Future Opportunities

In subsequent school years, IU13 will continue training teachers and staff on the technology tools/software and how to support a student's Individualized Education Program (IEP) goals through the use of STEM lessons.



"STEM on Wheels"

The "STEM on Wheels" program provides mobile sets of instructional technology devices to teachers. It also provides direct teaching instruction in IU13 special education classrooms. This program reaches over 300 students across Lancaster and Lebanon counties to:

- 1. Increase access to instructional technology for students in IU13 classrooms, with a particular focus on devices and software that will help students learn coding and sequential thinking, build their problem-solving skills, and grow in their hands-on STEM abilities.
- 2. Improve "technology equity" for IU13 students in special education classrooms.
- 3. Show measurable growth in the students' communication, problem-solving, critical thinking, and collaboration skills.
- 4. Increase special education teachers' comfort level with integrating technology-based lessons into their classrooms.



Contact Information

Lori Blantz

Supervisor of Child Accounting and Instructional Technology Specialist for ECSES Programs Iori_blantz@iu13.org | 717-606-1970

Giovanna Chamberlain SEC for STEM and Instructional Technology Services giovanna_chamberlain@iu13.org | 717-947-1254



1020 New Holland Avenue | Lancaster, PA 17601 717-606-1600 | www.iu13.org

STEM Education in Special Education Classrooms



Adapting STEM Lessons for All Students!



IU13 is an equal opportunity employer.

What Is STEM?

Science, Technology, Engineering, and Mathematics

STEM is an educational approach that uses Science, Technology, Engineering, and Mathematics to guide

student inquiry, dialogue, and critical thinking. The goal is to encourage students to take thoughtful risks, engage in experiential learning, persist in problem-solving, embrace collaboration, and work through the creative process.



Why Is STEM Important?

STEM helps foster life skills, such as learning how to problem solve, overcome obstacles, and collaborate with peers. These are lasting skills all people need to have for future success.

STEM lessons (for special education classrooms) at IU13 nurture skills such as organization, higher-order thinking, self-esteem, socialization, and teamwork, all of which can be challenging to cultivate in students with learning needs. Through these adapted lessons, we are helping students become better readers, writers, and mathematicians. These lessons build confidence in the students' ability to learn and create, and help to cultivate a sense of pride.

Adapting Lessons to Meet Needs

With the rise in STEM-related educational programs, the IU13 Early Childhood and Special Education Services (ECSES) team strived to adapt and integrate STEM-related lessons into special education classrooms. Thus began a pilot program during the 2018-2019 school year involving 28 teachers willing to dive into the world of STEM education with their students. This pilot program has expanded to include more teachers and, during the pandemic, to offering virtual lessons and services.

STEM Lessons in Special Education Classrooms

The ECSES team researched and prepared STEM lessons for special education classrooms. All of the activities were met with great enthusiasm and high remarks from students and staff! Here are some samples of the lessons provided:

Unleakable Baggie: Students experiment to see if a punctured baggie can still hold water. They learn terms like "polymers" and "prediction," and expand their thinking by trying to determine if other items, like crayons or paperclips, can go through the bag without it leaking. (1)

Sneak-a-Peek: Students discuss career readiness indicators and skills required for future jobs, which expands their communication and teamwork skills. During the lesson, one student looks at a model that is hidden from the rest of the class and uses appropriate communication skills to show students how to make that same model. (2)

Ozobot Beginner Lesson on Coding: An Ozobot is a tiny robot that teaches students about coding. Students learn how to operate Ozobot, how Ozobot senses its environment and moves in it, and how to tell Ozobot what to do using Color Codes. Students use a deliberate design process to test theories, create innovative artifacts, and solve authentic problems. (3)

Spinning Top: Students begin this lesson by watching an episode of *Shark Tank* that showcases four teen entrepreneurs. Students are then challenged to make a spinner using items found only in a bag provided by teachers. Afterwards, students explain their invention and why the judges should invest in their product. **(4)**

STEM Lessons in Multiple Disabilities Support (MDS) classes: Students learn through experimentation and observation how carbon dioxide is created and how it is used to blow up a balloon. They also learn about the water cycle and how clouds hold rain. Students create their own rainbow water xylophones. (5)

Create and Make Your Own Pizza: Students learn about jobs at pizza shops as they create items that are used in a traditional pizza shop. Students also learn about the history of pizza, how to make pizza, and how to run their own pizza shop. As a final project, the students create menus, signs, and invite other students and staff to eat their homemade pizza. (6)













