SCIENCE PROJECT

Due Dates: _____ _____ _____
contract experiment design final

Display Date & Time: _____

This quarter you will design and conduct a **controlled** experiment. Your scientific investigation must follow the *scientific method*. You may work with one other person if you wish. Each student or student team of two will be responsible for displaying the results of the experiment in a professional manner. Quality, careful craftsmanship and creativity will be essential for a good display. The following criteria must be met.

The display must:

- be your own **original work** of the highest quality
- not exceed **one cubic meter** in size
- be **self-standing**
- be designed with **safety** in mind (spill-proof, public not exposed to hazards) *Materials mounted on a finished base are safer.*
- be **clearly labeled** with an identification key and other important information (including your name)
- include your experiment notebook & bibliography

- include the following information on your display board:

  - **Purpose:** The purpose of your investigation should be summed up in two or three sentences and must include a statement of the ***problem***. In addition to these two or three sentences you must include your ***hypothesis***, a testable prediction in the "If…then…" format.

  - **Procedure:** List the ***materials*** that you used. Then explain ***step-by-step*** what you did in your experimentation. If drawings and/or photographs will make it more clear, include them on your display board. Explain any materials that you constructed in detail. You must discuss your ***independent*** and ***dependent variables*** in this section. You must also include some explanation about your ***control*** and ***experimental groups***.

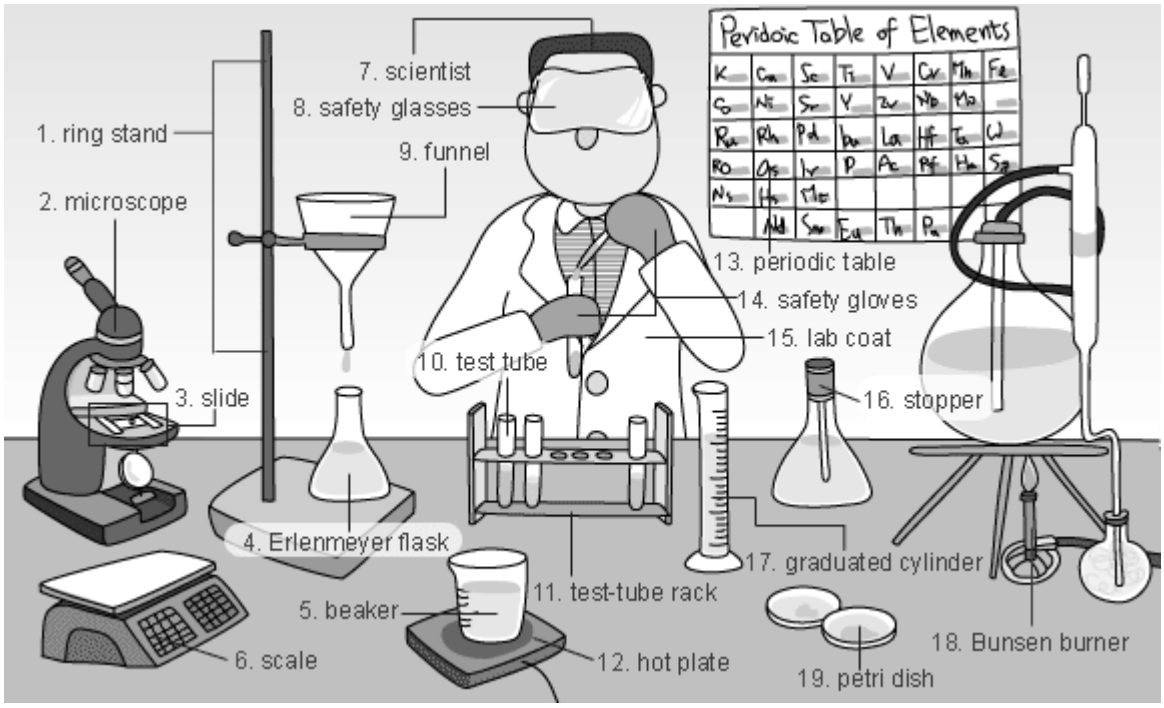
  - **Results:** In this section you should discuss what happened in your experiment. What were your observations? How did you collect your data and what did it look like? You must organize your data into graphs, charts, or tables. Make sure that you label your graphs or charts so that the reader can understand them.

- **Conclusion:** This section is your evaluation and interpretation of your results. Look over your graphs, charts, tables, or daily log and then write what you think the data shows or seems to indicate. You may include your opinions. Don't be afraid to admit where you might have made mistakes. *Negative results are not bad; if you did not prove your hypothesis, then say so.*

Use the ***Science Project Grade Sheet & Template*** to check your work before turning in your project. Ask a parent or friend to check your project for any areas you could improve before the due date.

Please **do not wait** until the last week to get started. A good project takes time to plan and complete. Most excellent experiments take at least 2-4 weeks to conduct after the initial set-up.

Need help? Don't forget to check out the resources and links on the TVA Science Fair Web Pages at http://www.tvja.org/science/science_fair.htm.



Name _____Class _____

Name _____Class _____

Science Project Grade Sheet & Template

☐ **Procedure** *(heading)*
☐ **Materials List**
☐ **Step by Step Procedures**
☐ **Independent Variable** *Identified & Described*
☐ **Dependent Variable** *Identified & Described*
☐ **Controlled Variables** *Identified & Described*
☐ **Experimental & Control Groups** *Identified & Described*

☐ **Student Name(s)**
☐ **Grade / Class**

☐ Project Title

☐ **Purpose** *(heading)*
☐ **Introduction of Content & Background Information** *(rational)*
☐ **Problem Statement**
☐ **Hypothesis**
☐ ***Written in prediction form, "If…then…" statement.***

☐ **Data Table(s)** *(contains same data used to create graph)*
☐ *Computer Generated*
☐ **Graph(s)**
☐ *Computer Generated*
☐ **Photographs & Illustrations**
☐ *Created by Student*

More Pictures, drawings or graphs

☐ **Results** *(heading)*
☐ **Observations & Analysis Discussed**

☐ **Conclusion** *(heading)*
☐ **Evaluation, Interpretation & Hypothesis Discussed**
☐ **Outcomes & Applications Discussed**

☐ **Bibliography** *(heading)*
☐ **APA Style Format**
☐ **3 or More Sources**

☐ **Creative & Original** *(shows your own work & ingenuity)*
☐ **Quality Craftsmanship** *(neatness & attention to detail)*
☐ **Identification Key** *(items on display clearly labeled)*
☐ **Display Presentation Board / Finished Base** *(self-standing)*
☐ **Display Organization** *(follows the above Science Project Display Board template / format)*
☐ **Meets Size Requirements** *(1 meter x 1 meter x 1 meter or smaller)*
☐ **Safety First (nothing unsafe)** *(procedure shows safe use of materials & items on display fastened to base and/or sealed, no sharp objects, bare wires, biohazards, or open chemicals)*
☐ **Experiment Notebook** *(Legible, includes student notes throughout the planning, data gathering and analysis process)*
☐ **No Spelling, Punctuation, Grammar, or Typographical Errors, All Text is Typed**

☐ **Other** *(Teacher's Discretion)* **Exceptional or Significant Effort Demonstrated: _____**

☐ **Other** *(Teacher's Discretion)* **Exceeded Expectations: _____**

_____ ✓'s X 10 = _____	_____	_____%	_____
38✓'s	**on time** (Late -25%)	**percent**	**letter grade**

Total number of ✓'s X 10 points = Total Score

Comments:

Student Science-Project Schedule

Week	Goals / Assignments	Due Date	✓
1	✸ Make sure you understand what you need to do. Ask questions if you're not certain about any aspect of the assignment. ✸ Find a topic: use books, encyclopedias, magazines, and other library resources. Keep bibliographic notes on all sources. You could also visit museums, hospitals, universities, zoos, science centers, stores, and so on.		
2	✸ Complete your contract & planning guide. ✸ Discuss your project with your parents & teacher.		
3	✸ Complete your experiment design form. With your topic in mind, write the purpose, hypothesis, materials list, and procedure for your project. ✸ If your project is approved by your teacher, gather materials and begin project.		
4	✸ Seek advice and help from professionals (teachers, doctors, nurses, researchers, engineers, librarians, veterinarians) to refine your project and procedure.		
5	✸ Conduct your revised experiment and collect data. ✸ Keep careful written records of results in a notebook. Be as specific as you can. Include: time of observations, amount, size, type of materials, and so on.		
6	✸ Make data tables and graphs to organize your results. ✸ Draw conclusions from your results.		
7	✸ Write your project summary sheets: Purpose, Procedure, Results, and Conclusion.		
8	✸ Construct a display. Build a back-drop to mount graphs, charts, illustrations, photographs, signs, and summary sheets.		
9	✸ Add finishing touches to your project. ✸ Present your project in class and at the Science Fair.		

Name: _____

Design an Experiment

1. What is your *research question?* _____

   _____

2. State your *hypothesis* using the "If…then…" format. Underline your independent variable and circle your dependent variable.

   _____

   _____

3. Describe the *independent* (manipulated) variable. _____

   _____

4. Describe the *dependent* (responding) variable. _____

   _____

5. Describe the *materials you* will need to do the experiment. _____

   _____

   _____

6. Write a *procedure* to test your hypothesis. Remember to include step by step details.

7. Describe your *control group*. _____

_____

8. Describe the variables that you will hold *constant.* _____

_____

_____

9. Design a *data table* to collect and display your results. Make a sketch of your data table below. A final copy of this data table must be put in your project notebook and on your display board.

10. What kind of *graph or chart* will you use to present your data? _____

_____

11. What computer program will you use to generate your graph or chart?

_____

Science Project Contract

I have read the Science Project information. I am aware that in order to get a top grade on my project I must:

- **plan ahead to do a quality job**
- **do original work** *(parents & friends my advise and proofread)*
- **pay close attention to details** *(includes following the Scientific Method)*
- **follow project criteria**
- **turn everything in on time** *(no late paper coupons accepted)*

I understand that by following these steps I will be given a top grade and the opportunity to display my project.

I have chosen to do the following controlled experiment: _____

_____

_____

The steps I will take to conduct this controlled experiment include *(give specific details)***:**

_____

_____

_____

_____

_____

Three sources of information I will use include *(give specific titles, Web addresses, names, etc.)***:**

_____

_____

_____

Name of partner *(if applicable)***:** _____
(partner must turn in separate contract & parent signature)

_____	_____	_____
Student Signature date	Parent Signature date	Teacher Signature date