



K-12 Scope & Sequence

Computer Science, Robotics, & Computer Assisted Design



Introducing ChatGPT

We've trained a model called ChatGPT which interacts in a conversational way. The dialogue format makes it possible for ChatGPT to answer followup questions, admit its mistakes, challenge incorrect premises, and reject inappropriate requests.

[Try ChatGPT ↗](#)

[Read about ChatGPT Plus](#)



Aadit Sheth | Mr. Prompts
@aaditsh

AI tools that didn't exist one year ago:

- GPT-4
- SlidesAI
- Whisper
- Copy .ai
- ChatGPT
- Midjourney
- Stable Diffusion
- Text-to-image AI
- Replit Ghostwriter
- AI email responses
- AI chrome extensions
- Dalle-2 Image generation
- AI website and app builders
- Text to 3D world generation



OpenAI Auto-GPT

The Ultimate Tool for
Automated Content Creation
www.teccgadgets.com



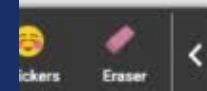
What jobs or careers will be available for adults in the next 10-15 years?



Send a message...

[ChatGPT Mar 23 Version](#). Free Research Preview. ChatGPT may produce inaccurate information about people, places, or facts

AI



Computer Assisted Design



Computer Science



Robotics



COMMITTEE

13 TEACHERS

**7
ADMINISTRATORS**

7 BUILDINGS

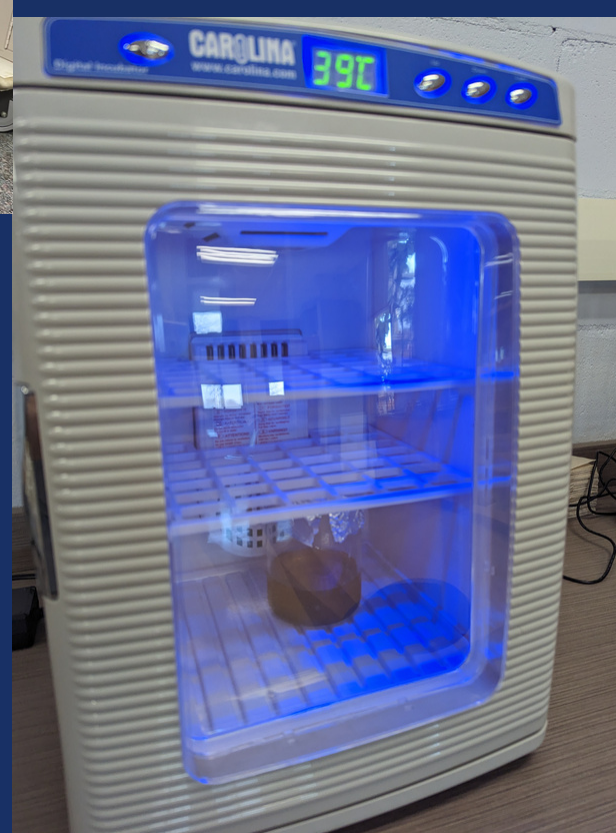
COLLABORATION

**3 SCOPE &
SEQUENCES**

RESOURCES

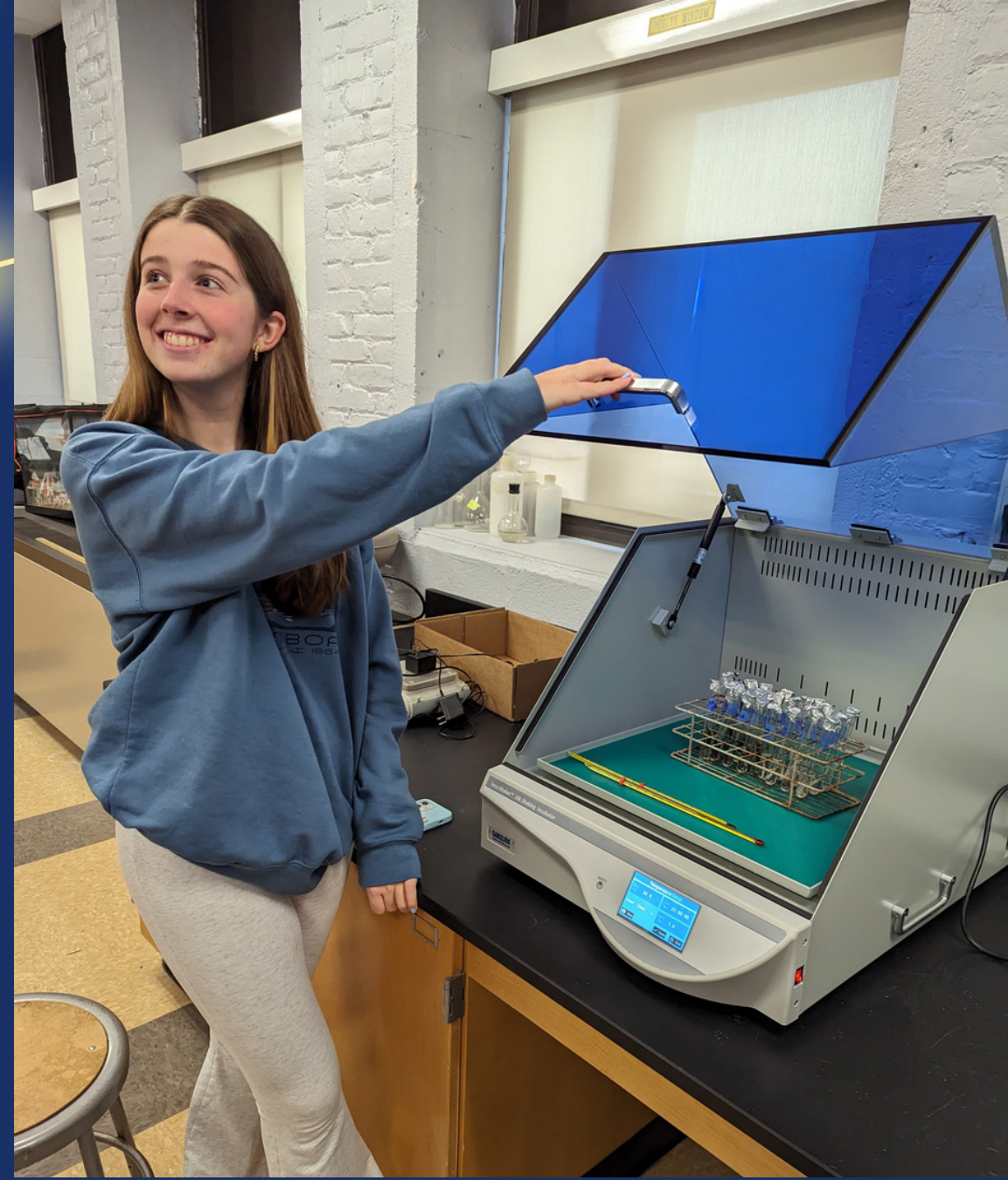
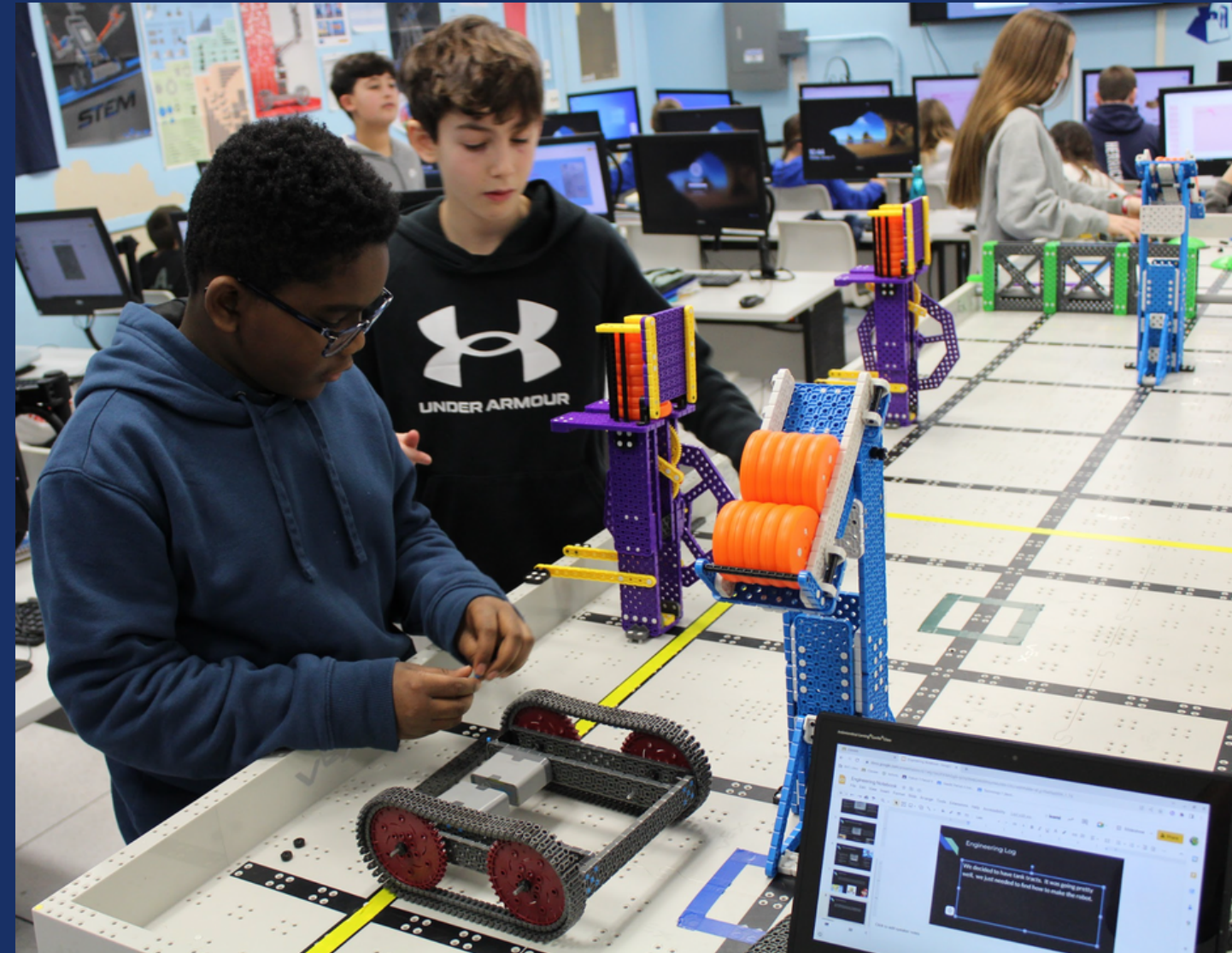
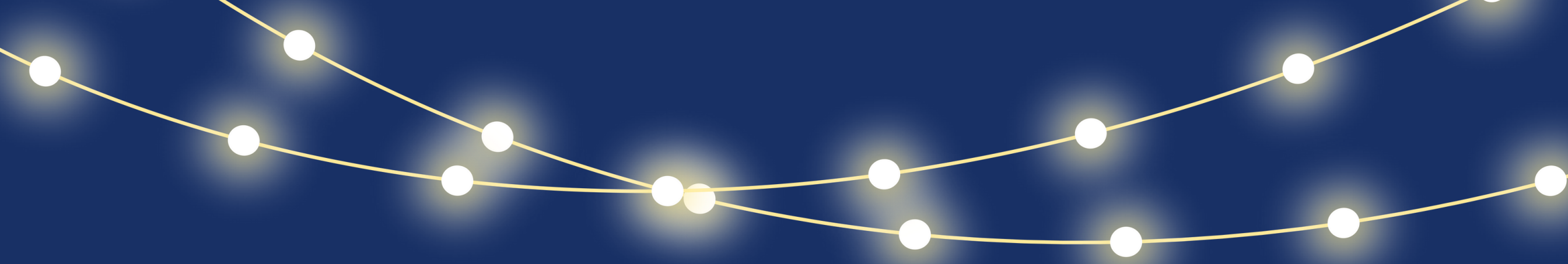


ROCKVILLE CENTRE RVC EDUCATION FOUNDATION



THE ROCKVILLE CENTRE TEACHER CENTER A COMMUNITY OF LEARNERS





Backward Design

Planning for Cohesion & Sustainability

1

Determine
Outcomes

What skills,
knowledge, and
dispositions do
we want each
learner to leave
each school with?

2

Establish
Learning

What will be the
assessments and
subsequent
learning pathways
at each level of
learning?

3

Plan for
Shifts

What are the
resources and
materials we will
need?

Determine
Outcomes

Our lessons, units, and courses should be logically inferred from the results sought, not derived from the methods, books, and activities with which we are most comfortable. Curriculum should lay out the most effective ways of achieving specific results... in short, the best designs derive backward from the learnings sought."

-Wiggins & McTighe in Understanding by Design,

Skills & Knowledge 12th graders will graduate with (Outs)	Skills & knowledge 6th-8th will implement (Outs) Skills & Knowledge incoming 9th graders (Ins)	Skills and Knowledge K-5 will implement (Outs) Skills & Knowledge incoming 6th graders (Ins)
Computer Science		
APCSP: Python	CS Fundamentals	Color by Code sequencing, directionality, intro to Algorithms
APCSA: JAVA	Hatch lv 1 & 2 (first year, then LV 2 and moving to Python)	Maze Code Algorithms, Loops, Debugging
IB Computer Science	Intro to Python until we see for the first 10 weeks	Sprite Editor Pixel Arts, Animations, Art Editor
<i>Half yr courses to apply?</i>	Introduction of AP CSP concepts and vocabulary-principles	Hatch Angels, Shapes, Creating Programs, Loops, Cloning, Sprties

What do we want learners to know and be able to do?

How do we know our learners have learned the skills and knowledge required to advance their capabilities?



Computer Science

For ALL!



ELEMENTARY

.....

- KidOYO coding program was introduced through STELLAR
- Continuing through student-centered inquiry with various challenges that provide rewards and prompt further investigations
- Developing curriculum for each grade level moving forward with a focus on MS coding readiness skills
- Teachers will have the opportunity to collaborate within a Collegial Circle Framework with a focus on KidOYO.



MIDDLE SCHOOL

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- Comp Sci as an EOD elective to 8th grade
- Comp Sci as a part of 7th grade Exploratory
- Comp Sci as part of 6th grade Strategies for Life
- Offering opportunities to explore Arduino

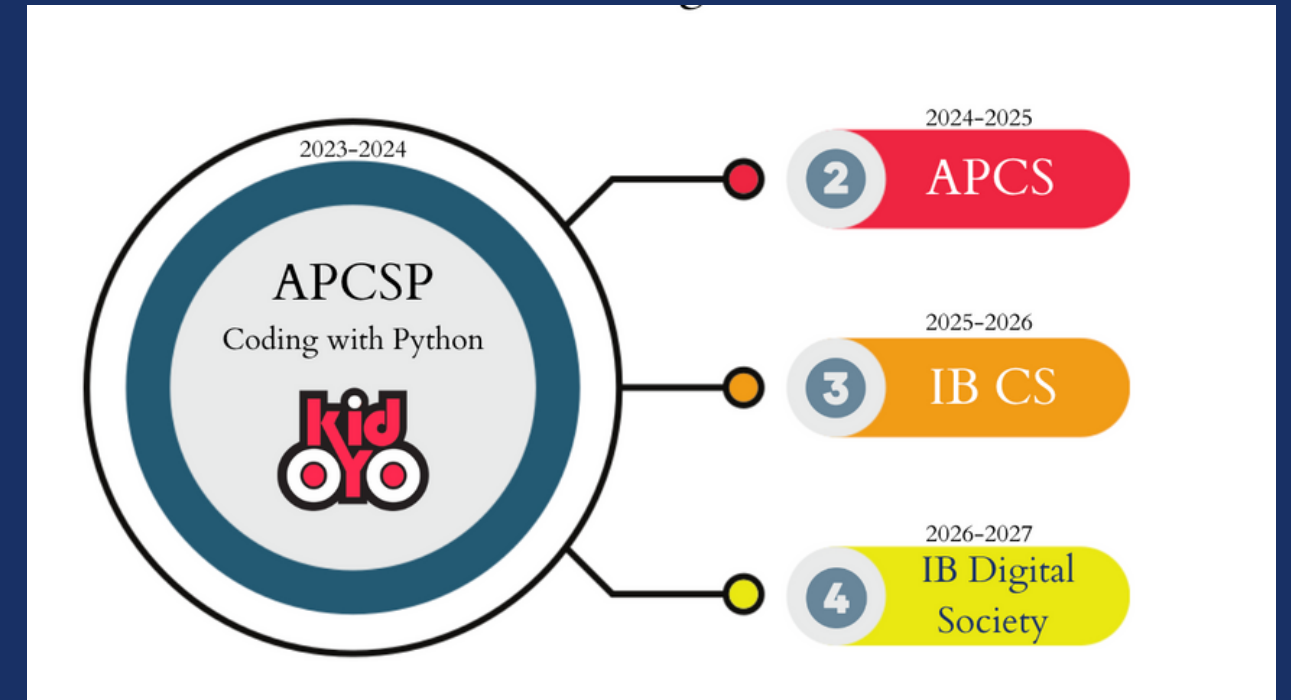


HIGH SCHOOL

.....

- AP Computer Science Principles as a full year course in '23-'24 (change from current semester Intro to Coding) using kidOYO's learning platform and their Python Pathway
- Offer AP Computer Science A in '24 - '25
- Exploring IB Computer Science options & other electives

Next Steps for Computer Science in RVC School District



kidOYO® presents...

CODE CONQUES



Virtual Coding Competitions
Solo & Team Play
All levels of Coders



Previous Hackathons



Monster Island

🕒 Date: Apr 30th, 2021

📍 Location: Online

👑 Winner Team: Hauppauge Codin' Eagles

▶ [view replay](#)



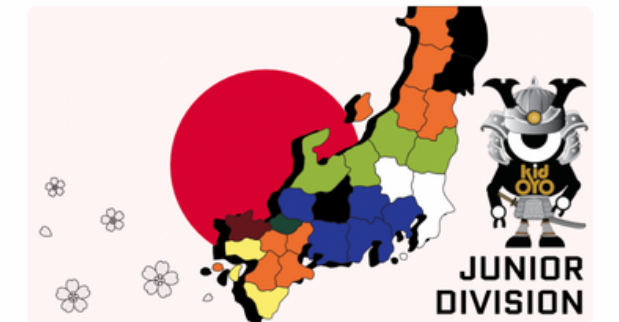
Dragon's Realm

🕒 Date: Apr 9th, 2021

📍 Location: Online

👑 Winner Team: Tolyan Dynasty [ESM]

▶ [view replay](#)



Samurai Conquest

🕒 Date: Mar 12th, 2021

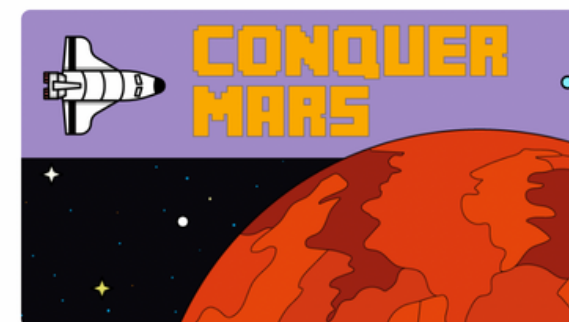
📍 Location: Online

👑 Winner Team: ManH4CKset Potatoes

▶ [view replay](#)



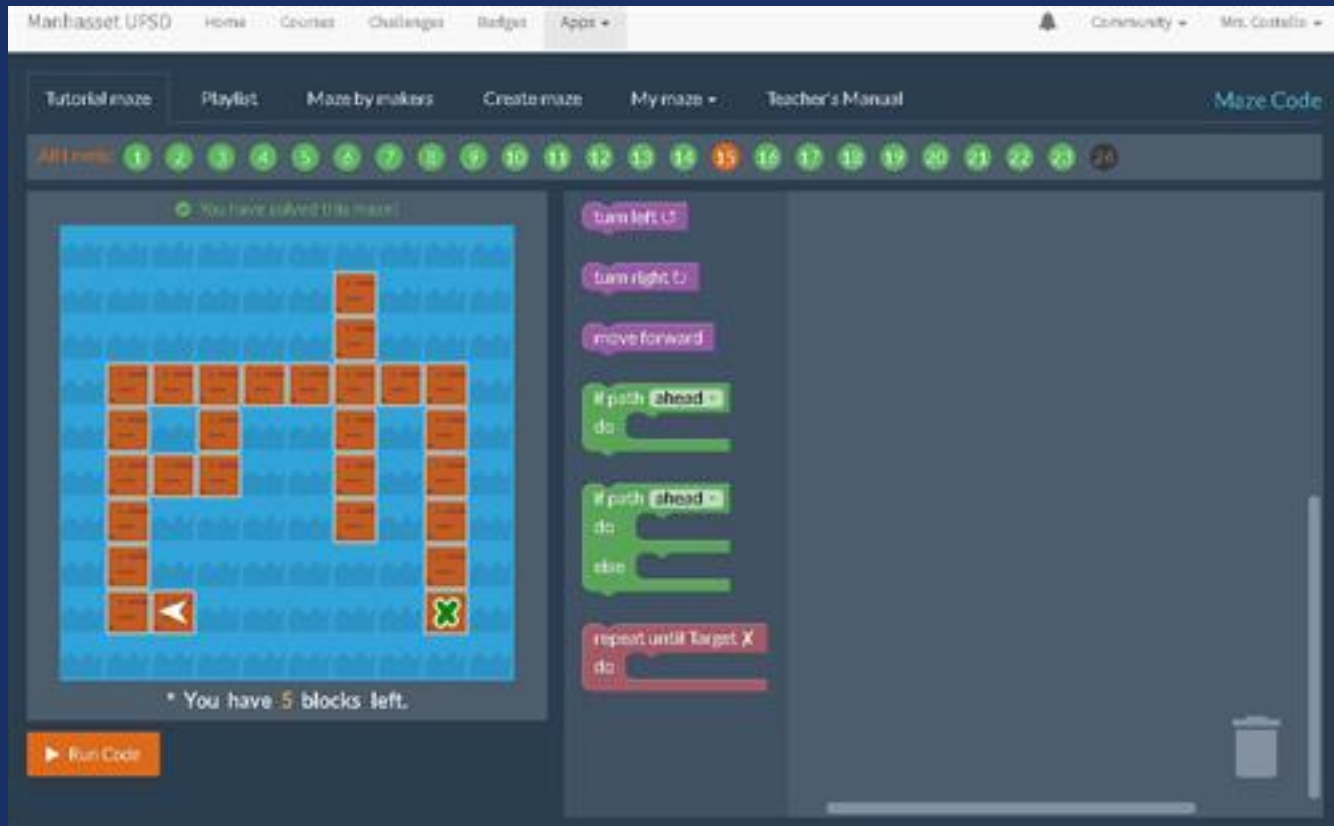
Viking Conquest



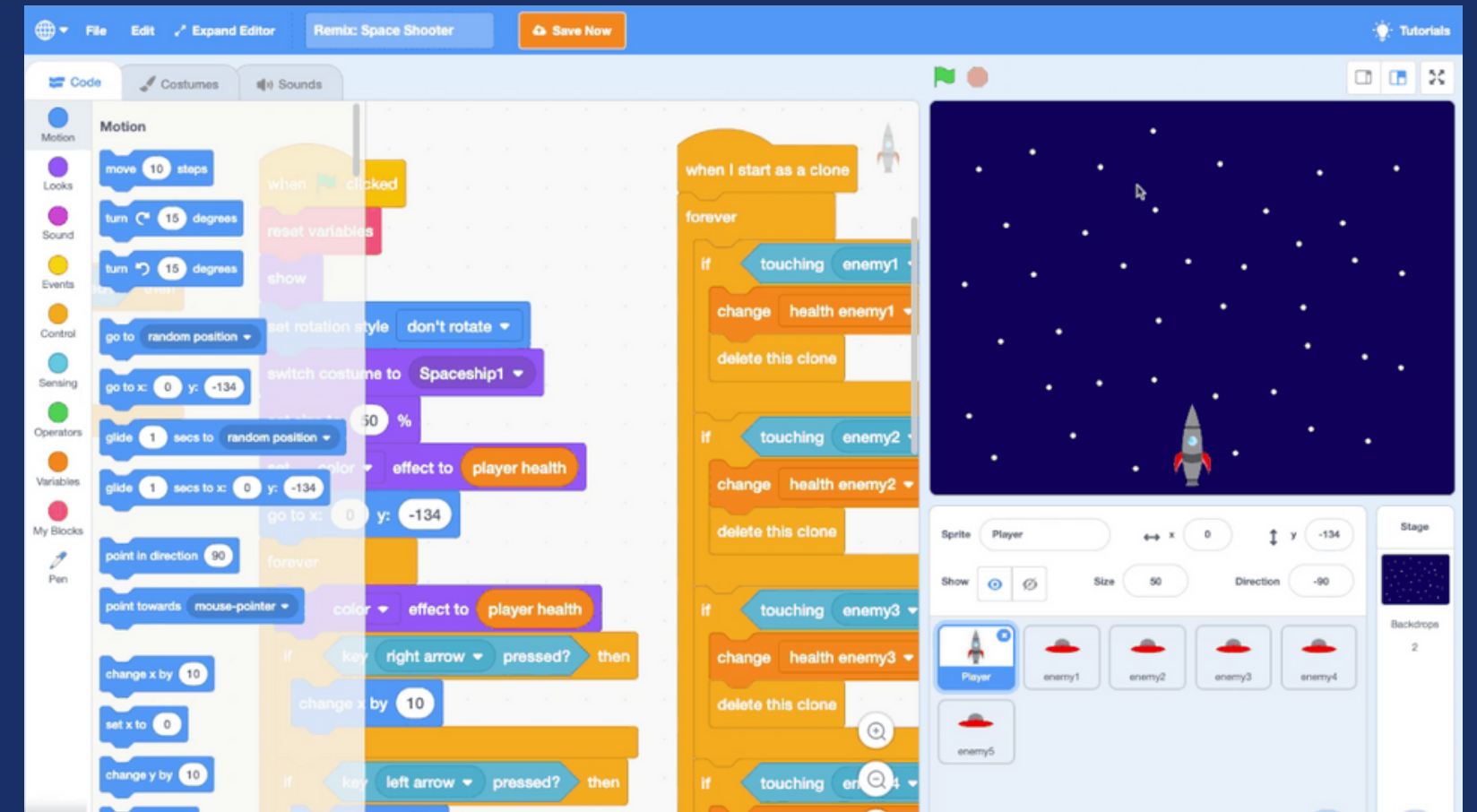
Conquer Mars



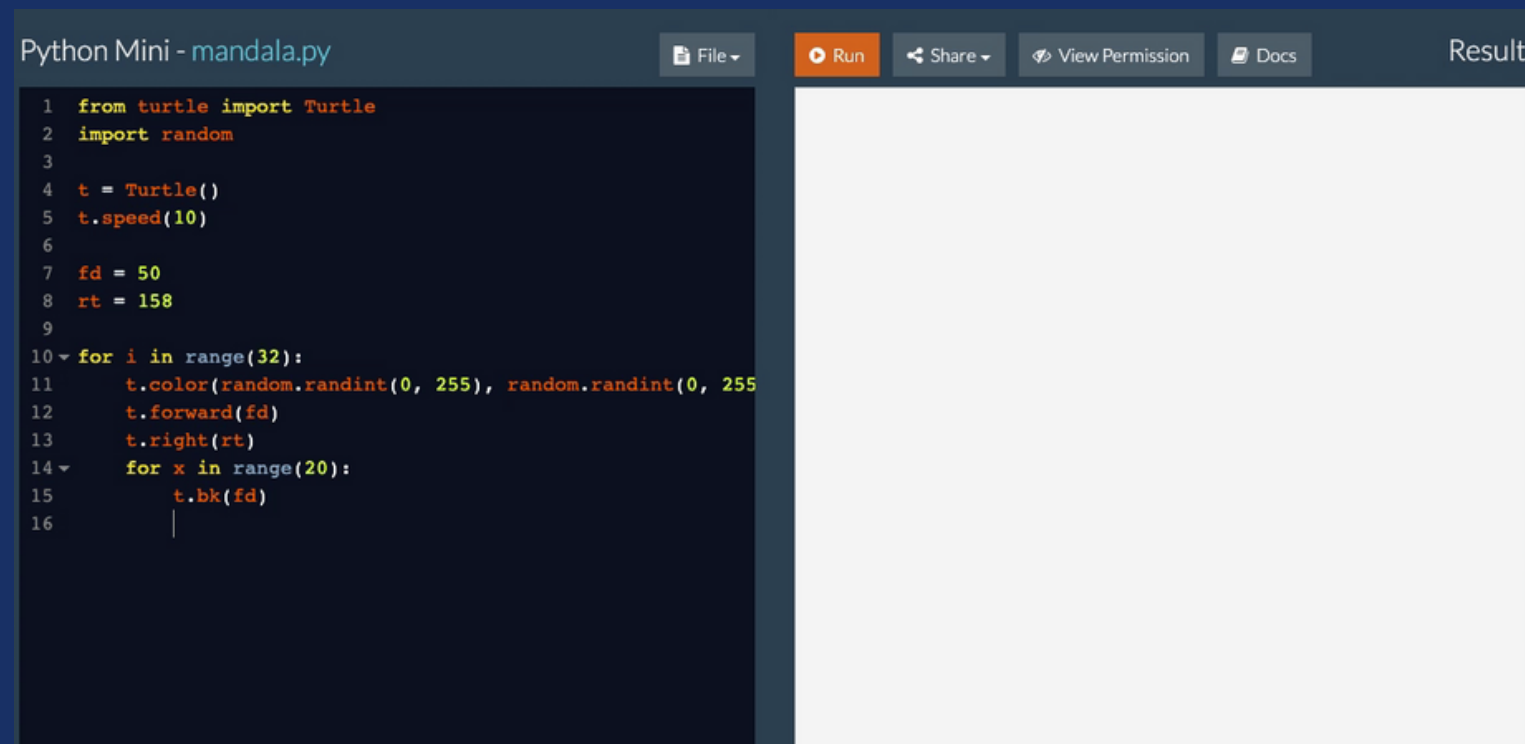
1st OYO Inter-District Hackathon



Maze Code and Color By Code teaches directionals, sequencing, loops, repeats, X and Y axis, shape rotation, puzzle solving and creation for primary learners.



Intermediate ages use Scratch! and block code to solve algorithms, design video games, create sprites and backgrounds, animate objects and program their own codable creations.



Advanced students use Java Script and Python to write their own codes and programs. Students can compete in Hackathons in collaborative teams.

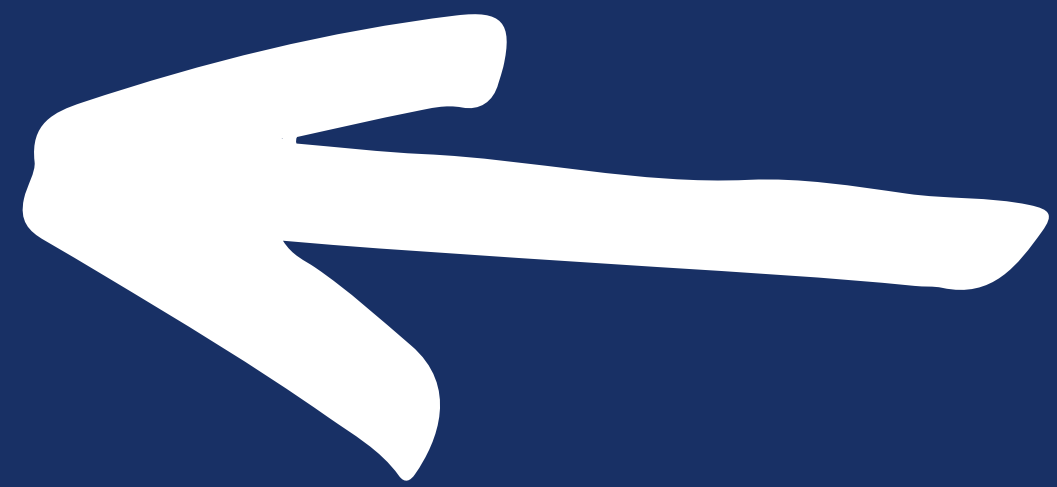


What Do the Kids Say?



Skills & Knowledge 12th graders will graduate with (Outs)	Skills & knowledge 6th-8th will implement (Outs) Skills & Knowledge incoming 9th graders (Ins)	Skills and Knowledge K-5 will implement (Outs) Skills & Knowledge incoming 6th graders (Ins)
Robotics		
Engineering Team: Advanced applied design and Computer Science	Applied Design and Applied Computer Science: Sensors and Feedback	Collaboration, communication, accountable talk, feedback
	Rube Goldbergs-simple task completed using a complex set of directions to complete it	Observe, design, develop, code, problem solve, collect data, engineer and experiment
		Punctuation
		Community norms
		Failure and mistakes are encouraged
		Real-world problems and problem solving
		Goal setting

What do we want learners to know and be able to do?



Robotics

For ALL!

What is VEX Robotics?

VEX provides K-12 robotics programs that focuses on science, engineering, math, literacy, problem solving, creative thinking and collaboration. VEX offers a variety of robotic products, PD/training for teachers, online support, full curriculum that is easy for teachers to use and engaging for students. VEX is designed for students to “create, not consume” technology.

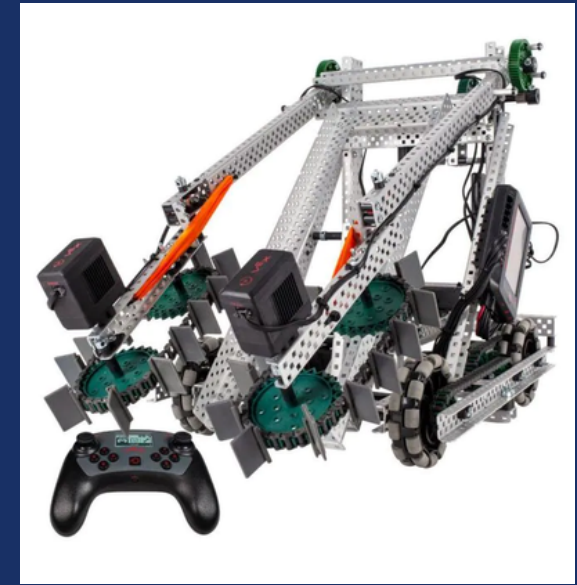
Why VEX for RVC?

VEX provides a comprehensive K-12 framework that challenges students on their level.

- Kindergarten students will learn the building blocks for coding and robotics
- While high school students can participate in regional robotics competitions and everything in between.
- VEX has a variety of products for each grade level and curriculum that extends literacy, math and science.
- VEX Robots are codable and will allow students to apply what they have learned in coding/engineering/science lessons and create solutions to real life problems.
- Students start in block code and build to written python code. AND VEX partners with their cooperating schools!



VEX 123
Grades K-2



VEX V5
High School



VEX GO
Grades 3-5



VEX IQ
Middle School

Next Steps for Robotics in RVC School District

Summer 2023:

- Professional development for STELLAR teachers
- Outlining elementary lesson plans that align with K-5 curriculum

2023-24 school year:

2023-2024 School Year MS

- All seventh graders will take Vex IQ for 10 weeks (every day)
- Eighth graders will have the opportunity to take Vex IQ as an elective (full year, every other day)

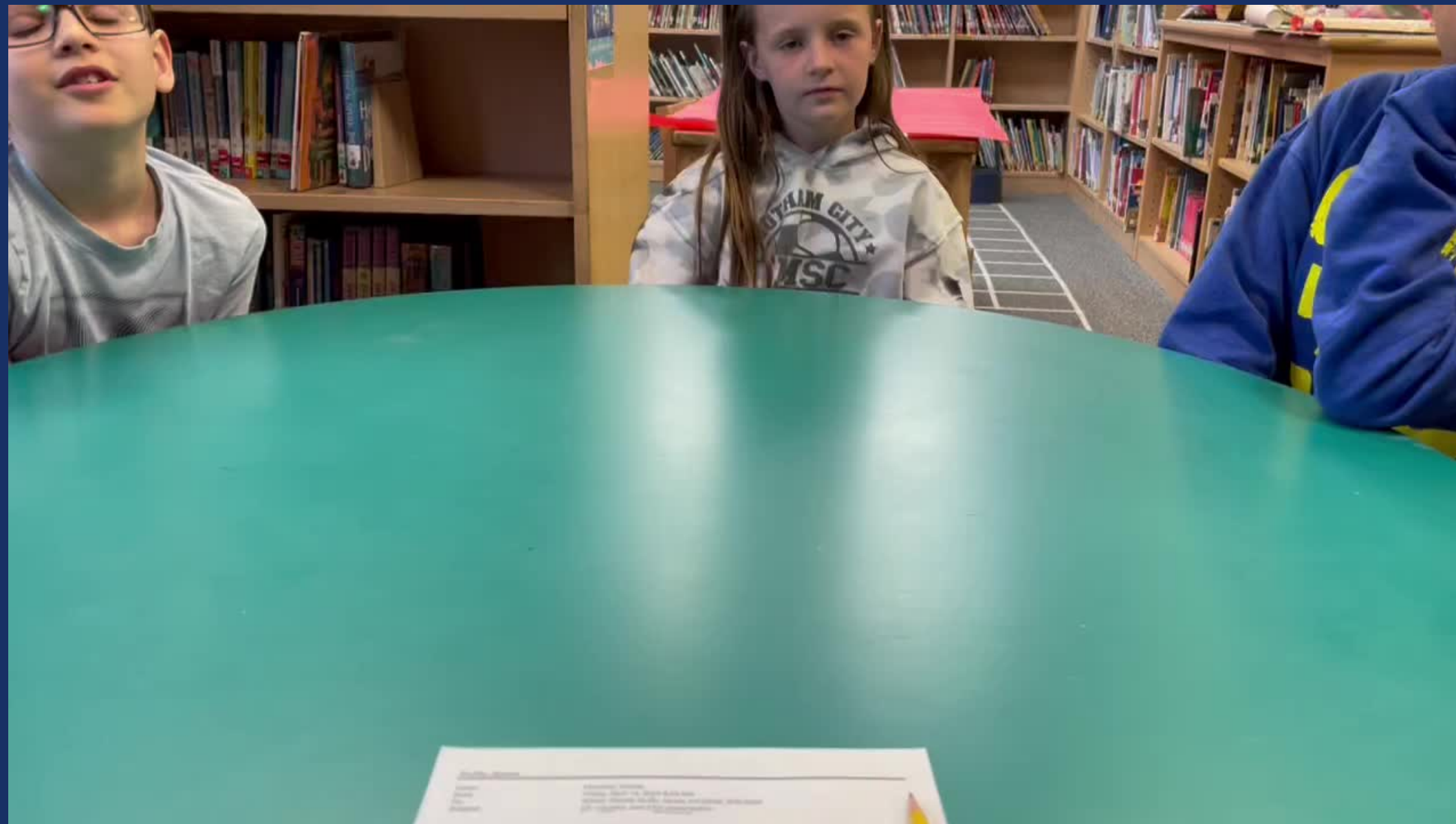
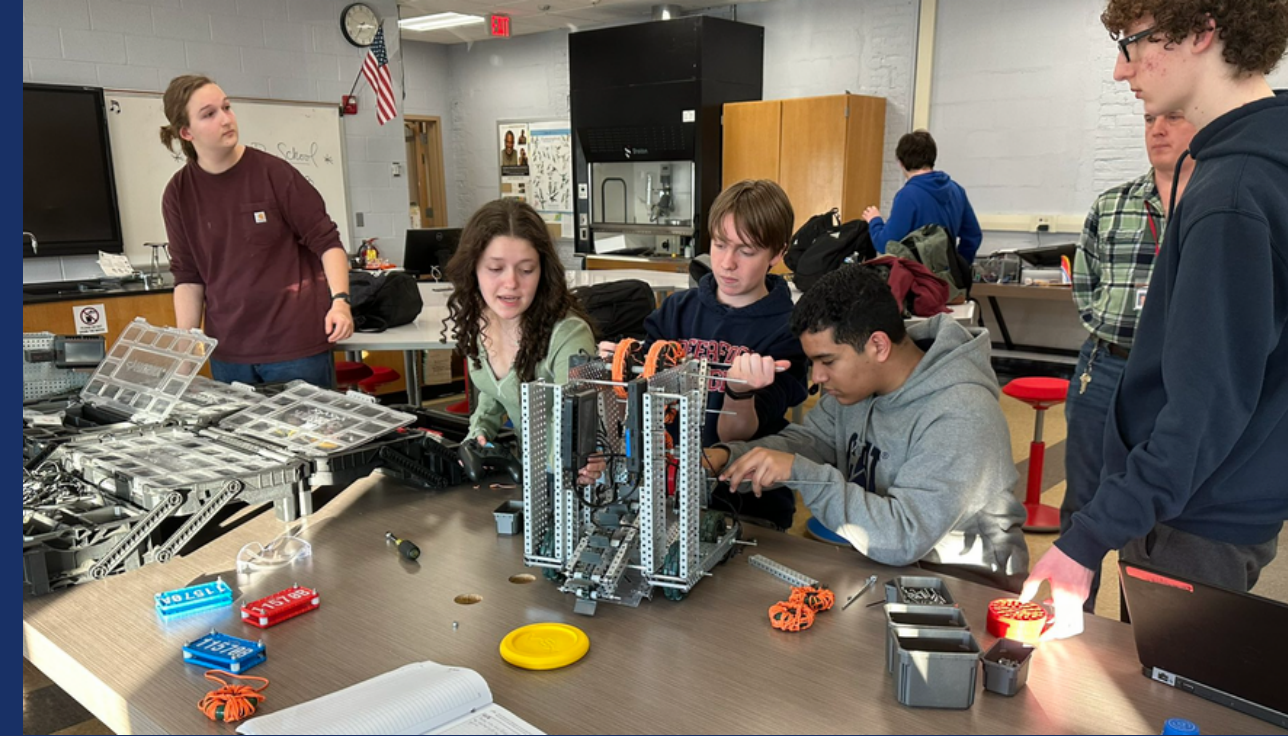
2023-2024 School Year HS

- Robotics Club opportunities in the high school
- Robotics competitions



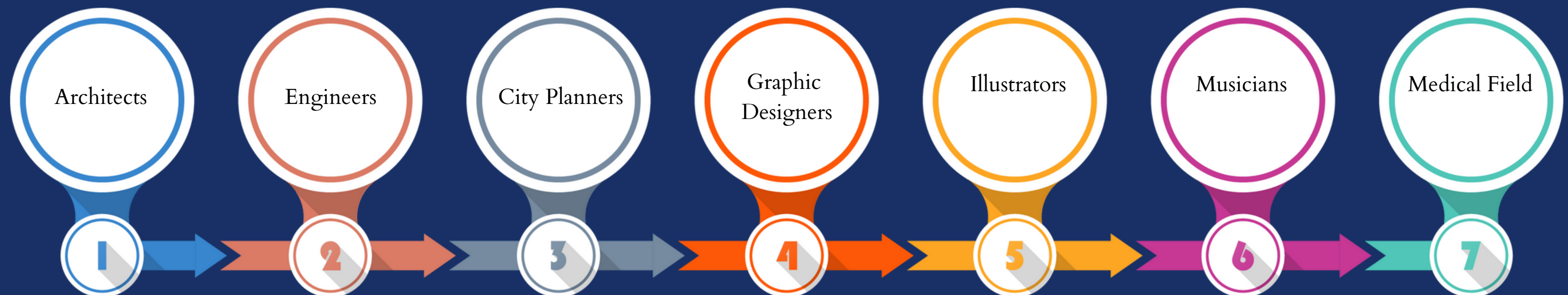


What Do the Kids Say?



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Computer Assisted Design		
Proficient in multiple CAD software programs	Be able to sketch ideas by hand on an isometric drawing	Understanding the 3 axis of design
Feel comfortable sketching out ideas on paper.	Mark up isometric drawings with measurements	Manipulating 2d objects to 3d objects
Familiar with the newest technology in the industry	Navigate 3D workspace, use a 3-button mouse and basic menu and tools	Basic vocabulary and terminology
Advanced DAW Navigation and Features; Live Audio, Mixing and Sound Engineering, and Mastering	Navigate a Digital Audio Workstation (DAW Garageband) Music Production Software	Introduction to Music Composition, Song Structure and Analysis
Advanced Music Composition, Song Structure and Analysis	Intermediate Music Composition, Song Structure and Analysis	Developing Audiation Skills, Music Notation, Performing and Creating
Advanced Notation Software Navigation (Finale)	Intermediate Notation Software Navigation (Finale)	Connecting and Responding: arts influence in society, expressing personal meaning
Proficiency in professional music production software	Intermediate Music Literacy and Performance skills	

What do we want learners to know and be able to do?

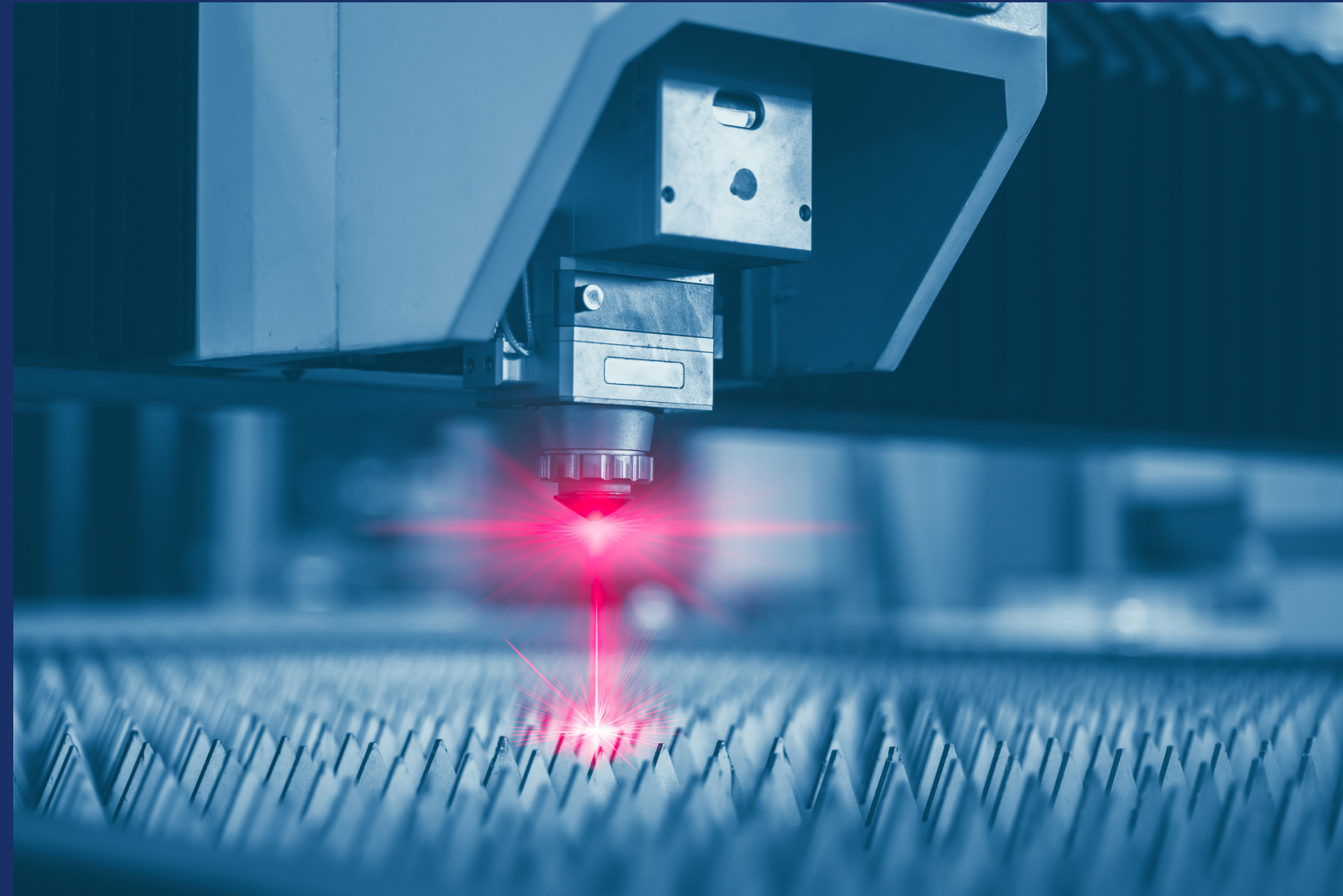


Computer Assisted Design

For ALL!



iPad carts each elementary school



Laser Cutting in grades 7-12

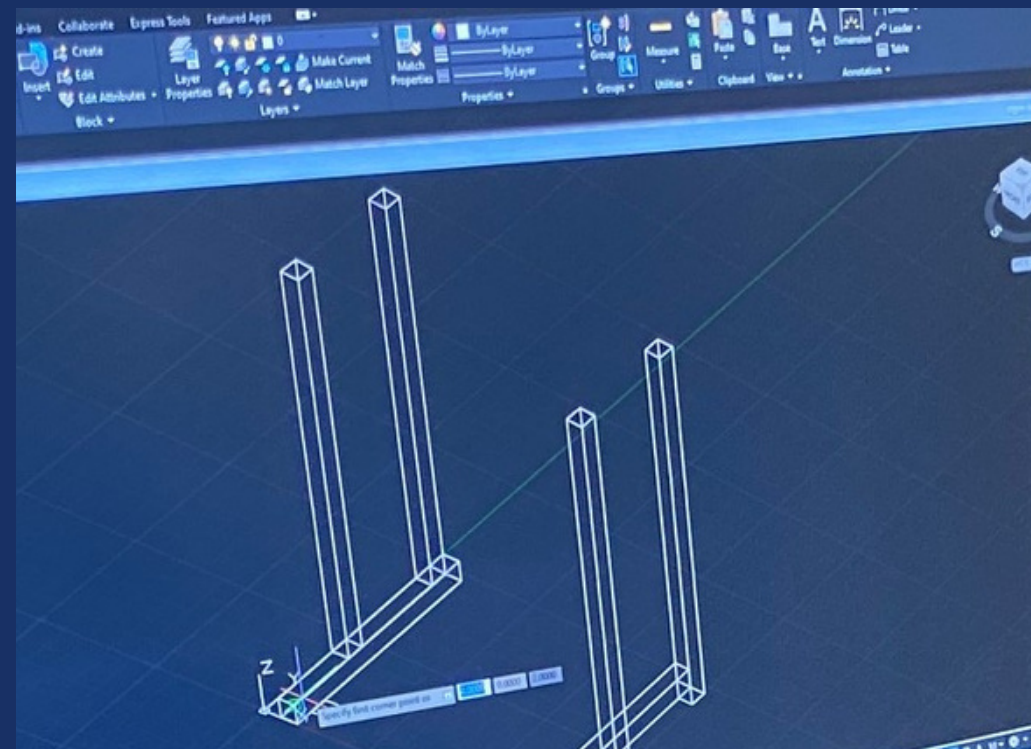
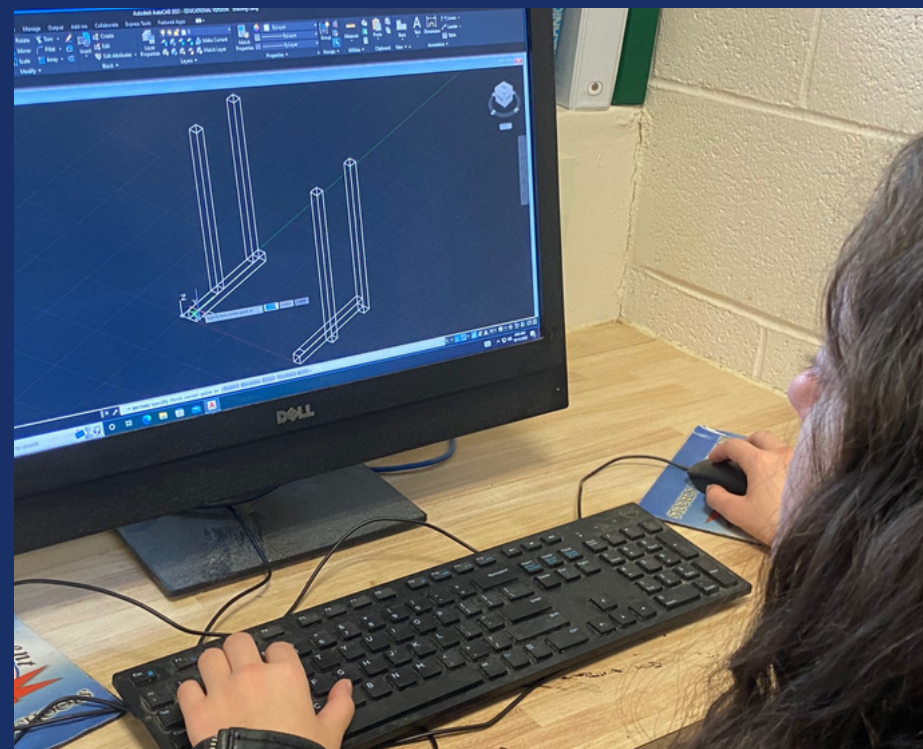


Resin printers



Next Steps for Computer Assisted Design in RVC School District

- Explore the use of TinkerCAD software in the elementary level grades
- Look for ways to increase interaction between students in 3D modeling and Wood Design and other Visual Art classes
- Increasing collaboration between CAD and Robotics in the Middle School
- Incorporating entrepreneurial aspects between the Business Dept. and Wood Design
- Utilizing CAD to bolster the Hydroponic Farming Curriculum
- Further collaboration between Music Technology and TV Production Courses to create opening and closing music pieces and sound effects



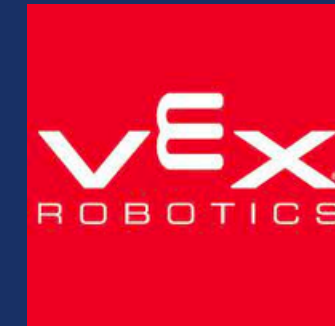
What Do
the Kids Say?

From
Concept
to
Creation



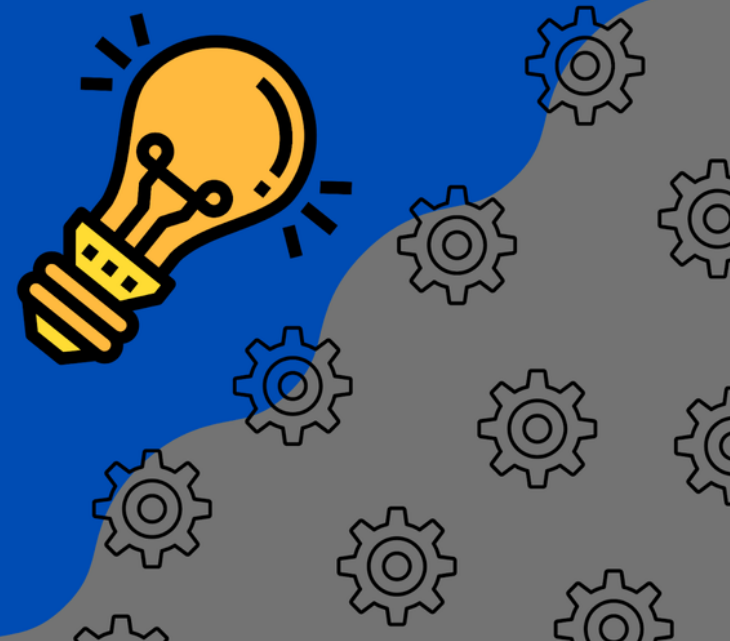
Partnerships, Community & Pedagogy

#LifeLongLearners



COLLEGIAL CIRCLES

Considering new approaches to professional development.



RVC TEACHER CENTER

VEX CERTIFICATION



GENERAL INFORMATION

- Completely online - work at your own pace
- Learn the fundamentals of using and implementing VEX Robotics
- Engage in actual lessons within training courses
- Built in practice tests, ensuring you are completely prepared for the certification exam
- Course hours vary based on the specific Vex program and range from 6 to 25 hours in length
- All hours may be used for the RVC PM requirement
- Course completion of 15 or more hours may be used towards in-service credit
(Vex is currently **not** a NYS CTLE approved vendor)
- Click [here](#) for more information about Vex

K-12

University

Organization

Mentor

OYO Pro Passport

For Teachers:
Drive Your Own
Professional Development

[Buy OYO Pro Passport](#)



Positive Outcomes for our Learners



Questions

