
SCIENTIFIC INQUIRY PROJECT GUIDELINES

**Thursday, February 28th 2019
6PM-8PM**

This Science EXPO guide gives you all of the information you need to Exhibit in the 2019 Clark Science EXPO under the category: SCIENTIFIC INQUIRY

This may be the first time that you have been given the opportunity to participate in a Science EXPO. Things you should know:

- Every child at Clark is encouraged to participate.
- Students will deliver their completed exhibits to school on February 28th
- Exhibits will be on display at the Science EXPO on 2/28 between 6pm & 8PM.
- While students may choose to actively participate in their exhibit, they will not be required to do so. We want everyone, including student exhibitors to enjoy all of the exhibits on display at the EXPO.
- Students will be able to take their exhibits home immediately following the event.

Science is all about asking questions!

What are your interests?

Animals (zoology), people (human behavior), sports (physics), food (chemistry), Mars (astronomy) are just some of the topics you can explore. There's science in just about everything we do!

If you can't think of a topic immediately, think about your interests. Search <http://www.sciencekids.co.nz/projects.html> for ideas. Choose a project that you are passionate about! Learning about science should be fun!

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SCIENCE FAIR QUESTIONS AND ANSWERS

WHY ENTER THE SCIENCE EXPO?

It's fun to discover! It is your chance to learn about something you are interested in and share what you've learned with others. We hope to see you there.

CAN I DO A PROJECT WITH A PARTNER?

Yes!

HOW DO I PICK MY TOPIC? What interests you? Talk to your family, your teacher, or the librarian. There are lots of great topics; you just have to find one!

HOW DO I KNOW MY TOPIC IS OK?

Almost any topic is great! Entries under the category of SCIENTIFIC INQUIRY need to include a TESTABLE question, not a demonstration of how something works. If you're not sure, talk to your teacher. Remember that you cannot bring anything to the school that is against school rules. Valuable things could be stolen. Dangerous things should not be on display where other kids could handle them.

CAN I BRING AN ANIMAL TO THE SCIENCE FAIR?

No! The Issaquah School District now has a policy that states no animals are allowed at school. So, if your project involves an animal, please take pictures and mount those on your display.

WHAT'S SCIENTIFIC INQUIRY AND DO I HAVE TO USE IT?

Think of Scientific Inquiry as your helper. It can help you start and complete your project. It's a guide to help you solve mysteries or to answer questions. All exhibits entered under the category: SCIENTIFIC INQUIRY must include all of the components of the scientific inquiry process.

SCIENTIFIC INQUIRY

(How Do Scientists Find Out Things?)

Scientific Inquiry is the way to make sure you explore your question thoroughly.

The cool thing about science is that when you ask a question, that question can take you to really interesting places. You could discover something new!

The Scientific Inquiry process includes the following steps:

Question <ul style="list-style-type: none">● Complete sentence with question mark, that is testable
Hypothesis <ul style="list-style-type: none">● Complete sentence begins with “I think/predict”● Includes all question words (nothing more!)
Materials <ul style="list-style-type: none">● Numbered, detailed list● All tools needed and specific measurements are included
Diagram <ul style="list-style-type: none">● Complete diagram of the <u>set up</u>● Amount, times, numbers of... included● Manipulated and controlled variables are labeled
Variables <ul style="list-style-type: none">● At least three controlled variables● One manipulated variable (x value) – what you changed● One responding variable (y value) – what results changes or what you measured
Procedure <ul style="list-style-type: none">● Numbered list of steps in order● Steps or trials are repeated● Data to <u>measure</u> and <u>record</u> is included along with <u>how often</u>● Data is compared
Data/Results <ul style="list-style-type: none">● What happened in each trial is recorded through a data table, pictures, and/or words

SAMPLE INVESTIGATION

Question: Will the plant grow taller in clay soil or in sandy soil?

Hypothesis: I think the plant will grow taller in clay soil than sandy soil.

Materials: (a numbered list)

1. 2 plant pots
2. 4 Wisconsin fast growing
3. plant seeds
4. 2 cups of sandy soil
5. 2 cups of clay soil
6. measuring cup
7. ruler
8. watering can

Diagram:



Procedure: (numbered steps)

1. Place 2 cups of sandy soil into pot.
2. Plant 2 Wisconsin fast growing plant seeds in sandy soil 5 cm deep.
3. Repeat steps 1 through 2 with clay soil.
4. Place pots on sunny window sill.
5. Water plants with 5 tablespoons of water at the same time each day.
6. Measure height of plants each day in cm and record on data sheet.
7. Repeat steps 5 through 6 for 2 weeks.

Responding Variable

(What was the different result because of the change you made?)

Amount of plant growth in height

Data/Results: (this can be a table, graph, pictures, etc. of what you observed or what happened)

Date:	Clay soil plant height in cm	Sandy soil plant height in cm
2/1/07	0	0
2/2/07	0	0
2/3/07	2	1
2/4/07	3	2
2/5/07	3	3
2/6/07	5	5
2/7/07	6	5
2/8/07	7	6
2/9/07	8	6
2/10/07	10	7
2/11/07	12	8
2/12/07	14	8
2/13/07	15	9
2/14/07	17	10

Conclusion: (answer the question. Explain the data- "put the numbers to words!")

My hypothesis was supported. The plant grew taller in the clay soil than in the sandy soil. The plant in the sandy soil only grew 10 cm by the 14th day and the plant in the clay soil grew 17 cm by the 14th day. The clay soil plant grew 7 cm taller than the sandy soil plant.

SCIENTIFIC INQUIRY PROJECT DISPLAY BOARD

Your display board presents your project to other people. This is how you show off your hard work! The board is usually cardboard but can be poster board, wood or an old box. You can purchase them online and they will be delivered to your classroom! If you want to create a new way to display your project, go for it! Just remember to do your best work.

Suggestion for Display Board

<p><u>Question</u> What do I want to know?</p>	<p><u>Project Title</u> My Name My Grade My Teacher</p>	<p><u>Variables</u> What's changing? What's staying the same?</p>
<p><u>Prediction</u> What do I think will happen?</p>	<p>Use this middle panel to show what happened in detail:</p>	<p><u>Gather Data and Record Results</u> What happened?</p>
<p><u>Materials</u> What materials did I use?</p>	<p>You can use text (words) to explain your procedure, materials, and observations.</p>	<p><u>Conclusions (Inferences)</u> Why did this happen?</p>
<p><u>Procedure</u> How did I go about answering my question?</p>	<p>You can also use drawings, photos, data tables, and graphs. (This will add color and interest to your display.)</p>	<p><u>New Questions</u> What do I want to know next?</p>
	<p>Add anything that shows what you did and conveys your results</p>	

Use the space in front of your board for your "hands on" display (not everyone will have one). People will probably touch your stuff, so think about what you want to share.

DATES, INTERNET RESOURCES, DISPLAY BOARDS & VOLUNTEERING

Important Dates

February 26 th	Registration Deadline
February 28 th 9:15	Deliver your completed exhibit to school! Bring to PTA office.
February 28 th 6 p.m. – 8 p.m.	Family Engineering Night and viewing of projects (TAKE HOME PROJECTS)

Internet Resources

<http://clarkelementary.oursciencefair.com/SchoolHome.aspx>

<http://www.sciencekids.co.nz/projects.html>

Display Boards

Display boards can be purchased at Michael's or Office Depot

SCIENTIFIC INQUIRY PROJECT - Planning worksheet

Name _____ Date _____

Question:

Hypothesis:

Variables:

<p style="text-align: center;"><u>Controlled</u> What is staying the same?</p>
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<p style="text-align: center;"><u>Manipulated</u> What are you changing?</p>
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<p style="text-align: center;"><u>Responding</u> What are you testing?</p>
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Diagram / Visual Aide:

Materials:

Data/Results:

Conclusion:
