

TRACK 2 STEM ELECTIVE OPTIONS

This document is for Track 2 students only!!!

Have you ever considered a career as an inventor, scientist, architect or astronaut? The foundation of learning for these and other high-tech jobs of tomorrow begin with four letters - **S.T.E.M.** (Science, Technology, Engineering and Mathematics). As a member of the WCPSS STEM Schools Collaborative Network, we are excited about the many STEM learning opportunities that ECMS students will participate in for the 2015-16 academic year.

You have the opportunity to select and participate in a STEM elective this year! STEM electives are sessions that provide project-based, hands-on activities focused on STEM topics. These electives will occur once every three weeks and the ECMS staff will utilize their knowledge and talents to provide a great experience to all students. STEM Electives will be offered per track.

You can only sign up for STEM Elective sessions for your track only (for scheduling purposes).

As you read the STEM elective options, please make note of the electives that interest you. Please be prepared to rank your elective choices in order of preference. We will try our best to assign you to one of your top preferences as space is available.

OPTION 1

Topic: Eco Art

Instructors: A. Rehm & M. Schneider

Location: Room 204

STEM Focus: Science



Description:

The students will gain an understanding of how humans impact the environment. They will understand how they can reduce their carbon footprint. They will be able to recognize how they can use recycled and natural materials to create something new. They will create many pieces of artwork to display but they will also be able to present to an audience about what they used in their creations and why using those materials is a benefit to the environment.

Learning Goals/Objectives:

Explain why the use of recycled and reused materials is better for the environment.

Create at least one piece of art using natural materials.

Create art pieces using recycled or reused materials.

Essential/Driving Question(s):

How can we reduce our carbon footprint? How can we reuse other people's trash to make something out of it?

OPTION 2:

Topic: Junk Box Wars

Instructors: C. Rudder & T. Goodwin

Location: Room 805

STEM Focus: Engineering



Learning Goals/Objectives:

Students will be challenged to use their imaginations, scientific knowledge, and a box of "junk" to create a variety of devices that perform an assortment of tasks.

Essential/Driving Question(s):

1. What is the engineering design process and how is it used?
2. Why is brainstorming important when modifying or improving a product?
3. Why is teamwork important when modifying or improving a product?
4. Why is a design process so important to follow when creating a solution to a problem?

Description:

Students will develop their engineering design skills, learn to work collaboratively, and learn to overcome obstacles to solve problems. Each class will involve a new design problem and students will be presenting their final projects at the end of each elective day.

OPTION 3:

Topic: Show Me the Money!

Instructors: L. Barnhill & J. Johnson

Location: Room 309

STEM Focus: Mathematics



Learning Goals/Objectives:

Students will learn how to effectively spend and save money.

Essential/Driving Question(s):

Why is it important to have a budget? How do you save money to purchase items you want? How do you prioritize what you buy?

Description:

Students will create a budget, write checks (using debit cards), balance a checkbook, and create a savings plan based on a "first job" experience. In addition, students will learn to do comparative shopping, manage the use of gift cards, calculate discounts, tips, and sales tax. Students will learn how to effectively

spend and save money. Students will create a 21st Century Portfolio for teenagers that will assist them in becoming effective consumers.

OPTION 4:

Topic: Electronic Music

Instructors: C. Branam & M. Lee

Location: Media Center

STEM Focus: Technology

Learning Goals/Objectives:

Using technology students will compose and perform their own original musical compositions.

Essential/Driving Question(s):

How Can I Use Technology to Create Music?

Description:

Using iPads students will learn how to compose and perform musical compositions through the Garage Band software. Students will be able to arrange instruments and desired sounds to create their musical compositions. As a final product, students will burn a cd with their compositions.



OPTION 5:

Topic: The Science of Makeup

Instructors: T Price & S. El Shafie

Location: 313

STEM Focus: Science

Description:

Students will research the chemicals and other products used in common makeup today.



Learning Goals/Objectives:

Identify the ingredients in different brands of makeup and be able to tell if it's harmful to their skin. Record and report their findings.

Essential/Driving Question(s):

What types of chemicals are found in makeup?

How are these chemicals affecting our skin?

What types of makeup use natural products?

Is makeup harmful to your skin?

OPTION 6:

Topic: Paper Engineering

Instructors: D. Harris

Location: Media Center

STEM Focus: Science, Engineering, Mathematics



Learning Goals/Objectives:

Mathematics - Solve real-world and mathematical problems involving area, surface area, and volume;

Science - Understand conservation and recycling; **Engineering** - Design, create, and build products.

Essential/Driving Question(s):

How can I recycle, reuse, and repurpose everyday paper materials into new, creative, and usable products?

Description:

Students who participate in this STEM Elective will engineer new products from new and recycled papers, measure, fold, and craft products from new and recycled papers, and make paper and various products from new and recycled papers. Products may include origami, envelopes, cubes and boxes, pop-up books, cards, bags and containers, and artwork.