Science and Engineering Fair Forms Needed Key

Use this key to decide which forms are needed for each project.
Make sure you read each question. Some projects may fit in more than one row.

1. For every project:	⇨	Use • ***Project Approval Form*** • ***Risk Assessment and Designated Supervisor Form*** • ***Ethics Agreement***
2. Does the project involve human test subjects?	⇨	Use • ***Qualified Scientist Form*** • ***Informed Consent for Testing of Human Subjects form*** • ***Teacher Verification of Informed Consent Forms***
3. Does the project involve non-human vertebrates?	⇨	Use • ***Qualified Scientist Form*** • ***Vertebrate Animal Care Form***
4. Does the project involve culturing/growing or testing of microbial organisms? (*see Teacher Handbook)*	⇨	Use • ***Qualified Scientist Form*** • ***BSL-1 Checklist***
5. Does the project involve the use of drones for testing or data collection (images, etc.)?	⇨	Use • ***Student Use of Drones Form***
6. Does the project involve the use of hazardous devices or live electrical wires? (*see Teacher Handbook)*	⇨	Use • ***Qualified Scientist Form***
7. Did the project receive a bid to the Regional Science and Engineering Fair?	⇨	Use • ***Photo Release Form*** • ***Permission for Travel Form***
8. Does this project involve a partner?	⇨	Use • McAuliffe Science and Engineering Fair Partner Permission Form

Understanding the Forms Needed for Projects

The forms that are required for projects help ensure that students are following safe and ethical practices. Teachers should use the *Regional Science and Engineering Fair Forms Needed Key* to determine which forms are needed for each project.

Forms Required for EVERY project:

1. *Project Approval Form* - This gives an overview of the project and should be completed as soon as the student has decided on a project. Students cannot begin testing until this form has been signed by the teacher. It is also the form that the teacher uses to let the student know if there are any forms other than these 3 required forms.

2. *Risk Assessment and Designated Supervisor Form* - On this form, the student makes an analysis of any risks that may come up during the testing phase of the project. Every project MUST have a Designated Supervisor. This is the person who provides ***direct supervision as the testing is taking place.***

3. *Ethics Agreement* - With this form, the students are acknowledging that they will not take someone else's work and present it as their own. This includes plagiarism of research sources, internet graphs, images, codes of string, or any other parts of the project. Students should be made aware that "copy-paste" without citing the original source of the information is plagiarism and would result in a project being disqualified from the Regional Science and Engineering Fair. The copied content should be cited in the log book ***and*** every time it is used elsewhere (on display board, in conclusion, etc.).

Other forms may be needed, depending on the content of the project. Teachers should use the *Regional Science and Engineering Fair Forms Needed Key* to determine which form(s) are needed for individual projects.

Supervision During Testing

There are two types of testing supervisors, depending on the project.

1. ***Designated Supervisor*** - This can be a parent, guardian, teacher, coach, or any adult who agrees to be present during all phases of testing to ensure that the child and/or test subjects are safe during the testing phase.

2. ***Qualified Scientist*** - This is only used when the testing could be potentially dangerous for the student and/or the test subjects. A qualified scientist is someone who has a degree or expert certification in the science field addressed in the project. It is ***required*** for all projects involving:
    a. microbial organisms
    b. vertebrate animals (including human test subjects)

Project Approval Form

This form is required for ALL projects.

Student Name _____ Teacher Name _____

Parent/Guardian _____ Phone/Email _____

Team Member _____
(Team Projects only)

Start Date _____ Expected End Date _____
All work on the project must be done during the current school year.

Complete the questions below to share your Project Plan (see other side for instructions):

Project Problem _____

_____

Rationale _____

Summary of Procedure _____

_____

_____

Method of Data Collection _____

_____

Potential Risks and Safety Precautions _____

_____

Expected Outcomes _____

_____

Where will you conduct your project testing? (Check all that apply.)

____ Research Institution ____ School ____ Field ____ Home ____ Other

List name, address, and contact information of all non-home and non-school work site(s):

_____ _____

_____ _____

_____ _____

_____ _____

I have read and discussed the Ethics Agreement and have included it with my logbook.

_____ _____

Student Signature *Parent/Guardian Signature*

See other side for instructions, teacher approval, and possible required forms.

Project Plan Instructions

Project Problem: Depending on your project, your problem will be one of the following:

- What question are you trying to answer?
- What problem are you trying to solve?

Rationale: Why do you want to do this project? Why is it important?

Summary of Procedure: Describe your plan and procedure for addressing your problem. Make sure to include enough detail so the committee can clearly see what you are planning to do with your project.

Method of Data Collection: What are you measuring? How will you measure it?

Risk and Safety: Identify any potential risks and safety precautions needed. (see Student Handbook)

Expected Outcomes: What do you think will happen? What do you expect to learn?

Where will you conduct your project testing? If you are conducting testing any place other than your home or school, list the location. Even if it's a park or outdoor site, you need to give an approximate location. If it is a research institution, list the name and contact information for the site.

****

For Teacher Use Only

This project has received preliminary approval. _____

Teacher Signature

	Division	***Category***
☐	Science	Animal Sciences
☐	Science	Plant Sciences
☐	Science	Microbiology
☐	Science	Earth and Environmental Sciences
☐	Science	Chemistry
☐	Science	Physics and Astronomy
☐	Engineering	Environmental Engineering
☐	Engineering	Engineering Mechanics
☐	Computer Science	Robotics and Intelligent Machines
☐	Computer Science	Coding

Forms Required
☐ Risk Assessment and Designated Supervisor Form
☐ Ethics Agreement
Additional Forms that Might be Needed
☐ Qualified Scientist Form
☐ Vertebrate Animal Care Form
☐ Informed Consent for Testing of Human Subjects
☐ Teacher Verification of Informed Consent Forms
☐ BSL-1 Checklist
☐ Student Use of Drones

Risk Assessment and Designated Supervisor** Form

This form must be completed before testing. Use the back of this form, if needed.

Student Name_____

Project Problem_____

To be completed by the Student Researcher in collaboration with a Designated Supervisor.** *(If team project, both team members must complete a form.)*

1. List all activities, chemicals, living organisms, devices, or equipment that will be used.

2. Identify and assess the risks involved in this project. (see Student Handbook)

3. If you are testing in the field (away from home or school), describe the risks of the location.

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

5. Describe the disposal procedure that will be used at project completion.

To be completed by the Designated Supervisor:**

I agree with the risk assessment and safety precautions and procedures described above. I certify that I have reviewed the testing procedures and will provide direct supervision during all phases of the project, including testing and disposal.

_____ _____ _____

Designated Supervisor (printed) *Signature* *Date*

_____

Phone or Email

***A Designated Supervisor is any adult (including parent or guardian) who oversees the student during testing and disposal.*

Ethics Agreement

- I dedicate myself to the pursuit of beneficial scientific investigation.
- I will conduct, discuss, manage, judge and report science honestly, thoroughly and without conflict of interest.
- **I will NOT plagiarize, fabricate or falsify any part of my project.**
- I will NOT intentionally withhold or use incomplete, misleading, or biased information.
- I will return all borrowed equipment and resources in a timely manner.
- I will encourage constructive criticism of my project and that of my fellow students.
- I will ensure safe and humane treatment of human and animal subjects and will prevent abuse of resources entrusted to me.
- I will use technology respectfully.

I understand and agree to abide by the Ethics Agreement described above.

Student Signature

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- I will encourage constructive criticism of my project and that of my fellow students.
- I will ensure safe and humane treatment of human and animal subjects and will prevent abuse of resources entrusted to me.
- I will use technology respectfully.

I understand and agree to abide by the Ethics Agreement described above.

Student Signature

Information About Questions

Will microbial samples/organisms be used?

Microbial experimentation (involving microscopic organisms such as bacteria, fungi, etc.) done by elementary students is potentially dangerous and MUST only be done with expert and careful supervision in a BSL Level-1 setting. Samples/organisms MUST NOT be collected, isolated and/or cultured (grown) from the environment as they are potentially pathogenic. This includes, but is not limited to, projects involving blood, animal waste, soil, pond water, and culturing swabs. Instead, all microbial samples/organisms MUST be obtained from a science supplier/company and are limited to Biosafety Level-1 (BSL-1). The BSL-1 Checklist MUST be used to guide safe practices such as sealing Petri dishes, proper disposal, etc. Centers for Disease Control and Prevention website has more information. http://www.cdc.gov

Will non-human vertebrates be used?

Projects involving non-human vertebrates (including embryos, eggs, tadpoles, and other early life cycles stages of vertebrates) are held to a higher standard than projects testing invertebrates. Vertebrates MUST be treated humanely, and if a project could cause pain or distress to the vertebrate, the project is NOT allowed. This form is required when any changes are made to an organism's environment. A project with ANY DEATHS in any vertebrate group or subgroup is NOT PERMITTED to be entered into the Science and Engineering Fair, even if the deaths were unintentional. Projects using non-human vertebrates MUST include a ***Vertebrate Animal*** form.

Will human subjects be used?

When an experiment involves the testing of human subjects, the subjects (and their parents, when a minor) MUST be informed of, and consent to, the testing procedures before any experimentation begins. All test subjects MUST complete the ***Informed Consent for Testing of Human Subjects*** form. All risks must be identified on the form before it is given to the human subjects for signature. Examples of risks include, but are not limited to:

- testing on subjects with any documented health issue
- gymnastic or cheerleading moves
- sustained physical activity and/or extreme vital sign (pulse, breathing) manipulation
- deprivation or excessive manipulation of bodily functions (sleep deprivation, excessive water consumption, etc.)
- use of projectiles, sharp, or breakable objects
- use of chemicals, lotions, hand sanitizer, perfumes, etc.
- exposure to heat or cold
- use of food
- use of mechanical, electrical, or motorized devices

Vertebrate Animal Care Form

This form is REQUIRED for all projects involving non-human vertebrate animals (mammals, birds, reptiles, amphibians, and fish). For team projects, each student must complete a form.

Student Name_____

Project Problem_____

To be completed by student researcher:

Common name of animals to be used in project_____

Number of animals to be used in project_____

Describe completely the housing and care of the animals. Include cage/pen size, number of animals per cage, environment, bedding, type of food, frequency of food and water, how often animal is observed, etc. Add an additional page as necessary._____

_____

_____

_____

_____

_____

What will happen to the animals after experimentation?_____

_____

_____

_____

Special Considerations:

- If any vertebrate test subject dies during the investigation, ***the project cannot be entered in the Science and Engineering Fair.***
- Any illness or unexpected weight loss MUST be investigated by the Qualified Scientist or a veterinarian and documented with a letter stating cause of illness/weight loss.
- ***For all projects using non-human vertebrates, the bibliography MUST include at least one animal care reference.***
- Animals obtained from commercial sources or any captured invasive species may NOT be released into the environment.
- The use of chemicals (flea collar, bug spray, shampoo, etc.) MUST be approved by a Qualified Scientist.

_____ _____

Qualified Scientist Signature *Student Signature*

_____

Designated Supervisor Signature

Informed Consent for Testing of Human Subjects

This form is to be signed by all experiment participants (or guardians, if under 18 years of age).

Student Researcher Name_____

Project Problem_____

To be completed by the Student Researcher:

1. Describe who will participate in your study (age range, gender, etc.).

   _____

   _____

   _____

2. What will participants (human subjects) be asked to do?

   _____

   _____

   _____

3. What are the possible discomforts that may reasonably be expected by participating in this project?

   _____

   _____

   _____

4. What will be done to minimize risks?

   _____

   _____

   _____

To be completed by participants (human subject) prior to experimentation:

- *I have read and understand the conditions stated above, and I consent to participate in this project. I realize I am free to withdraw my consent and to withdraw from this activity at any time.*
- *I consent to the use of visual images (e.g. photographs, video) involving my participation in this research project.*

_____	_____	_____
Participant Printed Name	*Participant Signature*	*Date*

If participant is under 18 years old, a parent/guardian signature is required.

_____	_____	_____
Parent/Guardian Printed Name	*Parent/Guardian Signature*	*Date*

Teacher Verification of Informed Consent Forms

*This form is for the **teacher** to fill out to confirm that an Informed Consent was completed by EVERY human test subject BEFORE testing begins. The original Informed Consent forms stay with the teacher, while this form MUST accompany the project to the Fair.*

Student Researcher Name(s)_____

Title/Problem_____

Number of ***Informed Consent for Testing of Human Subjects*** forms collected _____

Date range of ***Informed Consent for Testing of Human Subjects*** forms collected:

from _____ to _____

*I, as the (teacher), verify that _____ has collected appropriately signed and dated **Informed Consent for Human Testing** forms for the research project for the _____ school year.*

_____ _____

Teacher *Date*

BSL-1 Checklist
For Microbiology Projects

This form must be used for EVERY project that involves the use of microorganisms
All microorganisms MUST be purchased from a biological supply company.
For team projects, each student must complete a form.

Student Name _____

Laboratory Practices:

1. All experimentation MUST be done in a BSL-1 level laboratory (may not be done at home).
2. Supervision by Qualified Scientist is required (Qualified Scientist form also required).
3. All microorganisms must be purchased from a biological supply company and cannot be collected from the environment.
4. Wash hands before and after handling cultures.
5. Eating, drinking, handling contact lenses and applying cosmetics is forbidden.
6. All procedures minimize the creation of aerosols or splashes.
7. Once culturing begins, petri dishes are sealed with masking tape or Petri-Seal and are not re-opened.
8. Work surfaces and equipment used are decontaminated with disinfectant (10% bleach solution) when work is completed and after any spill.
9. All cultures must be disposed of properly, according to guidelines at https://student.societyforscience.org/international-rules-pre-college-science-research

Safety Equipment Requirements:

1. Protective laboratory coats/aprons are worn and remain in laboratory after use. They are never taken outside of the laboratory.
2. Suitable disposable gloves must be worn.
3. Protective eyewear is used.

Laboratory Facility Requirements:

1. Laboratory has a sink for hand washing.
2. An eyewash facility is easily accessible within the laboratory.
3. Laboratory can be easily cleaned and decontaminated. (No carpets or rugs.)
4. All bench tops are impervious to water.
5. If windows are open, they are fitted with fly screens.
6. Sharps are discarded in a puncture-resistant sharps disposal container.
7. A fire extinguisher and first aid supplies are easily accessible.

_____ _____

Student Signature *Date*

_____ _____

Qualified Scientist Signature *Date*

Student Use of Drones

This form is required for all projects that use drones for any part of a project.
For team projects, both students must complete this form.

drone: unmanned aerial vehicle; any aircraft without a pilot on board; *also known as a UAS (unmanned aircraft system) or UAV (unmanned aerial vehicle)*

Student Name_____

Project Problem_____

Safety Code of Conduct:

- I will complete a safety inspection of the drone according to manufacturer's instructions prior to every time it is powered on.
- I will ensure that the drone is in my visual line-of-sight (VLOS).
- When using the First Person Viewing (FPV) screen, I will have an observer (not Designated Supervisor) watching the drone for safe operation. *The Designated Supervisor MUST be present, but is responsible for the safety of the students, not the drone.*
- I will **not** operate the drone in a careless or reckless manner.
- I will **not** operate the drone so that it places people or property at risk from the surface or in the air.
- I will **not** operate the drone directly over people or in unsafe locations (near crowds, power lines, airports, over homes, over roads, etc.)
- I will respect the privacy of individuals.
- I will comply with all federal, state, and local laws, ordinances, covenants, and restrictions in relation to operation of the drone.

Drone type_____ Drone size_____

If drone is over 250 grams (0.55 pounds), it MUST be registered with FAA. Documentation of registration MUST be attached to your project. https://faadronezone.faa.gov/#/

Locations where I will fly drone	Who I contacted for permission to fly

_____ _____

Student Signature *Designated Supervisor Signature*

Understanding the Judging Process

1. Schools will be given a schedule of interview times.

2. Teachers should make students aware of criteria used for judging. Projects will be judged using the Judging Criteria rubrics in this handbook.

3. Students will arrive for project judging at assigned times.

4. **Parents and teachers will not be permitted in the judging area while interviews and judging are in process.**

5. Immediately prior to entering the judging area, the students will receive a judging orientation.

6. The judging process will include an interview with judges for each entrant/team at his or her display. The judging process is a positive experience for all students, and judges understand that all work has value.

7. Projects are compared only to others in the same category. Projects are not judged by grade level, but within the fourth through sixth grade band.

8. The judges will dismiss students individually from the judging area after completion of the judging process.

9. Students should be advised that all judges' information, including, but not limited to, decisions, notes, discussions, and point awards, is strictly confidential.

10. At the Regional Science and Engineering Fair, awards will be presented to first through fifth place in each of the ten categories, as well as special awards.

11. **The decision of the judges is final.**

Science and Engineering Fair

Partner Permission Form

I, _____ consent for my child,

_____,to work on the Science and Engineering Fair Project with a student partner.

My child's partner...

- Is a current McAuliffe student
- Is in grade 4, 5, or 6 only

I understand that I will need to provide transportation and time outside of school hours for my child to meet and work with the student partner indicated on this form. I understand each child must have their own notebook and will share a board. I also understand that my child is obligated to see the project through to completion with the indicated partner. Should this partnership NOT work out, I must inform BOTH teachers in writing or via email by November 22, 2019. Each student must then assume responsibility for their own Science and Engineering project.

Please sign and date below to indicate agreement with the above terms.

Print Name: _____ Sign: _____

Date: _____

One backboard is required, but TWO student Science Fair notebooks must be kept. Each partner must turn one in to his/her own teacher for a grade.

Partner Information

Student Name: _____

Partner Homeroom Teacher: _____

Partner Grade Level: _____

Project Division: _____

Project Category:_____