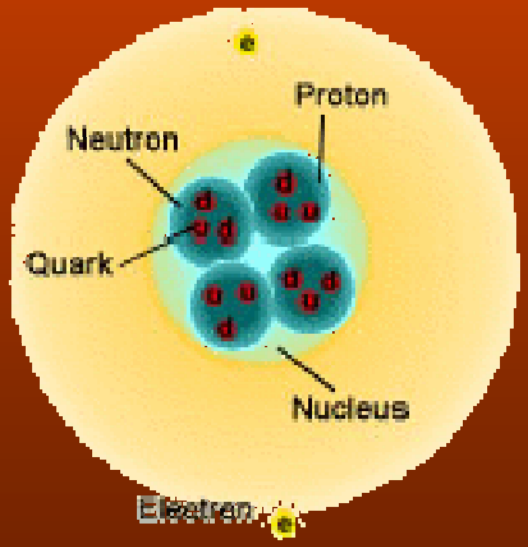
# So Someone Said You Should Do A Science Fair Project?



# The ISEF

“The Intel ISEF is the the world's largest pre-college science competition. Now in its 58th year, the Intel ISEF is the world's only science project competition for students in the ninth through twelfth grades. The Intel ISEF brings together students, teachers, corporate executives, and government officials from around the world. Students compete for over $4 million in scholarships, tuition grants, scientific equipment, and scientific trips. “

-- From the ISEF website

# The Regular Awards

More than 600 individual and team awards will be presented at the 58th Intel ISEF. Each entry is judged at least four times with category awards given in first, second, third and fourth place. Awards are $3,000, $1,500, $1,000 and $500 respectively in each of the 18 categories.

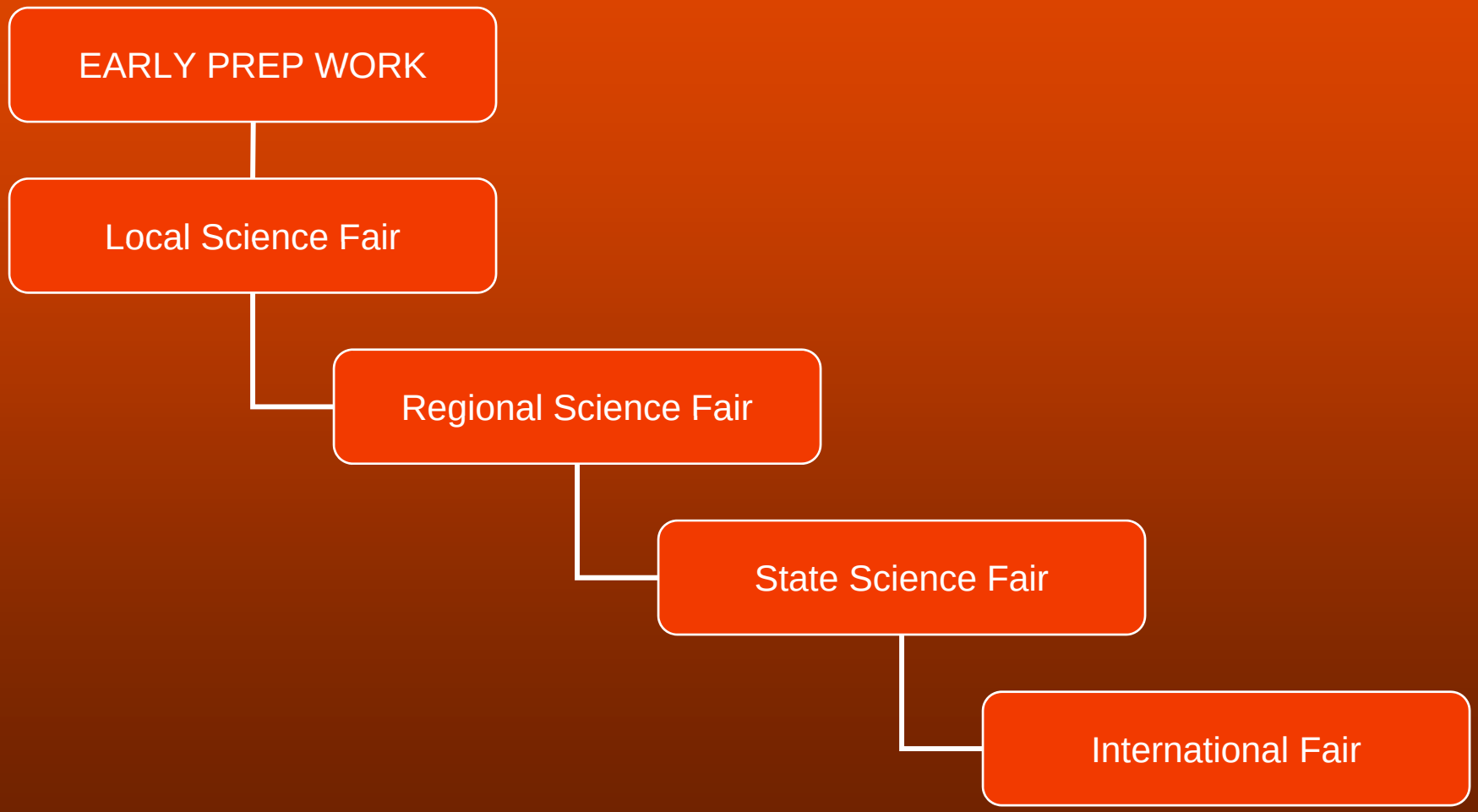
Additional awards worth over $2.5 million include tuition scholarships, summer internships, scientific field trips, and laboratory equipment provided by Intel, Society for Science & the Public, and nearly 70 other corporate, professional, and government sponsors. The top three winners of the Intel ISEF receive a $50,000 scholarship.

# The Special Awards

“Each year, over 70 organizations representing a wide variety of scientific disciplines affiliate with the Intel ISEF as Special Awards Organizations. These governmental, industrial, and educational institutions present grants, scholarships, internships, and scientific field trips to finalists at affiliated fairs and at the Intel ISEF. “

-ISEF website

# Road to the ISEF?



# Nope, Road to the ISEF.

# The Payoff

- You have *very* good odds at the regional science fair if you are properly prepared!
- UTPB gives out $8,000 scholarships for winners in each category ($1000/semester for 8 semesters).
- UTPB gives out $12,000 for the grand prize winners ($1500/semester for 8 semesters).
- Check the UTPB Science Fair website next year for scholarship specifics.
- Andrews and Midland High usually dominate the fair, but even they don’t fill up all the categories.

# ***Find A Project!***

**No solid ideas yet?  Go shopping!**

- Ask an expert about a topic you're curious about on allexperts.com or at UTPB and see if they have ideas.  This is the quickest way to find a project that might wow the judges and interest you, since experts are probably judges and have seen many projects before.
- http://www.sciencebuddies.org/science-fair-projects/science-fairs.shtml  The project-finding wizard on this site is very helpful.
- http://www.all-science-fair-projects.com/ Another free site with ideas.

# Find a local expert?

- **If you can't find a *local* expert, check allexperts.com for someone who knows more about your project world-wide!**
- Don't sell yourself short, you could end up working on your project directly with a professional. With their understanding at your disposal your project will really shine.
- UTPB has professors involved in research, all easy to locate via the UTPB home page or with a quick phone call to one of the science departments.
- Local companies often have projects that could be turned into interesting projects.
- Local medical doctors often know of interesting research and can give you advice.

# Surviving the Science Fair

http://www.education.com/magazine/article/Science_Fair/

Take this quick little article in on what makes a good science fair project and what doesn't. It mirrors almost exactly what I've seen as a judge. Not all projects are winners, but it's surprising sometimes which ones are and which aren't.

# 4 Things You Need To Do:

1) Recommended – contact a professional to start for advice. There are many professors, for example, at UTPB who would enjoy working with individual students on science fair projects.

Contact: Douglas Young
432-552-2228
young_d@utpb.edu

This should be done by the end of October.

They can help you think it through before you start.

# KEEP ON TRACK!

2) *Most science fair projects don't fail because the student doing them isn't smart and capable*. They almost *always* fail because the student just falls behind and can't finish in time.

- Check your progress *every week, same time*.
- Even the brightest students need a reminder.
- **Join our yahoo newsgroup to get emailed reminders and stay on schedule! Go to yahoo, go to the groups section, search for utpb_scifair, sign up. The calendar will remind you of deadlines ahead of time and remind you to keep going on your research at whatever email address you want.**

# Do It Right!

3) **Spend time on the internet looking up current work in your project before you begin!!!** Document and check in with advisors. Don't expect them to do it for you! Keep everything you do in a lab journal (example: quick cell phone photos of your experiment can be printed and pasted right into your project journal).

# Make Sure Your Work Counts

4) There are rules to follow and, for some projects, forms to fill out if you hope to win big at the science fair! Most students are unaware of this, but this simple wizard will ask you questions about your project and walk you through all forms you need to get signed:

- http://sciserv.org/isef/students/wizard/index.asp

# The Truth About Forms

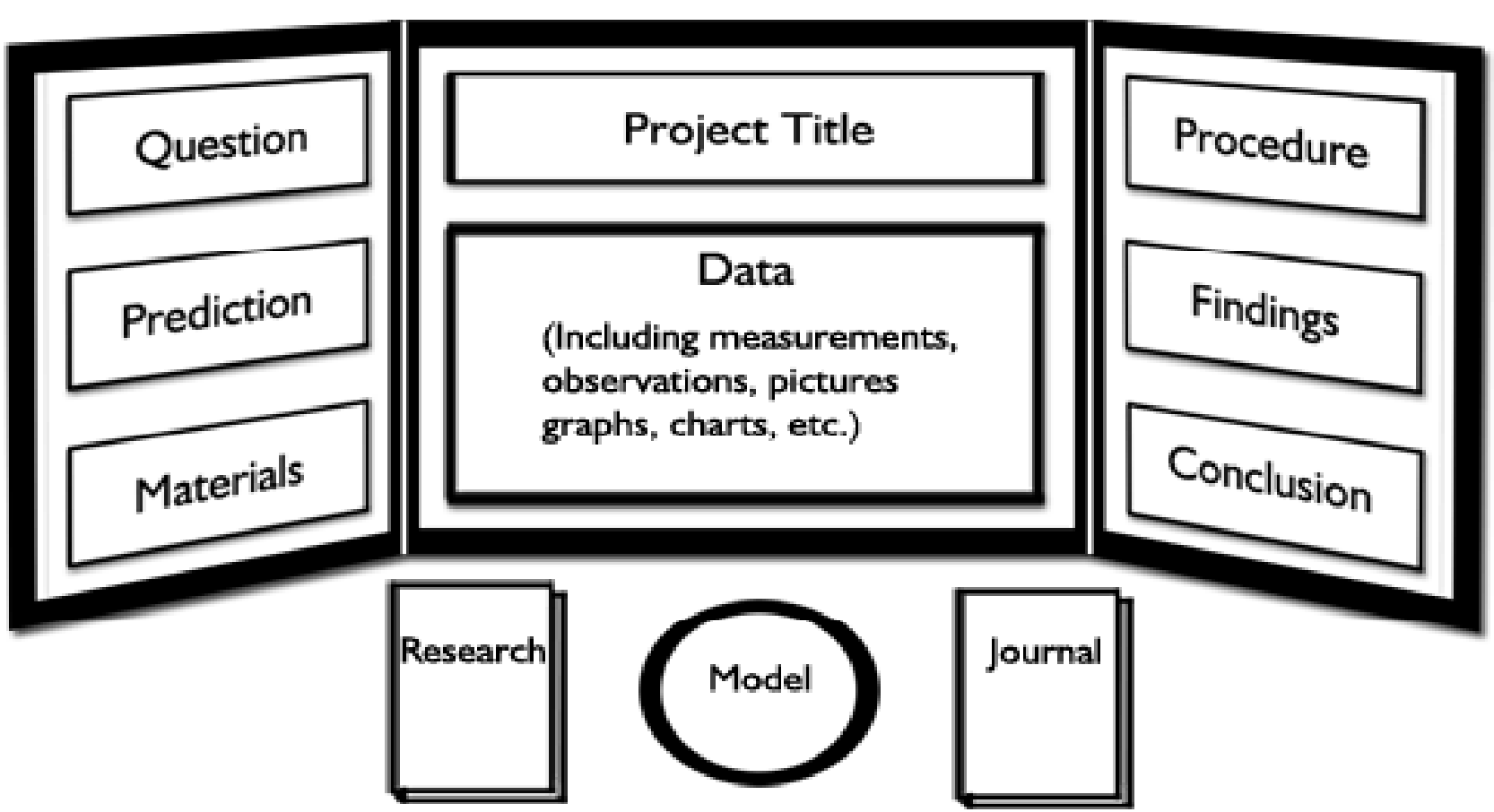
The science fair never used to have quite so many forms and regulations. If you know an adult who would like to see you do a science fair project, filling out the forms is a simple matter of going through the ISEF form wizard (tells you which ones you need), writing a sentence down for each space, and getting them (your sponsor) to sign it. A few cases need a "committee" to meet to discuss it, which just means your sponsor has to talk to someone else in science to make sure it's safe. Whole thing should take you about 20 minutes.

# Don’t Forget To Register!

There’s *also* a registration form and a $20 entry fee that ***must*** be turned in by the End of January(date TBA) in order for you to have a table space at the science fair! A well-done project can take you straight to the ISEF, which is a huge accomplishment, don’t risk making all your hard work a waste of time!

http://www.utpb.edu/scifair/sendiv.htm

# The Final Display



# Parts of the Display Explained

- ***Question*** - What you want to find out.  Usually directly related to your title, of course.
- ***Prediction/Hypothesis*** - This is where you put what you think is the possible answer to the project question. It is based on your own research and experiences and it is made before you run the experiment.  Often phrased along the lines of “based on the fact that X, I believed that Y will happen when I performed this experiment.”  Here X and Y represent some fact and some predicted outcome
- ***Materials/Methods*** - This is a list of supplies that you needed to do the experiment.
- ***Data*** - This is the information you collected. It should illustrate an observation from the experiment.

# More Parts Explained

- ***Procedure*** – A detailed step-by-step explanation of what you did to collect your data and avoid errors.
- ***Findings*** – Here you compare your data to your hypothesis. Being as analytical and quantitative (using mathematical comparisons and hard numbers) as possible helps establish your conclusions
- ***Conclusions*** – This is where you compare your findings with your hypothesis and try to provide a concise and coherent answer to your project's question. Directly restating the question and answering it helps.

# Table Parts Explained

- ***Research*** - This is a binder containing research you did prior to starting the project. You should never pursue a project without looking into what is already known about it.
- ***Model*** - (*Optional*) If have a piece of equipment you used for the project or a physical model, you should make it part of the display, if you can.
- ***Journal*** - You should keep a lab notebook! And update it very regularly! Everything you observe or record or think of during the project should go in this notebook. Sketches, progress reports, factors, ***you can never document too carefully***. Pages should be dated.

# Did You Just Read That?

Right about now is the time I ask you:
Did you just read through that and kinda-maybe understand it but not write anything down? Maybe you should go through those last couple parts right now and jot down some really basic idea (take you two minutes, tops) of what you're really doing in each of those parts?

# More Resources

http://www.ri.net/schools/East_Greenwich/Cole/sciencefair.html

is an excellent guide to doing science fair projects in general, especially for people who haven't done them before. This may particularly help people who feel lost to get a start, but the best way is to ask an expert!

# Building Your Display

- A display is generally simple. For each of the parts of the display board listed in the display figure you print out a page or two of **concise** explanation.
- Bullets and definitive equations are good.
- **GRAPHS AND PICTURES ARE KING!**
- A little artistry never hurt.
- Simplicity and neatness count.
- A little humor never hurt, either.

# Be Careful, Though…

You don’t want to end up on some funny list, like this guy:

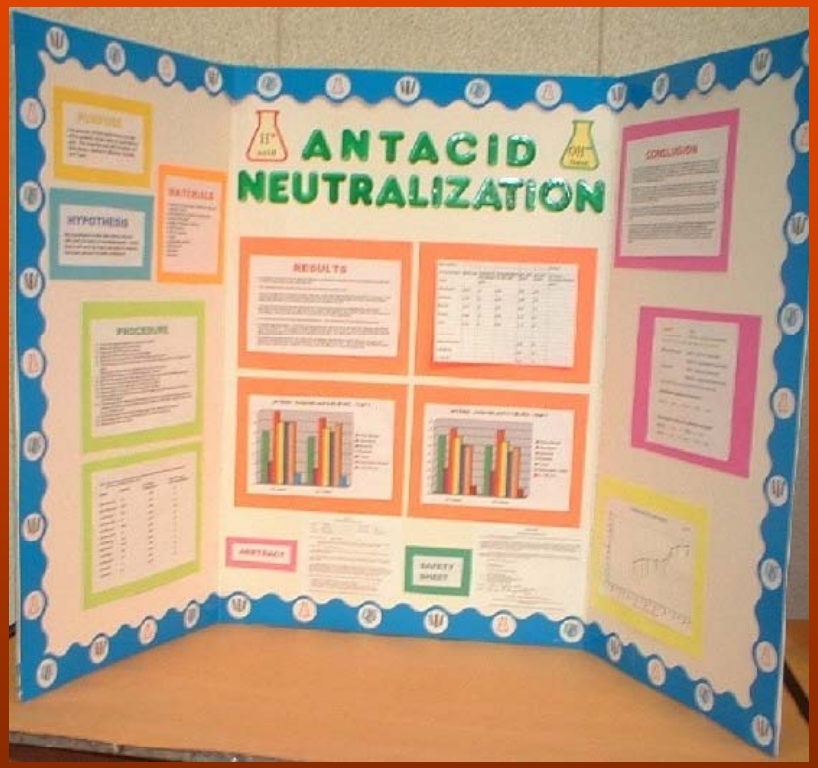
(more here)

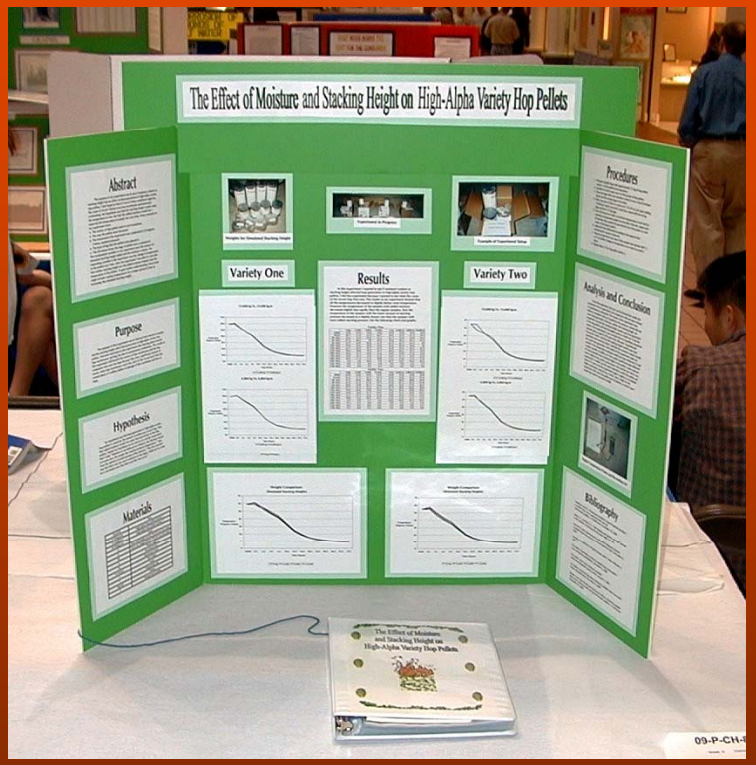
http://www.photobasement.com/41-hilarious-science-fair-experiments/

# The Board Itself

- There are three options:
  1. Go to some place like Hobby Lobby and buy posterboard for backing.
  2. Go to a cardboard recycling dumpster and grab the biggest box you can find (I recommend the ones by the Mesa Building at UTPB)
  3. Go unusual. Make it out of something unusual. Get creative. Consult a crazy physics professor on our yahoo newsgroup.

# It ***Should*** Look Like This:




It’s going to be about 30” deep, and about 4 ft by 4 ft in front dimensions.

# Some Tips

- Neatness is very good, as mentioned.
- Real scientists will judge this.  Focus on data and understanding.  That's what they're looking for, scientific merit.
- Excessive decoration (the one on the left is still OK but slightly borderline) is distracting and often ridiculous.
- Graphs, graphs, graphs, graphs…always the first thing the judges look for.  Label their axes and put descriptive captions on them.

# The Rest of the Display

This should largely work itself out if:

1. You kept up with your research.
2. You kept up with keeping a **journal** of your research.
3. Anything you try to put on display as a model or a piece of crucial experimental equipment follows the aforementioned rules.
4. You remembered to ask for electrical power if you needed it.

Just place the parts in their appropriate place, as shown previously. Data graphs anywhere they fit.

# Make Sure Your Display Isn't Disqualified!

- All rules for participation and for your display itself may be found on the UTPB science fair website: http://www.utpb.edu/scifair/sendivpr.htm

  (Seriously. Go there. You know you want to.)
- It surprising what's now allowed (plants, for example!), so make sure you see the Display Safety Rules and follow them! http://www.utpb.edu/scifair/regulations.htm
- Safety questions go to the Fair Director, Dr. Spence: spence_d@utpb.edu

# Judging

- Judging is relatively simple **if you did your research and <u>really understand</u>** your own project.
- Discussing your results and conclusions with an expert in the field ahead of time will help immensely with the above.
- As a judge, I've watched students stand there and yammer incoherently about their projects when they don't know what their experiment (nicely designed as it might've been) actually *did* measure and what that measurement *meant*.
- This lack of understanding is most often due to a lack of background research done *ahead* of time.
- These students do not fare well, you need to know your project and what it means inside and out by the time you're being asked out it.

# Good Luck!

- Your science fair project can teach you a great deal about what you may or may not want to do with your life in the future.
- If you form a contact with an expert in a scientific field, that contact can help immensely in getting you interesting opportunities while in college to do more than normal students do.
- If you go to the ISEF, it will take you a long way in life.