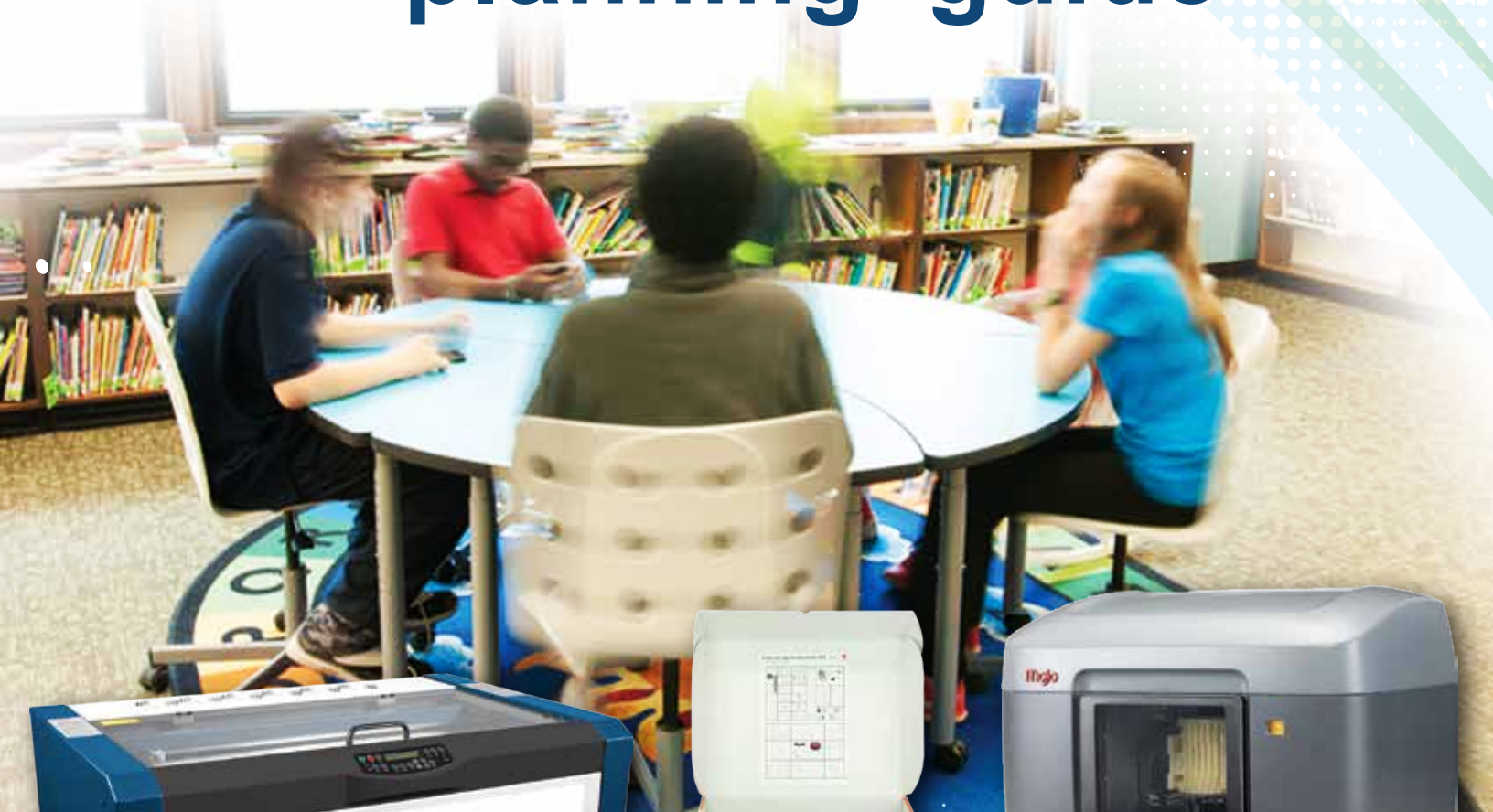


Library/Media Center Edition

2017 - 2018

makerspace

planning guide



Laser Engravers



STEM Activity Kits



3D Printers



Allegheny
Educational Systems, Inc.

Pricing Available
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Technology Bidding and
Purchasing Program
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320 East 3rd Avenue, Tarentum PA, 15084 • www.alleghenyedusys.com

800-232-7600

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ABOUT US

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ABOUT US

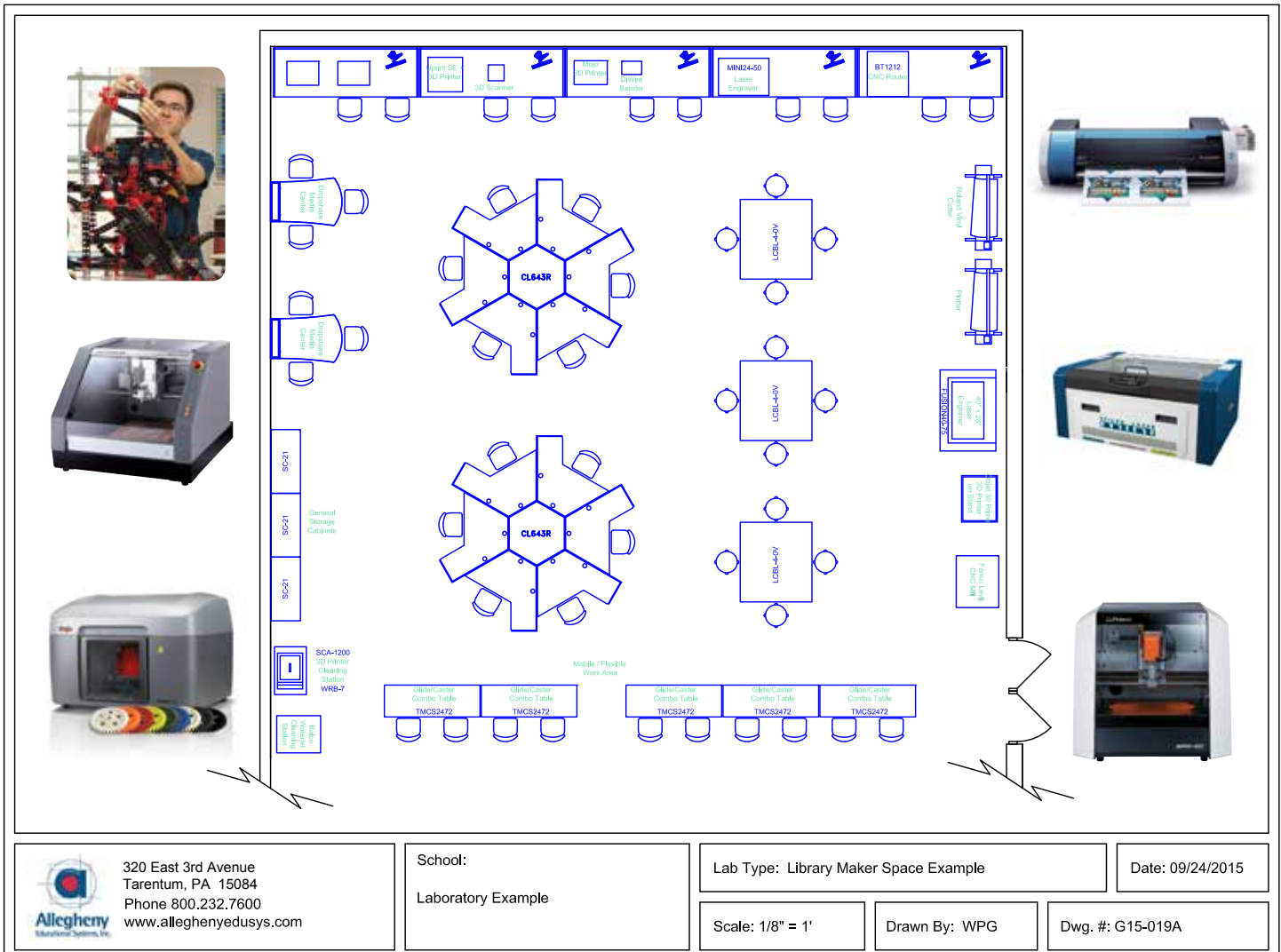
Founded in 1979, Allegheny Educational Systems provides innovative, technology-based educational systems and professional services to over 2,000 schools, colleges and universities throughout Pennsylvania, New York and New Jersey.

Call us at 800-232-7600 for a free lab consultation and product recommendation.



Technology-Based Education Solutions

SAMPLE LAYOUT



320 East 3rd Avenue
Tarentum, PA 15084
Phone 800.232.7600
www.allegHENYedusys.com

School:
Laboratory Example

Lab Type: Library Maker Space Example

Date: 09/24/2015

Scale: 1/8" = 1'

Drawn By: WPG

Dwg. #: G15-019A

What can a MakerSpace do?

A MakerSpace is a place where ingenuity and creativity can be put to advanced skills. A MakerSpace can teach students STEM related topics and give in-depth insight into problem solving, design, and creative thinking. The projects done in a MakerSpace require multiple machines for specific purposes. Using a variety of approaches, the right tool can be used to solve a specific problem. This type of learning creates an atmosphere of inventive ideas, technology based learning, encouragement, and fun. The hands-on nature of the lab itself adds to classroom learning. Skills can be practically put to use teaching also about materials science and how technology can achieve objectives.

While the projects done in the MakerSpace cover a variety of topics, it also fosters a sense of invention and ingenuity. When combined with a healthy curiosity for technology, STEM based learning programs grow. This creates a broad understanding of technology among students generating collaboration and interest. Adding a MakerSpace will teach job and life skills that can encourage students to start thinking about jobs, entrepreneurial ambitions or higher education.

DESKTOP 3D PRINTERS



The Easiest and Most Versatile Way to get from 3D Model to 3D Print

- New Replicator+ technology defines the new standard for ease of use, quality, and reliability
- Powered by the new, user-friendly MakerBot Replicator 3D Printing Platform
- App and cloud enabled
- USB and Ethernet connectivity ensures a seamless production workflow (WiFi coming soon)
- New MakerBot Replicator+ Smart Extruder, motion controllers, and gantry design
- On-board camera and diagnostics, and assisted build plate leveling
- Makes true-to-life objects quickly and easily
- Enables you to manufacture on demand
- Optimized for MakerBot PLA Filament
- 100-Micron Layer Resolution (about as thin as a sheet of paper)
- Create professional-quality, high resolution prototypes and complex models
- Get smooth-to-the-touch surfaces that don't need sanding, finishing, or postproduction
- Create realistic prototypes and models for demonstrations and presentations
- Choose settings that range from fast draft to finer resolution



MakerBot Apps

Making it easier than ever to explore the world of 3D printing.

MakerBot Mobile - Monitor and control your MakerBot Replicator 3D Printer and access all things MakerBot from your mobile device.

MakerBot Desktop - A complete solution for discovering, managing, and sharing your 3D prints.

MakerBot Printshop - A fun, easy, and free way to create and 3D print all kinds of cool things.

MakerBot Thingiverse App - Browse, share, and collect from more than 300,000 downloadable digital designs on the world's largest 3D printing community.



MakerBot Filament

MakerBot PLA Filament is designed to be the best filament for your MakerBot Replicator 3D Printer, and comes in multiple materials and colors!

DESKTOP 3D PRINTERS

The Idea Series

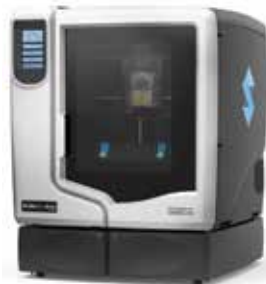
Mojo
3D PRINTER



The Mojo 3D Printer allows you to print professional 3D models right at your desk. It has the easiest setup and operation in the industry. The Mojo 3D Printer builds accurate functional concept models, rapid prototypes, and product mockups in ivory ABSplus thermoplastic.

With every material change, the Mojo Print Engine installs a fresh print head to ensure optimum print quality. The snap-in print head is also easy to use and fast to change. The Mojo 3D Printer uses soluble support material so that the material dissolves away in a water-based solution. You just pop your completed model off the modeling base and place it in the wash system.

uPrint^{SE}



The uPrint SE and uPrint SE Plus 3D printers allow you to print professional-grade 3D models right at your desk. With the uPrint SE and uPrint SE Plus 3D printers, you can build accurate, functional concept models, rapid prototypes and product mockups in ABSplus thermoplastic. The uPrint series is one of our most successful 3D printer choices for in-class use.

With the basic uPrint SE 3D Print Pack you get everything you need to start printing concept models right away.

The whole package includes:

- uPrint SE 3D Printer
- WaveWash Support Cleaning System
- Start-up Kit (Ivory build material, support material, EcoWorks Cleaning Agent, modeling bases and more)

stratasys[®]

PLATINUM
EDUCATION PARTNER

2017

Mojo Features:

- Build Size: 5 x 5 x 5 in
- Print Material: ABSplus available in ivory, white, blue, yellow, black, red, gray, orange, or olive green
- USB connectivity
- Mojo 3D Print Pack includes the Mojo 3D printer, software, WaveWash 55 cleaning system, and all materials you need to start printing that day



uPrint Series Features:

- Network connectivity
- Desktop size
- uPrint Print Pack comes with uPrint 3D printer, WaveWash cleaning system, and Start Up Kit with everything you need to start printing that day

uPrint SE:

- Build Size: 8 x 6 x 6 in
- Print Material: ivory ABSplus

uPrint SEplus:

- Build Size: 8 x 8 x 6 in
- Print Material: ABSplus available in ivory, white, blue, yellow, black, red, gray, orange, or olive green

LASER ENGRAVERS / CUTTERS



Laser Engravers/Cutters

CorelDRAW[®]
Graphics Suite X7

Laser Engravers/Cutters are the ideal tool for engraving and cutting a wide variety of materials. Use a laser to create a wide variety of products for many different educational applications.



What can you make with a laser?



Epilog Mini 18 and 24: Epilog Mini 18 is an entry-level model providing a 18" x 12" work area. Though it's more compact, the engraving and cutting results is the same high quality as the large format lasers. Move up to the Epilog Mini 24 for a larger 24" x 12" work area that holds most standard engraving stock materials.



Available with a PEPPM
PA State Contract



Epilog Zing 16: Entry-level model combining affordability with a convenient small size and 16" x 12" engraving and cutting area. Power choices of 30 or 40 watts.

Epilog Zing 24: Move up to the Epilog Zing 24 for a larger 24" x 12" work area and Radiance High Definition Optics. Power choices up to 60 watts to engrave faster and cut through thicker materials.

SUBTRACTIVE RAPID PROTOTYPING & VINYL CUTTERS



Roland Desktop 3D Milling Machines

Widely used in the industry and recognized for ease-of-use and versatility, Roland MDX milling machines offer students a fast learning curve to get them producing finished prototypes that require little to no finishing.



SRM-20 Compact Desktop Mill

Easy to use, most precise CNC desktop mill in its class. The drive system produces clean, precision contours with optimum efficiency and productivity. The 8"x6"x2.38" work area has a fully enclosed cover to prevent dust from escaping and minimize noise levels.

MDX-40A CNC Milling Machine

Affordable rapid prototyping on a convenient 12"x12"x4"(z) work area. Additional features include a rotary axis for unattended milling and a contact-scanning unit for reverse engineering projects.



Roland Vinyl Cutters

Offering plug-and-play ease, technological sophistication, compact convenience, and the reliability you expect from Roland, these high performance vinyl cutters accelerate your ability to create professional signs, displays, vehicle graphics, decorated apparel and window tinting. Each comes with all the hardware and software you need to get started immediately — right out of the box.



Models Available:

- **CAMM-1 GX Pro Series Cutters** - Professional grade vinyl cutters achieve maximum accuracy and cutting speeds up to 33 inches per second with up to 350 grams of pressure. Available with 24", 30", 40", 50" and 64" maximum cutting areas.
- **GS-24 Desktop Signmaker** - Desktop cutter boasts 350g of downforce, making the cutting of magnetic materials, corrugated cardboard and other thick substrates child's play. 22.9" maximum cutting area



PRINTERS & CUTTERS



Roland Printers/Cutters

Roland printers/cutters are real world devices, providing real world graphic applications for your students. These devices can print and cut an incredible variety of jobs on a full spectrum of media.

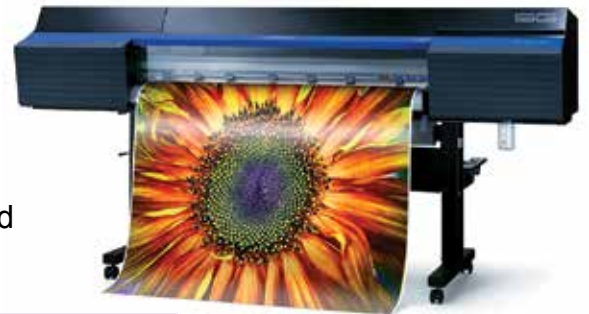


VersaStudio BN-20 Desktop Printer/Cutter

One compact device for apparel, packaging, posters and more - features 8-channel printheads for outstanding photographic and vector output.

TrueVIS SG Series Printer/Cutters

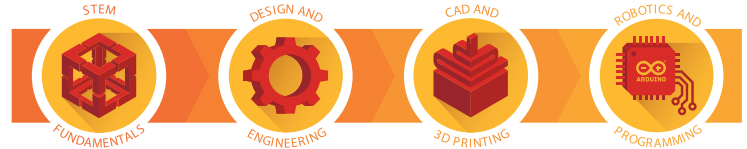
Whether you're just starting out or wanting to expand production, new TrueVIS SG series printer/cutters offer all the quality and versatility of a Roland, at an unbeatable price. TrueVIS ushers in a new era of integrated printing and contour cutting. Available in 30" and 54" models.



VersaCamm VS-i Series Wide-Format Printer/Cutters

Available in 64-inch, 54-inch or 30-inch models, they produce professional graphics across a wide range of applications, including labels and decals, signs, banners, vehicle graphics and wraps, fine art posters, packaging prototypes, POP displays and heat transfers for apparel decoration. Choose from five ink configurations that can include Metallic, White, Light Black and Clear ink options.

STEM ACTIVITY KITS



A Design and Engineering System for Students

Rokenbok is a single continuous system of reusable materials carefully organized into Mobile STEM Labs. Rokenbok Labs have a small footprint and are used across grade levels, moving easily from classroom to classroom. Rokenbok's comprehensive curriculum is free and online; teachers download curriculum instantly to meet the needs of their students. With Rokenbok, even the youngest students learn foundational concepts about technology and engineering, and have a lot of fun in the process!

STEM-Maker Curriculum is Rokenbok's innovative approach, combining traditional STEM content with the artistic "Design-Make-Play" approach used by experienced STEM educators. At every grade level, students gain both a deep comprehension of STEM content and accrue the hands-on experience needed to become creative problem solvers.

ROK Blocks

Snap-Stack

Advanced Projects

Basic Robotics

Advanced Robotics



- ✓ STEM fundamentals
- ✓ 3 modules serve up to 12 students
- ✓ Grades: K-5

- ✓ Design & engineering, CAD & 3D printing
- ✓ 6 modules serve up to 24 students
- ✓ Grades: 4-12

- ✓ Project based STEM & deep parts resource
- ✓ 1 module serves up to 4 students
- ✓ Grades: 6-12

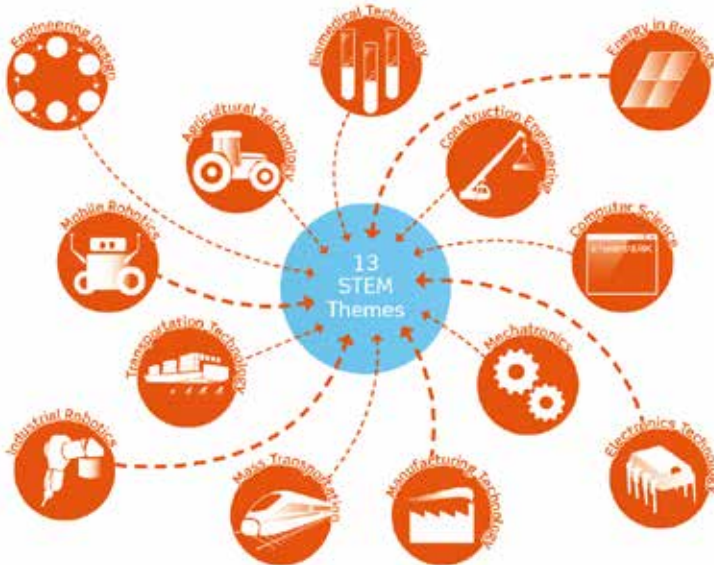
- ✓ Introduction to robotics & motorized mechanisms
- ✓ 6 modules serve up to 24 students
- ✓ Grades: 3-12

- ✓ Sensor-driven robotics & Arduino programming
- ✓ Grades: 6-12



STEM CLASSROOM MATERIALS

Exploring STEM Activity Kits Active Learning - bringing STEM together with project-based learning



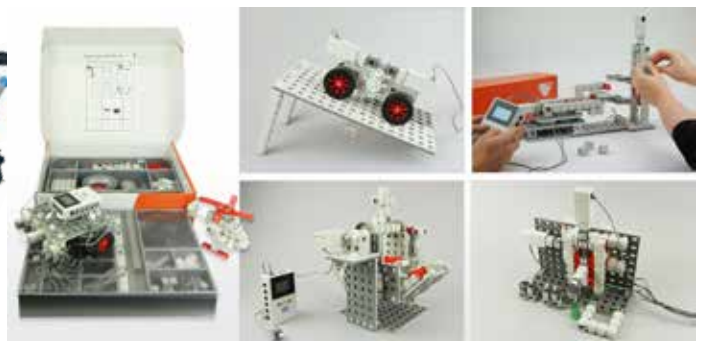
Curriculum material uses **Active Learning** to foster a range of important skills across the core STEM subjects. The **Presentations** and **Investigations** promote processing, questioning and analyzing information.

The **Simulations** and **Practical Tasks** involve problem solving, creativity and critical thinking, while enhancing manipulative skills.

Finally, each course concludes with a **Design Project**, to develop computer programming skills, and promote communication and interpersonal skills through team working.



- Elementary Kits such as:**
- Tactic Construction Kits
 - Problem-Solving Kits
 - Math & Science Kits
 - Electrical Circuits Kits and More!



- Middle Level Kits such as:**
- Engineering & Design
 - Manufacturing Technology
 - Mechatronics
 - Agriculture
 - Mobile Robotics

STEM CLASSROOM MATERIALS



An interactive approach to teaching STEM Education through Robotics

MINDS-i Robotics Education is designed to give students an interactive approach to applied science, technology, engineering and math (STEM). MINDS-i is rocking the Robotics Education world with a high-technology platform that is simple to use, extraordinarily durable, infinitely modifiable, and will prepare students with the skills they need to excel in the 21st century.

We inspire a rigorous college and career relevant experience through STEM Robotics in the everyday classroom in a format that can impact each and every student.



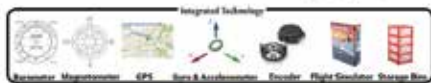
LAB Kits Include:



Catapult Lesson Plan



MINDS-i Catapult LAB



STEM Robotics DRONES LAB



STEM Robotics FOUNDATIONS LAB 4X4



STEM Robotics FOUNDATIONS LAB 6X6

INNOVATION LABS

INVENTIONLAND® *The world's largest makerspace!*



Tour Inventionland®

Inventionland, the world's largest private invention factory, provides courses, lesson plans, teaching aids and student kits to integrate real-world inventing techniques into your classroom.

Personalized project-based learning that builds "self-a-STEAM"

All the tools you need to build career-ready and life-ready skills! We know that environment means something, so that's where we start. Then, we have teacher resources that are designed to help enable teaching in any classroom or makerspace. Our Inventionland® Innovation Course has three basic groups: Inventing, Making and Storytelling.

6 Ways to Bring Innovation



Environment

- Peek-A-Boo™ posters
- Evolution sign series
- Idea recorders
- Lesson signs
- Cloud lights & more...



Teacher Resources

- Starter & Supercharger kits
- 3D printing charts
- Laser cutting & engraving charts
- Invent with wood, foam & plastic
- MakerBoxes™ & more...



MakerKits™

- Pencil holder
- Stacking bins
- Trash cans
- Sticky note holder
- MakerStrips™ & more...

INNOVATION COURSEWARE

Inventionland® ...provides everything you need to teach innovation!



Real-World Products Using



Our Proven 9-Step Method

Thinking of integrating innovation into your classroom?

Experience real-world inventing, innovation and entrepreneurship. Students will build career-ready skills while they bring their ideas to life. Students learn how to use observational skills to identify opportunities, how to develop ideas, how to research the viability of that idea, how to design, make, package and present an idea. Students are taught how to create their own products and pitch them at the end of your very own Invention Contest - think *Shark Tank!*



Meets Standards

to Your School or Classroom



Teacher Training

- Professional development
- Earn credits
- Get certified



Innovation Course

- Educate & enable
- Meets standards
- STEM & STEAM



Invention Contest

- Winning outcomes
- Prizes for you & your school

CAD/CAM/CNC PROGRAMS



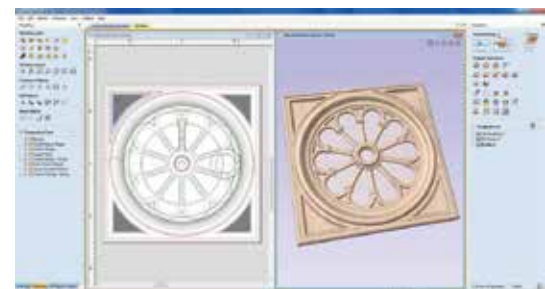
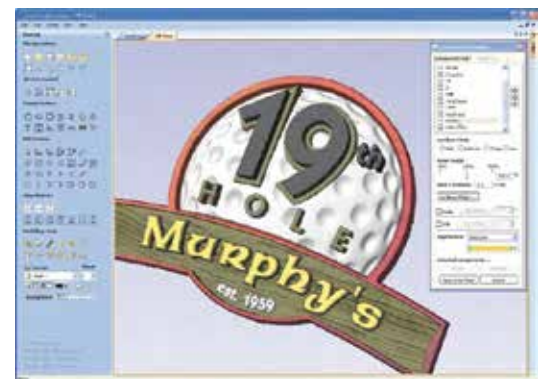
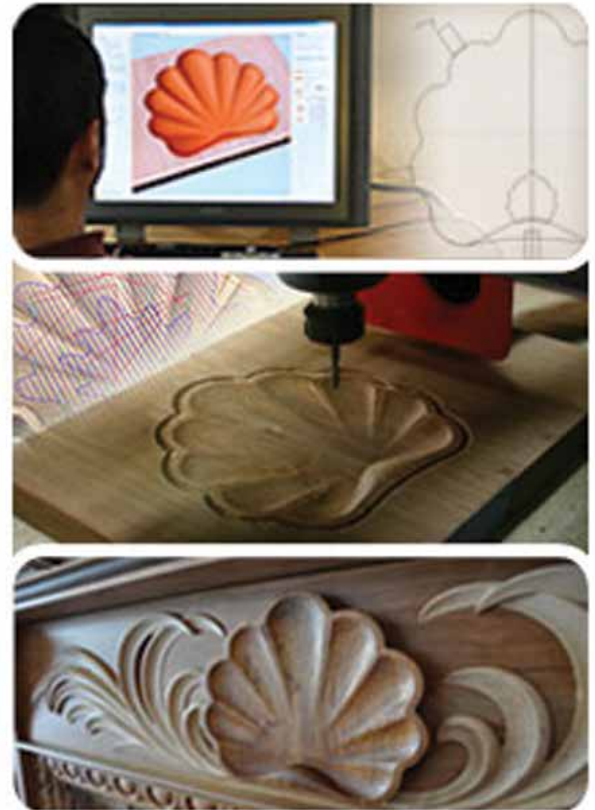
Aspire is built on the same platform as Vectric's VCarve Pro software, sharing the intuitive interface and ease of use for production design and routing. In addition to the powerful drawing and production routing tools of VCarve Pro, Aspire also has tools to let you transform 2D sketches, photos, drawing and digital artwork into detailed 3D relief models and then to calculate 3D Roughing and Finishing toolpaths to accurately cut these shapes.

Aspire is used by a wide variety of businesses and individuals to create a large range of products that include decorative panels and doors, ornamental flourishes, custom millwork, architectural moldings, dimensional signage, carved company logos, custom gifts and awards, plus many more applications.

Aspire's unique 3D component modeling coupled with the comprehensive set of 2D design and editing tools make it easy to work with existing 2D data or imported 3D models as well as giving you the ability to create your own 2D and 3D parts from scratch.

Benefits:

- Get the most from your CNC by being able to create and cut a wider variety of 2D and 3D parts.
- Offer your customer a range of cost options from budget 2D designs to higher value 3D products.
- Take advantage of the free 2D and 3D Clip Art files supplied with Aspire including Panels, Weaves, Shields, Textures and 150+ models from Vector Art 3D
- Customize parts to create unique products for individual customers.
- Save time and money by re-using previously created 2D vectors or 3D models as Clip Art in other jobs
- Use the large range of tutorials to learn new skills for use on your CNC and to create samples to help demonstrate and sell your capabilities.
- Not only increase your skill-set and productivity but also your job satisfaction and enjoyment of using your CNC Router.



LAB FURNITURE



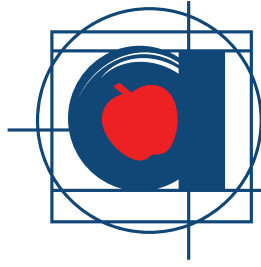
Interior Concepts Lab & Media Center Furniture

You need to create functional places where students can work and collaborate in your media center, library, learning commons, or Makerspace. Interior Concepts is here to help. From circulation desks, to study carrels, to our distinctive Media Curve workstation, to tables and student media center computer workstations, we've got you covered with our media center school furniture. We can help you to create functional desks and workspaces for staff, and multi-purpose learning environments for students.

Writing a book report or a term paper isn't just a trip to the library anymore. It involves multi-media and Internet research. And now more than ever, common learning areas need to provide a space to meet and collaborate. We will help you design workstations that provide more study room and learning possibilities while optimizing floor space. When necessary we will integrate our unique chase wire management system, so there are no exposed cords or cables.

We will help you create a design for students and staff alike with media center school furniture that accommodates technology and looks professional. The furniture will look like new for years and is backed by a lifetime warranty. Not to mention our school furniture is made in the USA and MAS® Certified Green for a healthy indoor environment.

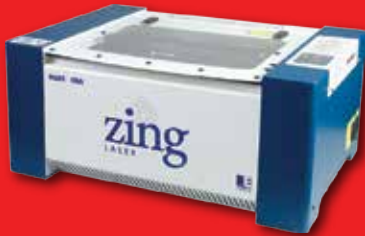




Allegheny

Educational Systems, Inc.

Your #1 STEM & MakerSpace Resource!



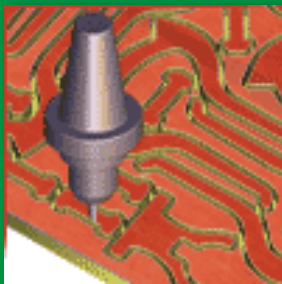
**Laser
Engravers/Cutters**



**3D Printers
and 3D Scanners**



**CNC Routers, Mills
and Plasma**



**CAD/CAM/CNC
Software**



**Roland Inkjet Printers
and Vinyl Cutters**



**Installation, Training
and Support**

State Contract Pricing Available!

Allegheny Educational Systems has provided Technology Educators with the highest quality products and after-sale support for over 35 years.

Our services include lab layout and design, curriculum implementation, installation and training for all products that we offer.

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