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<tr>
<td>1</td>
<td>Choose a topic and begin research (use Organizer p.13 of this packet)</td>
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<td>Safety Sheet (use pg 23 of this packet)</td>
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<td>3</td>
<td>State problem of your experiment (use Organizer p.13 of this packet)</td>
</tr>
<tr>
<td>4</td>
<td>Write your hypothesis (use Organizer p.13 of this packet)</td>
</tr>
<tr>
<td>5</td>
<td>Collect information &amp; create an outline for your experiment (use Organizer p.13-16 of this packet to plan and then turn in final Project Proposal p. 17)</td>
</tr>
<tr>
<td>6</td>
<td>Final draft review of your literature (use format of p18 of this packet, NOTE: You will need at least 5 sources so you will take notes on your own paper, do each source on a separate sheet of paper)</td>
</tr>
<tr>
<td>7</td>
<td>Collect your materials and conduct your experiment (bring your journal to class for teacher to check)</td>
</tr>
<tr>
<td>8</td>
<td>Continue experiment and collect data in your journal (bring your journal to class for teacher to check)</td>
</tr>
<tr>
<td>9</td>
<td>Write your conclusion (use the organizer directions p16 of this packet but you will need to write your conclusion on a separate sheet of paper)</td>
</tr>
<tr>
<td>10</td>
<td>Draw a rough draft of your display board (use p19 of this guide for tips)</td>
</tr>
<tr>
<td>11</td>
<td>Construct your final display board</td>
</tr>
<tr>
<td>12</td>
<td>Complete the final report and submit to teacher (This must be typed and turned in online to teacher. Mrs. Falwell’s classes must turn in using Google Classroom)</td>
</tr>
<tr>
<td>13</td>
<td>Time Management form due (pg 3 of this packet, all items #1-13 should be signed)</td>
</tr>
<tr>
<td>14</td>
<td>All aspects of final project due</td>
</tr>
<tr>
<td></td>
<td>• bring all parts of project to school</td>
</tr>
<tr>
<td></td>
<td>• be ready to present to class</td>
</tr>
<tr>
<td></td>
<td>• use checklist p29-30 of this packet (note you only need 1 copy of your paper at this time; students who are selected to participate in the CPS level science fair will need additional copies)</td>
</tr>
<tr>
<td>15</td>
<td>Diego Science Fair</td>
</tr>
<tr>
<td></td>
<td>• come ready to present to judges</td>
</tr>
</tbody>
</table>
Introduction

All Jose de Diego middle school science students are required to display their science skills by completing an original science project that will be prepared for display at the Jose de Diego Science Fair Thursday, December 3, 2015. The required elements and point values are attached. Time will be devoted to planning out of science classes. Students will complete projects independently and will be responsible for researching a topic in the area of science and designing an experiment to accompany their research. This is an interdisciplinary activity.

All middle school students must work independently unless pre-approved by the teacher and BOTH students’ parents sign a form detailing how and when the students will work together. No more than 2 students can work together on a project. The deadline for pre-approval to work with a partner is the Friday BEFORE the topic due date. This means you need to determine your project topic, talk to your teacher to see if it may be possible to work with a partner on that topic, and then get a note from BOTH parents saying when and where you will meet. The plan must include dates/locations at least once a week to be considered. Even if working with a partner, EACH student will need to write their own report.

Your Final Project Must Include:

1. Title Page The project title, heading (name, assignment, date, homeroom) and teacher’s name
2. Table of Contents List of topics or matter contained in the paper, including table numbers
3. Acknowledgements A listing of persons or agencies that gave the student guidance and helped with research. It may include a single individual, an organization, a hospital, or some other agency.
4. Problem and Hypothesis An explanation of what is to be accomplished by doing this research. A description of the expected outcome should be included.
5. Review of Literature The report must be a minimum of 3 pages typed. The paper must contain the following aspects:
   - Title (½ page)
   - Body (1½ pages double-spaced, 12 point font Times New Roman, 1 inch margins)
   - Bibliography (at least 4-5 different sources)

   The paper should be a discussion of the work that has been done on this problem. It should include the history of the science theory, and biographical information of the scientist(s) that studied the topic. Materials with a copyright date of 2000 or later should be used whenever possible or appropriate.
6. Materials and Methods of Procedure A listing of the materials used in the research. How the materials in the research problem were used should be included. Drawings and/or photographs are appropriate if they enhance or clarify the explanation.
7. Experiment Students must design an experiment to test their hypothesis and answer their problem (question). The experiment is performed out of school with parent permission or supervision as needed to ensure safety. Experiments should be completed by Tuesday, November 17, 2015.
8. Results A clear, concise presentation of the data accumulated as a result of the procedure. Drawings, charts, graphs, and all other items pertinent to the project should be included. Caption all photographs. Attractive charts and graphs, either computer generated or hand drawn, are important in conveying results.
9. Conclusion A concise evaluation and interpretation of the data and/or results. Opinions of the results may be expressed in this section. The conclusions should be limited to results of investigation and should refer to the stated problem and hypothesis. The effects of experimental error should be estimated and considered while drawing conclusions.
10. Reference List A bibliography of sources (4-5 minimum) used in the research section is required. You must list any published articles, books, or other communications used to write your Review of Literature. This also includes quoted or paraphrased information found in your Review of Literature.
Exhibits may be entered in one of the following categories and will be judged on the basis of two divisions: high school and elementary school.

**Aerospace Science**
... is the science of the study and investigation of the earth’s atmosphere and outer space. In the wide sense, it would include the design, manufacture, and operation of aircraft. Some topics that fall within this division are the operation of rockets, guided missiles, anything related to space travel, operation, and/or construction of satellites, observations of airflow patterns within tunnels, and the use of navigational equipment.

**FOR IJAS ONLY -- ASTRONOMY**
...is the science dealing with all of the celestial bodies in the universe, including the planets and their satellites, comets and meteors, the stars and interstellar matter, the star systems known as galaxies, and clusters of galaxies. Modern astronomy is divided into several branches: astrometry, the observational study of the position and motions of these bodies; celestial mechanics, the mathematical study of their chemical composition and physical condition from spectrum analysis and the laws of physics; and cosmology, the study of the universe as a whole.

**Behavioral Science**
... is the science that studies the demeanor or deportment of humans and other animals by means of observable response and the interpretation of the same as offered by the social sciences, sociology, psychology, etc. Some topics that fall within this division are the effect of stimuli on organisms and their responses, learning, motivation, emotion, perception, thinking, individuality, personality, and adjustment.

**Biochemistry**
... is the branch of chemistry relating to the processes and physical properties of living organisms. Topics that fall within the biochemistry division are the properties and reaction of carbohydrates, lipids, proteins, enzymes, blood, urine, vitamins, hormones, poisons, and drugs. The chemistry of absorption, digestion, metabolism, respiration, and photosynthesis as organic processes also belong in this category.

**Botany**
... is the division of biology that deals with plant structure, reproduction, physiology, growth, classification, and disease. Some topics included in this category are specialization in plants, functions of various plant structures, reproduction, and heredity.

**Chemistry**
... is the science that deals with the structure, composition, and properties of substances and of their transformations. Some topics included in this category are the composition of various compounds, the formulation of various compounds, the study of gas laws, atomic theory, ionization theory, and the analysis of organic and inorganic products.
<table>
<thead>
<tr>
<th>Field</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer Science **</td>
<td>includes the study and development of computer hardware, software engineering, Internet networking and communications, graphics (including human interface), simulations/virtual reality or computational science (including data structures, encryption, coding, and information theory). Topics in this category may include writing an original program and comparing it to an existing one, developing a new language and comparing it to an existing one, etc.</td>
</tr>
<tr>
<td>Earth Science</td>
<td>is the science concerned with the origin, structure, composition and other physical features of the earth. Some topics that fall within this division are geology (earth composition, rock formation, fossils, minerals, and fossil fuel); geography (landforms, soils, classification of streams, erosion, and sedimentation); oceanography (ocean waves, ocean currents, composition of ocean water and coastal zone management); seismology; geophysics; and meteorology.</td>
</tr>
<tr>
<td>Electronics</td>
<td>is the branch of engineering and technology that deals with the manufacture of devices such as radios, television sets, and computers that contain electron tubes, transistors, chips, or related components. Topics in this category are circuits (electrical, electric digital and analog) for communication such as radio, radar, laser, transistor, television, and integrated circuits; electricity; electric motors; solar cells and amplifiers.</td>
</tr>
<tr>
<td>Engineering</td>
<td>is concerned with the practical application of scientific knowledge in the design, construction, and operation of roads, bridges, harbors, buildings, and machinery, lighting, heating, and communication systems. Some topics in this category are stress testing of building materials, strength composition of building materials, collection of data from operating systems to compare and contrast their effectiveness.</td>
</tr>
<tr>
<td>Environmental Science</td>
<td>is the study of the protection and care of natural resources. Topics included in this category are solar energy and its uses, water purification and usage, pollution control, soil chemistry, and insecticides. Within this area is ecology, which is the study of ecological systems, and ecological population studies.</td>
</tr>
<tr>
<td>Health Science*</td>
<td>is that science concerned with the study of the human body and good health practices. Topics to be found under this category are proper diet, care of the teeth, care of the eyes, and hygiene.</td>
</tr>
<tr>
<td>Materials Science</td>
<td>is the study of materials, nonmetallic as well as metallic, and, how they can be adapted and fabricated to meet the needs of modern technology. Using the laboratory techniques and research tools of physics, chemistry, and metallurgy, science is finding new ways of using plastics, ceramics, and other nonmetals in applications formerly reserved for metals.</td>
</tr>
<tr>
<td>FOR IJAS ONLY -- CONSUMER SCIENCE*</td>
<td>... is the study of comparisons and evaluations of manufactured or commercial products. Topics included in this category are taste tests, color preferences, quality control, and product efficiency.</td>
</tr>
</tbody>
</table>
Mathematics**

Mathematics is the science dealing with the measurement, properties, and relationships of quantities as expressed in numbers or symbols whether in the abstract or in their practical connections. Some topics included under mathematics are arithmetic (use of numbers, symbols, and numerical systems); algebra (probability, theory of equations, progressions, permutations and combinations); geometry (topology, study of geometric figures, similar figures, and scale drawings); calculus; trigonometry, statistics and graphing.

Microbiology*

Microbiology is the branch of biology concerned with the study of microorganisms. Topics to be found in this category are the structure and physiology of bacteria, viruses, yeasts, fungi, and protozoa, and studies involving cells or tissues in cultures.

FOR IJAS ONLY -- CELLULAR & MOLECULAR BIOLOGY*

... is the study of the organization and functioning of the individual cell; molecular genetics focusing on the structure and function of genes at a molecular level. Other topics may include the structure and function of the immune system, innate and acquired immunity, and the interaction of antigens with antibodies. Molecular biology concerns itself with understanding the interactions between the various systems of a cell, including the interrelationships of DNA, RNA and protein synthesis and learning how these interactions are regulated.

Physics

Physics is the science that deals with the laws governing motion, matter, and energy under conditions susceptible to precise observation as distinct from chemistry or sciences dealing with living matter. Topics found in the category of physics are hydrostatic force and pressure, gravity, Newton’s Laws, relativity, kinetic theory, motion forces, work, energy, sound, light, and magnetism.

Zoology*

Zoology is the science that deals with animals with reference to their structure, functions, development, evolution, and classification. Some topics that fall within this category are structural and functional studies of vertebrates and invertebrates, physiology, reproduction, heredity, and embryology.

* PROJECTS IN THESE CATEGORIES MAY NEED AN ENDORSEMENT(S). See the appropriate sections of this site for clarification.

** WHEN A CONTROL GROUP IS NOT POSSIBLE, A COMPARISON AMONG TRIALS IS ACCEPTABLE.

NOTE: For projects conducted in a university, hospital or research laboratory under the supervision of a Doctor, Professor or Scientist, endorsement(s) and supporting documents are due October 16, 2015.

All other endorsements must be submitted in duplicate by November 13, 2015. Endorsement requests MUST be made PRIOR to experimentation in order to ensure the safety of the test subject(s) and/or the scientist. The project plans are reviewed by the Scientific Review Committee and, if safe, the endorsement is granted and the experiment may be carried out. Permission to carry out an experiment CANNOT be given to one that has already been completed.
Ideas by Category

**Aerospace Science** aerodynamics (cars, planes), rocketry
- effect of paper airplane design on flight distance
- wing design for balsa planes
- kite design with respect to aerodynamics
- best design for reduced wind drag or greatest lift
- best nose cone shape for model rockets

**Behavioral Science** psychology, animal behavior (learning, memory)
- reaction time, reflexes, and concentration in males versus females
- effect of noise on hand-eye coordination
- effect of light on fish behavior
- effect of color on mouse behavior
- color preference in gerbils
- social behavior of ants
- does color affect memory?
- testing for ESP
- possibility of learning while sleeping
- optical illusions
- effects of reading rates on grades
- short term memory across age groups
- effects of verbal and written stimuli in learning

**Botany** plants
- growing plants: vary heat water, temperature, bedding, soil, fertilizer
- how much weight can a growing plant lift?
- will adding bleach to the water of a plant reduce fungus growth?
- effect of acid rain on plant growth
- conditions required for plant growth
- effect of aspirin, vinegar or bleach on the life of cut flowers
- effect of mirrors on plant growth
- effects of fertilizers on plant growth
- effects of microwave radiation on seed germination
- effects of electricity on plant growth
- effects of vitamins on plant growth
- effects of root bounding on plant growth
- effects of detergents on plant growth
- effects of carbon dioxide on plant growth
- effects of water type on plant growth
- effects of plant rotation on plant growth
- effects of worms or insects on plant growth
- effects of temperature on seed germination
- will frozen seed sprout

**Chemistry** nature of and reactions between atoms and matter (rusting, chromatography)
- melting, freezing, boiling points of various liquids or solutions
- temperature related projects (retention of heart by colors or materials, heat or cold retention by insulators)
- effects of temperature on density
- evaporation rate of liquids (vary color, liquid, temperature, wind, surface area)
● chromatography and colored inks
● density of different liquids
● effect of temperature versus salt concentration
● metals and heat transfer
● heat transfer
● acids, bases and salts
● expansion of solids, liquids and gases
● how surface tension can be measured
● liquid, color and heat absorption
● effect of temperature loss on metal or glass
● effect of additives on time required for water to freeze
● chemistry of leaf color change
● how can you prevent iron from rusting?
● ph comparisons of different antacids
● effects of temperature of crystal growth
● viscosity of liquid using a sphere
● how acids affect metals

**Computer Science** relating to technology
● develop an original computer program language
● compare an original program to an existing program
● creating a program to accomplish a new task

**Conservation** wise use of living or non-living resources, solar and alternative resource (water purification, pollution, soil chemistry, acid rain)
● decomposition (vary materials, time, temperature, moisture, light)
● effect of acid rain on plant growth
● effect of soil type on water retention
● design a solar engine
● solar distillation
● paper recycling
● purifying water
● which detergent breaks up oil best?

**Consumer Science** (product comparison)
● product comparison (soaps, laundry detergents, toothpastes, popcorn, paper towels, packaging materials, etc.)
● how various fabrics absorb dye
● types of material versus heat insulation
● effect of light on colored materials
● effect of toothpaste type and abrasion or effectiveness
● effect of brand of paper towel on strength or water absorption
● measuring brand of battery versus best buy
● measuring effectiveness of pre-wash products on cleanliness of fabrics
● evaluating different types of shampoos
● comparing suntan lotions
● comparing brand of popcorn and the number of kernels popped
● measuring the effectiveness of plastic wrap on food preservation
● testing parking meters for accuracy
● comparing the effectiveness of diapers
● measuring the strength of different types of glue
● measuring the efficiency of light sources
● measuring the strength of different types of rubber bands
● comparing the effectiveness of homemade cleansers versus commercial cleansers
● best smoke detection system
● which bleach works best?
● how different paints hold up to weathering
● does oil stain or oil paint offer better protection?

**Earth Science** (geology, geography, erosion, meteorology (accuracy of meteorologists, weather patterns)
● effect of temperature versus salt concentration
● how surface area affects the rate of evaporation
● effect of transpiration on surface area
● effect of soil type on water retention
● measuring the accuracy of weather forecasting
● analyzing quality of drinking water

**Electronics** (study of how electrical devices interact, circuits, transistors, motors, solar cells
● research related to batteries (strongest, value, longevity)
● research related to light bulb (brightest, value, longevity)
● conductivity of various liquids or other substances
● effect of temperature on the strength of dry cells
● effect of the number of dry cells on the speed of a motor
● electrical conductivity versus type of metal
● electroplating
● design of robotics equipment

**Engineering** design and testing different structures (bridges, buildings)
● bridge construction (shape, material, joints)
● suspension bridge design
● comparing the strength of different types of wood
● design a solar engine
● is the front or rear wheel drive better?
● what materials are best for road construction?

**Food Science** food and nutrition
● comparison of vitamin C content in frozen, bottled and fresh juices
● effect of water temperature on the rate candy dissolves
● comparing the moisture content of a variety of apples
● effect of temperature on popped popcorn
● effect of microwave radiation on the shelf life of milk
● testing the amount of sugar in ripe and unripe fruits and vegetables
● measuring the percentage of water in various fruits and vegetables
● fat content in margarines (or other foods)

**Health Science** nutrition, fitness, blood pressure, lung capacity, weight loss
● effect on human senses (blindfolds, nose plugged, sensitivity to touch, taste smell, sound)
● effect of vision on taste
● effect of color on depth perception
● effect of age on the ability to estimate distance
● comparison of blood pressure variation
● optical illusions
● do people have the same normal body temperature?
- Do family members have the same type of fingerprints?
- Lung capacity as a function of height
- tasting sensitivity across gender and age groups
- effects of age, sleep and exercise on pulse rates

**Mathematics**
- arithmetic
- statistics
- probability (coin or dice)

**Microbiology** study of yeast, mold, bacteria, and other microorganisms
- microorganisms (how clean are places?)
- bacterial growth
- effect of detergents on algae growth
- testing the effectiveness of antibacterial soaps
- regeneration of planarian
- effects of ultraviolet light on bacteria
- effects of temperature on the action of yeast

**Physics** study of energy, forces, motion, light, sound, gravity and the behavior of matter
- effect of surfaces on the bounce height of different balls
- materials that conduct sound
- compare the focal length of different lenses
- comparison of magnet strength to magnet size
- light/sound refraction
- effect of ramp angle or mass on the speed of a toy car
- does the weight of a pendulum affect the swing?
- does surface affect the speed of a rolling balls?
- does mass affect the distance a cart will roll?

**Zoology** animal science (fruit flies, mealworms, earthworms- NO VERTEBRATE ANIMALS)
- effect of different surface conditions on the speed of snail movement
- preferences (light and moisture) of insects
- social behavior of ants
- effect of light on reproduction of paramecia
- effects of fertilizer on earthworms
- effects of temperature on the activity of mealworms
- what color light attracts more insects?
Useful Websites

**Direct links to these & more on ComeLearnMore.com**
http://comelearnmore.edublogs.org/websites-by-topic/science-fair-resources/

Chicago Public Schools Student Science Fair, Inc.
http://cpsscifair.org/

The Internet public Library
www.ipl.org/

Discovery School: Science Fair Central
http://school.discovery.com/sciencefaircentral/

Successful Science Fair Projects
http://faculty.washington.edu/chudler/fair.html

Easy Science Fair Projects
www.easysciencefairprojects.com

Surfing the Net with Kids: Science Fair Projects
http://www.surfnetkids.com/resources/sciencefair/

Cyber-Fair: The Virtual Science Fair
www.isd77.k12.mn.us.resources.cf/

Virtual Library Science Fairs
http://physics.usc.edu/~gould/ScienceFairs/

Awesome Library
http://www.awesomelibrary.org/science.html

Ideas by Subject
http://www.homeworkspot.com/sciencefair/

Science Fair Ideas
http://eastern.scifairs.k12.nf.ca/

***TO CITE SOURCES USING APA:**
http://www.citationmachine.net/apa/cite-a-website/manual
1. **Problem**—Must be written in the form of a **question**, should not have a “yes” or “no” answer. Begin with a word like *how, which, or what*. This needs to be a question you have the time and materials to investigate.

   **EXAMPLE:** What causes bread to become moldy more quickly when it is left out on a counter than when it is left in the refrigerator?

   **My problem statement:**

   ____________________________________________________________
   ____________________________________________________________

2. **Hypothesis**—A hypothesis is a **tentative explanation** for the observation or scientific problem you plan to investigate. The independent variable comes after the “if” in your hypothesis, and the dependent variable comes after the “then.”

   **EXAMPLE**—If bread is kept above room temperature, then it will become moldy more quickly, because warm temperatures promote the growth of mold.

   **My hypothesis statement:**

   If_________________________________________________________
   then_________________________________________________________
   because_____________________________________________________

3. **Variables**—The **independent variable** is the one being tested, it is the variable being changed or manipulated. The **dependent variable** is your results, for which data is collected during the experiment. **Control variables** are variables that are kept the same to ensure a fair test.

   **EXAMPLE:**
   Independent Variable: temperature during mold growth
   Dependent Variable: rate of mold growth
   Control Variables: bread used, container for bread, amount of light exposure, amount of air exposure and thus the amount of mold spores introduced.

   **My Variables:**

   Independent Variable:__________________________________________
   Dependent Variable ____________________________________________
   Control Variables_____________________________________________
4. **Materials**- Must be a complete list so anyone can replicate your work. Amounts should be in metric where appropriate.

**EXAMPLE:**
- 3 pieces of white bread
- 3 small Celsius thermometers
- 3 airtight, opaque containers
- fine point permanent marker
- metric ruler

**My materials:**

| ______________ | ______________ |
| ______________ | ______________ |
| ______________ | ______________ |
| ______________ | ______________ |
| ______________ | ______________ |
| ______________ | ______________ |
| ______________ | ______________ |

5. **Procedure**- Steps should be short, sequential, and easy to follow. Begin with an action verb. Include a description of your variables and how data will be collected. Include how many trials you will run. Anyone else should be able to replicate your work.

**EXAMPLE:**

1. Draw a grid on each piece of bread using the metric ruler and marker. Make squares 1cm.
2. Clean and dry each container thoroughly.
3. Place one piece of bread in each container.
4. Place the covers on the container securely, but without releasing trapped air.
5. Place one container in the refrigerator, one on the counter, and one in a cabinet next to the stove. Place one thermometer either inside the container if it will fit or on top of the container.
6. **Observe each piece of bread every day at the same time. Count how many grid squares have mold growth.
7. **Record the number of grid squares with mold growth along with the temperature.

**My procedure:**

1. ____________  ____________________________________________________________________________
   (action verb)
2. ____________  ____________________________________________________________________________
   (action verb)
3. ____________  ____________________________________________________________________________
   (action verb)
4. ____________  ____________________________________________________________________________
   (action verb)
5. ____________  ____________________________________________________________________________
   (action verb)
6. ____________  ____________________________________________________________________________
   (action verb)
6. **Results/Data** - Describe how you will measure the dependent variable. Include any charts, descriptions, data tables, journal entries, or graphs on separate paper.

**EXAMPLE:**

Number of grid squares showing mold growth for each 24 hour period.

<table>
<thead>
<tr>
<th></th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Refrigerator</strong> 8.9°</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td><strong>Counter</strong> 22.8°</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>8</td>
<td>12</td>
<td>18</td>
</tr>
<tr>
<td><strong>Cabinet next to oven</strong> 26.7°</td>
<td>0</td>
<td>2</td>
<td>4</td>
<td>7</td>
<td>13</td>
<td>19</td>
<td>25</td>
</tr>
</tbody>
</table>
7. **Conclusion**- For a thorough conclusion include all the following information:

- Begin by describing what you found out in your investigation. These would be your observations. What patterns were revealed in your data?
- Then try making inferences. This is when you express what you think the experiment shows and what the results mean.
- Next make a conclusion. This takes your inferences one step further by stating whether or not the original hypothesis was supported by the data. Be sure to include examples of data that support your conclusion.
- Next identify any limitations or errors present in your experiment. Do you think anything other than the independent variable may have affected your experimental results? Consider any limitations of your control variables, procedures, or results.
- Finally, write out any questions that could lead to additional experiments that you could conduct.
**Project Proposal**  (*FINAL FORM, fill in after rough draft has been approved*)

Name__________________________________________________ Homeroom________

1. **Problem:**

2. **Hypothesis:** If ________________________________________________
   then ____________________________
   because ____________________________

3. **References I may use** (at least 5)
   1. __________________________________________ 2. ___________________________________
   3. __________________________________________ 4. ___________________________________
   5. __________________________________________ 6. ___________________________________

4. **Materials:** ________________________________________________
   ________________________________________________
   ________________________________________________

5. **Procedure**
   1. __________________________________________
   2. __________________________________________
   3. __________________________________________
   4. __________________________________________
   5. __________________________________________
   6. __________________________________________
   7. __________________________________________
   8. __________________________________________
   9. __________________________________________
   10. __________________________________________

6. **Results** (How I will record my results (graphs, photographs, tables, charts….)

   ________________________________________________
   ________________________________________________

7. **What help do you think you will require?**

Teacher Approval __________________________ Date____________________
Research / Literature Review Form
(Use this form to review EACH article of literature for your literature review, at least 5 sources)

Name__________________________________________________________ Period___________
Problem_________________________________________________________________________
Resource Title____________________________________________________________________
Author/Editor_____________________________________________________________________
Publisher/Website_________________________________________________________________
Publisher location___________________________________ Year of Publication_______________
Research Question Answered________________________________________________________
Information Collected_______________________________________________________________
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Use the back of this sheet for additional information and/or diagrams, charts and drawings
The Science Fair Display Board

- CPS guidelines state size must not be more than 76cm deep, 122cm wide, and 122cm high.
- You must construct the display yourself (not parents or teacher, but they may give guidance).
- The title cannot contain more than 45 characters and spaces.
- No tripods or easels are allowed in the display or set up nearby.
- You must provide everything you need for your exhibit.
- Exhibits will be viewed by the public, so secure items and protect them as needed. You should remove any valuable equipment when you are away from the display.
- Dress appropriately and professionally. Be prepared to explain and “sell” to the judges.
- Expect direct, pertinent questions from the judges.