DCSS Science & Engineering Fair: Clarifying the Form process

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Paperwork Deadline

Entry forms for the Douglas County District fair are due from each school's science fair coordinator by Jan. 8th at Noon.

- 6 projects per MS and 8 projects per HS
- List alternates in case room permits.

All students that compete in the district fair must have a media release form on file either by the school office or the supervising teacher.

Entry forms and media release forms for District Fair: Found in Engrade Course Maps: Science Fair MS & HS: 2018 Douglas County District Science Fai

2018 Douglas County District Science Fair Entry Form

Please designate one teacher at your school to complete this form for your school and email it to Pam Walker (pamela.walker@douglas.k12.ga.us) and Susan McCoy (susan.mccoy@douglas.k12.ga.us)

NOTE: Please list all projects you think worthy of being sent to the district fair. List them in order of ranking from top to bottom. Each HS is guaranteed to have at least 8 projects and each MS is guaranteed to have at least 6 projects. You may list as many as you like and I will let you know if extra slots are available. DUE Date for Form: Jan. 8, 2017 at Noon

School :_____ Science Fair contact:_____

Name of student(s)	Engineering (E), Computer Sci (CS) Science (SC)	Title of project	Grade level	Supervising Teacher

District Fair Dates and Details

DCSS events at Murray Education Center

Project Set up times:

- Jan. 12th from 3:00-5:30PM or
- Jan. 16th from 7:30AM- 10:00AM

Project Judging:

- Jan. 16th from 1:00- until finished
- Jan. 16th -Student Interviews- 4:00-5:00

Awards Ceremony

- Jan. 18th – 6:30PM- 7:30PM

  1st and 2nd place winners meet afterwards-

  Region is at UWGA on Feb. 9th

  STATE is at UGA- March 22-24

Display and Safety

- Nothing that contains chemicals in vials
- No syringes, knives, or ammunition
- No mechanical devices that have pinch points
- No animals, or animal parts
- No glass
- No plants, dirt or rocks

Please Remember

Students competing in the district fair:

- must have a logbook and display board
- must cite their research references
- **must bring all completed required forms to display in a notebook in front of project**********
- should cite the origin of all graphs and pictures
  (note if the student produced all of these, they can put a small card in front of the project that says: All graphs and photos prepared by me)
- cannot place QR codes or additional handouts in front of project.

Research notebooks are highly recommended for projects that have aspirations of making it to State.

First Few Steps for a successful project

1. Formulate a scientific or engineering question/hypothesis.
2. Develop a research plan/project summary on how you are going to carry out your experiment (this will advise your answers on the first few forms, 1, 1A, and 1B).
3. Now that you have your project in mind, please read the ISEF rules and guidelines as they relate to your project, i.e. if you are using human participants, pay special attention to the Human Consent form. https://student.societyforscience.org/international-rules-pre-college-science-research
4. **Which forms will you need for your project? Find out immediately by using the Form Wizard that will only take you about 60 seconds to complete.** https://apps2.societyforscience.org/wizard/index.asp
5. **Download the required form document. Direct access through live links are found here to all possible forms**

http://www.georgiacenter.uga.edu/sites/default/files/gsef-2018-required-forms-approvals.pdf

Required Forms Access

Rule Book Access

Direct access to form wizard

Active links to all possible forms

All projects marked with a diamond symbol must be dated and signed before experimentation begins

REQUIRED FORMS & APPROVALS

for ALL Grade 6-12 Scientific Research for Eligibility at Regional and State Fairs

GSEF GEORGIA SCIENCE & ENGINEERING FAIR 2018

Research forms must be reviewed and signed by local and Regional SRCs/IRBs as appropriate.

The following required forms and guidelines help students ensure that the research they are planning is safe, ethical, and approved by a parent, a teacher, and field experts. Students and mentors are strongly encouraged to use the Required Forms Wizard tool to help determine what forms are required for the project (https://apps2.societyforscience.org/wizard/index.asp).

To be eligible for GSEF, all projects MUST obtain proper approvals and follow the ISEF Rules and Guidelines.

https://student.societyforscience.org/international-rules-pre-college-science-research

It is the responsibility of the student and the Adult Sponsor to evaluate the study to determine if the research will require forms and/or approval prior to experimentation, especially projects using human participants, vertebrate animals, or potentially hazardous biological agents. Students are encouraged to consult with the local SRC/IRB to ensure they have followed all rules and completed all required forms.

Research forms must be reviewed and signed by local and Regional SRCs/IRBs as appropriate. Failure to adhere to the ISEF Rules and Guidelines may result in disqualification at any stage of the GSEF competition, including revocation of awards and honors.

Forms marked with a ◆ symbol must be signed and dated BEFORE experimentation begins.

Forms required for EVERY project:	
❑ **GSEF Participation Agreement**	Provided by your Regional Fair Director; required for every student
❑ Official GSEF Abstract Form	GSEF version is preferred, but 2018 ISEF Abstract Form will also be accepted.
❑ 1 Checklist for Adult Sponsor ◆	The Adult Sponsor ensures that experimentation is within local, state, and Federal laws and Intel ISEF rules and that forms are completed by other adults (e.g. Qualified Scientist) as required.
❑ 1A Student Checklist Research Plan/Project Summary	See pg. 2 of PDF for Research Plan/Project Summary instructions. The Research Plan is your first step. If changes are made during your research, they can be added to the original Research Plan as an addendum, recognizing that some changes may require returning to the SRC/IRB for appropriate review and approvals. If no additional approvals are required, the addendum serves as a Project Summary to explain the research that was conducted. If no changes are made from the original Research Plan, no Project Summary is required.
❑ 1B Approval Form ◆	One form per student. Signed and dated before experimentation begins and right after SRC has reviewed Forms 1, 1A, and any special forms. If project requires pre-approval, SRC signs either 2a or 2b before experimentation. Regional Fair SRC signs section 3 prior to that fair.
Additional forms required for specific types of research:	(Use Required Forms Wizard)
❑ 1C Regulated Research Setting	Required if you conducted research at a ***college/university, medical facility, industrial setting,*** or ***other lab or research setting*** other than home, school or field.
❑ 2 Qualified Scientist ◆	Required if your research involves ***human participants, vertebrate animals, potentially hazardous biological agents,*** or ***DEA-controlled substances***.
❑ 3 Risk Assessment ◆	Required if your research involves ***hazardous chemicals, activities or devices,*** or ***DEA-controlled substances.***
❑ 4 Human Participants and Informed Consent Form ◆	Required if your research involves ***human participants***. Informed Consent Forms must be signed by research participants (see sample). IRB APPROVAL REQUIRED BEFORE EXPERIMENTATION!
❑ 5A/5B Vertebrate Animals ◆	Required if your research involves ***vertebrate animals***. 5A is for research conducted at home, school, or field; 5B is for research conducted at a regulated research institution. SRC/IACUC APPROVAL REQUIRED BEFORE EXPERIMENTATION!
❑ 6A Potentially Hazardous Biological Agents ◆	Required if your research involves ***microorganisms, rDNA, fresh/frozen tissue (including primary cell lines, human and other primate established cell lines and tissue cultures), blood, blood products,*** or ***body fluids***. SRC/IACUC/IBC APPROVAL REQUIRED BEFORE EXPERIMENTATION!
❑ 6B Human/Animal Tissue ◆	Required in addition to 6A if your research involves ***fresh/frozen tissue (including primary cell lines, human and other primate established cell lines and tissue cultures), blood, blood products,*** or ***body fluids***.
❑ 7 Continuation/Research Progression	Required if your project ***continues or expands upon a previous year's work***. Also must include Abstract and Research Plan for each previous year.

First Few Steps continued

6. Students – Complete **Form 1A/Student Checklist** to the best of your knowledge. This form may be an ongoing process. (Only 1 per project required)

a. Pay special attention to question #5. You may need to come back to this question after filling out Form 1.

b. Prior approval by our SRC/IRB is required if humans, vertebrate animals, microorganisms, body fluids, tissue cultures, controlled substances or potentially hazardous biological agents are used in your project.

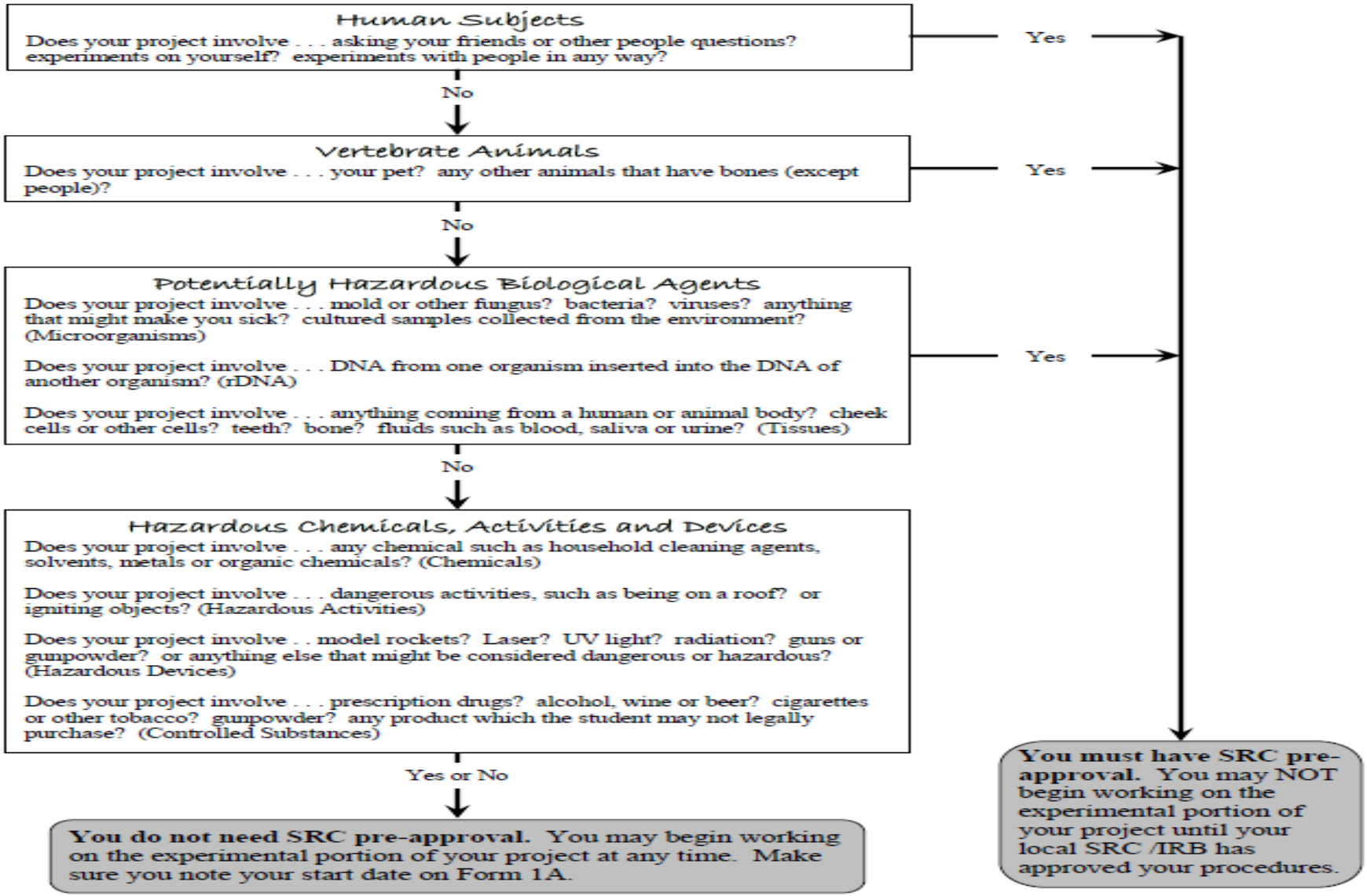
c. Question #7 – make sure your experimentation start date occurs after the SRC/IRB approval date if required for your project.

d. Question #9 – Use complete addresses

NOTE: If you are not sure if you need prior approval from SRC/IRB please have your teacher help you go through this flow chart to decide: **http://www.csef.colostate.edu/SRC_Flow_Chart.pdf**

Do I Need SRC Approval BEFORE I Can Begin My Project?

Some projects may fall under the rules of more than one category listed below.



First Few Steps continued

7. Students with their parents, will fill out **Approval Form 1B**, making sure to include all signatures that the project requires.

a. Please note: Question #1 **– Student & Parent signatures must be prior to experimentation.**
b. Question 2 – If you have determined you need SRC/IRB approval, the signatures also need to be prior to experimentation.
c. Question 3 –Please leave blank.

8. Your Adult Sponsor needs to complete **the Checklist for Adult Sponsor Form 1 and it must be signed prior to the experimentation date**. They will do this using the answers from Form 1A and the student Research Plan.

9. All students in DCSS complete the Risk Assessment Form 3. This is done by the student in collaboration with the person that will supervise the project. **The form must be signed prior to the start of the Experiment.**

Required Paperwork for District, Region, and State Science & Engineering Fairs

SRC/IRB prior Approval

Some projects will require SRC/IRB pre-approval BEFORE you begin your experimentation. The Rule Wizard and the Flow Chart will indicate this.

If that is the case, DO NOT BEGIN YOUR EXPERIMENT YET!!!! Email your research plan from STEP 2 to the SRC/IRB chair: Elaine.wood@douglas.k12.ga.us She will meet with committee members and respond to you within 7 days if your project is acceptable or what adjustments need to be made to it. She and the committee members will provide the needed signatures where required.

As you begin filling out the forms and are unsure about what to put, who signs them, or when they should be signed, check out these short videos from Denver about completing paperwork. Just ignore the references to Denver and sending in documents. These little videos can guide you through form completion.

http://denversciencefair.com/forms/

There are also useful tips for each form at this site.

Forms that apply to all projects

- **Official Abstract Form** (complete after experimentation is complete)
- **Checklist for Adult Sponsor (Form 1)** – 1 per project. If team project, enter all students; names on the line that says "Student's name." Must be signed **BEFORE experimentation begins** (check dates/signatures)
- **Student Checklist (Form 1 A). Step 10 requires that you complete a Research Plan/Project Summary and attach it to this form *(this Research Plan is what you email the SRC/IRB if pre-approval is needed) page 2 of the document gives* directions on how to write the research plan** –
- **Approval (Form 1B**) *completed by each student if a team* - **Must be signed BEFORE experimentation begins – also SRC/IRB approval (if required) BEFORE experimentation**
- **Risk Assessment (Form 3)- we are asking all DCSS projects to fill one of these and it must be signed PRIOR to experimentation begins.**

More About form 1A- The Research Plan

- Some students forget to do the research plan that goes with Form 1A. Specific directions are on page 2 of the document. **This is the first thing you do after you determine your topic.**
- Details are given of what should be in the research plan at the end of Form 1A. It should be written **prior to experimentation** as to what **you will be doing.**
- This is what is sent to the SRC/IRB if you need prior approval.
- See the next 2 slides for some examples.

Research plan

Many people in the Archery society debate constantly about which bow is more accurate and consistent; the Compound, Recurve, or Long bow. With my research and my hypothesis, that the Compound bow will be the most accurate and consistent, I hope to shed a light in the debate for the Compound Bow. I am using a professional Bowhunter that has used this varity of different bows in his hunting career.

To conduct my experiment, we will travel to Barr Lake in Brighton Colorado where we will use their Archery Range. We will be shooting at 10 and 20 yards with three identical, carbon arrows and the Compound, Recurve, and Long Bows. We will shoot for consistency by doing the same thing every time then measuring the distance between the farthest left and right arrow. We will also shoot for accuracy by aiming at the same point in the target every time then measuring the group for each bow. As always, safety first.....That is why we have the guidance of a Professional Bowhunter, a qualified archery range, and using common sense for safety.

My sources: Jim Titchenell, www.Bowhunters Paradise.com, www.Bowtecharchery.com, Colorado Bowhunters Association, Gamelines Archery club, Muzzy Archery

SRC/IRB Pre-Approval needed

Human participation - Form 4

Question: If we use the solvent extraction method with Decanoic acid in different ratios of water to simulated saltwater, will we able to desalinate water at an effective rate?

Ratios (Acid to water): 25:1 20:1 15:1 10: 5:1 1:1

Hypothesis: If we use the solvent extraction method with Decanoic Acid to remove salt from water, then we will find that the Decanoic acid at the 20:l and 15:1 ratios will work because those ratios are the closest to the original test.

Materials:

- 1 litre >98% Decanoic Acid
- 1 litre of distilled water
- 35g of table salt
- Hot plate with magnetic stirring capabilities
- 100mL Beaker
- 100mL Separation Funnel
- Electric Meter

No SRC/IRB Approval needed but would need a qualified scientist form

Procedures

- Mix 1L of water with 35g of salt. Stir until fully dissolved.
- Take 2mL of the solution and mix with 50 mL of Decanoic acid in the 100 mL beaker. Put onto a hot plate and heat to 70°C with continual stirring for 1 hour.
- After stirring is finished, turn the heat off and remove from hot plate. Let it cool and gravitationally separate. Using the glass pipet, carefully remove the transparent liquid from the solution.
- Add the liquid into a small graduated cylinder. Use the electric meter to record the electrical resistance of the liquid. Record Data.
- Repeat step 3-5 9 more times, then another 10 for each of the given ratios until the test stops to work. From that point, test each ratio 1 part of acid up until the ratio with the highest efficiency is found.
- Observe and record data.
- Make a conclusion based on data and observations.

Safety Precautions

Take great care with the Decanoic acid solutions because they are corrosive and hazardous. The Decanoic acid is flammable. Nitrile gloves will be worn and an experienced chemist will be over watching.

Hot plates provide a hazard because of their hot temperatures in this experiment for an extended period of time. Great care will be taken to avoid making direct contact with a hot plate and there will be an experienced supervisor over watching.

Bibliography

1 "Solvent Extraction" *Britannica School.* N.p., n.d., Web., 08 Oct 2014

2 Bajpayee Anurag, Tengei Luo, Andrew J. Muto, and Gang Chen. "Very Low Temperature Membrane Free Desalination by Directional Solvent Extraction." *Supplementary Material (ESI) for Energy & Environmental Science (2011)*: n. pag Printhttp://www.rsc.org/suppdata/ee/c1/c1ee01027a/c1ee01027a.pdf

3 "Capric Acid." *Wikipedia.* Wikimedia Foundation, 10 July 2014. Web. 08 Oct. 2014.

4 "Seawater." *Britannica School.* N.p., n.d. Web. 08 Oct. 2014.

5 "Taking the Salt out of Water with Oil." *Taking the Salt out of Water with Oil.* N.p., n.d, Web. 08 Oct. 2014 http://mpc-www.mit.edu/agenda/item/140-taking-the-salt-out-of-water-with-oil

6 Gregory, Michael J. "Organic Chemistry, Biochemistry" *Organic Chemistry.* Clinton Community College, Web. 08 Dec. 2014http://faculty.clintoncc.suny.edu/faculty/michael.gregory/files/bio%20101/bio%20101%20lectures/biochemistry/biochemi.htm

Form 3- Risk Assessment

<u>This form is Required for all projects entered into the Douglas County Science and Engineering Fair</u>

Some Examples of risks to list on the form include:

- Prescription Drugs
- Alcohol and Tobacco
- Hazardous Chemicals (e.g., bleach, fertilizer, etc.)
- Hazardous Devices
  (e.g., power tools, knives, guns, arrows, etc.)
- Hazardous Activities
  (e.g., cutting, sawing, cooking, ladders, etc.)
- Radiation

Some projects may need these Additional Forms

Form 2- Qualified Scientist

- Should have a doctoral/professional degree related to student research **Or** Have applicable experience and expertise with review and approval by the SRC
- May be required if your research involves ***human participants, vertebrate animals, potentially hazardous biological agents,*** or ***DEA-controlled substances***.
- Must be completed and signed before the start of the experiment.
- A designated supervisor can provide direct supervision in some cases.

Human Participants Research

- The **district IRB** must review and approve the research plan **before** experimentation begins
- Research participants 18 years of age or older must give **informed consent**
- Research participants under 18 must give **assent** and their parents may be required to give **written permission**
- **Form 4 required even if the student is the only subject of the research as well as if the participants are only giving feedback on a prototype.**
- **The IRB decisions are documented and signed on Form 4: Human Participants and Informed Consent Form.**

If IRB determines that written informed consent/assent or parental permission is required, documentation is obtained on an "informed consent" document-

see the sample one given

Human Informed Consent Form

Instructions to the Student Researcher(s): 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 participant (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(s): _____

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 area below.

Purpose of the project:

If you participate, you will be asked to:

Time required for participation:

Potential Risks of Study:

Benefits:

How confidentiality will be maintained:

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

Adult Sponsor/QS/DS: _____ 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: _____

_____ _____

Research Participant Printed Name: Signature:

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

_____ _____

Parent/Guardian Printed Name: Signature:

Vertebrate Animals

Vertebrate Animal Forms

Required if your research involves ***vertebrate animals***.

- 5A is for research conducted at home, school, or field. This requires SRC approval before the EXPERIMENTATION!
- 5B is for research conducted at a regulated research institution. (must have the Institutions' IACUC/SRC approval BEFORE EXPERIMENTATION!)

Potentially Hazardous Biological Agents

6A: Potentially Hazardous Biological Agents

Required if your research involves:

- ***microorganisms,***
- ***rDNA,***
- ***fresh/frozen tissue (including primary cell lines,***
- ***human and other primate established cell lines and tissue cultures),***
- ***blood,***
- ***blood products,*** or
- ***body fluids***.

SRC/IACUC/IBC APPROVAL REQUIRED BEFORE EXPERIMENTATION!

Must be signed and dated before the experiment begins!

6B: Human/Animal Tissue

Required in addition to 6A if your research involves:

- ***fresh/frozen tissue (including primary cell lines, human and other primate established cell lines and tissue cultures),***
- ***blood,***
- ***blood products,*** or
- ***body fluids***.

Must be signed and dated before the experiment begins!

Form 1C Regulated Research Setting

Required if you conducted research at a:

- ***college/university,***
- ***medical facility,***
- ***industrial setting,***
- ***other lab or research setting*** other than home, school or field.

This form is completed AFTER experimentation by the adult supervising the student.

Forms done- now what?

All students that have projects that advance to the Douglas County District science and engineering fair must bring all required completed and signed forms with them when projects are checked in.

Students should place the forms in a notebook that will be placed in front of the project.

It is also a good idea to include an abstract and put it in a clear plastic stand in front of the project.

Questions???