



THE JEWISH ACADEMY

**22
23**

4TH GRADE SCIENCE FAIR GUIDE

For Parents & Students

Dear Parents:

Your child will have the chance to solve his or her own science mystery by doing a science project, a mandatory assignment for your child's class.

Since your child has the chance to pick his or her own science project question, from the physics of making music to the biology of tide pool animals, he or she will have the chance to experience the joy of discovery.

When starting a science project, a student chooses a question he or she would like to answer. Then, he or she does targeted library and Web research to gain the background information needed to formulate a hypothesis and design an experimental procedure. After writing a report to summarize this background research, the student performs the experiment, draws conclusions, and communicates the results to teachers and classmates.

Through time management and project planning, your child will take on the responsibility of completing a project over a least a 6-week period. Your child will discover his or her creativity by brainstorming science project questions and figuring out how to display the process and results. A science project, through its challenge to ask questions and discover, is truly a real-world experience in innovation, similar to what scientists do in their careers.

We will provide your child with sufficient support to succeed, so that he or she develops enthusiasm for scientific discovery. First, your child will accomplish each step of the project by doing homework assignments. We will review the assignments at key checkpoints along the way, so that you won't face helping your child do a project the last night before the fair. Second, we have included a basic guide (enclosed) of how to help without getting over-involved.

To get started, read through this Guide to the Science Fair packet.

You will have the opportunity to approve the project your student selects by signing a Science Project Proposal Form, one of the early assignments on the attached schedule.

If you have any questions, please email me mhecht@tjastaff.com or text to (954) 231-1357.

Sincerely,

Moshe Hecht

Welcome to Science Fair! Please read the below step by step guide for participating in the Science Fair. All students in the school are required to participate. Science Fair Projects will be graded by each student's General Studies teacher. Projects will count as two test grades toward a student's overall Science grade. There are five steps to participating in the Science Fair.

4th Grade

- STEP 1: Read the Steps of the Scientific Methods pages at the beginning of this guide
- STEP 2: Fill in the "Making a Glossary" page (p.11)
- STEP 3: Fill in the "My Ideas & Interests" page (p.13)
- STEP 4: Fill in "Possible Science Fair Topics" page (p.14)
- STEP 5: Fill in "My Science Fair Topic" (p.15)
- What is your topic?
 - o Choose a problem that interests you. You will be working on this project for the next a month and a half! If you enjoy baking, look for a project on baking! Science fair projects follow the scientific method, but aren't necessarily 'science-y.' Take time to research a topic. Your idea must be testable! You are not building a time machine.
 - o The following are reliable websites for finding a project:
 - i. www.sciencebuddies.org
 - ii. <http://www.juliantrubin.com/branchesofsciencefair.html>
 - iii. If you cannot find a project on one of these sights, simply type 'science fair projects' into google and search that way. Be as specific as you can. "Science fair projects 7th grade baking," would get you good results.
 - What is your hypothesis (guess) to answer the question?
- STEP 6: Fill in the "Research Notes & Source Log" (p.16-17)
- Students should research their question in at least 3 sources (books, magazine, website, person, etc) Students are to write down the name of each source they researched the problem from and write a sentence or two of what they learned about the source in the notes.
- STEP 7: Fill out the "Question, Hypothesis, & Materials" page. (p.18)
- STEP 8: Fill out the "Project Procedure" pages • Basically, in order, what did you need to do to test to see if your hypothesis or guess was correct. (p.19-20)
- STEP 9: Perform the experiment at home.
- Tips:
 - o Take pictures
 - o Keep a journal. Write everything down. Everything.
 - o The more data the better!
 - o Something not go right? Write it down. Try again.
 - o You must collect information showing what happened.
- STEP 10: Fill out the "Data Page!" (p.21-22)
- STEP 11: Fill out the "Results & Conclusion" page (p.23)
- STEP 12: Create a Board to represent your experiment findings. (p.24)
- A sample of the Board is provided on the "Setting Up Your Board" page. The Board needs to include the students Question, Hypothesis, Research, Material, Procedures, Data, Results, and Conclusion.

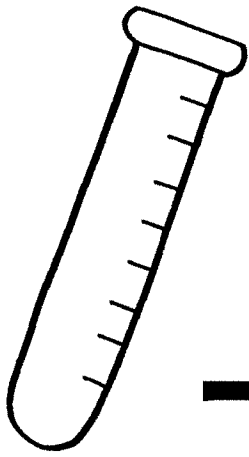
The following are important dates for the Science Fair:

- | | |
|----------|---|
| Nov. 22- | Science Fair Assigned |
| Dec. 1- | Turn My Science Fair Topic Page |
| Dec. 14- | Fill in the "Research Notes & Source Log" |
| Dec. 28- | Fill out the "Project Procedure" pages |
| Jan. 3- | Turn in "Data" & "Results & Conclusion" pages |
| Jan. 9- | Turn in Science Fair Tri-Fold Poster Board |
| Jan. 13- | Date of the Science Fair |

SCIENCE FAIR *Project*

PROJECT BOOKLETS

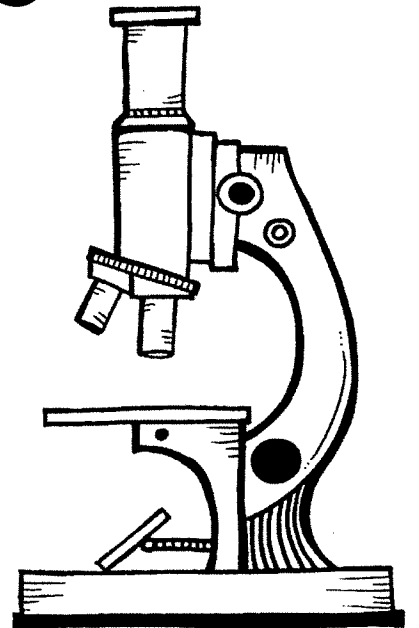
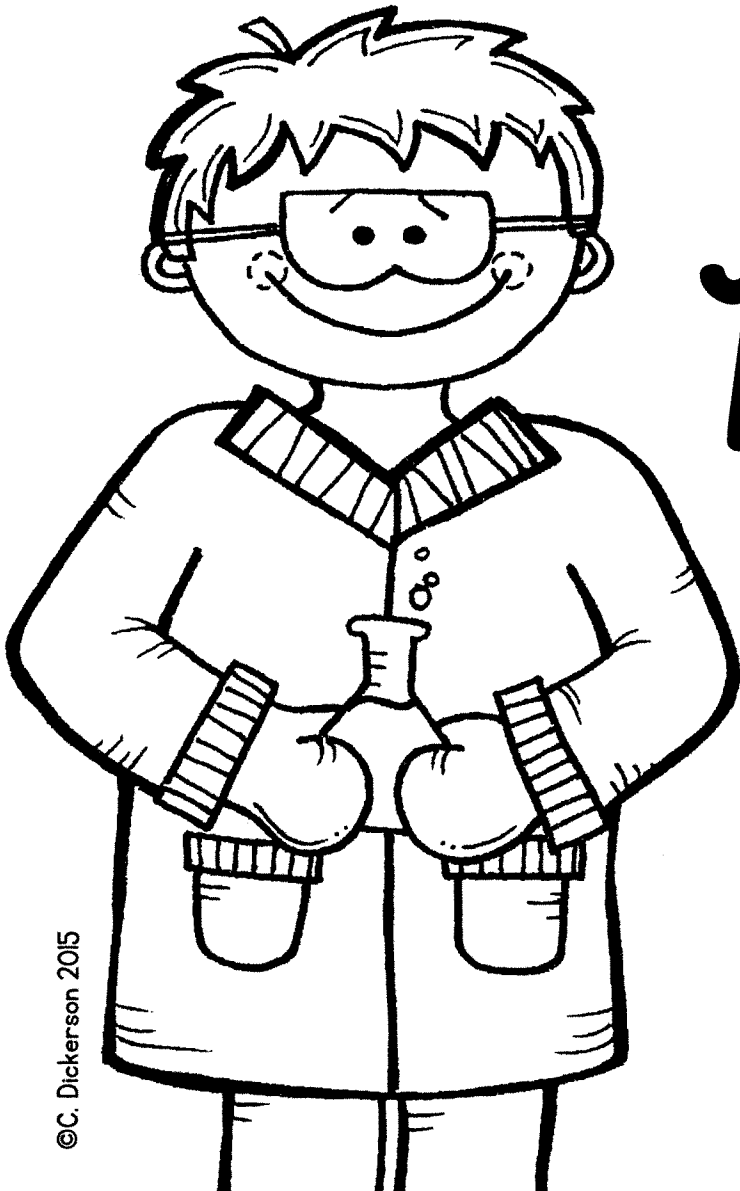
(GLOSSARY AND SCIENTIFIC METHOD
STEPS INCLUDED)

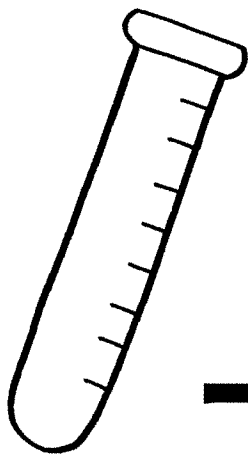


'S

SCIENCE FAIR

Project





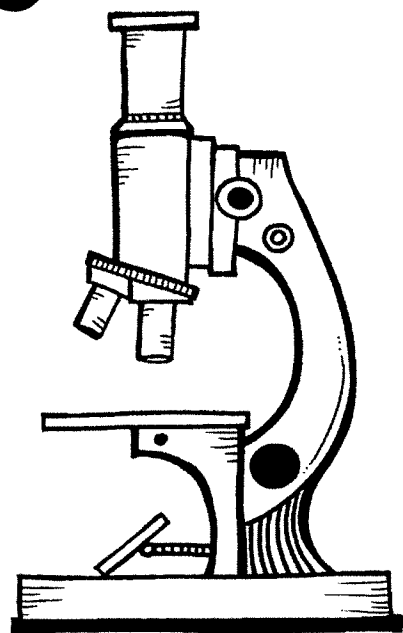
'S

SCIENCE FAIR

Project



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Step one:

ASK A QUESTION

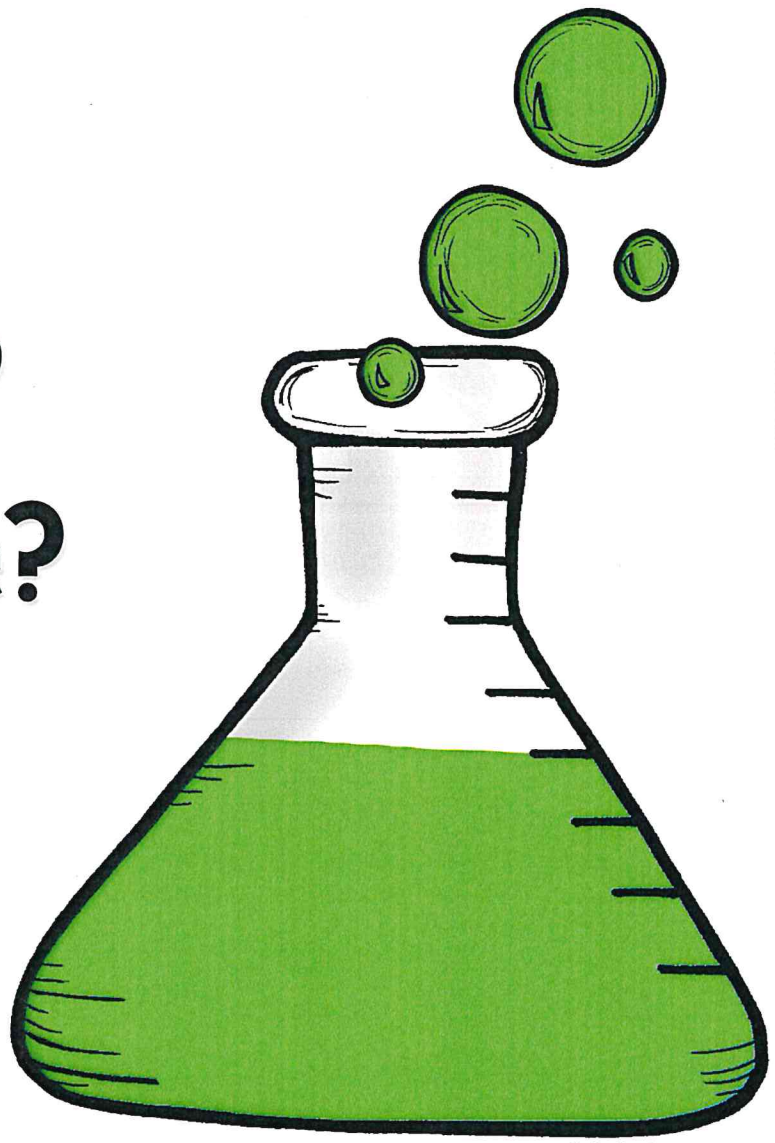
what?

when?

where?

why?

how?

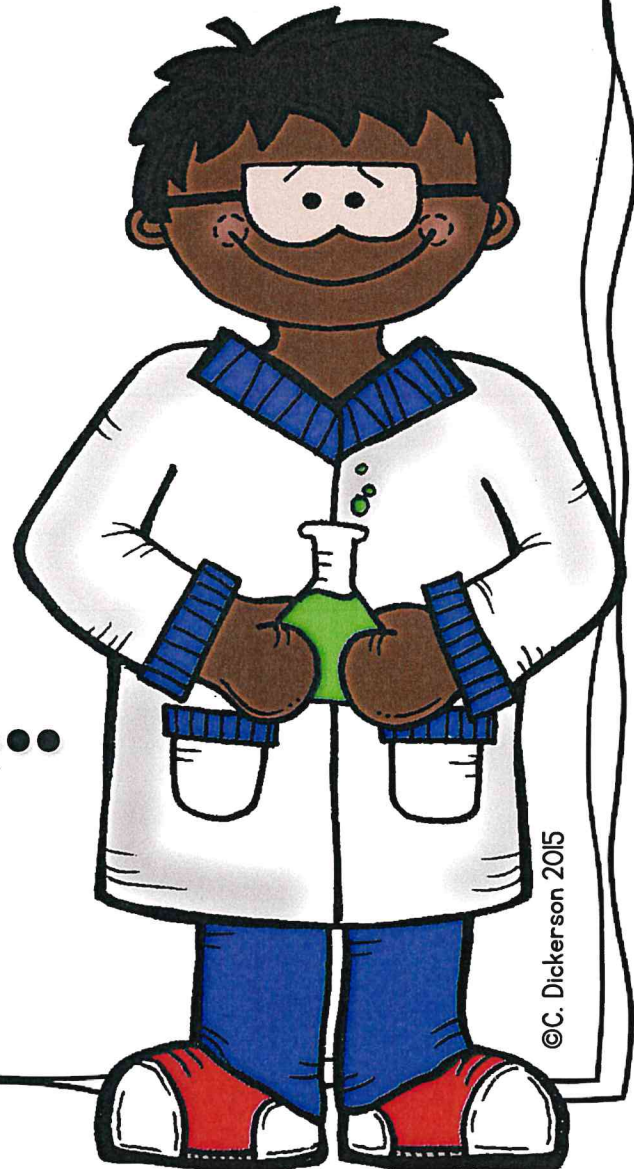


Step two:

CREATE A HYPOTHESIS

I think...

I predict...

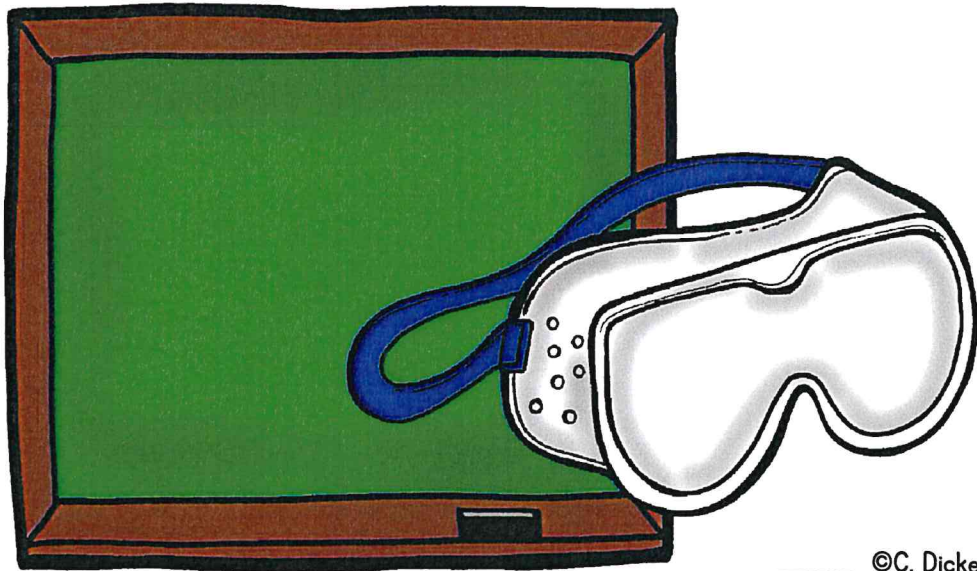


Step three:

TEST YOUR HYPOTHESIS

experiment!

collect data!



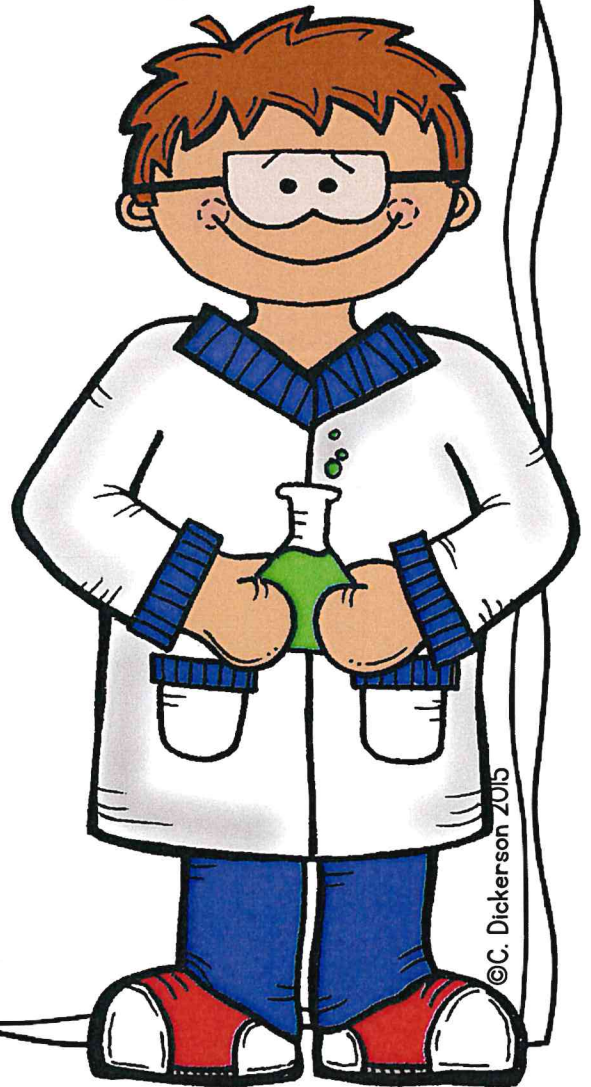
Step four:

**ANALYZE
YOUR DATA**

charts!

graphs!

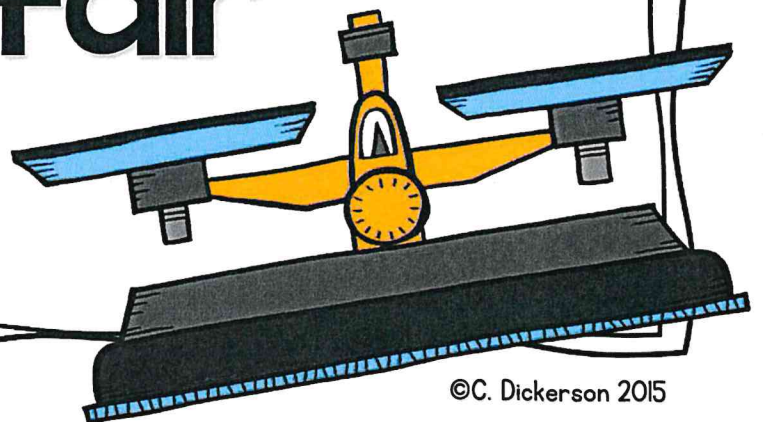
notes!



Step five:

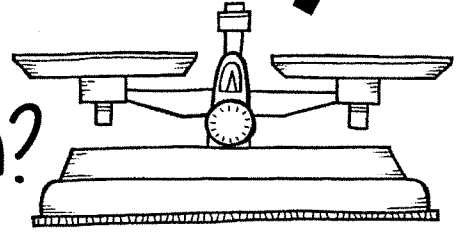
SHARE YOUR RESULTS

Make
your
science fair
board.



Making a Glossary ¹¹

What do these words mean?



Conclusion

Data

Procedure

Control

Hypothesis

Variables

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Your best guess to answer a scientific questions before the experiment.

Summary of results.

What is staying the same in your experiment

What is changing in your experiment.

What steps did you follow during your experiment.

Information you record as you are doing your experiment.



CALLING ALL



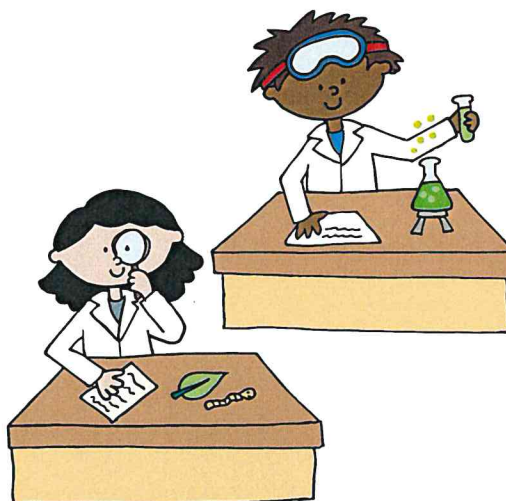
SCIENTISTS

It's time for science fair!

Dear Parents & Guardians:

Science Fair is an exciting time! Your student will have the opportunity to explore a topic he/she is interested in. Your support at home is key to ensure your student conducts a successful experiment. Below is a breakdown of project components and due dates. Please check with your child regularly to make sure each project item is completed on time. If you have any questions, please do not hesitate to contact me!

- | | |
|---|-----------|
| • Possible Topics | Due _____ |
| • Research | Due _____ |
| • Final Topic | Due _____ |
| • Question, Hypothesis
and Materials | Due _____ |
| • Procedure | Due _____ |
| • Data | Due _____ |
| • Results & Conclusion | Due _____ |

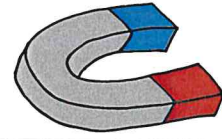


I have received the Science Fair letter and am aware of upcoming due dates.

Student Name: _____

Parent Signature: _____

MY IDEAS AND INTERESTS



WEBSITES TO CHECK OUT

www.sciencebob.com

www.sciencebuddies.org



POSSIBLE SCIENCE FAIR TOPICS

List your possible science fair topics including thoughts, notes and/or resources.

DUE DATE:

1.

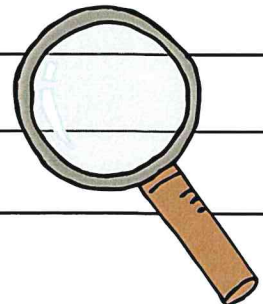
2.

3.

4.

TEACHER INITIALS:

DATE:



MY SCIENCE FAIR TOPIC

NARROW YOUR CHOICES DOWN TO ONE FINAL TOPIC, AND COMPLETE THE CHECKLIST.

DUE DATE:

IS THERE A SPECIFIC QUESTION I'M TRYING TO ANSWER? Y N

WILL MY PROCEDURE HELP ME FIND THE ANSWER? Y N

DO I HAVE ENOUGH TIME TO COMPLETE MY PROJECT? Y N

DO I KNOW ALL THE MATERIALS I WILL NEED? Y N

HAVE I APPROVED MY PROJECT WITH MY PARENT/GUARDIAN? Y N

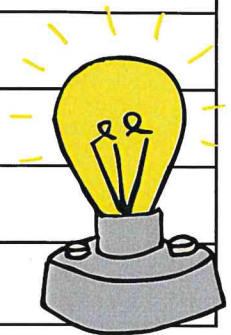
PARENT/GUARDIAN INITIALS:

MY SCIENCE FAIR TOPIC IS:

I CHOSE THIS PROJECT BECAUSE:

TEACHER INITIALS:

DATE:



RESEARCH NOTES & SOURCE LOG

record all of your research notes and the sources you used.

DUE DATE:

SOURCE:

BOOK ☐

MAGAZINE ☐

WEBSITE ☐

PERSON ☐

NOTES:



SOURCE:

BOOK ☐

MAGAZINE ☐

WEBSITE ☐

PERSON ☐

NOTES:

SOURCE:

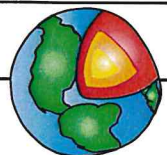
BOOK ☐

MAGAZINE ☐

WEBSITE ☐

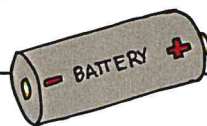
PERSON ☐

NOTES:



RESEARCH NOTES & SOURCE LOG

continued...



SOURCE:

BOOK ☐

MAGAZINE ☐

WEBSITE ☐

PERSON ☐

NOTES:

SOURCE:

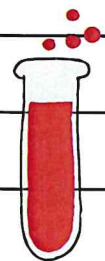
BOOK ☐

MAGAZINE ☐

WEBSITE ☐

PERSON ☐

NOTES:



SOURCE:

BOOK ☐

MAGAZINE ☐

WEBSITE ☐

PERSON ☐

NOTES:

TEACHER INITIALS:

DATE:

QUESTION, HYPOTHESIS & MATERIALS

FILL OUT THE FOLLOWING INFORMATION ABOUT YOUR SCIENCE FAIR PROJECT.

DUE DATE:

THE QUESTION I'M ANSWERING IS:

MY HYPOTHESIS IS:

LIST OF MATERIALS

PURCHASED

☐
☐
☐
☐
☐
☐
☐
☐
☐
☐
☐

TEACHER INITIALS:

DATE:

PROJECT PROCEDURE

List each step you will take to complete your project. Be specific!

DUE DATE:

STEP 1:

STEP 2:

STEP 3:

STEP 4:

STEP 5:

STEP 6:

STEP 7:

STEP 8:

STEP 9:

PROJECT PROCEDURE

STEP 10:

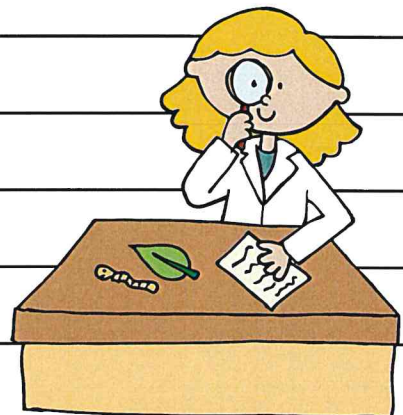
STEP 11:

STEP 12:

STEP 13:

STEP 14:

ADDITIONAL NOTES:



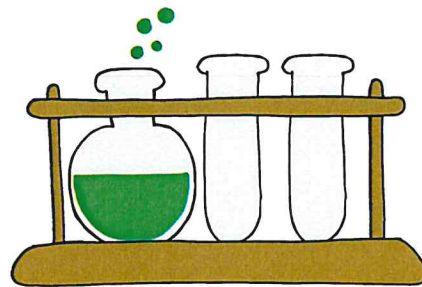
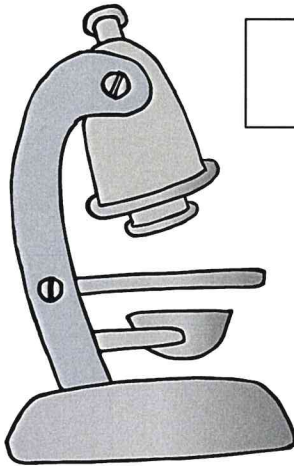
TEACHER INITIALS:

DATE:

GRAPH TEMPLATE

USE the blank template to sketch your findings (bar OR line graph).

DUE DATE:



TEACHER INITIALS:

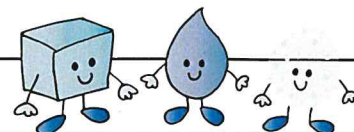
DATE:

RESULTS & CONCLUSION

DUE DATE:

WHAT WERE THE RESULTS OF YOUR PROJECT? DID YOU ANSWER YOUR QUESTION? DO YOU HAVE ADDITIONAL QUESTIONS?

WAS YOUR HYPOTHESIS CORRECT OR INCORRECT?



WHAT DID YOU LEARN? WHAT CONCLUSIONS HAVE YOU MADE FROM CONDUCTING THE EXPERIMENT?

DOES YOUR EXPERIMENT AND WHAT YOU'VE LEARNED APPLY TO REAL LIFE? HOW?

TEACHER INITIALS:

DATE:

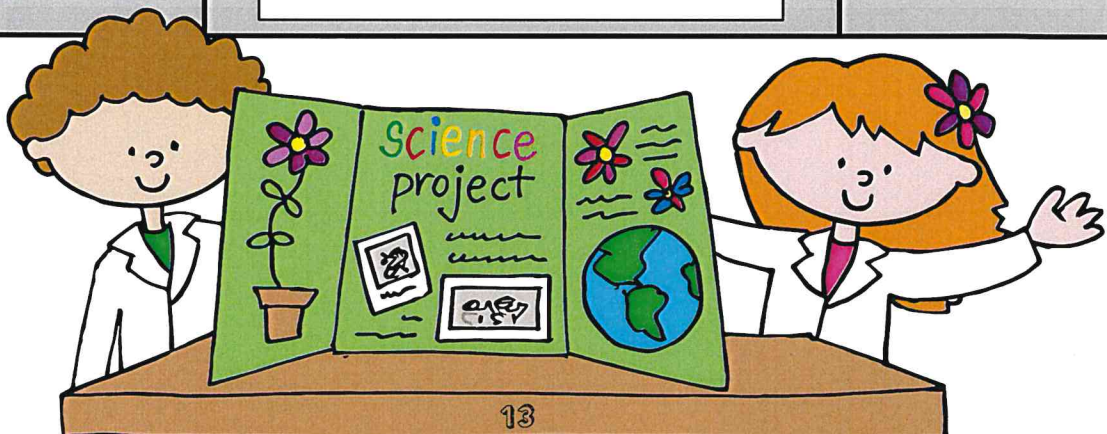
SETTING UP YOUR BOARD

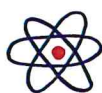
Below is an example of how to set up your project board.

The layout can vary to accommodate your information, however the following items (including a title) must be included.

☐ QUESTION	☐ PROCEDURE
☐ HYPOTHESIS	☐ DATA
☐ RESEARCH/SOURCES	☐ RESULTS
☐ MATERIALS	☐ CONCLUSION

QUESTION HYPOTHESIS RESEARCH & SOURCES	TITLE		RESULTS CONCLUSION
	MATERIALS	PROCEDURE	
	DATA / GRAPHS / PICTURES		





PROJECT RUBRIC



Name: _____

CLASS: _____

PROJECT ITEMS	DESCRIPTION	POINTS	TEACHER NOTES
QUESTION	Question should be clear and specific, and ask what you are trying to find out through your experiment. (Page 8)	10	
HYPOTHESIS	Hypothesis should be written as an "If / Then" statement, and must be able to be tested. (Page 8)	10	
MATERIALS	Include complete list of items needed to complete your project. (Page 8)	10	
PROCEDURE	Procedure should include specific step by step directions. (Pages 9-10)	12	
DATA & RESULTS	Experiment is summarized. All data should be related to the hypothesis. Should include pictures and/or graphs. (Pages 11-12)	15	
CONCLUSION	The conclusion should restate the question and hypothesis. Was your hypothesis correct? Did the experiment answer your question? Do you have more questions now that the experiment is complete? Were there any errors in your experiment? What did you learn and how does it apply to the real world? (Page 13)	15	
RESEARCH	Research on your topic is complete and includes ____ sources. (Pages 5-6)	10	
DISPLAY BOARD	Display board is neat, organized and easy to read. Few spelling grammar or punctuation errors. Displays each of the above parts of the project.	18	