Puesta del Sol Science Fair 2014

- What happens at the fair on March 12th?
- What goes on my science board?
- How do I design a good project?

What is the first step?

- REGISTER!
- On-line
- Tell your parents
- Tell them again
- **Strict deadline = February 28th**
- All information about the science fair will be sent out through automated e-mails to registered participants.
- Resources on the PTA website

What actually happens at the Science Fair?

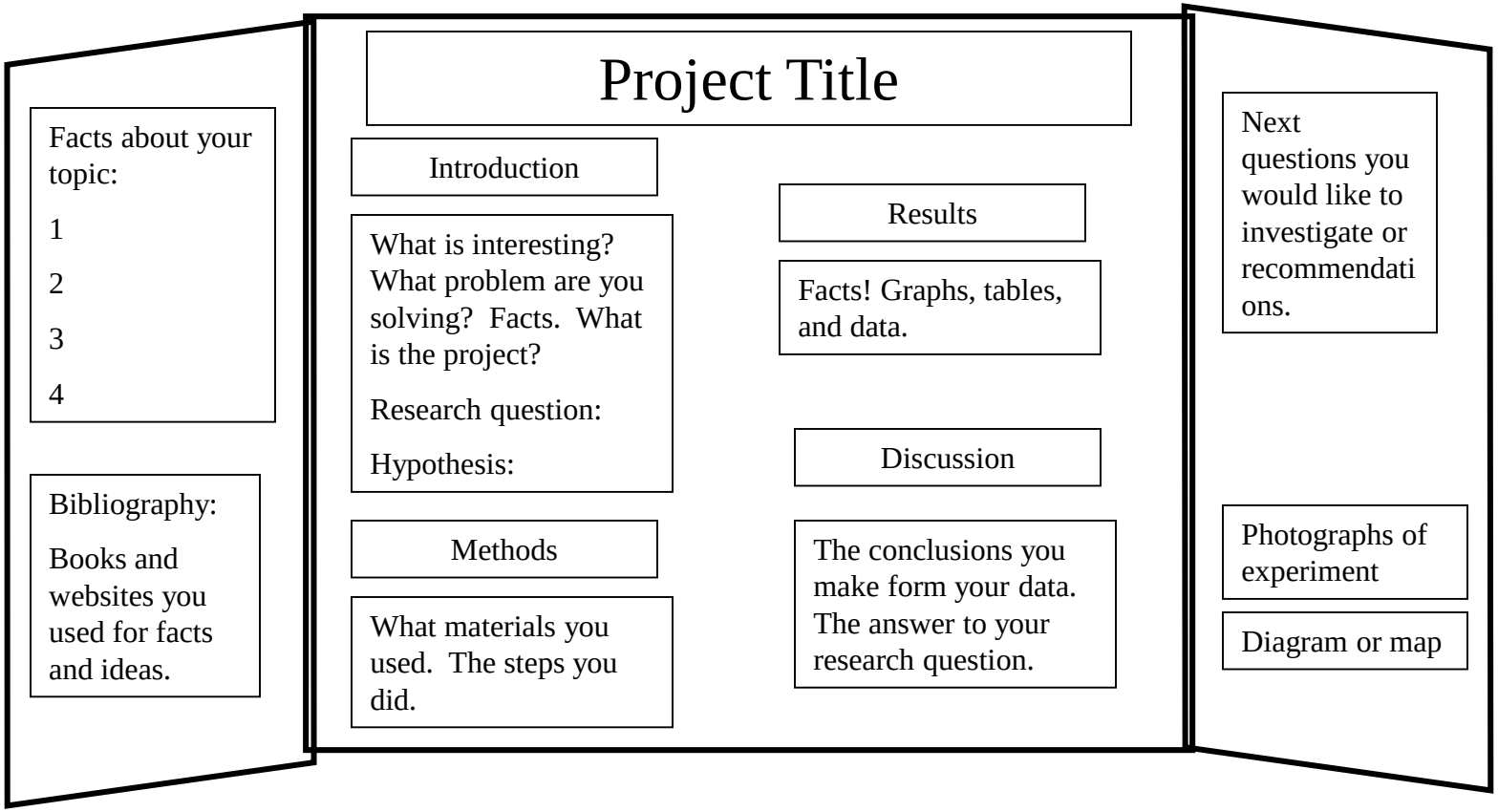
- Show up early and set up your board. Information about what room you're in will be mailed ahead to your parents or it'll be available at a registration desk when you arrive.
- Bring your board and a table display
  - no live animals
  - nothing dangerous
  - nothing messy
- Bake Sale
- Robotics
- Visit K-3 projects and ask questions
- Scavenger Hunt (with prize raffle!)
- Judging

Judging?????

- Nice people, scientists, teachers and others who know about the science project and want to talk about your project.
- Given a specific time window. STAY by your poster during that time window!
- Might be 1 judge, might be 3
- Answer questions yourself (no parents)
- Be ready for the questions
  - what's the coolest thing about your project?
  - So, tell me about your project?
  - What do you wish you had done differently?
  - Explain that graph …

What goes on the board that I take the to the science fair?

- INTRODUCTION
  - -Background facts, the problem or point of interest, your big idea, why are you interested in this subject? research question, hypothesis (what you think will happen and why)
- METHODS
  - - Materials you used, step-by-step instructions, every detail so someone else could repeat your experiment
- RESULTS
  - - The facts! Data tables, graphs, numbers, exactly what happened with no interpretation
- CONCLUSION
  - - Your interpretation of the facts. Why did you get these data, what might explain your results, what is your big conclusion, what do you think about your hypothesis now (wrong is OK!), what mistakes did you make? Any outliers? What do you want to study next? What questions are left unanswered?



Take pictures of your experiment, photocopy pictures or print pictures, draw pictures, collect samples to display. These can be added anywhere on your posterboard.

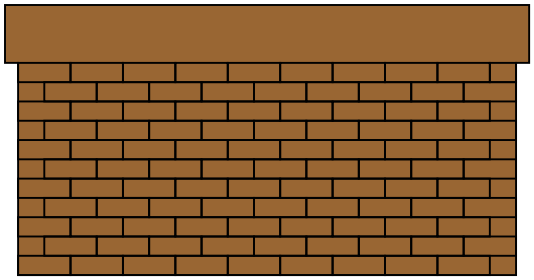
Mount each whitepaper on a piece of colored paper before gluing to the posterboard (like mounting photographs)

Make the title fun. Use shapes besides squares.

Ask questions such as ‘Have you ever wondered if….”

How do you come up with a good research question?

1. What's interesting to you? Cars, dogs, sports, bikes, skiing, other students, reading, plants, soils, human body….
2. Big Picture Question: "I wonder why …", "How does it work?", "Can I make this happen?"
3. Testable Research Question:
   - Small, clearly defined
   - Quantitative
   - Comparison



Answering a big picture question is like building a castle. Each science project is one brick!

Quantitative Observations

- On the internet: published speeds or distances or facts, weather predictions, research organization data (e.g. NOAA)
- Observe things (structured): at the zoo, in the park, at the store, in school …
- Conduct an experiment

Quantitative Observations

- Length, weight, height, width, area
- Distance, speed, time
- Number of something
- Threshold (number of something until …, time of something until…)
- O-Meter (make a numeric scale for color, smell, happiness…)

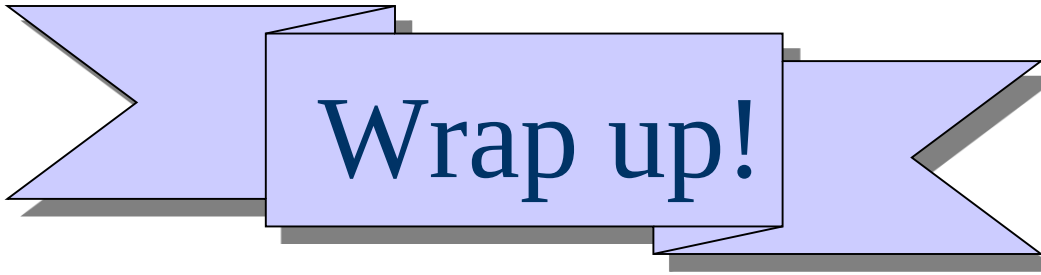
Comparison (Research Design)

- **Compare Two**: situations, treatments, levels, types, times …
- **Interesting**: Compare so you can learn something.
- **Control**: Keep it fair! Control all the unwanted factors. Manipulate only the 1 thing you want to compare.
- **Replicate**: Be sure! For each of the two situations you plan to compare, make lots of replicate observations.

Frequently Asked Questions

- Can I have a partner? *Yes! Just one unless you're all in one family.*
- Is there a state science fair? *Yes! Washington State Science and Engineering Fair (wssef.org)*
- Can I come even if I don't do a project? *Yes!*
- Will my project be graded? *No!*

- Register by February 28!
- Be safe, respectful, and enthusiastic!
- Ask a testable research question:
  - Quantitative observation
  - Comparison
  - Repeatable, fair, replicated
- Write up your poster:
  - Introduction (hypothesis)
  - Methods
  - Results
  - Conclusion (Discussion)
  -(References)



- Show up at the fair March 12:
  - visit younger student posters
  - eat
  - see robots
  - do a scavenger hunt
  - talk to judges, students, parents
  - have fun!