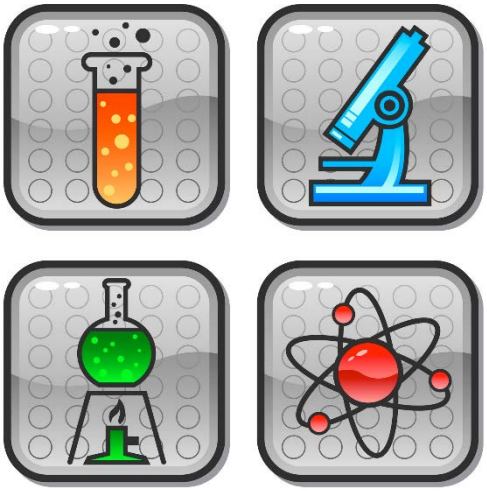
Patrick Elementary School



Science Fair Guide

2016-2017

Information for 4th and 5th Grade Students

You can print more information and access helpful links by visiting Ms. Askew's website.
http://askewstem.weebly.com/science-fair.html

Table of Contents

Patrick Elementary Science Fair Guide – 2016-2017

Information for 4th and 5th Grade Students

Dear Students and Parents,

Participating in the science fair is sure to be an exciting adventure this year! Science fairs give children opportunities to investigate areas of science that interest them, create plans to solve problems, and use math as well as writing skills to communicate findings. The science fair can open up a whole new world of possibilities and instill an appreciation of problem solving.

All students in fourth and fifth grade will be required to complete an individual science fair project this year. *Projects will be judged by teachers and a group of community volunteers, so it will be important for students to plan wisely. Students, review the judging rubric and safety rules included in this guide to make sure your project meets all requirements. If students want to be eligible to advance on to the county fair, elementary students cannot conduct any experiments that involve humans, vertebrate animals, or bacteria. We are looking forward to seeing all of the fantastic ideas that students develop.*

Students will work with their homeroom teachers to review project ideas, guidelines, and graphic organizers on the PES Science Fair website. In late October, students will begin to research their projects. During the months of November and December, students will work at home to gather materials, carry out the experiment, collect and analyze results, and create a display board to present their findings. During this time, students can use the resources on my website to assist them in meeting project requirements. On January 5, students will bring their science fair display boards to school. The PES Science Fair will take place on January 12, and students will present their projects to peers, teachers, and community members as we all celebrate learning.

Sincerely,

Allison Askew
Math Instructional Coach (3-5)
STEM & PBL Coordinator

Master Timeline and Due Dates

Think! What am I interested in? (October 17-October 23)

- ***Choose a topic and develop a testable question.*** *(Students wanting to remain eligible to compete for a county science fair finalist spot cannot use humans, vertebrate animals, or bacteria as test subjects.)*

Turn in your Science Fair Contract to your teacher by Monday, October 24.

Plan! What do I need? How will I carry out my project? (October 25-November 11)

- ***Research your topic.*** *Write a paragraph or two that summarizes background information about your topic.*
- ***Gather materials.*** *Keep it simple and affordable!*
- ***Make a hypothesis.*** *(What do you think will happen?)*
- ***Decide on what steps you will take to carry out your project.***

Test! (November 14- December 2)

- ***Carry out your experiment.*** *Remember to write down your procedure step by step.*
- ***Logbook or Folder: Keep a record of what you do, when you do things, and what is happening.***
  - *Take pictures of your process to show how you carried out your tests.*
- *When appropriate, remember to do more than one trial to be accurate.*
- ***Collect data.*** *(You may record observations, numbers in a data table, or both.)*

Communicate! (December 2- December 9)

- ***Create a graph or table to share your results.***
- ***Write your conclusions. What did you learn? How might you continue your experiment in the future?***

Create! (December 12 – December 21)

- ***Create a display board to share your experiment with others.***
  - *Make it eye catching and organized.*

Bring your board to school on or before Thursday, January 5, 2017.

Present and Celebrate! (Thursday, January 12, 2017)

Judging Rubric

** All students in grades 4 and 5 will be required to complete a Science Fair project this year. Science Fair projects will be judged by a team of teachers and community volunteers using the rubric outlined below.*

Requirements	Not Evident	Incomplete	Meets Requirement	Superior Work
1) The student presents an original question/problem that can be *tested*.	0	1,2,3,4	6, 5, 7	8, 9, 10
2) The background research is clear and shows evidence of age appropriate research and writing skills.	0	1,2,3,4	6, 5, 7	8, 9, 10
3) The hypothesis shows that a prediction was made.	0	1-2	3-4	5
4) All materials are stated, including amounts needed. (Ex. Salt – 5 milliliters)	0	1-2	3-4	5
5) The procedures are described clearly with details so that another person could do the same experiment.	0	1,2,3,4	6, 5, 7	8, 9, 10
6) Pictures or photographs are included to show results and stages of the procedure.	0	1-2	3-4	5
7) A student logbook/folder is kept throughout the experiment to show data collection and observations.	0	1-2	3-4	5
8) Observations and data are shown in an organized way.	0	1,2,3,4	6, 5, 7	8, 9, 10
9) Data is displayed in an age appropriate graph or table.	0	1,2,3,4	6, 5, 7	8, 9, 10
10) The conclusion is supported with evidence. (It also includes how the student would improve or continue research.)	0	1,2,3,4	6, 5, 7	8, 9, 10
11) The presentation of the project makes the purpose, procedure, and results clear. *The student is knowledgeable about the topic and gives a full explanation of the procedure and results.*	0—3—5	6—8—10	11—13—15	16—18—20
Total Score: _____ out of 100 points possible				

Judge Comments:

Sample Science Fair Project Ideas

** This is only a short list of possible ideas to get you started. Feel free to be creative and come up with your own, original topics. (Students wanting to remain eligible to compete for a county science fair spot cannot use humans, vertebrate animals, or bacteria as test subjects.)*

Science Fair Project	*NOT a Science Fair Project*
 **How does soil type affect plant growth?**	  **While making a volcano or creating a model of the solar system can be fun *activities*, they are not appropriate for the science fair.** <u>You must have a testable question so that you can gather data.</u> (A science fair project is not a research report or poster.)

<u>Examples of Testable Questions</u>
What metals are the best conductors of heat?
What material makes the best insulator for an ice cube?
Do bean plants grow best in direct sunlight, indirect sunlight, or shade?
How does temperature affect plant growth?
How does soil type affect plant growth?
How does the color of light affect plant growth?
Do earthworms prefer a dark or light environment?
How does the shape of a parachute affect its flight time?
How does wing shape affect how far a paper airplane flies?
Which type of citrus fruit uses chemical energy to produce the most power?

<u>When you decide on a testable question, you should be able to fill out the table below.</u>

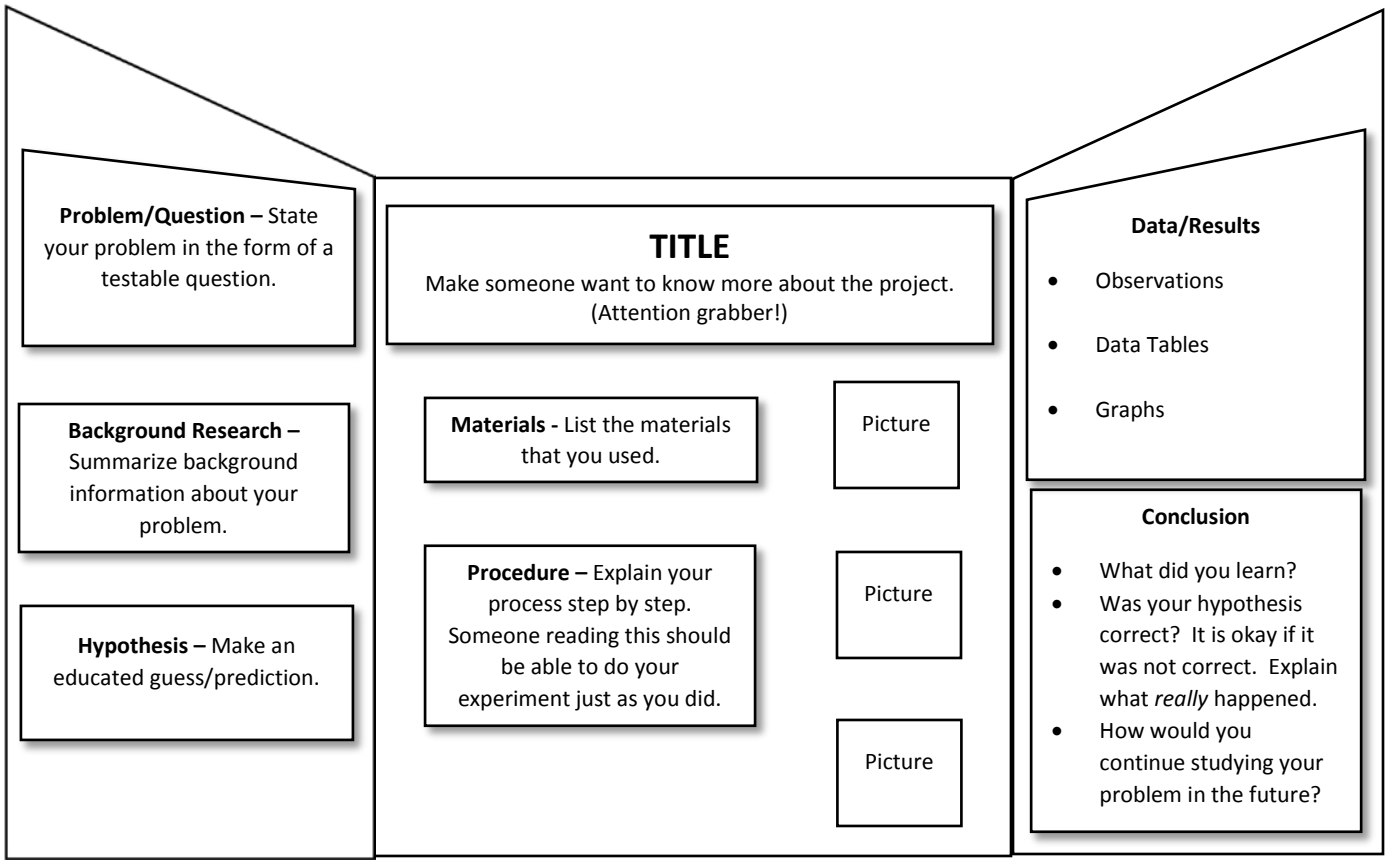
	Testable Question	What is changed?	What stays the same?	What data will I collect?
Example	What material makes the best insulator for an ice cube?	Different materials for containers – Styrofoam, plastic, wood, etc.	Amount of ice Beginning temperature	Time for ice to completely melt.

Additional Resources

Your project does not need to come from this list but you can find some helpful suggestions from the following:

- Science Buddies http://www.sciencebuddies.org/mentoring/science-fairs.shtml
- All Science Fair Projects http://www.all-science-fair-projects.com
- Access Excellence http://www.accessexcellence.org/RC/scifair.html
- Science Fair Central http://school.discoveryeducation.com/sciencefaircentral
- Super Science Fair Ideas from PBS Kids http://pbskids.org/dragonflytv/scifair/index.html
- Education.com Science Fair Projects http://www.education.com/science-fair/
- Experimental Science Projects http://www.miniscience.com/SciProjIntro.asp
- The IPL's Science Fair Project Resource Guide http://www.ipl.org/div/projectguide/
- Successful Science Fair Projects http://faculty.washington.edu/chudler/fair.html

Display Board Example



Display Board Guidelines

- **You should bring your display board to school on or before the due date, Thursday, January 5, 2017.**
- **Review the judging rubric when creating your display.**
- **Include titles to divide your board into the parts listed above.** ***Printable display board templates are included on Ms. Askew's website if needed. However, students can create their own.***
- **Photos – Photos of student faces may not be shown on the display board. This is a county science fair guideline. (A simple remedy is to place dot stickers over faces.)**
- **Write your full name, grade, and homeroom teacher's name on the <u>back flap</u> of your board.** ***Student names should not be included on the front.***

Patrick Elementary School Science Fair Contract 2016-2017

Fourth and Fifth Grade Participation Form

** Please return this form to your teacher on or before Monday, October 24.*

Student Name _____

Teacher _____ **Grade Level** _____

Topic _____

Testable Question _____

_____

	Testable Question	What is changed?	What stays the same?	What data will I collect?
Example	What material makes the best insulator for an ice cube?	Different materials for containers – Styrofoam, plastic, wood, etc.	Amount of ice Beginning temperature	Time for ice to completely melt.
My Project Idea				

Please sign the contract below.

We have reviewed the information included in the Science Fair Guide. We understand that this project is a PES requirement for all fourth and fifth graders. All Science Fair projects are due on Thursday, January 5, 2017.

Parent Name (print) _____

Parent Signature _____

Student Name (print) _____

Student Signature _____