A Standards-Based Science Showcase
Grades 4 & 5
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>3</td>
</tr>
<tr>
<td>Rationale</td>
<td>4</td>
</tr>
<tr>
<td>Timeline</td>
<td>5</td>
</tr>
<tr>
<td>Standards-Based Rubric</td>
<td>6</td>
</tr>
<tr>
<td>Project Guidelines</td>
<td>7</td>
</tr>
<tr>
<td>Controlled Experiment Example</td>
<td>9</td>
</tr>
<tr>
<td>Sample Experiment</td>
<td>14</td>
</tr>
<tr>
<td>Suggested Presentation Board Set-Up</td>
<td>17</td>
</tr>
<tr>
<td>Engineering Project Guidelines</td>
<td>18</td>
</tr>
<tr>
<td>Benchmark-Related Guided Questioning</td>
<td>19</td>
</tr>
<tr>
<td>Student-Friendly Benchmark Questions</td>
<td>21</td>
</tr>
<tr>
<td>Standards</td>
<td>22</td>
</tr>
<tr>
<td>Elementary Science Showcase Details</td>
<td>31</td>
</tr>
<tr>
<td>Student Participation Form</td>
<td>33</td>
</tr>
<tr>
<td>PCSB Field Trip Permission Form</td>
<td>34</td>
</tr>
<tr>
<td>Sample Parent Letter</td>
<td>35</td>
</tr>
<tr>
<td>Sample TDA</td>
<td>36</td>
</tr>
<tr>
<td>Mall Safety Protocol</td>
<td>37</td>
</tr>
<tr>
<td>Mall Map</td>
<td>38</td>
</tr>
</tbody>
</table>
A Standards-Based Science Showcase

An Introduction

In 2012 the Polk County Elementary Science Showcase took on a new feel and a new name. Students learn more about what they are interested in while they deepen their understanding of the practice of science and improve their inquiry skills, including their ability to communicate and share results. Student scientists are showcased in adult-facilitated inquiry circles where students communicate with their peers. The emphasis is on communication, not competition.

Students choose their projects according to their interests. The focus is on the students’ use of inquiry skills to gather empirical evidence to support the answer to their question. Students should be well aware of the rubric by which their projects will be evaluated prior to beginning their work.

Teachers serve as facilitators as students independently carry out their investigations. While it is possible to send these as “at home” assignments, time has been blocked into the science curriculum map that would allow students to complete their work at school under teacher guidance. Regardless of where the project is completed, teachers are encouraged to provide multiple opportunities for students to discuss their progress with one another, ask questions, and offer feedback to one another. A culminating school-wide “Science Showcase” can be held in which students meet in inquiry circles to discuss their projects.

Teachers evaluate each project using the Standards-Based Rubric (page 6). Three students each from 4th grade and 5th grade, with a score of 15 or higher, may be sent to the District Showcase.

Students create a presentation board to display at the District Science Showcase and for use as a springboard for discussion. Adult guidance on the creation of the presentation board is appropriate as the board will be available for public viewing and should be representative of not only the student’s project but of the quality of work our students are capable of producing. The Showcase provides an opportunity for students to communicate with other student scientists.
Rationale for Standards-Based Science Showcase

- Less emphasis on competition
- More emphasis on communication
- More accurately mirrors how science works
- Students compete against standards
- Meet demands of FSA Standards/ Next Generation Science Standards/ Next Generation Sunshine State Standards
- Student-centered projects

Changes

- Projects may be a controlled experiment, engineering project, or other type of scientific question for which empirical data is gathered
- Student projects are selected based on a standards-based rubric
- Students create a presentation board for display purposes and to serve as a springboard for communication with other students
- 4th and 5th grade students are mixed
- Students from the same school are located in the same venue but divided into smaller groups for display and inquiry circles
- No formal judging will take place at the Science Showcase
- Students participate in facilitated inquiry circles in which they discuss their projects, support their findings with evidence, and ask questions of other participants
- Interested adults are welcome to stay and listen
- Student recognitions follow the inquiry circles
- Boards stay on exhibit until 9:00 P.M., when the mall closes
  - Students can come back in the evening and pick up their projects OR
  - All projects must be picked up by 9:00 PM on Thursday, May 17, 2018.
Polk County Elementary Science Showcase
A Standards Based Science Fair
2017-2018

May 7, 2018 –Parent Letter Goes Home

May 10, 2018-Student Participation Form due

3-Fourth Graders and 3-Fifth Graders per school

May 16, 2018-Science Fair I

Lakeland Square Mall
9:00-10:30 Registration and Set-Up
10:30-12:00-Inquiry Circles
12:00-12:30 Recognitions
12:30- Dismissal
9:00 PM Tear Down/Board Pick-Up

May 17, 2018-Science Fair II

Lakeland Square Mall
9:00-10:30 Registration and Set-Up
10:30-12:00-Inquiry Circles
12:00-12:30- Recognitions
12:30- Dismissal
9:00 PM Tear Down/Board Pick-Up

May 17, 2018-Final Board Pick Up

9:00 PM (Remaining boards discarded at 9:00)
## Standards-Based Science Showcase Rubric

**Grades 4-5**

Student Name ____________________________ Teacher __________________________ Grade _____

Instructions to Scorer: For each item circle 0, 1, or 2; do not leave any items unanswered

0=No       1= Some Evidence       2= Yes

<table>
<thead>
<tr>
<th>1. Is a purpose identified?</th>
<th>0</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. Has an expected outcome been identified? (hypothesis, engineering goal)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>3. Is there research to support the expected outcome?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>4. Are the procedures described in sufficient detail to allow easy replication by another person?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>5. Is there evidence that a well-planned investigation was conducted?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>6. Was appropriate empirical data collected?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>7. Are the data displayed in an easy-to-read graph and/or table?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>8. Are the data analyzed to seek an answer to the question, evaluate the hypothesis, or meet the engineering goal? (It is acceptable for the student to determine the results are inconclusive.)</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>9. Is the project presented in a manner that makes the purpose, procedure, and results clear?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>10. Was a log maintained that includes qualitative and/or quantitative observations?</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

**TOTAL POINTS**

Circle the Score Below

- 0-9 Falls far below inquiry standards
- 10-14 Approaches inquiry standards
- 15-19 Meets inquiry standards (Honorable Mention)
- 20 Exceeds inquiry standards (Exemplary Inquiry)

Additional Teacher Comments:
Project Guidelines

Elementary Science Showcase Projects

The District Science Showcase should not be a student’s first exposure to scientific inquiry. The teaching of the Practice of Science (Big Idea 1: The Practice of Science and Big Idea 2: The Characteristics of Scientific Knowledge) is a major part of the Florida State Standards and a key component of a quality science program. The science process skills should be emphasized throughout the year as they are embedded in the areas of Physical Science, Earth and Space Science and Life Science, as well as in the Next Generation Sunshine State Standards (NGSSS).

Students must receive classroom instruction on how to do a science investigation. The “I Do, We Do, You Do” process (gradual release) is a valuable means of providing the support needed to develop these skills. In the early grades, teachers should model through the development of a classroom project. Intermediate grade teachers should continue to model the processes before moving to small group and independent projects with guidance and support. Time is provided in the curriculum maps for grades K-2 to do a class project, grade 3 group projects, and grades 4-5 individual projects. It is important teachers understand that the scientific inquiry is a major part of the NGSSS. The expectation is that teachers will provide classroom instruction and monitor the development of grade-level appropriate investigations within the classroom. Parent involvement should be limited to providing encouragement and support. Keep the fun and enjoyment in Science while teaching students the essential science process skills. Make Science Projects a positive and memorable experience for students!

Selecting a Topic

We are surrounded by Science everywhere! Just look around and you’ll see Science Projects ideas all around you. Kids are natural scientists. They come to us wondering how and why things work.

To find good science project ideas, our students need to:

- **Observe** things happening around them and
- **Wonder** about things around them and “what would happen if...”

The best project ideas don’t always come from books or websites. They come from the student’s natural curiosity. Those questions that arise from watching things around them and wondering “what would happen if I tried this...”

- Start a **Question Wall** in your classroom. Have students add questions to the list as they come up, such as when they are listening to a science-relate read aloud by the teacher. For example, one class did a class project from one of their questions...the students noticed that
when they got their hands stamped in the Media Center, the ink was staining their clothes. They decided to do a project to test different kinds of inkpads for washability, and then they reported their findings to the Librarian.

- Have students start a question list in their Science Notebook. They should add to this list as questions come to them while they are reading about science or observing science around them.
- Have professional people visit your classrooms. Have students add questions to their question list after the visit.
- Have students read books on topics they are interested in and then add questions to their question list.

Not all questions are appropriate for a Science Showcase. Which ones are good for a Science Showcase Project?

1. The classroom teacher is responsible for approving ideas for Science Projects. Before the student begins the process, the teacher should approve the project taking into consideration safety concerns, district guidelines, student ability, complexity of the project, availability and cost of needed resources, and the grade appropriateness of the topic. Initial teacher approval before testing and periodic checks with component due dates will make the process go smoothly for everyone.
2. If a project is disapproved, explain why and help guide the student to a more appropriate project on the same topic, if possible.
3. Note the guidelines for projects that are not permissible in the Elementary Science Showcase due to safety concerns or inappropriateness of the material.

**Prohibited Projects for the Elementary Science Showcase**

- Projects involving a controlled substance, such as cigarettes, alcohol, drugs, etc. are prohibited at the elementary level.
- Projects that involve harming or endangering humans or vertebrates are prohibited at the elementary level.
- Projects involving blood and pathogenic agents, such as bacteria, mold, viruses, fungi, parasites, etc. are prohibited at the elementary level.
- Projects involving weapons (any kind of gun, arrows, knives, darts, paint guns, etc.) or (including rocketry engines) are prohibited at the elementary level. Any objects that could cause bodily harm are prohibited.

4. Questions for the Science Showcase may include those that can be answered through a controlled experiment, through collection of observational data of nature, or by designing a project to meet an engineering goal. Below is an example of one possible design type.
Controlled Experiment Example

Writing your Purpose Question

There are several ways to phrase a question. Be sure to include the variables in the question. Remember: “affect” is a verb and effect is a “noun”. The Outcome Variable must be measureable.

How does ______________ affect the ______________ of a ________________?

Test variable                           Outcome variable         Item you are testing
(This is the one you are changing.)      (This is the one you will measure and record.)

How does light intensity affect the growth height of a plant?

How does the wing shape affect the flying distance of a paper airplane?

What is the effect of ______________ on the ______________ of ________________?

Test variable                           Outcome variable         Item you are testing
(This is the one you are changing.)      (This is the one you will measure and record.)

What is the effect of light intensity on the growth height of a plant?

What is the effect of the wing shape on the flying distance of a paper airplane?

Sometimes it’s hard to fit questions into this format. Here are some other acceptable ways to write questions:

• What happens to the growth of barnacles on wood when different paint additives are used?

• What is the connection between the mass of the bob and the period of the pendulum swing?

• What is the relationship between the speed of the car and the height of the ramp?
Doing the Research

Students need to find out information on their topic before designing the experiment. While books and the internet are great sources, students can also interview a professional in the field or watch a TV program on the topic. Students can also write to companies or organizations for information on their topic. A minimum of three resources are recommended for the bibliography. Doing more research is a great way to improve a project. All findings from the research should be recorded in the Daily Log. Remind students to date all entries in the log. Once the research is done, students will be better able to write a prediction and design the procedures for the project.

Writing the Prediction

After doing the research, students should be able to use the information to help them make a statement about the anticipated outcome of their experiment. The prediction must be written prior to doing the experiment. The results of the experiment do not have to support the hypothesis in order for the experiment to be considered successful. Students need to understand that scientists learn from their experiments even when the results don’t support their predictions.

Designing the Test

Students will need to determine the procedures to follow to test their prediction. The procedures should be recorded in the Daily Log. Encourage students to think about the safety precautions that need to be taken and record those in the Daily Log. Students need to make a list of the materials that will be needed, including safety equipment, and record it in the Daily Log. Make sure to use science tools that measure in metric units.

- Identify the one factor that will be changed during the experiment. This is the Test Variable (also called the Manipulated or Independent variable).

- Identify the factors that will be held constant. These are called Constants.

- Identify how your results will be measured. This is called the Outcome Variable (also called the Responding or Dependent variable).

- Most experiments have a Control Group. This is the group that is treated in the “normal” way so it can be compared to the experimental group.

To help students understand how to design a fair testing plan for their project, have them think about what makes a fair game or contest. From an early age, students have a concept of what’s fair and what’s not fair. Just ask them how to make sure a baseball game is fair for both teams, or how to fairly divide a treat!
<table>
<thead>
<tr>
<th>Running Contest</th>
<th>Science Term</th>
<th>Science Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Who are faster runners, girls or boys?</td>
<td>Question (Scientific Question)</td>
<td>Which type of car will go fastest down the ramp?</td>
</tr>
<tr>
<td>Choose a team to cheer for.</td>
<td>Prediction</td>
<td>Using knowledge from your research, predict which will be fastest.</td>
</tr>
<tr>
<td>Make the contest rules.</td>
<td>Experimental Design (Procedures)</td>
<td>Write a Procedure</td>
</tr>
<tr>
<td>Gender (Boys vs. Girls)</td>
<td>Test Variable (Manipulated Variable)</td>
<td>Type of car</td>
</tr>
<tr>
<td>Students same age.</td>
<td>Constants (Factors held constant, Controlled Variables)</td>
<td>Same height for ramp.</td>
</tr>
<tr>
<td>Everyone runs the same distance.</td>
<td>Constant</td>
<td>Same material used for ramp.</td>
</tr>
<tr>
<td>Everyone has the same amount of warm-up time.</td>
<td>Constant</td>
<td>Timed the same way</td>
</tr>
<tr>
<td>Use the same number of boys vs. girls.</td>
<td>Constant</td>
<td>Same stopwatch keeper for each trial.</td>
</tr>
<tr>
<td>The time it took each runner to get to the finished line.</td>
<td>Outcome Variable (Responding Variable)</td>
<td>The time it took for each car to cross the finish line.</td>
</tr>
<tr>
<td>Five trials for each runner.</td>
<td>Repeated Trails</td>
<td>Five trials for each car.</td>
</tr>
<tr>
<td>Trial times for each runner are recorded immediately in same place.</td>
<td>Collect the data</td>
<td>All data and observations are written in the Daily Log right away.</td>
</tr>
<tr>
<td>Explain who did better, why you think so and any other interesting observations.</td>
<td>Conclusion</td>
<td>Was your prediction supported or not? Why? List interesting observations.</td>
</tr>
</tbody>
</table>

**Conducting the Experiment and Collecting the Data**

When conducting the experiment, students should follow their procedures very carefully. As they do the testing, all data should be recorded directly into the Daily Log. This will ensure that errors are not made copying data from one place to another.

All measurements should be done in metric units, if applicable. Scientists use metric units when making their measurements. They do not use standard measurements and then convert to metrics.

The more times the experiment is repeated, the more valid the results. Students need to understand that a way to improve an experiment is to repeat it more times. A minimum of three repetitions is required for The Science Showcase.
Graphing the Data

Tables and graphs should be used to show the results and the data more clearly. Analyzing charts and graphs helps us to identify patterns of change. Students should graph the overall average of the trials. The average helps to establish patterns that answer the scientific question. Experiments that show change over time should be graphed with a line graph. Data is the evidence that determines if the prediction was supported or not supported. Make sure the graph is titled and labeled correctly.

Writing the Conclusion

The conclusion should be written in paragraph form.

- What was the outcome of the experiment?
- Did the data support the prediction? Students should not say the data “proves” or “disproves” their hypothesis because this one investigation is not enough data to “prove” or “disprove” anything. What they can say is that the data “supported” or “did not support” the prediction.
- Students should include the actual data that provided the evidence.
- Describe any problems or unusual events that happened during the investigation.
- State what they would do differently next time the experiment is done.
- Think of additional experiments that can continue from this experiment.
- Who (or what industry) could benefit from this investigation?
Communicating Results

It is important that students understand that scientists share the results of their investigations. Determine how and with whom students will share their results.

A presentation board, as described below, is the preferred method for sharing results in a public venue. In a more personal setting, such as within a classroom inquiry circle, a foldable, file folder board, a complete science log, or a digital presentation is suitable.
Sample Controlled Experiment

Bouncing Balls!

1) **Topic-Mechanical Energy**

2) **Research:**
   - Energy is the ability to do work
   - In science, work is done when a force moves an object
   - Mechanical energy is the energy of motion, there are two forms of mechanical energy
     - **Kinetic energy** is the energy of motion
     - **Potential energy** is stored energy
   - The higher above the ground an object is, and the greater the mass, the more potential energy it has

3) **Scientific Question:** What is the effect of the **height from which a ball is dropped** on the **height of the bounce**?

4) **Prediction:** If a ball is dropped from a greater height then it will **bounce higher**. The reason for this hypothesis is that I know that objects that are higher have more potential energy so a ball should have more energy to bounce higher.

5) **Experimental Design:**

   a) **Variables:**
      i) **Test Variable** (independent variable): **Height of drop**
      ii) **Outcome Variable** (dependent variable): **Height of bounce**
      iii) **Controlled Variables**: ball, person dropping the ball, location of the drop
      iv) **Control Group**: this experiment does not lend itself to a control group since it is comparing two drop heights and there is no “normal” situation.

   b) **Procedures**
      1. Tape 2 meter sticks to the wall, one on top of the other
      2. Position an observer low to the ground in order to be eye level with the top of the bounce
      3. Drop the ball from 2 meters
4. Observe the height of the bounce by reading the ruler at the top edge of the ball
5. Record the height of the bounce in cm
6. Repeat steps 3-5 two additional times
7. Repeat steps 2-5 from a height of 1 meter, repeat three times

c) **Materials:**
   - 1 ball (can use a basketball/tennis ball/ping pong ball/etc.)
   - 2 meter sticks

6) **Conducting the Experiment**

Here is an example of a partial log with fabricated data:

<table>
<thead>
<tr>
<th>Trial</th>
<th>2 Meters</th>
<th>1 Meter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>60</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>75</td>
<td>45</td>
</tr>
<tr>
<td>3</td>
<td>55</td>
<td>50</td>
</tr>
<tr>
<td>Average</td>
<td>63.3</td>
<td>41.7</td>
</tr>
</tbody>
</table>

**Spreadsheet: Height of Bounce from a ball dropped from different heights**

*Tuesday, November 8 2011*

*What I did:* We finished all of our trials today!

*What I observed:* It was really hard to accurately read the height of the ball bounce. When our eyes were level with the ball it was easier, but we aren’t really sure if our numbers are right or not.

*I wonder:* How can we do a better job of getting accurate data about the height of the ball bounce. We should do more than just 3 trials because that might help us have more accurate data. Tomorrow we are going to do 7 more trials using the same ball so that we have a total of 10 trials instead of just 3.
A ball bounced higher when it was dropped from a greater height. The data did support the hypothesis. The ball dropped from 2 meters had an average bounce of 63.3 cm; the ball dropped from 1 meter had an average bounce of 41.7 cm. This showed that a ball at a greater height has greater potential energy. The experiment could be improved by figuring out how to more accurately measure the bounce of a ball. Another experiment related to potential energy might be to use balls of different masses.
Suggested Presentation Board Set-Up

DOS and DON’TS

- **DO** attach headings to easily identify each portion of the project
- **DON’T** put anything 3-dimensional on the presentation board
- **DO** attach photos of the experiment if they aid understanding of the project
  - **DON’T** attach photos of children’s faces
  - **DO** have the log book available
  - **DON’T** include any part of the project apparatus
- **DO** label the back of the project with the name of the child’s school and grade level
  - **DON’T** include the child’s name on the project
Engineering Project Guidelines

With the addition of engineering projects, the science department has made a slight modification to these presentations. If a student developed an original engineering design prototype that has a specific function that other students would benefit from seeing, that specific prototype will be allowed during inquiry circle time. However, prototypes are not to be left at the mall on display. Students will still be required to make a presentation board highlighting key aspects of their project (research, purpose/question, procedure, materials, some type of data [attempts/failed attempts], pictures, problems/ways to improve...).

Prototypes may include robots that perform a specific function or new inventions that make the work of others easier. Materials that will not be accepted to display at the showcase include, but are not limited to, any kind of chemical or a container used to hold chemicals, inventions that are hazardous (catapults, volcanos, trebuchet, Rube Goldberg machines, something from a store bought kit...)

When in doubt, take a picture instead! 😊

Possible Engineering Presentation Board

Prohibited items
Living organisms, soil, sand, rock, waste, taxidermy specimens or parts, preserved animals, human or animal food, human/animal parts or body fluids, plant materials, all chemicals including water, empty chemical containers, hazardous substances or devices, dry ice, sharp items including push pins, flames or highly flammable materials, batteries with open-top cells, glass, large vacuum tubes, empty tanks that previously contained combustible liquids, laser lights, awards, recognitions, embellishments, advertisements
Benchmark-Related Guided Questioning

SC.5.N.1.1 Define a problem, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types such as: systematic observations, experiments requiring the identification of variables, collecting and organizing data, interpreting data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.

SC.4.N.1.1 Raise questions about the natural world, use appropriate reference materials that support understanding to obtain information (identifying the source), conduct both individual and team investigations through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.

- How might the answer to your scientific question be important to people?
- What did you learn from the research that you conducted about your topic?
- What motivated you to ask your scientific question?
- How did you use your research to help you make a logical prediction?

SC.4.N.1.6 Keep records that describe observations made, carefully distinguishing actual observations from ideas and inferences about the observations.

- How did you organize your record keeping?
- In what way did your evidence support your prediction?
- How can you use your log help you talk about your investigation?

SC.5.N.1.4 Identify a control group and explain its importance in an experiment.

- Describe the control group against which you compared your data.

SC.5.N.2.1 Recognize and explain that science is grounded in empirical observations that are testable; explanation must always be linked with evidence.

- What observations did you use as evidence to test your prediction?

SC.3.N.1.7 Explain that empirical evidence is information, such as observations or measurements, that is used to help validate explanations of natural phenomena.

SC.4.N.1.7 Recognize and explain that scientists base their explanations on evidence.

- How did your evidence help to validate your conclusion?
- What scientific tool did you use to gather your evidence?
SC.5.N.1.6 Recognize and explain the difference between personal opinion/interpretation and verified observation.

SC.5.N.2.2 Recognize and explain that when scientific investigations are carried out, the evidence produced by those investigations should be replicable by others.

🤔 Are your procedures written in a way that others could replicate your experiment, why or why not?

SC.3.N.1.2 Compare the observations made by different groups using the same tools and seek reasons to explain the differences across groups.

SC.4.N.1.2 Compare the observations made by different groups using multiple tools and seek reasons to explain the differences across groups.

SC.4.N.1.5 Compare the methods and results of investigations done by other classmates.

🤔 Did other students ask a similar scientific question? If so, was did their evidence validate your conclusion?

🤔 If other students asked similar scientific questions, but their evidence did not validate your conclusion, what might have been different about the two experiments?

SC.5.N.1.3 Recognize and explain the need for repeated experimental trials.

🤔 How did multiple trials help you to validate your evidence?

🤔 Was the evidence gathered from all of your trials consistent?

🤔 What did you do with your data to identify a pattern that would help support your prediction?

SC.3.N.1.5 Recognize that scientists question, discuss, and check each other’s evidence and explanations.

🤔 What other scientific questions could be asked about this topic?

🤔 How could flaws in the experimental design be corrected so that the evidence would be more accurate and valid?

🤔 How could an experimental design be changed that would supply evidence for the scientific question in another way?

🤔 What went wrong in your experiment and how did you correct for the problem that you experienced?
<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1.</strong></td>
<td>How might the answer to your scientific question be important to people?</td>
</tr>
<tr>
<td><strong>2.</strong></td>
<td>What did you learn from the research that you conducted about your topic?</td>
</tr>
<tr>
<td><strong>3.</strong></td>
<td>What motivated you to ask your scientific question?</td>
</tr>
<tr>
<td><strong>4.</strong></td>
<td>How did you use your research to help you make a logical prediction?</td>
</tr>
<tr>
<td><strong>5.</strong></td>
<td>In what way did your evidence support your prediction?</td>
</tr>
<tr>
<td><strong>6.</strong></td>
<td>How can you use your log help you talk about your investigation?</td>
</tr>
<tr>
<td><strong>7.</strong></td>
<td>Describe the control group against which you compared your data.</td>
</tr>
<tr>
<td><strong>8.</strong></td>
<td>What observations did you use as evidence to test your prediction?</td>
</tr>
<tr>
<td><strong>9.</strong></td>
<td>How did your evidence help to validate your conclusion?</td>
</tr>
<tr>
<td><strong>10.</strong></td>
<td>What scientific tool did you use to gather your evidence?</td>
</tr>
<tr>
<td><strong>11.</strong></td>
<td>Are your procedures written in a way that others could replicate your experiment, why or why not?</td>
</tr>
<tr>
<td><strong>12.</strong></td>
<td>Did other students ask a similar scientific question? If so, was did their evidence validate your conclusion?</td>
</tr>
<tr>
<td><strong>13.</strong></td>
<td>If other students asked similar scientific questions, but their evidence did not validate your conclusion, what might have been different about the two experiments?</td>
</tr>
<tr>
<td><strong>14.</strong></td>
<td>How did multiple trials help you to validate your evidence?</td>
</tr>
<tr>
<td><strong>15.</strong></td>
<td>Was the evidence gathered from all of your trials consistent?</td>
</tr>
<tr>
<td><strong>16.</strong></td>
<td>What did you do with your data to identify a pattern that would help support your prediction?</td>
</tr>
<tr>
<td><strong>17.</strong></td>
<td>What other scientific questions could be asked about this topic?</td>
</tr>
<tr>
<td><strong>18.</strong></td>
<td>How could flaws in the experimental design be corrected so that the evidence would be more accurate and valid?</td>
</tr>
<tr>
<td><strong>19.</strong></td>
<td>How could an experimental design be changed that would supply evidence for the scientific question in another way?</td>
</tr>
<tr>
<td><strong>20.</strong></td>
<td>What went wrong in your experiment and how did you correct for the problem that you experienced?</td>
</tr>
</tbody>
</table>
FSA ELA Standards

Grade 5

Text Types and Purposes

Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

a. Introduce a topic clearly, provide a general observation and focus, and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.

b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.

c. Link ideas within and across categories of information using words, phrases, and clauses (e.g., in contrast, especially).

d. Use precise language and domain-specific vocabulary to inform about or explain the topic.

e. Provide a concluding statement or section related to the information or explanation presented.

Production and Distribution of Writing

Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

Research to Build and Present Knowledge

Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.

Range of Writing

Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Comprehension and Collaboration

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 5 topics and texts, building on others’ ideas and expressing their own clearly.

a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.

b. Follow agreed-upon rules for discussions and carry out assigned roles.
c. Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others.

d. Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.

e. Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.

Presentation of Knowledge and Ideas

Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.

FSA Math Standards

Grade 5

Measurement and Data
- Convert like measurement units within a given measurement system.
- Represent and interpret data.

Standards for Mathematical Practice

5. Make sense of problems and persevere in solving them.
6. Reason abstractly and quantitatively.
7. Construct viable arguments and critique the reasoning of others.
8. Model with mathematics.
9. Use appropriate tools strategically.
10. Attend to precision.
11. Look for and make use of structure.
12. Look for and express regularity in repeated reasoning.

Next Generation Sunshine State Standards

Grade 5

SC.5.N.1 The Practice of Science
A. Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.
B. The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."
C. Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.
D. Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

SC.5.N.1.1: Define a problem, use appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types such as: systematic observations, experiments requiring the identification of variables, collecting and organizing data, interpreting data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.

SC.5.N.1.2 Explain the difference between an experiment and other types of scientific investigation.

SC.5.N.1.3: Recognize and explain the need for repeated experimental trials.

SC.5.N.1.4: Identify a control group and explain its importance in an experiment.

SC.5.N.1.5: Recognize and explain that authentic scientific investigation frequently does not parallel the steps of "the scientific method."

SC.5.N.1.6: Recognize and explain the difference between personal opinion/interpretation and verified observation.

SC.5.N.2 The Characteristics of Scientific Knowledge

A. Scientific knowledge is based on empirical evidence, and is appropriate for understanding the natural world, but it provides only a limited understanding of the supernatural, aesthetic, or other ways of knowing, such as art, philosophy, or religion.

B. Scientific knowledge is durable and robust, but open to change.

C. Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.

SC.5.N.2.1: Recognize and explain that science is grounded in empirical observations that are testable; explanation must always be linked with evidence.

SC.5.N.2.1: Recognize and explain that when scientific investigations are carried out, the evidence produced by those investigations should be replicable by others.

**FSA ELA Standards**

**Grade 4**

**Text Types and Purposes**

Write informative/explanatory texts to examine a topic and convey ideas and information clearly.

a. Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.
b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.

c. Link ideas within categories of information using words and phrases (e.g., another, for example, also, because).

d. Use precise language and domain-specific vocabulary to inform about or explain the topic.

e. Provide a concluding statement or section related to the information or explanation presented.

Production and Distribution of Writing

Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.

Research to Build and Present Knowledge

Conduct short research projects that build knowledge through investigation of different aspects of a topic.

Range of Writing

Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Comprehension and Collaboration

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher led) with diverse partners on grade 4 topics and texts, building on others’ ideas and expressing their own clearly.

a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion.

b. Follow agreed-upon rules for discussions and carry out assigned roles.

c. Pose and respond to specific questions to clarify or follow up on information, and make comments that contribute to the discussion and link to the remarks of others.

d. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.

Presentation of Knowledge and Ideas

Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
FSA Math Standards

Grade 4

Measurement and Data

- Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
- Represent and interpret data.

Standards for Mathematical Practice

13. Make sense of problems and persevere in solving them.
15. Construct viable arguments and critique the reasoning of others.
17. Use appropriate tools strategically.
18. Attend to precision.
19. Look for and make use of structure.
20. Look for and express regularity in repeated reasoning.

Next Generation Sunshine State Standards

Grade 4

SC.4.N.1 The Practice of Science

A: Scientific inquiry is a multifaceted activity; The processes of science include the formulation of scientifically investigable questions, construction of investigations into those questions, the collection of appropriate data, the evaluation of the meaning of those data, and the communication of this evaluation.

B: The processes of science frequently do not correspond to the traditional portrayal of "the scientific method."

C: Scientific argumentation is a necessary part of scientific inquiry and plays an important role in the generation and validation of scientific knowledge.

D: Scientific knowledge is based on observation and inference; it is important to recognize that these are very different things. Not only does science require creativity in its methods and processes, but also in its questions and explanations.

SC.4.N.1.1: Raise questions about the natural world, use appropriate reference materials that support understanding to obtain information (identifying the source), conduct both individual and team investigations through free exploration and systematic investigations, and generate appropriate explanations based on those explorations.
SC.4.N.1.2: Compare the observations made by different groups using multiple tools and seek reasons to explain the differences across groups.

SC.4.N.1.3: Explain that science does not always follow a rigidly defined method ("the scientific method") but that science does involve the use of observations and empirical evidence.

SC.4.N.1.4: Attempt reasonable answers to scientific questions and cite evidence in support.

SC.4.N.1.5: Compare the methods and results of investigations done by other classmates.

SC.4.N.1.6: Keep records that describe observations made, carefully distinguishing actual observations from ideas and inferences about the observations.

SC.4.N.1.7: Recognize and explain that scientists base their explanations on evidence.

SC.4.N.1.8: Recognize that science involves creativity in designing experiments.

**SC.4.N.2 The Characteristics of Scientific Knowledge**

A: Scientific knowledge is based on empirical evidence, and is appropriate for understanding the natural world, but it provides only a limited understanding of the supernatural, aesthetic, or other ways of knowing, such as art, philosophy, or religion.

B: Scientific knowledge is durable and robust, but open to change.

C: Because science is based on empirical evidence it strives for objectivity, but as it is a human endeavor the processes, methods, and knowledge of science include subjectivity, as well as creativity and discovery.

SC.4.N.2.1 Explain that science focuses solely on the natural world.

---

**Next Generation Science Standards**

**Science and Engineering Practices**

**Grades 3-5**

**Practice 1 Asking Questions and Defining Problems**

Asking questions and defining problems in 3–5 builds on K–2 experiences and progresses to specifying qualitative relationships.

1. Ask questions about what would happen if a variable is changed.
2. Identify scientific (testable) and non-scientific (non-testable) questions.
3. Ask questions that can be investigated and predict reasonable outcomes based on patterns such as cause and effect relationships.
4. Use prior knowledge to describe problems that can be solved.
5. Define a simple design problem that can be solved through the development of an object, tool, process, or system and includes several criteria for success and constraints on materials, time, or cost.

**Practice 2 Developing and Using Models**

Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.

1. Identify limitations of models.
2. Collaboratively develop and/or revise a model based on evidence that shows the relationships among variables for frequent and regular occurring events.
3. Develop a model using an analogy, example, or abstract representation to describe a scientific principle or design solution.
4. Develop and/or use models to describe and/or predict phenomena.
5. Develop a diagram or simple physical prototype to convey a proposed object, tool, or process.
6. Use a model to test cause and effect relationships or interactions concerning the functioning of a natural or designed system.

**Practice 3 Planning and Carrying Out Investigations**

Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.

1. Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered.
2. Evaluate appropriate methods and/or tools for collecting data.
3. Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution.
4. Make predictions about what would happen if a variable changes.
5. Test two different models of the same proposed object, tool, or process to determine which better meets criteria for success.

**Practice 4 Analyzing and Interpreting Data**

Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.

1. Represent data in tables and/or various graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships.
2. Analyze and interpret data to make sense of phenomena, using logical reasoning, mathematics, and/or computation.
3. Compare and contrast data collected by different groups in order to discuss similarities and differences in their findings.
4. Analyze data to refine a problem statement or the design of a proposed object, tool, or process.
5. Use data to evaluate and refine design solutions.
**Practice 5 Using Mathematics and Computational Thinking**

Mathematical and computational thinking in 3–5 builds on K–2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions.

1. Decide if qualitative or quantitative data are best to determine whether a proposed object or tool meets criteria for success.
2. Organize simple data sets to reveal patterns that suggest relationships.
3. Describe, measure, estimate, and/or graph quantities (e.g., area, volume, weight, time) to address scientific and engineering questions and problems.
4. Create and/or use graphs and/or charts generated from simple algorithms to compare alternative solutions to an engineering problem.

**Practice 6 Constructing Explanations and Designing Solutions**

Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.

1. Construct an explanation of observed relationships (e.g., the distribution of plants in the back yard).
2. Use evidence (e.g., measurements, observations, patterns) to construct or support an explanation or design a solution to a problem.
3. Identify the evidence that supports particular points in an explanation.
4. Apply scientific ideas to solve design problems.
5. Generate and compare multiple solutions to a problem based on how well they meet the criteria and constraints of the design solution.

**Practice 7 Engaging in Argument from Evidence**

Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).

1. Compare and refine arguments based on an evaluation of the evidence presented.
2. Distinguish among facts, reasoned judgment based on research findings, and speculation in an explanation.
3. Respectfully provide and receive critiques from peers about a proposed procedure, explanation, or model by citing relevant evidence and posing specific questions.
4. Construct and/or support an argument with evidence, data, and/or a model.
5. Use data to evaluate claims about cause and effect.
6. Make a claim about the merit of a solution to a problem by citing relevant evidence about how it meets the criteria and constraints of the problem.

**Practice 8 Obtaining, Evaluating, and Communicating Information**

Obtaining, evaluating, and communicating information in 3–5 builds on K–2 experiences and progresses to evaluating the merit and accuracy of ideas and methods.

1. Read and comprehend grade-appropriate complex texts and/or other reliable media to summarize and obtain scientific and technical ideas and describe how they are supported by evidence.
2. Compare and/or combine across complex texts and/or other reliable media to support the engagement in other scientific and/or engineering practices.

3. Combine information in written text with that contained in corresponding tables, diagrams, and/or charts to support the engagement in other scientific and/or engineering practices.

4. Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem.

5. Communicate scientific and/or technical information orally and/or in written formats, including various forms of media as well as tables, diagrams, and charts.
Elementary Science Showcase Details

**April 2**- Coordinate with school secretary to complete electronic TDA for school board employees involved in the Elementary Science Showcase. Schools cover substitute costs.

**Week of May 7**- Send home parent letter to participating students and field trip permission slip.

**May 10**- Student participation form due

- E-mail a typed copy to Nichole Styron nichole.styron@polk-fl.net
- Name(s) of Chaperones
  - Cell phone number requested
  - Chaperone must be an approved volunteer or school employee
  - ID required (PCSB credentials or Photo ID from school office)

**May 16/May 17**- Science Showcase

9:00-10:30 Registration and Set-Up

- Enter through rear doors near mall office between JC Penney and Macy’s (see map page 38)
- Students bring presentation board and log
- Students bring lunch money and/or bag lunch from school (must make available to students on free/reduced lunch)
- Check-in
  - Students signed-in by chaperones
  - Chaperones must wear an ID from the school
- Students escorted to presentation areas
  - Organized by school
  - Supervised by teacher facilitators
10:30-12:00 - Inquiry Circles

- **Teacher Facilitators**
  - Facilitate discussion among students
  - Supervise students

- **Chaperones (identified by visible PCSB credentials)**
  - Assist with trips to bathroom
  - Assist with student supervision

- **Public**
  - Public may listen to the inquiry circles
  - Public must stay outside perimeter of the inquiry circles

12:00-12:30 - Recognitions

- Certificates presented in each of 4 venues by lead facilitator
- Prize drawings will be at registration tables (all groups together)

12:30 - Dismissal

- Boards stay in place
- **Logs retained by students (Do not leave anything other than presentation boards at the mall)**
- Students checked out by chaperones
- Students dismissed for lunch and return to school

12:30-9:00 - Public Viewing

9:00 PM Tear Down

- Students who are at public viewing may remove their boards

**May 17 - Final Board Pick-up**

- Remaining boards may be picked up by 9:00 PM
- **Boards left at the mall will be disposed of at 9:00 PM (We cannot store them)**
- The accessible door is located between JC Penney and Macy’s
Student Participation Form due May 10, 2018

Name of School________________________________________________________________

Science Showcase Coordinator____________________________________________________

#1 Chaperone Name____________________ Cell Phone Number ________________________

#2 Chaperone Name____________________ Cell Phone Number ________________________

<table>
<thead>
<tr>
<th>Grade</th>
<th>Student Name</th>
<th>Photo Release (yes/no)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Prohibited Projects for the Elementary Science Showcase

Prohibited projects include projects involving a controlled substance (cigarettes, alcohol, drugs,
etc.), projects that involve harming or endangering humans or vertebrates, projects involving blood and
pathogenic agents, (bacteria, mold, viruses, fungi, parasites, etc.) , projects involving weapons (any kind of
gun, arrows, knives, darts, paint guns, rocketry engines).

With my signature I certify that none of the participating projects involves any of the materials on the
“Prohibited Projects” list. (Prohibited projects will be excluded from the Science Showcase). I have verified
and indicated which students have photo release permission.

Science Showcase Coordinator Signature ____________________________________________

Return as a typed attachment by May 10th

E-mail to:

nichole.styron@polk-fl.net
TO WHOM IT MAY CONCERN:

____________________________ has my permission to participate in the school sponsored

(Name of student)

field trip being taken by ______________________________ on ____________

(Name of Organization/Group) (Date)

to

(Destination of Field Trip)

As parent/guardian I acknowledge the following:

1. School officials are authorized to obtain emergency medical treatment for this student as necessary.

2. The School Board has made available to this student the opportunity to purchase student accident insurance.

3. During this field trip, that the School Board will not be liable for injury to this student as result of the negligence, errors, and omissions of others (i.e., charter bus owners and drivers, or amusement park owners or workers), their agents, heirs, employees or assigns either through their action or inaction.

4. If your child takes personal belongings on this field trip, he or she will be responsible for them. The School Board accepts no responsibility for personal items, such as watches, purses, money, cameras, and wallets, etc. If a student stores personal items in a locker at an amusement park, that entity may be responsible for any loss or damage.

____________________________
(Signature of Parent/Guardian) (Date)

NOTE:

1. FOR ALL OUT-OF-COUNTY TRIPS, A NOTARIZED MEDICAL TREATMENT AUTHORIZATION FORM MUST ALSO BE AVAILABLE. IT SHOULD BE COMPLETED PRIOR TO THE STUDENT'S FIRST OUT-OF-COUNTY TRIP AND RETAINED FOR THE REMAINDER OF THE SCHOOL YEAR.

The PCSB Field Trip Manual is available at https://www.polk-fl.net/staff/formsanddocuments/documents/fieldtripmanual2015-16.pdf
Dear ________________________,

Congratulations, your child _________________________ has been selected to participate in the Polk County Schools Elementary Science Showcase.

The Elementary Science Showcase will take place at the Lakeland Square Mall located at 3800 US Highway 98 North, Lakeland, Florida 33809 on (Wednesday, May 16 or Thursday, May 17). Students will report to school and be driven to the Lakeland Square Mall by chaperones to check in before 10:30 AM. Each student must bring his/her science project presentation board, experiment log, and either a school-packed lunch or money to spend on lunch.

From 10:30-12:00, students will participate in inquiry circles where they will discuss their project with other student scientists. At 12:00 students will receive recognitions. At 12:30 students will be released to their school-approved chaperones who will escort the students to a lunch location. Students will leave their project presentation boards at the mall for public viewing. Experiment logs are to go home with the students.

The public is welcome to listen to, but not participate in the inquiry circles. The project presentation boards will be on public display from 12:30 PM until 9:00 PM. You are encouraged to return to the mall with family and friends to view the student projects.

Projects may be removed by family or school personnel at 9:00 PM.

Unclaimed boards will be disposed of at 9:00 PM.

**Release: The following signature is required for photographs, videotaping, and media interviews.**

“I hereby consent that all photographs and/or video tape images taken of my child and/or recordings made of my child’s voice and/or written extraction, in whole or in part, of such recordings at the Polk County Elementary Science Showcase may be used for the purpose of illustration, professional development, or publication.”

Parent Signature ________________________________

Parent Phone Contact ____________________________
Note: This TDA is handled through your school office, not through the department of Teaching and Learning. Substitutes are paid from school, not district, funding sources.
**Science Showcase, A Well-Supervised Field Trip to the Mall**

**Student Safety Protocols:**

1. **Minimal Public Exposure**
   a. Boards and logs are brought to the mall when the students arrive, students do not independently bring their materials for display
   b. Students enter the mall prior to the mall opening, only a hand full of mall walkers and store personnel are in the mall at that time
   c. Very few shoppers frequent the mall prior to noon, students are released by noon

2. **Supervision**
   a. Students enter and exit through the set of doors in the back of the mall between JCPenney and Macys, all other doors are locked during this time
   b. Students arrive with a school board employee from their school, a maximum of 6 students per school board employee
   c. Students typically also have parent chaperones, parents must wear identification to indicate that they are approved school board volunteers and have checked-in that day through a school office so that they are wearing a school board photo ID
   d. Students are escorted through the mall by school board employees who are assisting with the Science Showcase
   e. Students are seated in an Inquiry Circle which is supervised by a school board employee, approximately 10 students per facilitator
   f. While in the inquiry circles, students are supervised by the facilitator (school board employee), their teacher (school board employee), and parents who have been school board approved as volunteers, there are multiple sets of eyes on students at all times
   g. Students are not permitted to leave the inquiry circle to go to the restroom or any other location without a school board employee or a parent volunteer with a Polk County Schools picture ID

3. **Student Identification**
   a. Students wear name tags with only first names listed
   b. Presentation boards are identified by school and grade level, no student names
   c. Presentation boards do not have any photographs of students

4. **Photographs**
   a. Parent permission is required for students to be photographed (if pictures may be used for publication on public media sites)
   b. Students without parent permission are indicated by a colored dot on their nametag, adult facilitators are made aware and locate those students strategically in order to prevent their photo from being captured
2018 Venue Map

Enter Between
JC Penny and Macy's

Registration Table

Yellow Group

Red Group

Blue Group

Green Group