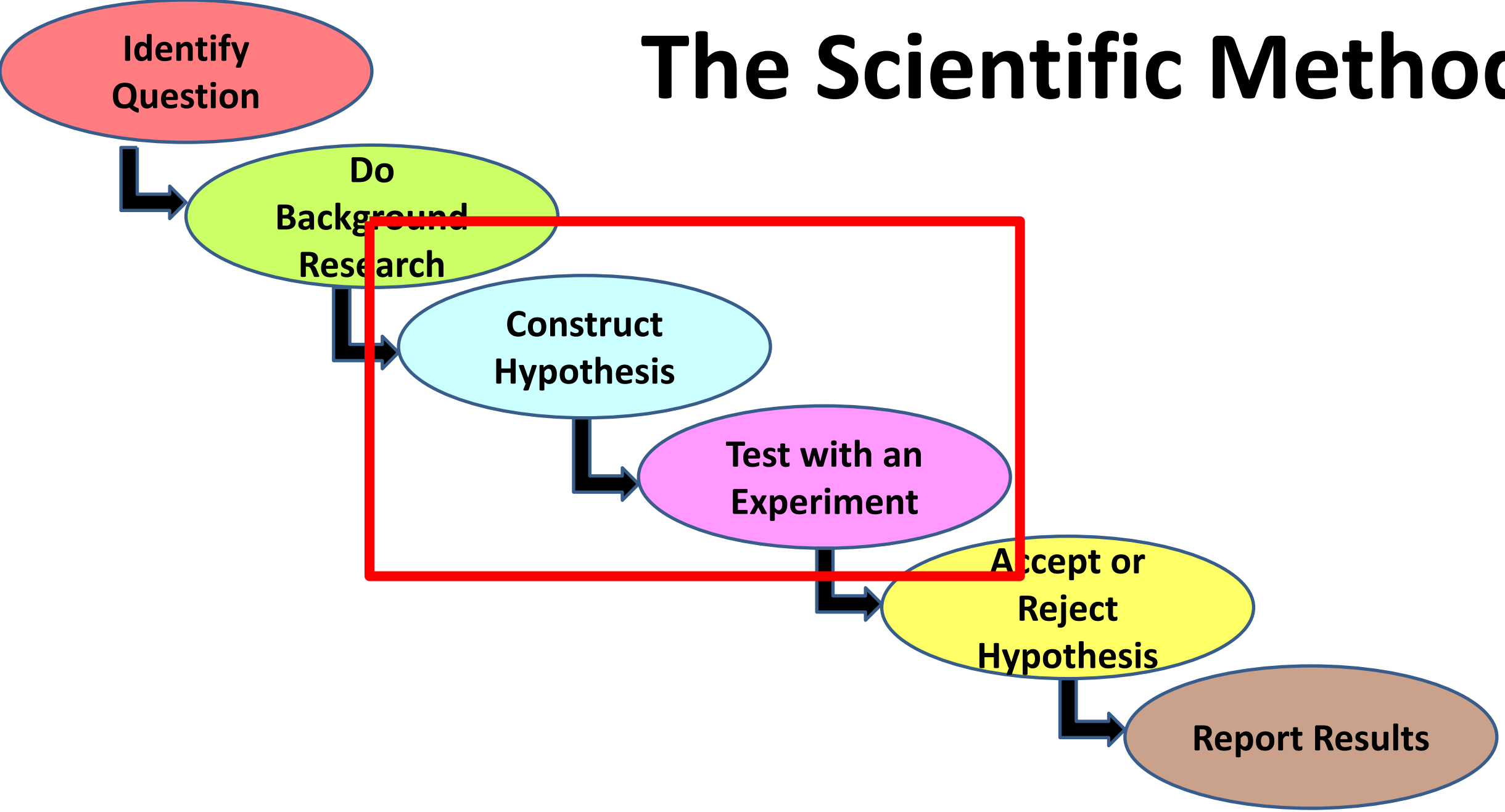
SCIENCE FAIR – Wednesday, January 6th

Project due Monday, January 4th

Judging in Learning Commons 9-11 am

Judging will be conducted through a Zoom meeting.
Students will be assigned a judging time.
Students will have 15 minutes to present and answer questions

The Scientific Method



Due Monday, Jan. 4th – NO EXCEPTIONS!

Project will be sent to judges prior to judging.

STATEMENT OF PURPOSE *(WHY IS PROJECT IMPORTANT)*

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HYPOTHESIS

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SUMMARY OF PROCEDURES

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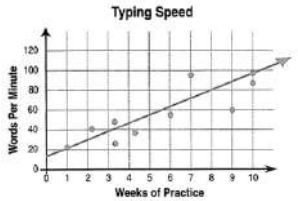
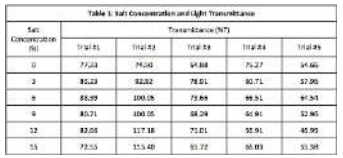
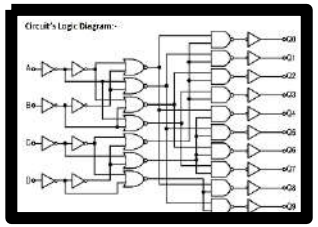
TITLE

DATA and OBSERVATIONS

1. Graphs
2. Charts/Data Tables
3. Photos that help promote understanding
4. Diagrams







DATA ANALYSIS

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CONCLUSIONS

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FUTURE STUDIES

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Wed. January 6th - Judging in Learning Commons 9-11 am

- Judging will be conducted through a Zoom meeting.
- Students will be assigned a judging time.
- Students will have 15 minutes to present and answer questions.
- Judges will have already viewed project board.

How much longer do I need to attend the Tuesday meetings?

Until your paperwork is submitted, corrected, re-submitted and approved.

Once approved check Schoology messages frequently for important due dates and instructions.

Also check Sci. Fair website http://www.lms.stjohns.k12.fl.us/sciencefair/

So far, you should have:

1. **Submitted a Student Information form.**
2. **Selected a Topic.**
3. **Started a Project Journal.**
4. **Conducted Background Research and created a Bibliography with 5 sources.**
5. **Visited the Rules Wizard and determined the forms you need.**
6. **Created a detailed Research Plan**
7. **Completed all Forms with the help of your parent.**

Projects to be reviewed by Landrum's Scientific Review Committee (SRC) and/or Institutional Review Board (IRB) :

Human Subjects
Vertebrate Animals
Microorganisms
Hazardous Activities (Chemical Reactions, Electricity, Fire)

All other projects do not require special approval and can begin once paperwork is reviewed and corrected.

What needs to be submitted for project approval?

1. Detailed Research Plan

Title: Music! Harmful or Helpful?

Purpose: To determine if listening to different types of music affects 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 and lowest when listening to dub.

Independent variable: type of music played

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
Ten human subjects, 5 male, 5 female, all between 13 and 43 years old

Safety precautions : I will set the iPod volume to one-quarter bar 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 ten human subjects. Do not select students with any health issues that might affect their safety or impact results. Have subjects fill out consent form. Keep forms in notebook.
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-quarter 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 songs 3-5.
11. Repeat steps 1-10 for all ten human subjects.

Bibliography: 5 sources

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,

Science Fair!

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!

Please be sure that you follow the Detailed Research Plan Instructions!

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

What needs to be submitted for project approval?

1. Detailed Research Plan
2. Bibliography with 5 sources

"Battery." *Encyclopedia Britannica*. 1990.

"Best Batteries." *Consumer Reports Magazine* 32 Dec. 1994: 71-72.
Booth, Steven A. "High-Drain Alkaline AA-Batteries." *Popular Electronics* 62 Jan. 1999: 58.

Brain, Marshall. "How Batteries Work." *howstuffworks*. 1 Aug. 2006 <http://home.howstuffworks.com /battery.htm>.

"Cells and Batteries." *The DK Science Encyclopedia*. 1993.

Dell, R. M., and D. A. J. Rand. *Understanding Batteries*. Cambridge, UK: The Royal Society of Chemistry, 2001.

"Learning Center." *Energizer*. Eveready Battery Company, Inc. 1 Aug. 2006 <http://www.energizer.com /learning/default.asp>.

"Learning Centre." *Duracell*. The Gillette Company. 31 July 2006 <http://www.duracell.com /au/main/pages/learning-centre-what-is-a battery.asp>

What needs to be submitted for project approval?

1. Detailed Research Plan
2. Bibliography with 5 sources
3. Forms 1, 1A, and 1B

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 _____

What needs to be submitted for project approval?

1. Detailed Research Plan
2. Bibliography with 5 sources
3. Forms 1, 1A, and 1B

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: _____

(Projected dates are required for projects that require SRC/IRB prior review)

ACTUAL Start Date: _____ ACTUAL End Date: _____

7) Where will you conduct your experimentation? (check all that apply)

☐ 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).**

What needs to be submitted for project approval?

1. Detailed Research Plan
2. Bibliography with 5 sources
3. Forms 1, 1A, and 1B

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

What needs to be submitted for project approval?

1. Detailed Research Plan
2. Bibliography with 5 sources
3. Forms 1, 1A, and 1B
4. ADDITIONAL forms for projects requiring SRC/IRB approval

Human Participants Form (4)

Required for all research involving human participants not at a Regulated Research Institution. If at a Regulated Research Institution, use institutional approval forms for documentation of prior review and approval.
(IRB approval required before experimentation.)

Student's Name(s) | Title of Project

Adult Sponsor Contact | Phone/Email

Must be completed by Student Researcher(s) in collaboration with the Adult Sponsor/Designated Supervisor/Qualified Scientist:

1. ☐ I have submitted my Research Plan which addresses ALL areas indicated in the Human Participants Section of the Research Plan Instructions.
2. ☐ I have attached any surveys or questionnaires I will be using in my project or other documents provided to human participants.
   ☐ Any published instrument(s) used was /were legally obtained.
3. ☐ I have attached an informed consent that I would use if required by the IRB.
4. ☐ Yes ☐ No Are you working with a Qualified Scientist? If yes, attach the Qualified Scientist Form 2.

Must be completed by Institutional Review Board (IRB) after review of the research plan. All questions must be answered for the approval to be valid. (If not approved, return paperwork to the student with instructions for modifications.)

☐ Approved with Full Committee Review (3 signatures required) and the following conditions:
(All 5 must be answered)

1. Risk Level (check one) : ☐ Minimal Risk ☐ More than Minimal Risk
2. Qualified Scientist (QS) Required: ☐ Yes ☐ No
3. Written Minor Assent required for minor participants:
   ☐ Yes ☐ No ☐ Not applicable (No minors in this study)
4. Written Parental Permission required for minor participants:
   ☐ Yes ☐ No ☐ Not applicable (No minors in this study)
5. Written Informed Consent required for participants 18 years or older:
   ☐ Yes ☐ No ☐ Not applicable (No participants 18 yrs or older in this study)

☐ Approved with Expedited Review (1 signature required). Study involves either of the following:
- ☐ Human participants will only provide feedback on project design/invention/etc., no personal data will be collected and there are no health or safety hazards.
- ☐ Student is the only subject of the research and no more than minimal risk is involved.

IRB SIGNATURES (All 3 signatures required unless expedited review checked above) None of these individuals may be the adult sponsor, designated supervisor, qualified scientist or related to (e.g., mother, father of) the student (conflict of interest).

I attest that I have reviewed the student's project, that the checkboxes above have been completed to indicate the IRB determination and that I agree with the decisions above.

Medical or Mental Health Professional (a psychologist, medical doctor, licensed social worker, licensed clinical professional counselor, physician's assistant, or registered nurse)

Printed Name | Degree/Professional License

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

Educator

Printed Name | Degree

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

School Administrator

Printed Name | Degree

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

How Will the Approval Process Proceed?

Step 1: Submit copies of research plan and forms to Mr. Anzelmo for initial review.

Step 2: Wait for paperwork to be returned to you with comments from Mr. Anzelmo.

Step 3: Make corrections and revisions to research plan and paperwork.

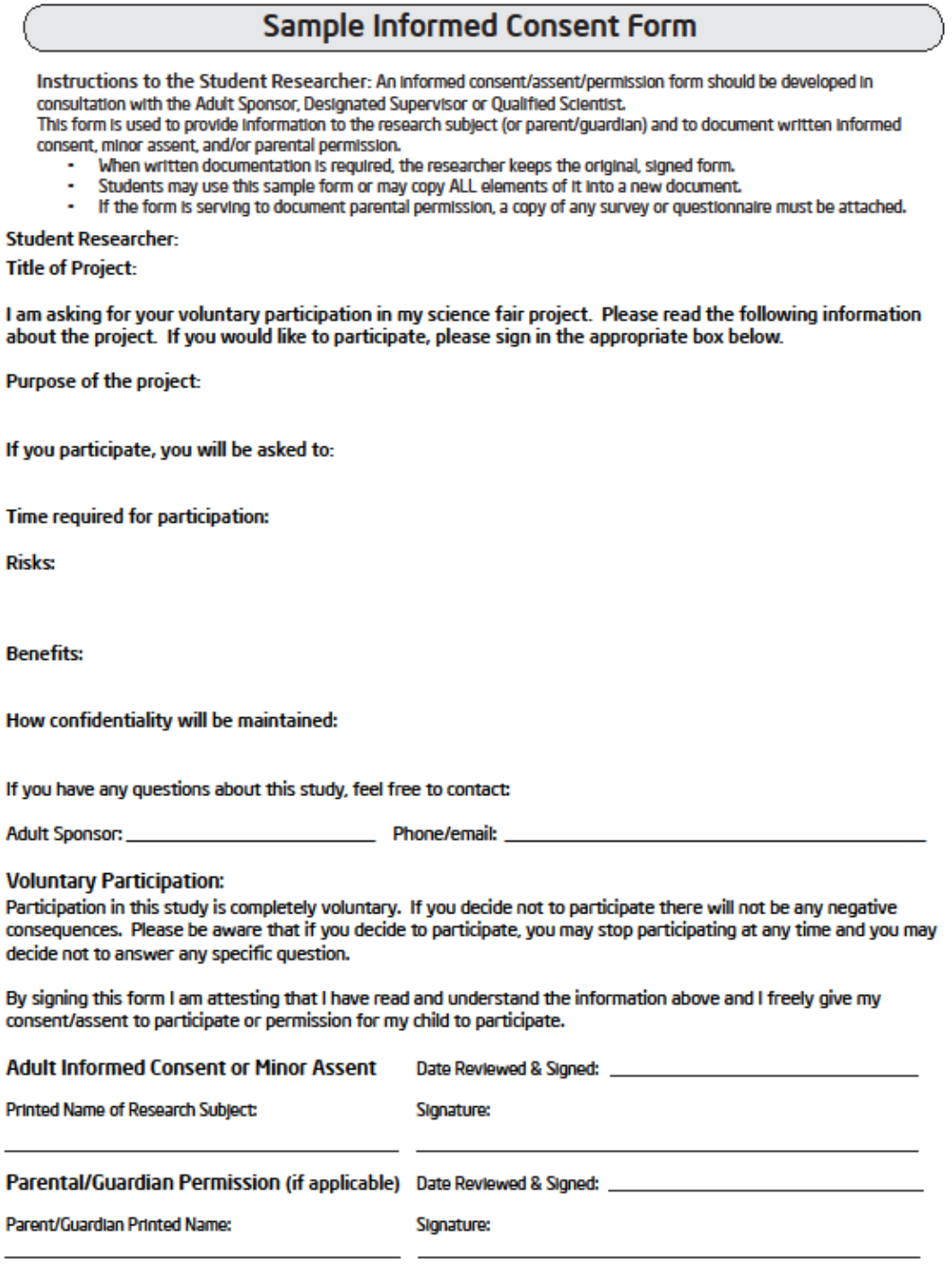
Step 4: Re-submit corrected paperwork to Mr. Anzelmo

Step 5: Repeat steps 1-4 until project is approved.

YOU CANNOT BEGIN EXPERIMENTATION UNTIL PROJECT IS APPROVED.

For projects with Human Subjects:

- For project approval, you will need to submit ONE copy of YOUR Human Informed Consent Form for review
- Can be found under All Science Fair Forms on Landrum Science fair website
- AFTER approval, you will need a copy of this form for EVERY participant you test. They can be PAPER copies, signed in ink, and kept in your binder.



Sample Informed Consent Form

Instructions to the Student Researcher: An informed consent/assent/permission form should be developed in consultation with the Adult Sponsor, Designated Supervisor or Qualified Scientist.
This form is used to provide information to the research subject (or parent/guardian) and to document written informed consent, minor assent, and/or parental permission.

- When written documentation is required, the researcher keeps the original, signed form.
- Students may use this sample form or may copy ALL elements of it into a new document.
- If the form is serving to document parental permission, a copy of any survey or questionnaire must be attached.

Student Researcher:

Title of Project:

I am asking for your voluntary participation in my science fair project. Please read the following information about the project. If you would like to participate, please sign in the appropriate box below.

Purpose of the project:

If you participate, you will be asked to:

Time required for participation:

Risks:

Benefits:

How confidentiality will be maintained:

If you have any questions about this study, feel free to contact:

Adult Sponsor: _____ Phone/email: _____

Voluntary Participation:
Participation in this study is completely voluntary. If you decide not to participate there will not be any negative consequences. Please be aware that if you decide to participate, you may stop participating at any time and you may decide not to answer any specific question.

By signing this form I am attesting that I have read and understand the information above and I freely give my consent/assent to participate or permission for my child to participate.

Adult Informed Consent or Minor Assent Date Reviewed & Signed: _____

Printed Name of Research Subject: Signature:

_____ _____

Parental/Guardian Permission (if applicable) Date Reviewed & Signed: _____

Parent/Guardian Printed Name: Signature:

_____ _____