Sumner School District STEM Fair
Saturday, February 24, 2018
Sumner Middle School

Registration: 10:30 AM
K-5 Judging: 11:30 AM – 1:30 PM
K-5 Awards: 2:30 PM

(Students must register one half-hour before judging begins for their grade level.)

To ask questions or to volunteer, please e-mail:
patti_omalley@sumnersd.org
or jeremy_martin@sumnersd.org

A better world through STEM!

Updated 9/22/2017
Dear 2018 STEM Fair Participants and Families:

As you have probably been hearing, science as a subject has been enjoying a vigorous renovation with Next Generation Science Standards and alignment between the overlapping fields of Science, Technology, Engineering and Math. We are very proud in the Sumner School District to be hosting a true STEM Fair in which students can choose to enter either a science project or an engineering project. One project per student, please! Each school will be able to send to the District STEM Fair a maximum of five entries PER GRADE LEVEL which will include first, second and third place entries as well as two honorable mention entries per grade level. Please note: Application forms must be signed by the principal in order for a project to be eligible for the District STEM Fair.

Please note the date and venue of the 2018 STEM Fair:

Saturday, February 24, 2018
Sumner Middle School
1508 Willow Street
Sumner, WA 98390

We know your projects will be creative, skillful, scientifically accurate and thoughtful. Thank you, in advance, for your participation in this year’s STEM Fair.

Sincerely,

Patti O’Malley
Instructional Services Department
If you are interested in competing in the Sumner School District STEM Fair, please complete this form and return it to your classroom teacher. Due dates are determined by individual schools. **The principal’s signature is required to attend the district STEM Fair.**

**District Science Project Application K-5**

Name: ___________________________________________ Grade Level: ___________

Project Title: __________________________________________________________________________

School: _______________________________ Classroom Teacher: ____________________

Please write your Problem Statement in the form of a question.

(Child’s Name) ___________________________________________ has reviewed the information in this packet and would like to participate in the Sumner School District STEM Fair. We are aware a science project is a big commitment that takes time to plan and conduct. We understand the STEM Fair is a public event and a signed waiver is necessary to participate. We understand the rules and are willing to assist our child as needed. We are also aware that the K-5 competition will be held on Saturday, February 24, 2018, at Sumner Middle School. We understand transportation to and from the fair is the parent/guardian’s obligation. **I give my consent to have my child photographed and/or recorded for video and/or audio reproduction to be used in television, Internet and print programs and promotions, associated with the Sumner School District. This authorization releases Sumner School District of all or any liabilities that may result from participation.**

**We understand any revocation of this consent should be given in writing.**

_________________________________________ Date

Parent / Guardian Signature

_________________________________________ Date

Classroom Teacher Signature

_________________________________________ Date

Principal Signature (Required)
How to Select a Science Project Topic

Sometimes one of the hardest things about a science project is selecting a topic! Here are a few things to keep in mind when selecting a topic:

- Choose something you are interested in
- Ask your family for ideas
- Think of something you already know a little about
- Think about types of materials you already have at your home
- Think about questions you have about the world around you. What are you wondering about?

If a topic still hasn’t come to mind, check out some of the Web sites listed below. Students are allowed to choose any topic they would like as long as it follows these rules:

- All projects must follow the scientific method and test a hypothesis. No displays or demonstration projects, for example, no volcano demonstrations.
- Students may work by themselves, or with one other student from the same grade level.
- A student’s project should reflect his/her age and ability level.
- All experiments must be supervised by an adult.
- Glass, flames, live animals, and hazardous chemicals will not be allowed as part of a student’s display.

Once a topic has been selected, you may begin working on the project.

Where to Find a Topic

Science Buddies
www.sciencebuddies.org/

The NEED Organization
www.need.org/Science-Fair-Projects

The University of New Mexico STEM Education Outreach
http://stemed.unm.edu/RC_Student_Ideas.aspx

Education.Com
www.education.com/science-fair/engineering/

School Discovery
http://school.discoveryeducation.com/sciencefaircentral/Getting-Started/idea-finder.html

About.com Chemistry
http://chemistry.about.com/

All Science Fair Projects
www.all-science-fair-projects.com

The Ultimate Science Fair Resource
http://scifair.org/
Books with Science Project Topics

Below is a list of books that can help with selection of a topic and frame a project. Some books are subject specific and others are more grade specific. All elementary school libraries in the Sumner School District have at least one science project book. If the library copy is missing, please contact the STEM Fair coordinators listed on the front cover. All of these books can be found at local bookstores, and most can be found at public libraries.

700 Science Experiments for Everyone, Doubleday, 1958,*
ISBN 0-385-05275-8

Great Science Fair Projects, Scientific America, Marc Rosner, 2000,

Science Fair Projects for Dummies, Maxine Levaren, Wiley Publishers, 2003,
ISBN 0-7645-5460-3

Sure to Win Science Fair Projects, Joe Rhatigan, Lark Books Publisher, 2002,
ISBN 1-57990-238-3

Hands-On Science, King Fisher Publisher, 2001,
ISBN 0-7534-5440-8

The Science of Life, Projects and Principles for Beginning Biologist,
Frank G. Bottone Jr., 2001, Chicago Review Press,
ISBN 1-55652-382-3

The Complete handbook of Science Fair Projects, Revised edition,
Julianne Blair Bochinski, 1996, Wiley and Sons Publishers,
ISBN 0-471-12378-1

Electron Herding 101, 50 Hands-on Science Experiments That Explore Electricity,
B.K. Hixson, 2002, Loose in the Lab, Inc. Publisher
ISBN 0966096509

Science in Seconds for Kids, Over 100 Science Experiments You Can Do In Ten Minutes,
Jean Potter, Wiley and Sons publisher, 1995,

Mad Professor – Concoct Extremely Weird Science Projects,
Mark Frauenfelder, Chronicle Books, 2002,

Strategies for Winning Science Fair Projects, Joyce Henderson and
Heather Tomasello, Wiley and Sons, 2002,

* This is a 1950s golden oldie. We like how it demonstrates building science equipment using regular household items.
How to Make a K-2 Science Project

All projects must follow each step of the grade level appropriate scientific method. See “What goes in each section of the science project, K-2 Section,” for the step-by-step description of the scientific method for grades K-2 and what students need to do for each part. All projects need to be displayed on a presentation board (suggested size 48”x 36”). Student’s name, teacher’s name, date and school name must be located ON THE BACK of the board. Presentation boards can be purchased at office supply or craft stores. Large pieces of cardboard also work well. Each K-2 student’s presentation board should have five sections and follow this format:

<table>
<thead>
<tr>
<th>Title of Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section #1</td>
</tr>
<tr>
<td>Question</td>
</tr>
<tr>
<td>Section #3</td>
</tr>
<tr>
<td>Procedures/Materials/ Safety Concerns</td>
</tr>
</tbody>
</table>

(Side #1) (Middle Section) (Side #2)

- We encourage all K-2 projects be handwritten.
- The project must have a title, and each section must be labeled as shown above.
- The spacing demonstrated here is only a suggestion. The size of each section may vary; however, their order and location must be as shown above.
- Student’s name, teacher’s name, date and school name must be located in permanent ink ON THE BACK of the board.
- Pictures of the student(s) conducting the investigation are encouraged for section #4 Data/Pictures.
- For safety purposes, no items or parts of your experiment are allowed in front of your board on the day of the fair. All items must be attached to the board.
- Do not use product brand names when comparing products; use brand “x” and “y”.
What goes in each section of the K-2 science project?

The Five Sections of the K-2 Science Board

Section 1: Question – Ask a question

Section 2: Prediction – Make a prediction

Section 3: Procedures/Materials/Safety concerns – Write the steps of the experiment that tests the prediction. Include a list of materials as well as a list of safety concerns.

Section 4: Data/Pictures – Observe and take notes. Collect data using measurements. In a science journal, include notes and data, drawings of the experiment, data tools, graphs and pictures.

Section 5: Conclusion – Decide if the prediction is true or false and explain why. What was learned from the experiment?

Helpful Reminders:

- Students are encouraged to use their own handwriting.
- All data tools and graphs should be drawn by the students. No Excel charts or graphs should be used.
- Word processing is OK if done by the student.
- Common words should be spelled correctly; challenging words spelled phonetically are acceptable.
- Student’s name, teacher’s name, date, and school name must be written in permanent ink on the back of the board.

Individual students are scored in three categories:

1. The scientific process/presentation board: Is the project grade level appropriate? Does the project contain a testable original idea or is the project copied off the internet? Does the project promote analytical thinking? Does it demonstrate scientific thinking? Is the student’s growth and learning evident? Does the presentation board contain all sections?

2. The oral presentation: Can students communicate their findings? Can students answer questions pertaining to their project? (See page 13)

3. The journal: Is it a handwritten journal that includes all parts of the ‘Meets Standards’ section on page 15? Includes all of the student’s original data? A completed journal must be submitted with your science project in order to be considered for an award. (See page 13)
How to Make a 3–5 Science Project

All projects must follow each step of the grade level appropriate scientific method. See “What goes in each section of the science project, 3-5 Section” for the step-by-step description of the scientific method for grades 3-5 and what students need to do for each part. All projects need to be displayed on a presentation board (suggested size 48”x36”). Student’s name, teacher’s name, date and school name must be located ON THE BACK of the board. Presentation boards can be purchased at office supply or craft stores. Large pieces of cardboard also work well. Each 3-5 student’s presentation board should have six sections and follow this format:

<table>
<thead>
<tr>
<th>Title of Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Section #1</td>
</tr>
<tr>
<td>Question/Problem</td>
</tr>
<tr>
<td>Section #2</td>
</tr>
<tr>
<td>Prediction/Hypothesis</td>
</tr>
<tr>
<td>Section #3</td>
</tr>
<tr>
<td>Variables</td>
</tr>
<tr>
<td>Section #4</td>
</tr>
<tr>
<td>Procedures/Materials/Safety Concerns</td>
</tr>
<tr>
<td>Section #5</td>
</tr>
<tr>
<td>Data/Pictures/Analysis</td>
</tr>
<tr>
<td>Section #6</td>
</tr>
<tr>
<td>Conclusion</td>
</tr>
</tbody>
</table>

- The project must have a title, and each section must be labeled as shown above.
- The spacing demonstrated here is only a suggestion. The size of each section may vary; however, their order and location must be as shown above.
- Student’s name, teacher’s name, date and school name must be located in permanent ink ON THE BACK of the board.
- For safety purposes, no items or parts of your experiment are allowed in front of your board on the day of the fair. All items must be attached to the board.
- Pictures of student conducting the investigation are encouraged for section #5 Data/Pictures/Analysis.
- Do not use product brand names when comparing products; use brand “x” and “y”.

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What goes in each section of the 3-5 science project?

The Six Sections of the 3-5 Science Board

Section 1: Question/Problem Statement – A question that asks what the scientist wants to find out.

Section 2: Prediction/Hypothesis – What do you think will happen? Use an “If . . . (manipulated variable), then . . . (responding variable)” type statement or some type of cause and effect statement (grades 3-4). At fifth grade the statement should be an “If . . . then . . . because . . .” statement.

Section 3: Variables – What is measured and how often? Include the variables below.
   1 variable changed (manipulated)
   1 variable measured (responding)
   1 or more variable kept the same (controlled)

Section 4: Procedures/Materials/Safety Concerns – Includes a list of materials that will be used. Do not use name brands. Use multiple trials (usually a minimum of five). Make a list of the steps that are going to be used to complete the science project. Are there any safety concerns with this project?

Section 5: Data/Pictures/Analysis – Record what happened to the measured variable in the science journal. Make data tools and graphs to help summarize the data.

Section 6: Conclusion – Explain the reasons why the hypothesis or prediction was accepted or rejected. Explain why the experiment would be useful. Predict what might happen if the investigation lasted longer.

Science Project Helpful Reminders:

- Use a science notebook or journal to collect data. A completed journal must be submitted with your science project in order to be considered for an award. See Journal on page 13.
- Complete all six sections above and title each section. Include a title for the project.
- The entire project can be handwritten. Good science does not require a computer. We encourage all graphs and charts to be drawn by the students. If students in the fourth or fifth grade choose to use a computer, they must do their own computer processing.
- Student’s name, teacher name, date and school name must be written in permanent ink on the back of the board.
- See oral presentation page 13.

Individual students are scored in three categories:

1. The scientific process/presentation board: Is the project grade level appropriate? Does the project contain a testable original idea or is the project copied off the internet? Does the project promote analytical thinking? Does it demonstrate scientific thinking? Is the student’s growth and learning evident? Does it contain all the grade level appropriate sections? Is the handwritten material neat and legible? Is there a title?
2. The oral presentation: Can students communicate their findings? Can students answer questions pertaining to their project? See page 13.
3. The journal: A handwritten journal that includes all of the student’s original data. A completed journal must be submitted with your science project in order to be considered for an award. See page 13.
Expectations

Process Display Board

Section One: Question/Problem Statement

What is the Question/Problem Statement?
The Question/Problem Statement is the question you are trying to answer with the project, the reason for doing the experiment.

For example: “Which type of bread will grow mold the fastest?”

What must be included in this section?
This section only needs to be one sentence long, but must be in the form of a question.

Tips:
Make sure the Question/Problem Statement is only testing one thing. For example, an experiment should not test which type of bread will grow mold the fastest and which type will grow mold the slowest. That would be doing two experiments in one and could confuse the results.

For example, if someone is testing different types of bread and the hypothesis says that sourdough bread will grow mold the fastest and wheat bread will grow mold the slowest, it will be a problem if one part comes true and the other doesn’t. When it’s time for the last section of the scientific method, they will not know whether to accept or reject the hypothesis.

Remember to title this section “Question/Problem Statement.”

Section Two: Prediction/Hypothesis

What is the Prediction/Hypothesis?
Prediction/Hypothesis is an educated guess of what you think will happen when you do your experiment, and should be written as a cause and effect statement. Labeled variables can be included in your prediction. You need to include reasons for your thinking. You can include your labeled variables in your prediction.

For example: “If a plant gets more light (manipulated variable), then it will grow taller (responding variable) because plants need light to grow. A fifth grade statement should be an “If . . . then . . . because . . . ” statement.

What must be included in this section?
The Prediction/Hypothesis must be a cause and effect statement. It only needs to be one sentence long, but can be two sentences. The first is “If . . . (manipulated variable), then . . . (responding variable)” and the second sentence is why you think what you do.

Tips:
Make sure the hypothesis only predicts one outcome. Then, you will clearly know whether the hypothesis is right or not.

Remember to title this section “Prediction/Hypothesis.”
Section Three: Variables (grades 3-5 only)

What are Variables?
Variables are changed or changing factors used to test a hypothesis or prediction and may affect the results of an experiment. Variables must be listed in your experiment.

What must be included in this section?
This section must have three types of variables listed:
1. The Manipulated Variable. This is what is changing during the experiment. When testing the effect of music on plant growth, a manipulated variable could be the type of music played to each plant.
2. The Responding Variable. This is what is being measured. It is the response to the manipulated variable. In the plant experiment, the responding variable would be the amount of growth for each plant.
3. The Controlled Variables. This is what will be kept the same. For example, if someone is testing the effect of music on plant growth, the controlled variables would be the amount of sunlight, water, and temperature of the plants. All of these things will be kept the same so the only difference between the variables is the type of music played to each plant.

Tips:
This section should look something like this:
Manipulated Variable = type of music played to plants
Responding Variable = amount that each plant has grown
Controlled Variables = sunlight, water, temperature, location of plants, length of time exposed to music

Remember to title this section “Variables.”

Section Four: Procedures/Materials/Safety Concerns

What are the Procedures/Materials/Safety Concerns?
The fourth section of the scientific method is the Procedures/Materials/Safety Concerns. List all of the materials needed. Outline the steps to prove the hypothesis.

What must be included in this section?
This section must include three parts:
1. A step-by-step procedure that will be followed to conduct the experiment.
2. A list of all materials needed to conduct the experiment.
3. A list of all safety concerns surrounding this experiment. The list should also be recorded in the journal.

Tips:
Make sure the step-by-step procedure is detailed enough so anyone could gather the materials from the list, follow the procedure, and get the same results. Also, there are always safety concerns when conducting experiments. Make sure to include these in your science journal!

Remember to title this section “Procedures/Materials/Safety Concerns.”

Now that sections 1-4 are completed, it is time to do your experiment. Make sure to have your family’s permission before conducting any type of science experiment!
Section Five: Data/Pictures/Analysis

What is the Data?
The fifth section of the scientific method is Data/Pictures/Analysis. The data is the record of what actually happened during the experiment. Data are the results of the experiment and is recorded on a data table.

What must be included in this section?
This section must include four parts:
1. A data table that organizes the data.
2. A graph that visually displays the data.
3. Pictures or drawings of the experiment as it happened.
4. A few paragraphs that explain what happened during the experiment.

Tips:
Make sure the graph is colorful and can easily be understood. It should paint a clear visual picture of exactly what happened. Also make sure all paragraphs have been proofread and do not contain any spelling or grammar errors.

Remember to title this section “Data/Pictures/Analysis.”

Section Six: Conclusion

What is the Conclusion?
This is the last section of the scientific method. The Conclusion is where you decide to accept or reject your hypothesis, and explain what you have learned.

What must be included in this section?
This section must include two parts:
1. A complete sentence claiming whether you accept or reject your hypothesis and why.
2. A few paragraphs to explain what you have learned, how other people can learn from your experiment, and how others can put your results to work in real situations.

Tips:
To decide whether to accept or reject the hypothesis, you will need to compare it to the Data section. If what you thought was going to happen really did happen, you should write: “I accept my hypothesis,” however, if what you thought would happen did not actually happen, you should write: “I reject my hypothesis.” Include why you accepted or rejected your hypothesis. Use your data to support your findings.

Many more scientists end up rejecting their hypothesis than accepting it; so don’t feel badly if you end up rejecting a hypothesis. Whether you accept or reject your hypothesis will have absolutely no effect on the judging.

Remember to title this section “Conclusion.”
Definition of Resources

Grades K – 2 One or two resources are listed. Resources can be books, magazines, encyclopedias, personal interviews and Web sites. (Wikipedia is not a reliable science source and should not be used). Students in K-2 should include author and title. Please include resources in the journal but not on the display board.

Grades 3 – 5 Three or more resources listed. The project reflects use of a variety of resource books, interviews, magazines and Web sites. (Wikipedia is not a reliable source and should not be used). A list of handwritten resources is present and includes author, title, publisher and date for grades 3-4 and for 5th grade use of the MLA format. Include resources in your journal – not on the display board.

MLA (Modern Language Association) format example: Last name, First name. Title (Underlined). Place of Publication. State: Publisher and copyright date.

Oral Presentation

In the oral presentation portion of your science project the judges are looking at how well a student communicates clearly and effectively using appropriate speed, volume and expression. The judges have about 5 minutes to talk with each student. Therefore, it is important to practice your oral presentation to ensure you are prepared and can cover the needed information in the allotted time. Students should not cover the entire scientific process, but rather summarize what you have learned. Students should focus on communicating their question, prediction, conclusion and what they have learned. Students in grades 3-5 also need to include their variables. Remember to make eye contact with the judges and speak directly to them. Students should be prepared to answer science-based questions related to their project.

Journal

In the journal review process, the judges only have about two minutes to review your journal. They will be looking for dates as well as original work and research. Your journal should include all parts of the 'Meets Standard' section on pages 15 - 16. If you type sections of your journal, you may paste them into your journal book. Please record background research you do prior to beginning your project. Good sources for information may include the Internet, library, and special person or mentor. If you search the Internet, note which sites are helpful and which aren’t and explain why. If you visit the library to look at books containing science projects etc., indicate what books you look at and what led you to choose those books. Please include other sources you may use such as science journals and magazines. All of your sources should be recorded in the grade level format mentioned under Definition of Resources. A completed journal must be submitted with your science project in order to be considered for an award.
What criteria will be used to judge the projects?

The judging panel, using the attached appropriate grade level “Science Project Scoring Rubric,” will review all projects. A minimum score of a 3 in each section means the student has met the minimum standards and could be considered for a prize. The judging panel will revisit all projects that meet these criteria and make their award decisions based on the following:

- The Scientific Process/Presentation Board:
  - √ Does the project promote analytical thinking (grade level appropriate) as the minimum standard?
  - √ Is the project centered around a testable original idea?
  - √ Does it demonstrate scientific creativity?
  - √ Is the student’s growth and learning evident?
  - √ Does the presentation board contain all sections?
  - √ Is the board neat and legible?

- The Oral Process:
  - √ Can the student verbally explain all aspects of their project?
  - √ Is the student’s growth and learning evident?
  - √ Can the student answer questions pertaining to their project?

- The Journal:
  - √ Handwritten – We encourage all K-2 work to be handwritten and dated.
  - √ Does it include all the students’ original thoughts, ideas, and data?
  - √ A completed journal must be submitted with your science project in order to be considered for an award.

Certain aspects of science project judging can be subjective. In an attempt to remove conflicts of interest, parents and teachers will not be allowed to function as judges for any category in which their child or one of their students is competing.

Awards!

STEM ribbons will be awarded by grade level. There will be first, second, and third place ribbons awarded for each grade level. There also will be several honorable mention ribbons awarded at each grade level. All students chosen to enter a science or engineering project into the district STEM Fair are eligible to represent Sumner School District at the INTEL South Sound Regional Science Fair, Saturday, March 24, 2018, at Pacific Lutheran University.

Parental assistance defined.

All projects must be the work of the student; however, parents may assist students with certain aspects of the project. Parental assistance may include the following:

- Parents may help establish the idea of the project.
- Parents may help gather materials.
- Parents may help by answering questions and guiding students through the scientific method.
- Parents may assist with computer-generated work for students in grades K-3 only. We encourage all K-2 work to be handwritten. All graphs, charts, and word-processing must be student generated for projects in grades 4-5.

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## Project Title: _______________________________

<table>
<thead>
<tr>
<th>Process &amp; Display Board</th>
<th>Science Project (K-2) Scoring Rubric</th>
</tr>
</thead>
</table>
|                         | - Applies the skills and processes of scientific inquiry  
|                         | - Uses scientific concepts and principles to understand systems  
|                         | - Writes clearly and effectively  
|                         | - Writes in a variety of forms for different audiences and purposes |
|                         | 4  
|                         | Exceeds Standards  
|                         | Exceeded standards by expanding, extending or showing creativity and originality. |
|                         | 3  
|                         | Meets Standards  
|                         | Includes the following components:  
|                         | - Question/Problem investigated.  
|                         | - Prediction formed.  
|                         | - Procedures and materials included.  
|                         | - Tests the prediction using measurement.  
|                         | - Observations and measurements are recorded with notes.  
|                         | - Decides if the prediction is true or false and explains why.  
|                         | - What did you learn from the experiment?  
|                         | - Display board is sturdy and neat, with an attractive and colorful layout. It has a title, and has a clearly stated conclusion.  
|                         | - Common words spelled correctly, challenging words spelled phonetically.  
|                         | 2  
|                         | Does not meet standard  
|                         | One or two components are missing or incomplete.  
|                         | 1  
|                         | Does not meet standard  
|                         | Three or more components are missing.  

<table>
<thead>
<tr>
<th>Oral Presentation</th>
<th>- Communicates clearly and effectively</th>
</tr>
</thead>
</table>
| 4  
| Exceeds Standards  
| Exceeded standards by expanding, extending or showing creativity and originality. |
| 3  
| Meets Standards  
| - Uses appropriate speed, volume, and expression.  
| - Maintains eye contact.  
| - Thoroughly explains the process, results, and significance of the project.  
| - Answers questions pertaining to their project.  
| 2  
| Does not meet standard  
| One component is not fully demonstrated.  
| 1  
| Does not meet standard  
| Two or more components are not fully demonstrated.  

| Journal | - Writes clearly and effectively  
<table>
<thead>
<tr>
<th></th>
<th>- Writes in a variety of forms for different audiences/purpose</th>
</tr>
</thead>
</table>
| 4  
| Exceeds Standards  
| Exceeded standards by expanding, extending or showing creativity and originality. |
| 3  
| Meets Standards  
| Scientific notebook or journal includes:  
| - Resources  
| - Dates  
| - Prediction  
| - Explanation of prediction  
| - Procedures, and materials  
| - Complete records of tests.  
| - Project is explained clearly with common words spelled correctly and challenging words spelled phonetically.  
| 2  
| Does not meet standard  
| One component is not fully explained, and/or some explanations are unclear.  
| 1  
| Does not meet standard  
| Two or more components are missing and/or explanations are unclear.  

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### Project Title: _______________________________

#### Process/Display Board

**4**

**Exceeds Standards**

Exceeded standards by expanding, extending or showing creativity and originality.

- Applies the skills and processes of scientific inquiry
- Uses scientific concepts and principles to understand systems
- Writes clearly and effectively
- Writes in a variety of forms for different audiences and purposes

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
</table>
| 4     | Meets Standards  
Includes the following components:  
- Question/Problem investigated.  
- Prediction or hypothesis formed.  
- Tested the prediction using measurement.  
- A list of materials, observations and measurements are recorded.  
- Variables are clearly stated with multiple trials.  
- Data was accurately collected and analyzed using graphs and/or charts.  
- Multiple trials were run.  
- A conclusion was drawn, and your hypothesis was clearly accepted or rejected and why.  
- Display board is sturdy and neat, with an attractive and colorful layout. It has a title.  
- Spelling and grammar are accurate.  
- All safety issues are addressed. |
| 3     | Meets Standards  
Includes the following components:  
- Question/Problem investigated.  
- Prediction or hypothesis formed.  
- Tested the prediction using measurement.  
- A list of materials, observations and measurements are recorded.  
- Variables are clearly stated with multiple trials.  
- Data was accurately collected and analyzed using graphs and/or charts.  
- Multiple trials were run.  
- A conclusion was drawn, and your hypothesis was clearly accepted or rejected and why.  
- Display board is sturdy and neat, with an attractive and colorful layout. It has a title.  
- Spelling and grammar are accurate.  
- All safety issues are addressed. |
| 2     | Does not meet standard  
One or two components are missing or incomplete and/or data was not analyzed or the conclusion is incorrect. |
| 1     | Does not meet standard  
Three or more components are missing and/or the conclusion is not proven by the investigation. |

#### Oral Presentation

- Communicates clearly and effectively

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
</table>
| 4     | Meets Standards  
Exceeded standards by expanding, extending or showing creativity and originality. |
| 3     | Meets Standards  
- Uses appropriate speed, volume, and expression and maintains eye contact.  
- Thoroughly explains their question, prediction, variables, conclusion, what they learned and the significance of their project.  
- Answers questions pertaining to their project.  
- Has an understanding of basic science relevant to project and understands the interpretation and limitations of the results and conclusion. |
| 2     | Does not meet standard  
One component is not fully demonstrated. |
| 1     | Does not meet standard  
Two or more components are not fully demonstrated. |

#### Journal

- Writes clearly and effectively  
- Writes in a variety of forms for different audiences/purpose

<table>
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<th>Score</th>
<th>Description</th>
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| 4     | Meets Standards  
Exceeded standards by expanding, extending or showing creativity and originality. |
| 3     | Meets Standards  
Scientific notebook or journal includes:  
- Resources.  
- Background research and information.  
- Explains the hypothesis, procedures, and materials used.  
- Complete notes and record of all tests and data  
- Project is explained clearly, using proper spelling and grammar.  
- Includes safety concerns. |
| 2     | Does not meet standard  
One component is not fully explained, and/or some explanations are unclear. Numerous errors in spelling, grammar, and punctuation. |
| 1     | Does not meet standard  
Two or more components are missing and/or explanations are unclear. Errors in spelling, grammar, and punctuation make reading difficult. |