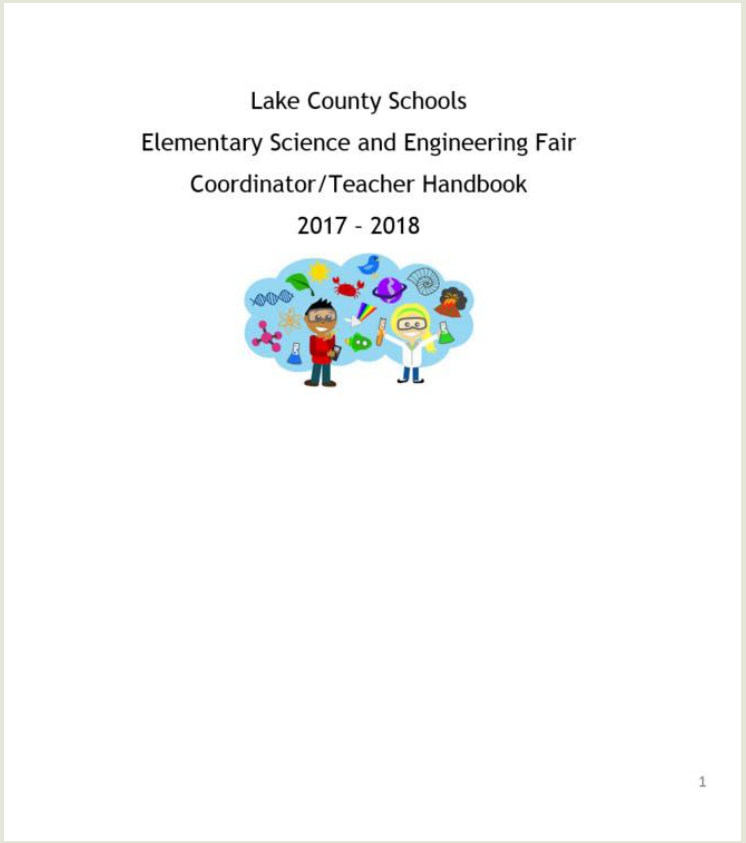
Lake County Schools District Science and Engineering Fair Training

Kelly Dodd
Lake County Schools
Curriculum and Instruction Department

2017-2018
Science & Engineering Fair

February 5th-6th, 2018

Handbooks

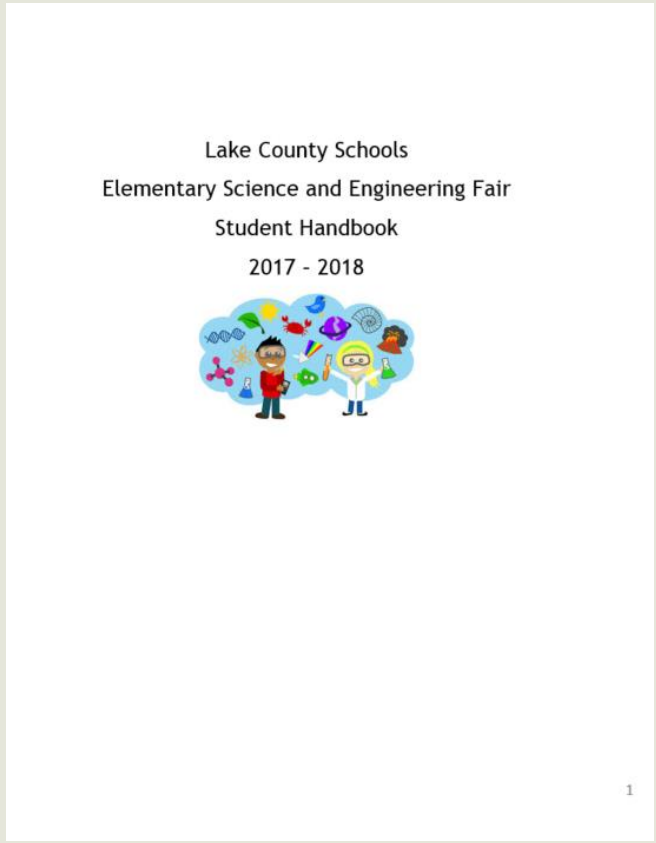

Lake County Schools

Elementary Science and Engineering Fair

Coordinator/Teacher Handbook

2017 - 2018

1


Lake County Schools

Elementary Science and Engineering Fair

Student Handbook

2017 - 2018

1

Sections in the Science and Engineering Fair Handbook

- Welcome letter
- Science Fair General Information
- District Science and Engineering Fair
- Safety Guidelines
- Project Display Guidelines
- Laboratory Journal Guidelines
- The Scientific Method and The Engineering Design Process
- How to Write a Bibliography
- Student Project Form
- Timeline
- Project Ideas by Grade Level
- Judging Rubrics
- District Science and Engineering Fair Entry Form
- School Participation Form

Science and Engineering Fair General Information

All projects submitted must be from one of the following categories:

- Earth Space Science
- Physical Science
- Life Science
- Engineering

Laboratory Journal:

- 3rd -5th graders who wish to advance to the District Science and Engineering Fair must have a completed Laboratory Journal.

Display Boards must have:

- Student Project Form attached on the back.
- Project MUST be labeled with the judging category or they will not be eligible for district judging.

Project Ideas: Life and Physical Sciences

The key to engaging students in their project is helping them pick one that is **MEANINGFUL** to them!!!

- Life Science: plant growth, human behaviors, animal preferences
- Physical Science: sports and hobbies- vary one item, effectiveness of household items, friction, magnets, batteries

*These are the two most common project categories.

Project Ideas: Earth/Space and Engineering

- Earth/Space: (rocks, dirt, water)
  - Sunscreen on fading paper
  - Various types of soil vs. water absorption
  - pH of soils in various places
  - Size of rocks vs. erosion of sand
  - Filtration techniques
  - Temp vs. pH
- Engineering: (Designing a solution to a problem)
  - Lego collection device
  - Grabber to reach high places
  - Pool toy removal device
  - Container to keep crayons from melting in car
  - Device to help kids pour milk from full jugs
  - Seat belt “cooler offer device”
  - Device to keep dog from escaping the front door when opened

*These are just project ideas. You are NOT limited to the ideas listed!

Prohibited Items

Live animals, controlled substances, bodily fluid samples, dangerous chemicals, alcohol, firearms, mold, bacteria (no petri dishes involved in experiments) alcohol, firearms, open flames and/or explosives.

In the event that a project was selected at the school fair that includes the use of a prohibited item, the school will have the option of sending the second place winner or sending the first place winner knowing they will not place at the district fair.

Science and Engineering Fair Project Display Guidelines

Experiments using the Scientific Method

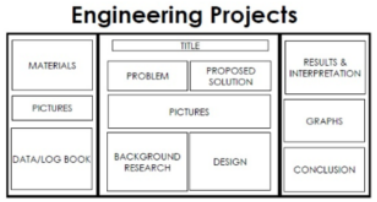
If you choose to follow the Scientific Method your display board should have the following headings:

- Title
- Question/Purpose
- Hypothesis
- Materials
- Procedure
- Data and Pictures - Graph, Table, Chart, etc.
- Results
- Conclusion
- Application
- Bibliography- In APA Format

Engineering Design Process

If you choose to follow the Engineering Design Process your display board should have the following headings:

- Title
- Problem
- Proposed Solution
- Pictures
- Background Research
- Student Design
- Materials
- Results and Interpretation
- Conclusion
- Evidence of the Engineering Design Process - Flow Map



- Sample Boards for the Scientific Method and The Engineering Design Process
- Display board and Laboratory Journal are required to advance to the District Science and Engineering Fair for 3rd – 5th graders.
- It would be great practice for all students to try both methods prior to their school fair to get exposure to both processes before attempting to do their projects individually or in student groups.
- Please contact me if you need any support in facilitating these processes.

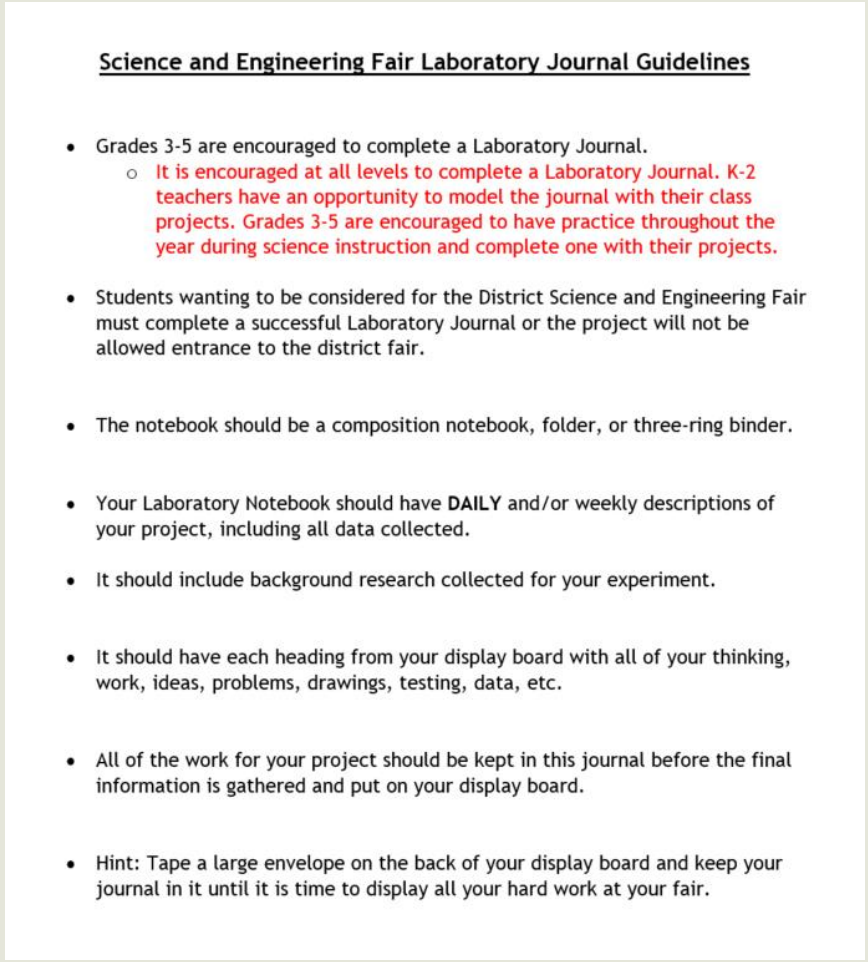
Required Display Board Sections

School Fairs – Site decision

District Fair:

- Scientific Method
  - ✓ Title
  - ✓ Question/Purpose
  - ✓ Hypothesis
  - ✓ Materials
  - ✓ Procedure
  - ✓ Data and Pictures - Graph, Table, Chart, etc.
  - ✓ Results
  - ✓ Conclusion
  - ✓ Application
  - ✓ Bibliography- In APA Format
- Engineering Design Process
  - ✓ Title
  - ✓ Problem
  - ✓ Proposed Solution
  - ✓ Pictures
  - ✓ Background Research
  - ✓ Student Design
  - ✓ Materials
  - ✓ Results and Interpretations
  - ✓ Conclusion
  - ✓ Evidence of all components of the Engineering Design Process

Laboratory Journal Guidelines

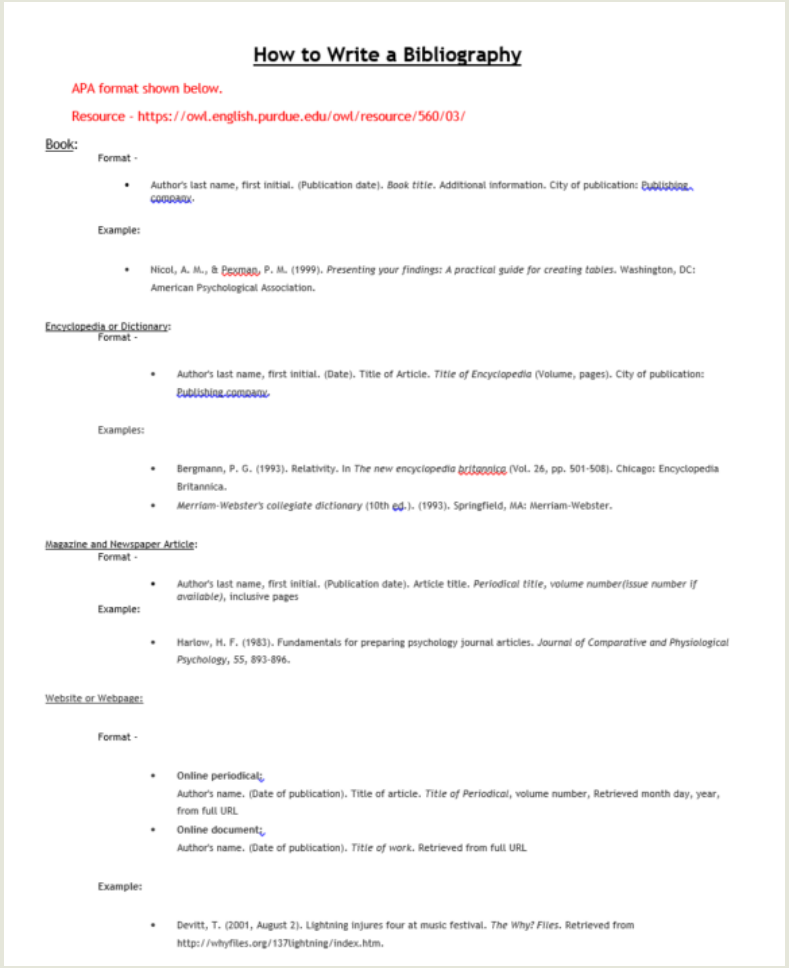


Science and Engineering Fair Laboratory Journal Guidelines

- Grades 3-5 are encouraged to complete a Laboratory Journal.
  - It is encouraged at all levels to complete a Laboratory Journal. K-2 teachers have an opportunity to model the journal with their class projects. Grades 3-5 are encouraged to have practice throughout the year during science instruction and complete one with their projects.
- Students wanting to be considered for the District Science and Engineering Fair must complete a successful Laboratory Journal or the project will not be allowed entrance to the district fair.
- The notebook should be a composition notebook, folder, or three-ring binder.
- Your Laboratory Notebook should have **DAILY** and/or weekly descriptions of your project, including all data collected.
- It should include background research collected for your experiment.
- It should have each heading from your display board with all of your thinking, work, ideas, problems, drawings, testing, data, etc.
- All of the work for your project should be kept in this journal before the final information is gathered and put on your display board.
- Hint: Tape a large envelope on the back of your display board and keep your journal in it until it is time to display all your hard work at your fair.

- Grades 3-5 are encouraged to complete a Laboratory Journal
- Grades 3-5 will be required to have one if they are looking to advance to the district fair.
- The Laboratory Notebook should have daily and/or weekly descriptions/accounts of the students project including all data.
- It should include background research collected for your experiment
- The goal is for a judge to pick up their journal and be able to follow their learning from beginning to end.

Bibliography



How to Write a Bibliography

APA format shown below.

Resource - https://owl.english.purdue.edu/owl/resource/560/03/

Book:

Format -

- Author's last name, first initial. (Publication date). *Book title*. Additional information. City of publication: Publishing company.

Example:

- Nicol, A. M., & Pexman, P. M. (1999). *Presenting your findings: A practical guide for creating tables*. Washington, DC: American Psychological Association.

Encyclopedia or Dictionary:

Format -

- Author's last name, first initial. (Date). Title of Article. *Title of Encyclopedia* (Volume, pages). City of publication: Publishing company.

Examples:

- Bergmann, P. G. (1993). Relativity. In *The new encyclopedia britannica* (Vol. 26, pp. 501-508). Chicago: Encyclopedia Britannica.
- *Merriam-Webster's collegiate dictionary* (10th ed.). (1993). Springfield, MA: Merriam-Webster.

Magazine and Newspaper Article:

Format -

- Author's last name, first initial. (Publication date). Article title. *Periodical title, volume number(issue number if available)*, inclusive pages

Example:

- Harlow, H. F. (1983). Fundamentals for preparing psychology journal articles. *Journal of Comparative and Physiological Psychology*, 55, 893-896.

Website or Webpage:

Format -

- **Online periodical:**
  Author's name. (Date of publication). Title of article. *Title of Periodical*, volume number, Retrieved month day, year, from full URL
- **Online document:**
  Author's name. (Date of publication). *Title of work*. Retrieved from full URL

Example:

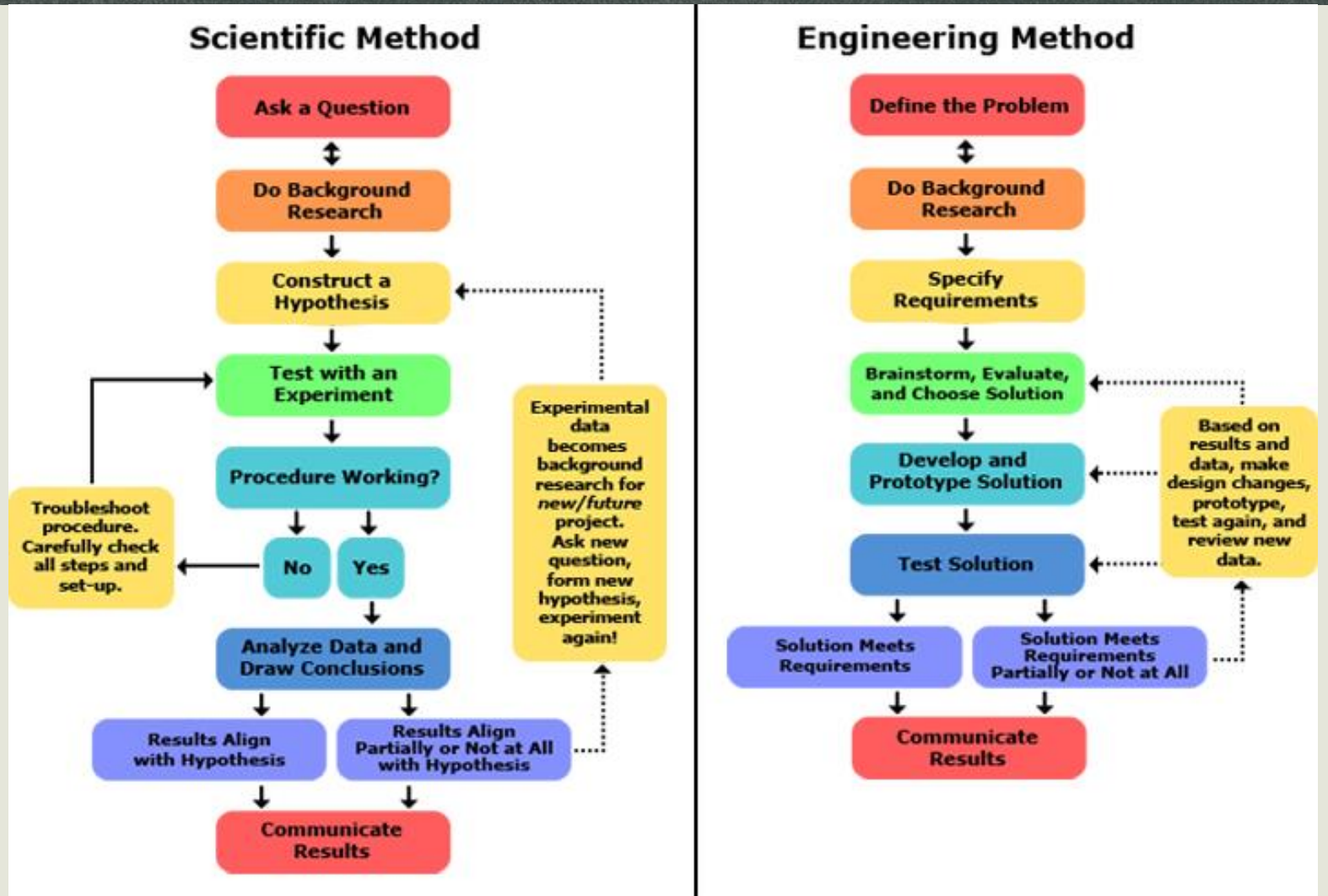
- Devitt, T. (2001, August 2). Lightning injures four at music festival. *The Why? Files*. Retrieved from http://whyfiles.org/137lightning/index.htm.

- APA Format is used for an example to ensure a smooth transition for students into secondary level science courses.
- Tip: Consult your Media Specialist to see if she can help students with their bibliographies for their projects?

Two Types of Projects

Scientific Method and Engineering Design Process

Scientific Method and The Engineering Design Process (EDP)



Forms

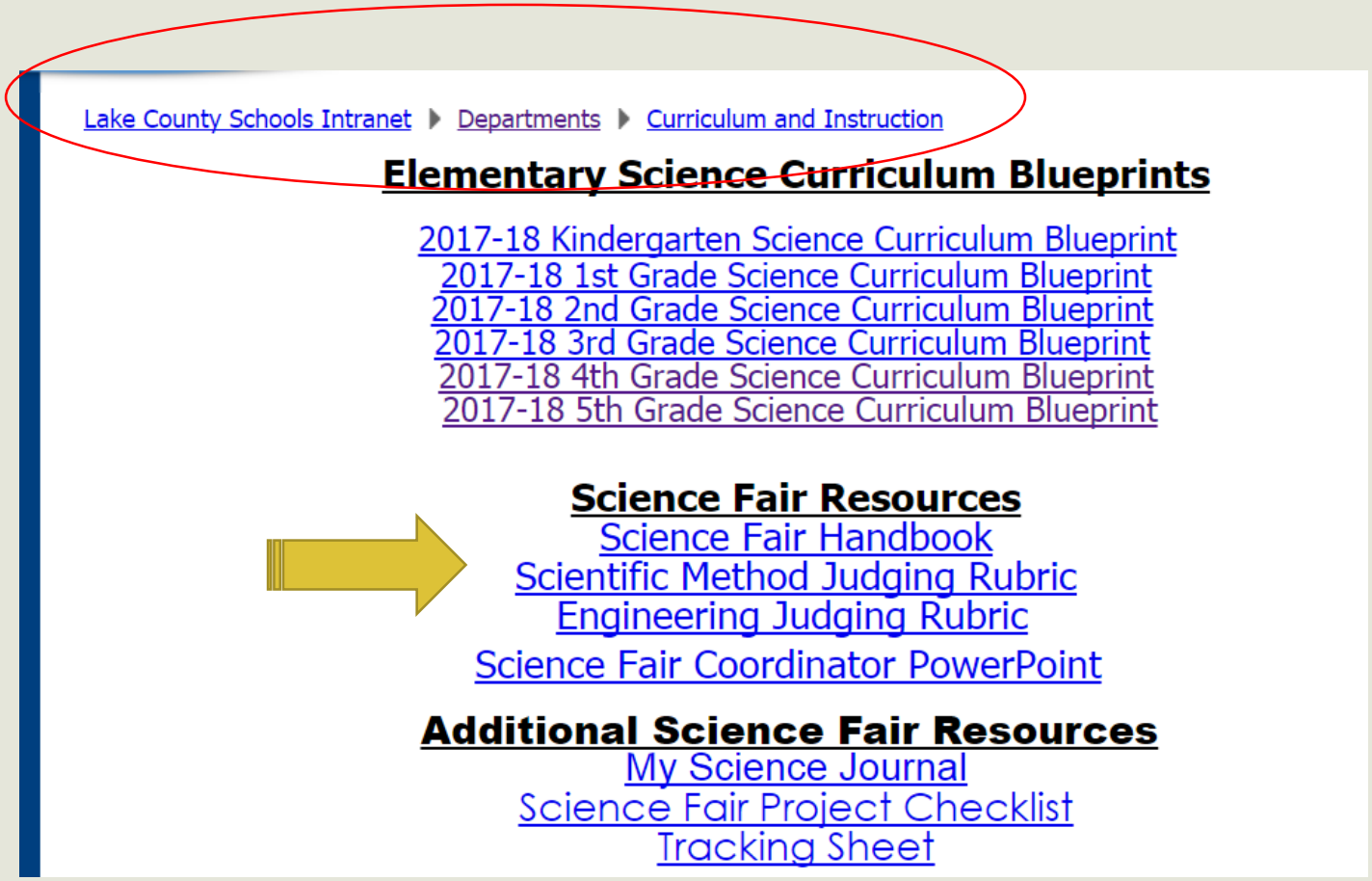
Found in your packets and I will also email them out.

Forms

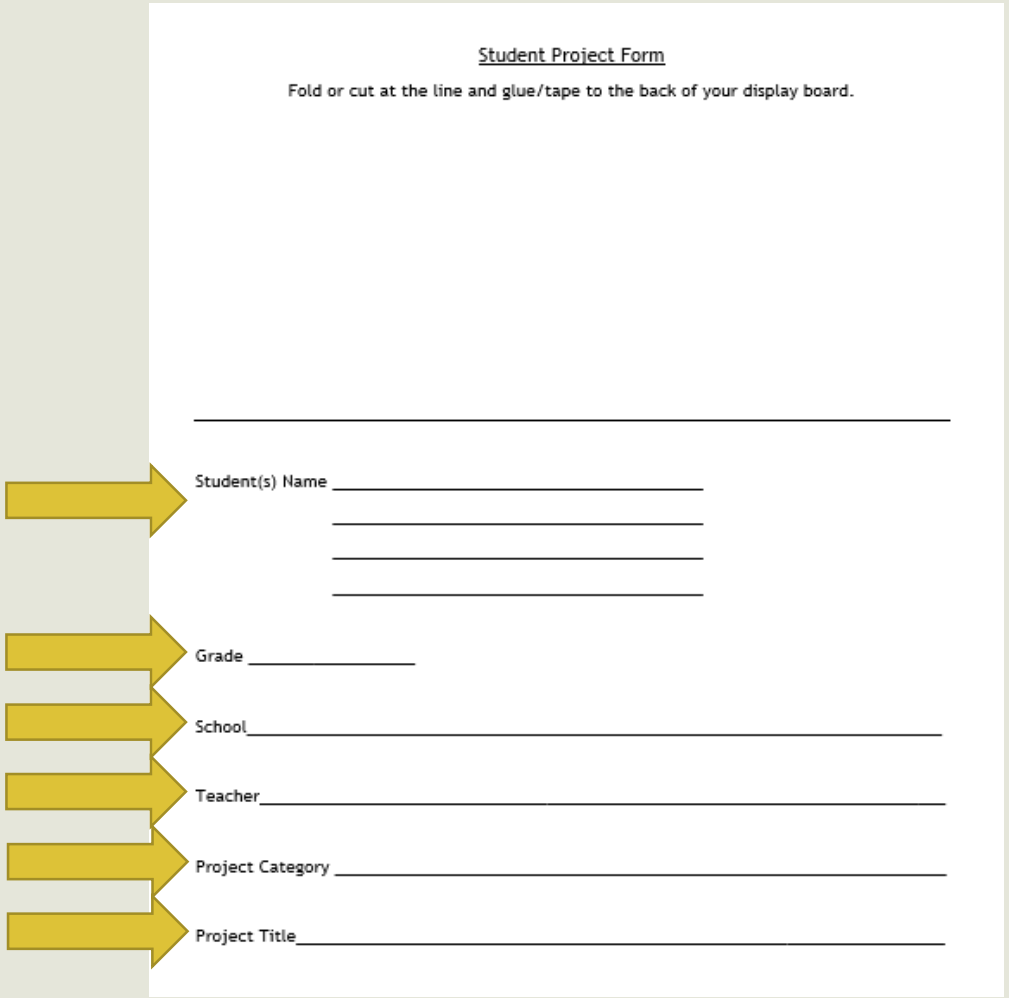
- K Drive
- AllUsers
- Curriculum
- Science Fair 2017-2018
  - Handbooks – PDF and Word
  - All Printable Forms
  - School Participation form

K:\AllUsers\Curriculum\Science Fair 2017-2018

Information also available on the website…



Student Project Form



Student Project Form

Fold or cut at the line and glue/tape to the back of your display board.

Student(s) Name _____

_____

_____

_____

Grade _____

School_____

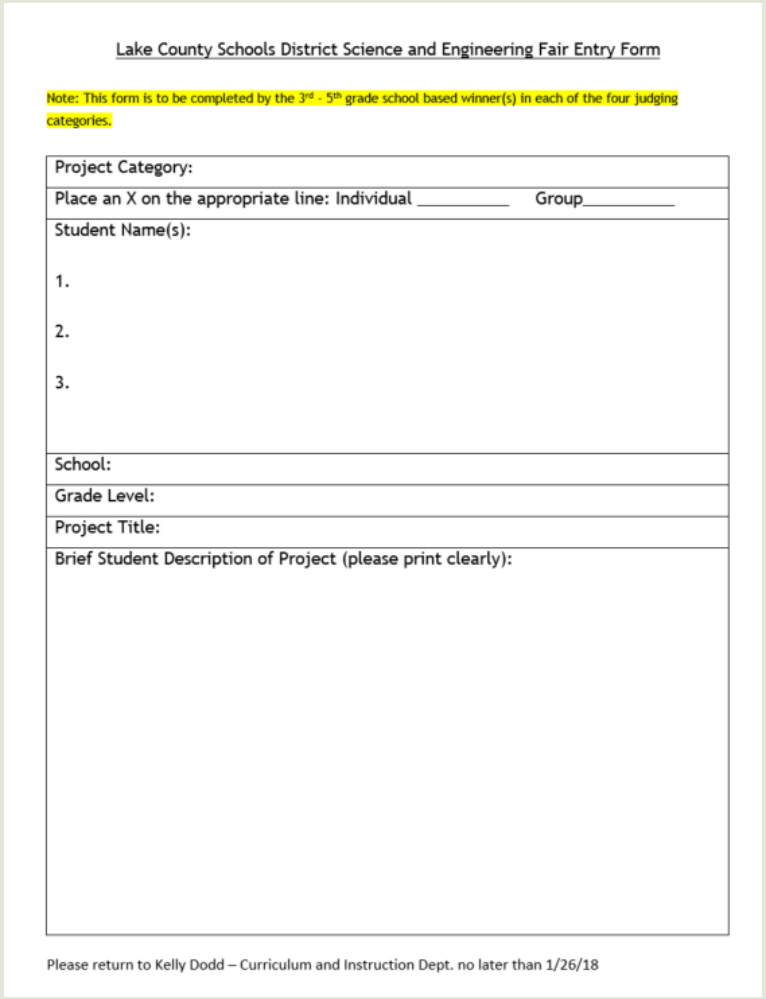
Teacher_____

Project Category _____

Project Title_____

- The Student Project Form is a resource intended to help you organize your school-based fair
- It will be required for ALL projects entering the District Science and Engineering Fair

District Science and Engineering Fair Entry Form



Lake County Schools District Science and Engineering Fair Entry Form

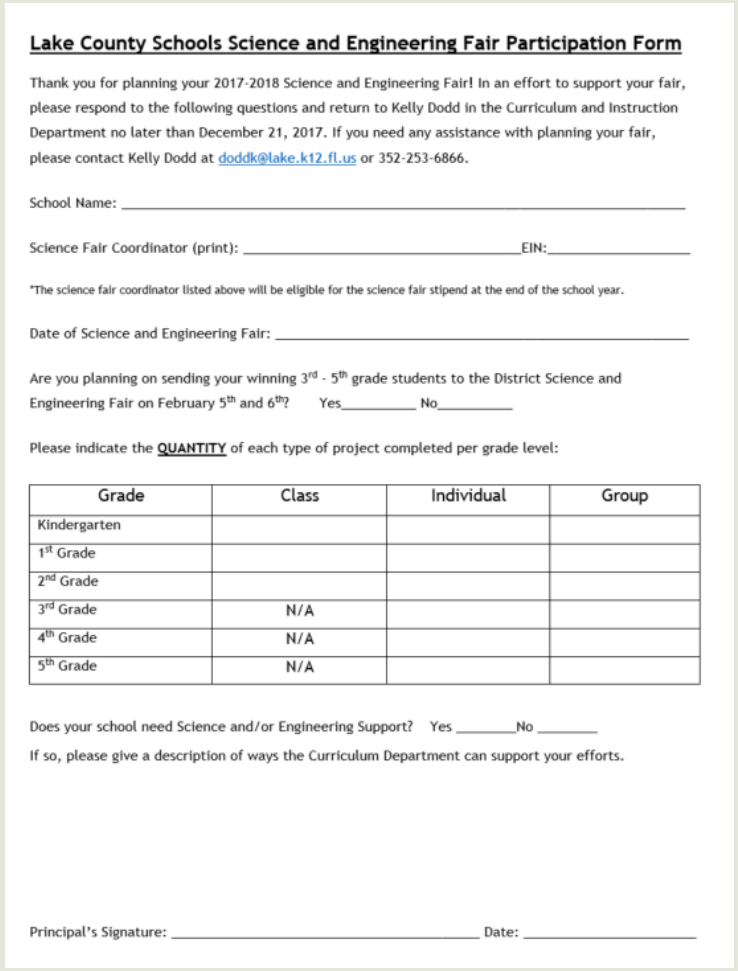
Note: This form is to be completed by the 3rd - 5th grade school based winner(s) in each of the four judging categories.

Project Category:
Place an X on the appropriate line: Individual _____ Group_____
Student Name(s): 1. 2. 3.
School:
Grade Level:
Project Title:
Brief Student Description of Project (please print clearly):

Please return to Kelly Dodd – Curriculum and Instruction Dept. no later than 1/26/18

- This form is for 3rd - 5th grade students entering into the District Science and Engineering Fair
- One form per student/student group winner(s) for each of the four judging categories.
- Must be filled out by students
- Must be legible or projects will not be judged
- Forms due to Kelly Dodd through Jack Rabbit or personal delivery on or before January 26, 2018

Science and Engineering Fair Participation Form



Lake County Schools Science and Engineering Fair Participation Form

Thank you for planning your 2017-2018 Science and Engineering Fair! In an effort to support your fair, please respond to the following questions and return to Kelly Dodd in the Curriculum and Instruction Department no later than December 21, 2017. If you need any assistance with planning your fair, please contact Kelly Dodd at doddk@lake.k12.fl.us or 352-253-6866.

School Name: _____

Science Fair Coordinator (print): _____EIN:_____

*The science fair coordinator listed above will be eligible for the science fair stipend at the end of the school year.

Date of Science and Engineering Fair: _____

Are you planning on sending your winning 3rd - 5th grade students to the District Science and Engineering Fair on February 5th and 6th? Yes_____ No_____

Please indicate the **QUANTITY** of each type of project completed per grade level:

Grade	Class	Individual	Group
Kindergarten			
1st Grade			
2nd Grade			
3rd Grade	N/A		
4th Grade	N/A		
5th Grade	N/A		

Does your school need Science and/or Engineering Support? Yes _____No _____

If so, please give a description of ways the Curriculum Department can support your efforts.

Principal's Signature: _____ Date: _____

- Participation Form due to Kelly Dodd through Jack Rabbit or personal delivery by December 21, 2017
- The Science Fair Coordinator listed on this sheet will be the coordinator that receives the Science Fair Coordinator stipend *Please make sure it is correct!
- Must have a principal signature
- Please indicate the **QUANTITY** of each type of project completed per grade level
- If you need support in planning, implementing or judging your Science and Engineering Fair please contact me as soon as possible!
  - ✓ doddk@lake.k12.fl.us
  - ✓ 352-253-6866

District Science & Engineering Fair

Wesley Center, Clermont

District Science and Engineering Fair

Who:

- Only for 3rd – 5th grade students who placed FIRST in each of the four judging categories.
  - Earth Space Science
  - Physical Science
  - Life Science
  - Engineering

Where:

- The Wesley Center, Clermont

If you plan to participate in the District Science and Engineering Fair your school-based fair must be completed <u>on or before</u> January 26th!

When:

- District Science and Engineering Fair will be held on Monday, February 5th and Tuesday, February 6th
- Project Drop off Monday - February 5, 2018
- Open to the Public/Judging/Awards – Tuesday, February 6th

Projects MUST be picked up Tuesday evening!

Contact Me!!

Kelly Dodd

K-5 Science/Social Studies/Enrichment Program Specialist

Curriculum and Instruction Department

doddk@lake.k12.fl.us

352-253-6866