Laurel Ridge Elementary
STEAM Night Student Project Information
2023- 2024
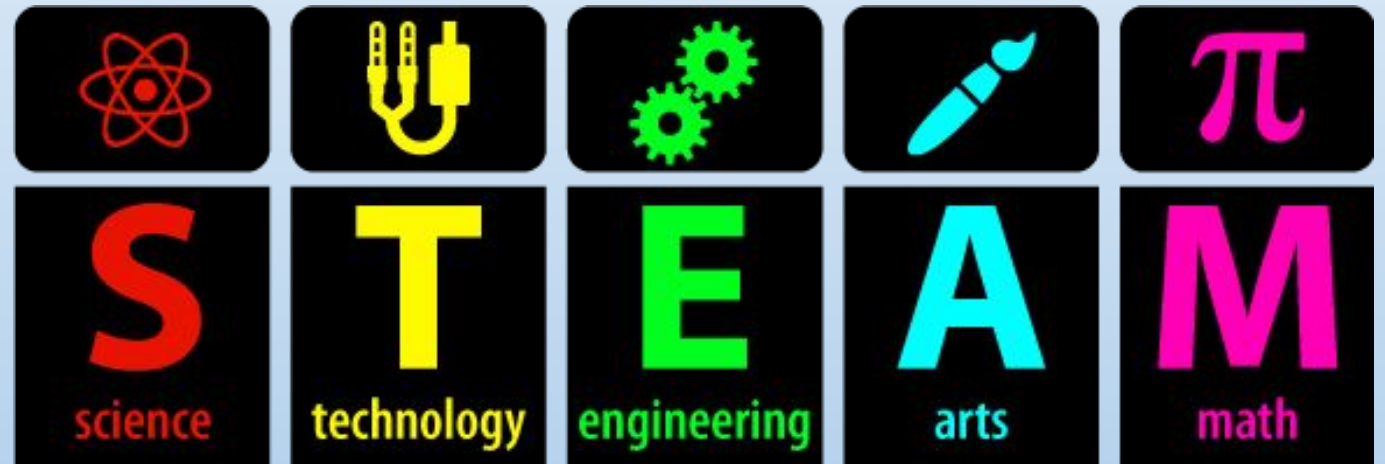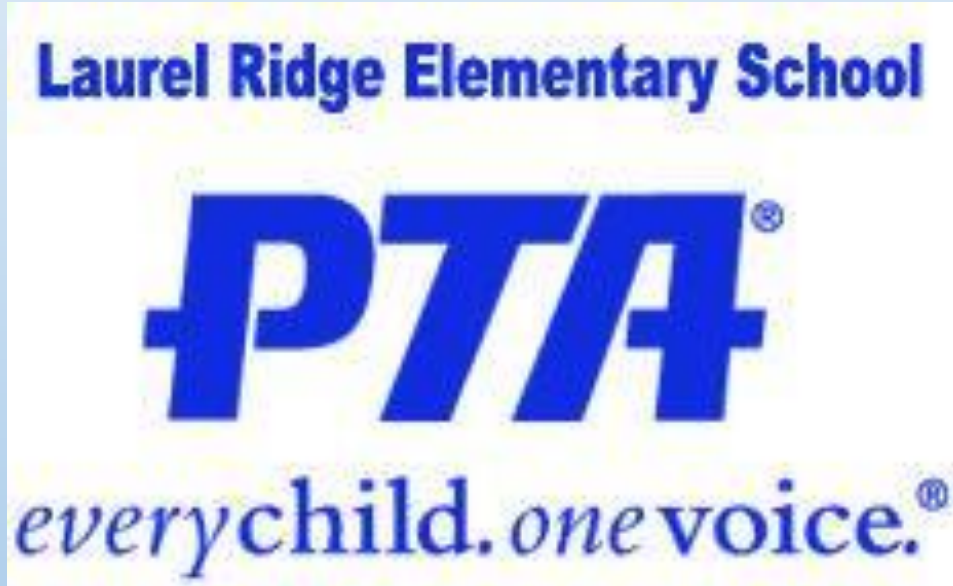

Image Source: Johnson County Public Library

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Laurel Ridge Elementary
Fairfax County Public Schools
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LRES STEAM Night

Join LRES PTA for a FREE family STEAM Night of fun, exploration and creativity!

STEAM Night will be held on **Friday, April 26**[th].

Student Presentation Set Up and Exhibition:

Display Set Up: 5:00pm to 6:00pm
(families can set up projects in the cafeteria during this time)

Display Exhibition Time: 6:00 to 8:00pm
(project displays can stay up on tables until the end of STEAM Night)

STEAM Activities in Gym: 6:00 to 8:00pm

What is STEAM?

STEAM stands for Science, Technology, Engineering, Arts, and Mathematics. You might have seen the acronym STEM used nationally. This is the same as STEAM, the only difference is that Art is added as one of the disciplines.

STEAM is a curriculum based on the idea of educating students in five specific disciplines — science, technology, engineering, arts and mathematics — in an interdisciplinary and applied approach. Rather than teach the five disciplines as separate and discrete subjects, STEAM integrates them into a cohesive learning paradigm based on real-world applications.

Source: Live Science

What is STEAM? Cont.

Below are short descriptions of the five subject areas in STEAM:

Science: The study of the natural world.

Technology: the definition for technology includes any product made by humans to meet a want or need. A chair is technology; so is a pencil. Any product kids create to solve a problem can be regarded as technology.

Engineering: The design process kids use to solve problems.

Arts: Applying the various branches of creative activity, such as painting, music, literature and dance.

Math: The language of numbers, shapes, and quantities in our world.

What do you mean by "Student Projects"?

Students are welcome to create a project containing one or multiple subject areas of STEAM.

The process for students in creating their projects is very simple… think, create, learn and have fun. Let your child decide on what project type he or she would like to do. Offer guidance and support, encourage them to move on to the next step, the more engaged they are in their own project, the more they will learn.

Image Source: Scholastic Inc.

Hint for parents: Watch some Magic School Bus shows with your child and follow the advice of Ms. Frizzle, "Take chances! Make mistakes! Get messy!".

What do you mean by "Student Projects"?
Cont.

Creating a STEAM Night student project is totally voluntary. You do not need to create or bring a project to attend STEAM Night.

Laurel Ridge Elementary and LRES PTA are not able to provide materials for the creation of student projects. However, creating a project does not need to be expensive or time consuming.

Think about using materials that you have around the house or already have access to. Recycled items can be a great source of project inspiration.
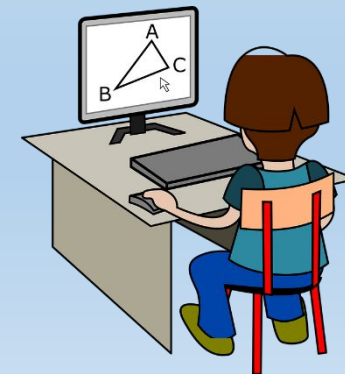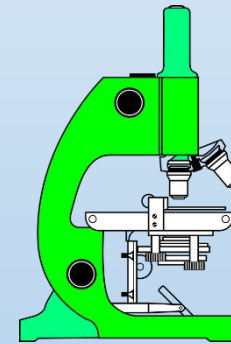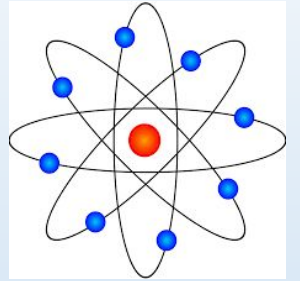
Student Projects Display and Presentations

Set up of student projects will take place form 5:00pm to 6:00pm, any time within this hour in the cafeteria. During this hour families can look at other projects that are being set up. Student project displays and exhibitions will start at 6:00pm and continue to 8:00pm. During this time, students are encouraged to explain their projects to spectators and other STEAM Night participants. Don't be shy, walk around to look at other projects and ask questions!!

Parents and students are not required to stand by their projects from 6:00pm to 8:00pm. No formal individual presentations are scheduled.

Starting at 6:00pm to 8:00pm students and parents are encouraged to visit the GYM to explore the different STEAM Night activities.

Before the night is over, please take your projects with you.

Goal of Student Projects

Some steps to get started in choosing a project:

- Show your child a list of different project ideas in the different subject areas of STEAM
- Make a list of the projects your child is most interested in doing
- Discuss if you can actually create those projects… time, money, resources… (you might not have access to a scanning electron microscope ☺)
- Settle on one project
- Plan out the steps
- Get materials ready
- Conduct the experiment/project
- Record/document data gathered, such as process, steps and expected or un-expected results
- Plan on how to transport and set up/present the project at LRES

Goal of Student Projects Cont.

Projects can range from creating an old fashion volcano with vinegar and baking soda to creating a computer programing code, explain the process and displaying what that code does in a computer.

Don't forget about the good, old Scientific Method, this can help guide your child in creating/showing all the steps in a traditional science experiment. Look in the 2nd Resources slide for detailed information on the Scientific Method.

The Scientific Method as an Ongoing Process

Make Observations
What do I see in nature? This can be from one's own experiences, thoughts, or reading.

Think of Interesting Questions
Why does that pattern occur?

Formulate Hypotheses
What are the general causes of the phenomenon I am wondering about?

Develop Testable Predictions
If my hypotesis is correct, then I expect a, b, c...

Gather Data to Test Predictions
Relevant data can come from the literature, new observations, or formal experiments. Thorough testing requires replication to verify results.

Refine, Alter, Expand, or Reject Hypotheses

Develop General Theories
General theories must be consistent with most or all available data and with other current theories.

Also, don't forget other types of projects such as painting a picture and explaining the process of how the different colors were chosen or mixed together, how light affected the placement of shadows….

A well rounded STEAM project could have the S, A and M in it.

There is no right or wrong project. Remember, it's all about learning something new and having fun in the process.
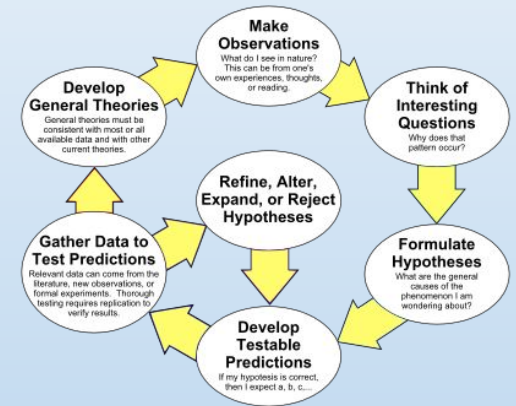
Project Restrictions

Below are some guidelines on choosing and displaying projects:

- No projects that involve humans (no one wants to see what happens if your little brother eats 100 earthworms 🤢)
- No projects that involve animals
- No flames in the exhibition area
- No high voltage or current in the exhibition area (low battery voltage and current is ok, just don't connect those 10 car batteries in a series)
- No corrosive or hazardous chemicals in the exhibition area

There are limited numbers of wall outlets. Please let us know if you need an electrical outlet when you complete the Student Project Sign Up form.

Project Ideas

As you can imagine, there are many project ideas out there to choose from. There are 1,001 websites describing some great ideas for STEAM projects.

Bellow are some links to web pages containing project ideas:

Science Buddies: http://www.sciencebuddies.org/science-fair-projects/Intro-Chemistry.shtml

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

Bill Nye: http://billnye.com/#educational

Steve Spangler: https://www.stevespanglerscience.com/

Project Ideas Cont.

The STEM Laboratory: http://thestemlaboratory.com/stem-activities-for-kids/

Science Kids Fun Science & Technology for Kids!: http://www.sciencekids.co.nz/experiments.html

Science Bob: https://sciencebob.com/category/experiments/

National Science Foundation: https://www.nsf.gov/news/classroom/

Babbledabbledo.com: http://babbledabbledo.com/25-steam-projects-for-kids/

and many more online ☺

A STEAM Night Project Participation Certificate will be awarded to each project participant at the end of the Project Exhibitions.

Please complete the online sign up form by Monday, April 22nd.

Resources

- Laurel Ridge PTA: https://laurelridge.ptboard.com/

- Fairfax County Public Schools STEAM Information Page: https://www.fcps.edu/academics/academic-overview/steam

- Fairfax County Public Schools STEAM Twitter Feed: @FCPSSTEAM

- National Science Foundation STEM Information: https://nsf.gov/nsb/sei/edTool/

- U.S. Department of Education STEM: https://www.ed.gov/stem

Resources

This PowerPoint can not conclude without providing information on the Scientific Method. Explaining this here would take 10 more additional slides, so please visit "ScienceBob.com" with the link below. They have a very nice explanation that you can download as a PDF. The website is free for anyone to use.
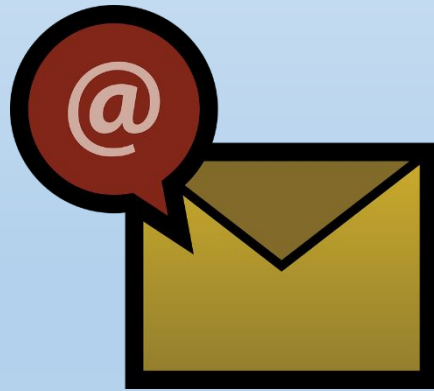
https://sciencebob.com/science-fair-ideas/the-scientific-method/

The Scientific Method as an Ongoing Process
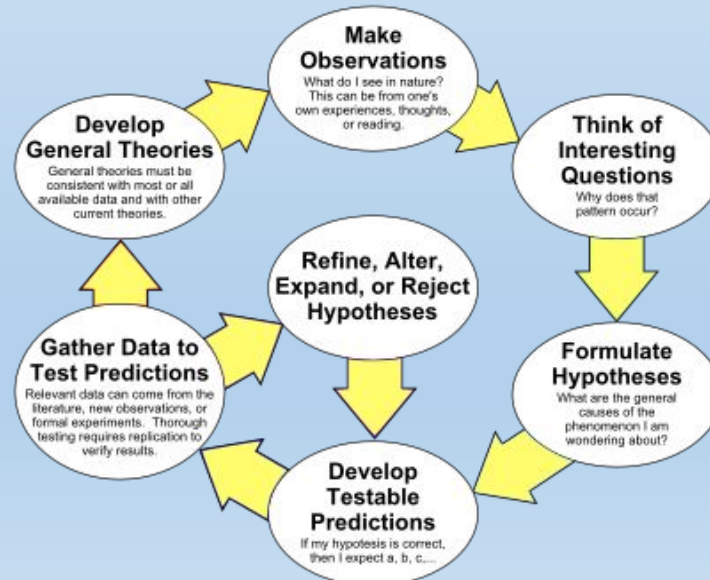
Contact Information

- For information on STEAM Night and student projects please email lressteam@gmail.com.

Citations

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