STEM Career Pathways

Design and Technology Program

- Project-based learning
- Easy to set up and run
- Aligned to standards

LJ CREATE™
Learning for life

Design and Technology Program

Hands-On Projects

Innovative STEM program to teach career pathways

Design and Technology Foundation Courses (Grades 6-10)

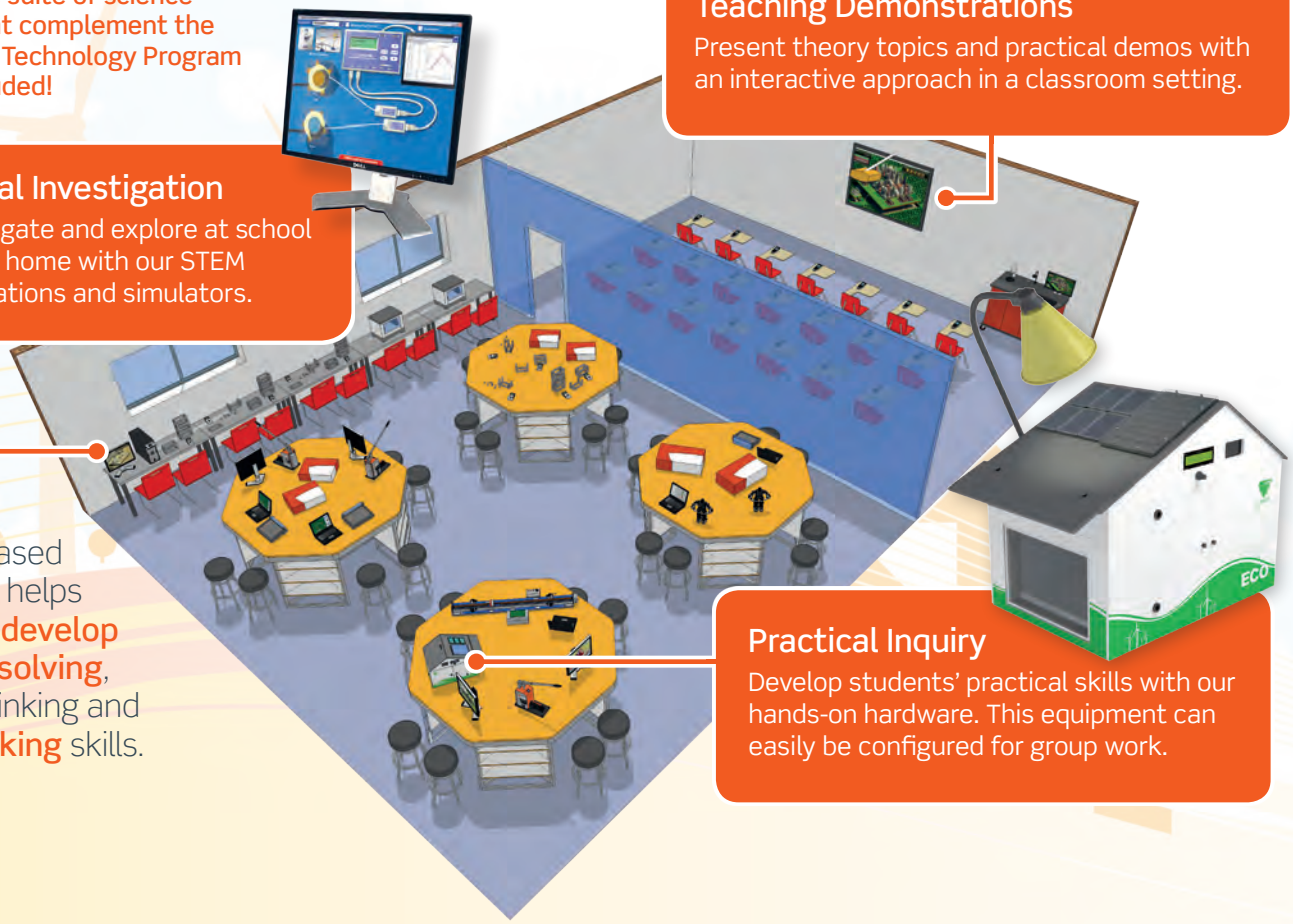
The program provides:

- 19 projects over 200 lesson periods
- Active learning approach
- Content aligned to standards
- Extensive teacher support material
- Flexible implementation
- Learning management system
- Additional content library
- Extension projects

A complete suite of science lessons that complement the Design and Technology Program is also included!

Teaching Demonstrations
Present theory topics and practical demos with an interactive approach in a classroom setting.

Virtual Investigation
Investigate and explore at school and at home with our STEM applications and simulators.



Using a project-based approach helps students **develop problem solving**, critical thinking and **teamworking** skills.

Practical Inquiry
Develop students' practical skills with our hands-on hardware. This equipment can easily be configured for group work.

START WITH ENGINEERING DESIGN

Create your own flexible program from 17 STEM courses

Engineering Design Course

Identify the engineering design process and apply it in problem solving. Design and build an automated railroad crossing.

Construction Engineering Course

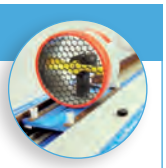
Explore structural design and construction materials. Design, build, and test bridges.

Electronics Technology Course

Investigate the principles and application of electronic systems. Design, build, and test a control system.

Mass Transportation Course

Investigate and develop a mass transit system model. Design and test crash-protection systems.

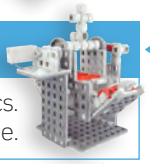


Manufacturing Technology Course

Explore material properties and manufacturing processes. Design and develop a plastic component for mass production.

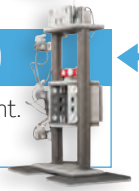
Mechatronics Course

Explore the core principles of mechatronics. Design, build, and program a fairground ride.



Computer Science (Mechatronics)

Explore techniques for algorithm development. Develop programs to control an elevator.

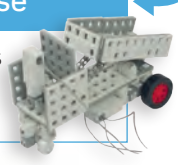


Programming Robots Course

Program a range of articulated robot forms. Design a new humanoid robot.

Transportation Technology Course

Explore the core principles and applications of technology in transportation. Design, build, and program an automated vehicle.



Rapid Manufacturing Course

Explore rapid prototyping and tooling techniques. Design and develop a new component suitable for mass production.

Biomedical Technology Course

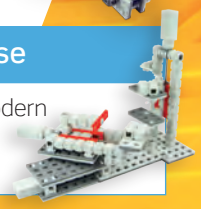
Explore applications of science and technology in medicine. Design, build, and program a medical scanner.

Industrial Robotics Course

Investigate concepts and applications of industrial robotics. Design and develop an industrial robotic system.

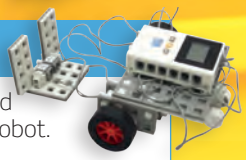
Agricultural Technology Course

Explore the impact of technology in modern agriculture. Design, build, and program automated agricultural machines.



Mobile Robotics Course

Investigate mobile robotic concepts and applications. Design and build an AGV robot.



Energy in Buildings Course

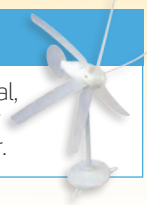
Explore how energy is used in buildings. Design, build, and test environmental systems.

Computer Science (Robotics) Course

Develop core computer science and programming principles. Design, build, and program robotic systems.

Energy Generation Course

Explore fossil fuels, wind, solar, geothermal, hydro, and nuclear power. Use a simulator to model strategies for sustainable power.



Active Learning

Our program is packed full of STEM design projects

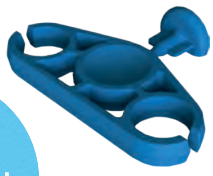
Each course in our program concludes with a Design Project. The project develops computer programming skills and promotes communication and interpersonal skills through team working. This example is from the Rapid Manufacturing course.

Use your 3D printers for real-world design projects

Preparation

Research, Investigation, and Modeling

Knowledge Lessons



DESIGN PROJECT

Assessments

Teamwork, Critical Thinking, and Problem Solving

MATH - ELA - SCIENCE

Integrated Academic Support

(RAPID MANUFACTURING)

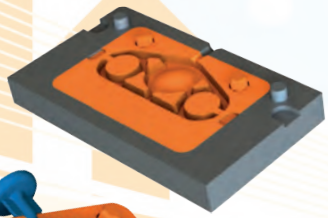
Computational Thinking

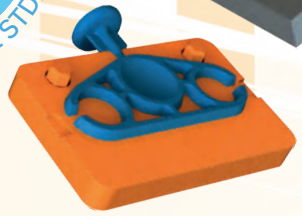
21st Century Skills

NGSS - CCSS - ITEEA

Aligned with Academic Standards

STATE CTE - SCIENCE STDA



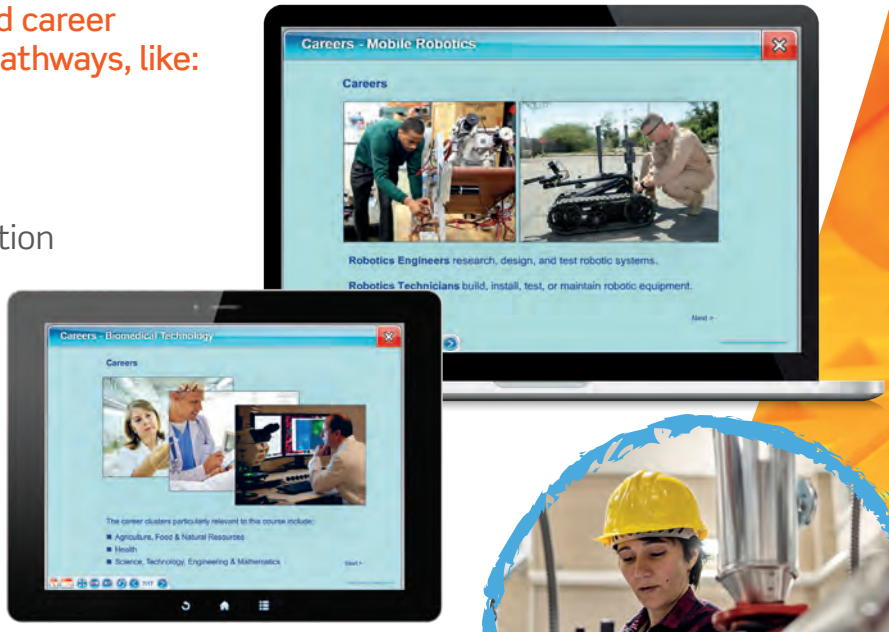


Career Pathways

College and career readiness instruction for STEM

Each course provides college and career readiness instruction for STEM pathways, like:

- Agriculture, Food, and Natural Resources
- Architecture and Construction
- Business, Management, and Administration
- Health Science
- Information Technology
- Manufacturing
- Marketing, Sales, and Service
- Science, Technology, Engineering, and Mathematics

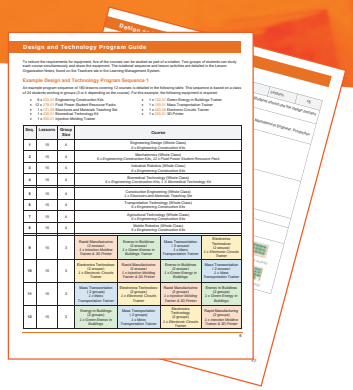


We introduce students to EVERY LEVEL of STEM careers!

In addition to Vocational and Higher Education advice for students, we also include the following to help prepare for STEM careers:

- Exposure to a broad range of STEM activities
- STEM lifelong learning skills
- Core academic skills
- Motivation through exciting projects

Courses Overview



Create your design and technology program

The Design and Technology Program includes **17 project-based courses**. An outline of each course is included in each Program Guide, including:

- A description of the course
- Project description
- Equipment requirements
- Support notes
- Typical careers
- Learning objectives
- Lessons

Each course contains:

- A presentation to introduce the course and identify relevant career pathways
- A pre- and post-test
- A set of lessons including theory presentations, hands-on practical activities, and investigations
- A final project

The Design and Technology Program is extremely flexible and can be adapted to suit your actual class size and the availability of equipment and computers. Courses can be run as a **whole class activity**, as part of a rotational model, or a combination of both. Three different program sequences have been provided in the Program Guide.

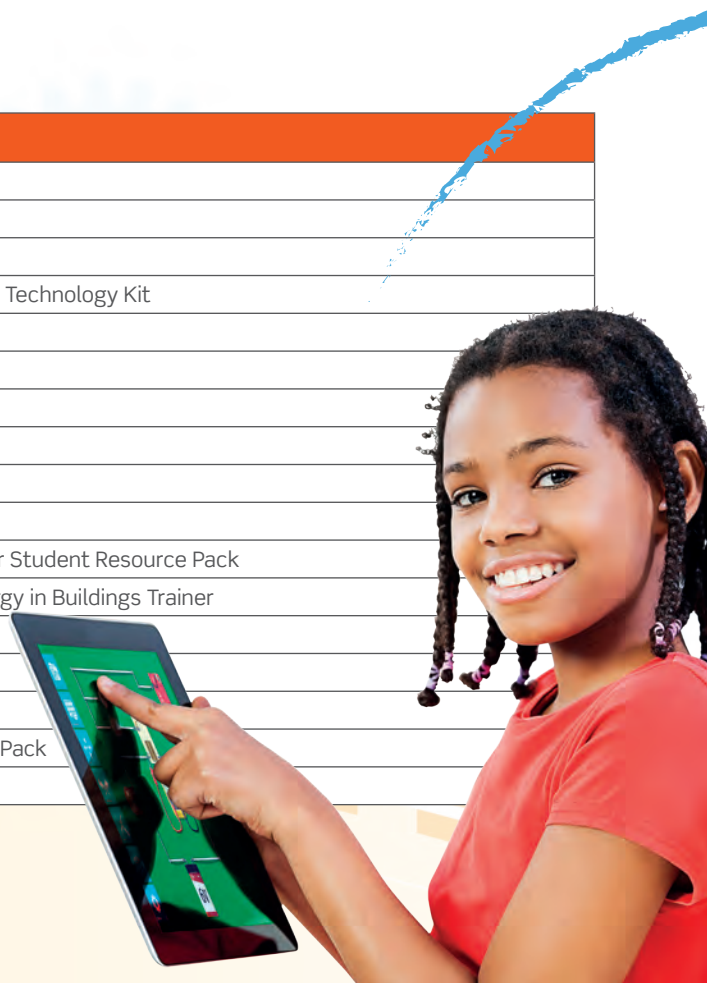
The program sequences, along with the Lessons Organization Notes found in the Teacher Tab of the **Learning Management System**, can be used in planning your own custom course sequence.

The **Engineering Design** course should be **studied first** by all students. The remaining courses are optional and can be studied in any order. The equipment required for each course is shown in the following table. The number of sets of equipment will depend on class size.

Equipment Listing

COURSE	EQUIPMENT
Engineering Design	Engineering Construction Kit
Rapid Manufacturing*	Injection Molding Trainer, 3D Printer
Construction Engineering	Structures and Materials Teaching Set
Biomedical Technology	Engineering Construction Kit, Biomedical Technology Kit
Electronics Technology*	Electronic Circuits Trainer Teaching Set
Industrial Robotics	Engineering Construction Kit
Mass Transportation*	Research and Design Teaching Set
Agricultural Technology	Engineering Construction Kit
Manufacturing Technology*	Injection Molding Trainer
Mobile Robotics	Engineering Construction Kit
Mechatronics	Engineering Construction Kit, Fluid Power Student Resource Pack
Energy in Buildings*	Engineering Construction Kit, Green Energy in Buildings Trainer
Computer Science (Mechatronics)	Engineering Construction Kit
Computer Science (Robotics)	Educational Robotics Invention Kit
Programming Robots	Educational Robotics Invention Kit
Energy Generation	Sustainable Energy Production Resource Pack
Transportation Technology	Engineering Construction Kit

* Courses suitable for group rotation



Sensors and motors are used in conjunction to create hundreds of different programming scenarios.

ENGINEERING CONSTRUCTION KIT

This kit is used to investigate, design, build, and program robotic and automated machinery in a range of areas of technology. Simple yet sophisticated programming software allows students to bring their models to life.

Typical practical tasks and topics include:

- Design a rail crossing control system
- Design automated agricultural machines
- Design mobile robots

Controller

Models clip together

Injection Molding Trainer

Structures and Materials Teaching Set

Educational Robotics Invention Kit

Research and Design Teaching Set

Biomedical Technology Kit

Fluid Power Student Resource Pack

Sustainable Energy Production Student Resource Pack

Electronic Circuits Trainer Teaching Set

Green Energy in Buildings Trainer

Engineering Design Course (15 Lessons)

Students explore the engineering design process as a methodology for solving problems, improving and developing new products. They create design specifications, generate and evaluate alternative solutions, produce models and prototypes of their solution, and recognize the importance of communication in the design process.

Learning Objectives

- Explore the design process as a method for solving engineering problems
- Use elements of the design process to solve engineering problems
- Recognize the importance of recording and communicating the design process

Typical Careers

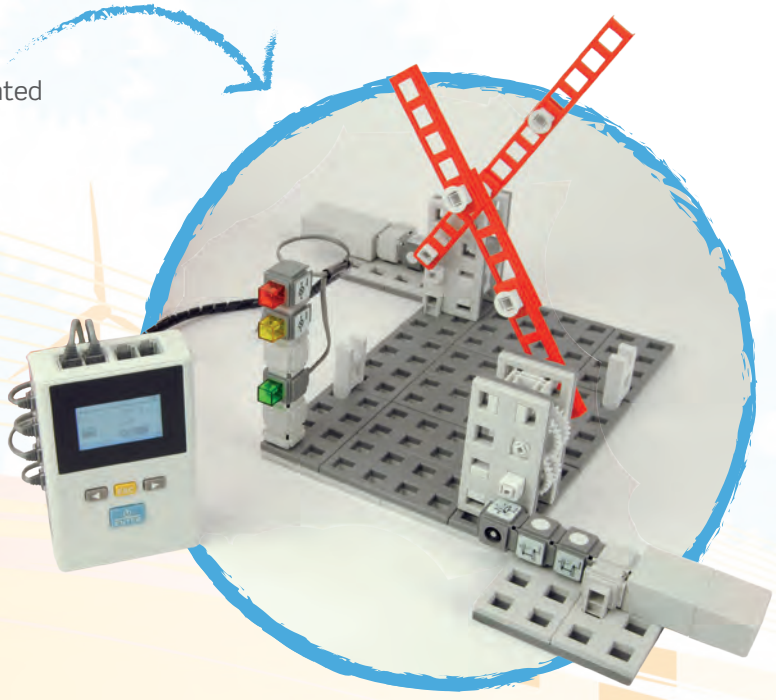
Design Engineer, Product Designer, Electrical Engineer, Project Manager, Aerospace Engineer

Lessons

- Introduction to Engineering Design
- Engineering Problems
- Alternative Solutions
- Models and Prototypes
- Communicating Engineering Design
- Design Project - A Railroad Crossing System

Design Project

Students use the design process to develop an automated railroad crossing and program the control system.



Equipment

Engineering Construction Kit (220-01)

Notes

The Engineering Design Course should be studied before any other course in the Design and Technology program.

In addition to introducing students to the engineering design process, this course also provides a good introduction into using, designing with, and programing the Engineering Construction Kit.

This course should be carried out as a whole-class activity.

Rapid Manufacturing Course (20 Lessons)

This course investigates the use of 3D printers as part of a rapid manufacturing process. Students explore how 3D printers can be used to produce tooling for manufacturing and will design and develop tooling for injection molding. Students design and manufacture a plastic product using 3D printing and an injection molding machine.

Learning Objectives

- Investigate 3D printing technology, material, and application
- Recognize how 3D printing can be used to produce tooling in a rapid manufacturing processes
- Design 3D printed tooling for an injection molding process

Typical Careers

Manufacturing Engineering Technologist, Production Engineer, Tool and Die Maker, Industrial Engineer

Lessons

- 3D Printing Materials and Applications
- 3D Printing Process
- 3D Printing
- Rapid Prototyping
- Headphone Cord Wrap
- Rapid Tooling
- Headphone Cord Wrap Injection Mold
- Improved Headphone Cord Wrap
- Multi-Part Gear Mechanism
- Design Loop
- Design Project - Rapid Prototyping and Manufacture
- Product Promotion

Design Project

Students design and develop a plastic component using rapid manufacturing technology.

Equipment

Injection Molding Trainer (350-01)
3D Printer

Notes

With access to an Injection Molding Trainer, the Rapid Manufacturing Course can be studied by two groups of students as part of an optional rotational program.

Students will also need access to a 3D printer and associated 3D design software.

Construction Engineering Course (15 Lessons)

Explore how structures are designed to withstand the forces imposed on them due to the weight of the structure, the building contents, and natural events such as earthquakes and weather. Students investigate how beams are used in construction and design a series of beams using different materials. The properties of concrete structures are also investigated.

Learning Objectives

- Investigate forces on structures and how they impact building design
- Design, model, and test a range of beam designs
- Explore concrete, its basic properties, and its application in the construction industry

Typical Careers

Construction and Building Inspector, Structural Engineer, Architectural and Civil Drafter, Civil Engineer

Lessons

- Forces on Structures
- Beams
- Concrete
- Green Materials in Construction
- Building Bridges
- Design Project - Bridge Design

Design Project

Design, build, and test a model bridge.

Equipment

Structures and Materials Teaching Set (121-00)

Notes

The Construction Engineering Course can be studied by a whole class or as part of an optional rotational program.

Biomedical Technology Course (15 Lessons)

Students explore the impact on society of medical advances such as sanitation and vaccination. They investigate genetic engineering and medical scanning as examples of biomedical technology. Students also design and develop a control system for a medical scanning machine.

Learning Objectives

- Identify the impact of medical advances such as sanitation and vaccination
- Recognize the principles and application of genetic engineering
- Explore medical scanning technology and its application

Typical Careers

Radiation Therapists, Medical Electronics Technician, Medicine, Radiologic Technologists

Lessons

- Sanitation
- Vaccination and Immunization
- Genetic Engineering
- Pharmaceuticals
- Medical Scanning
- Design Project - Model Scanner Improvements

Design Project

Students design and develop a control system for a medical scanner.

Equipment

Engineering Construction Kit (220-01)
Biomedical Technology Kit (230-01)

Notes

This course should be studied by a whole class.

Electronics Technology Course (15 Lessons)

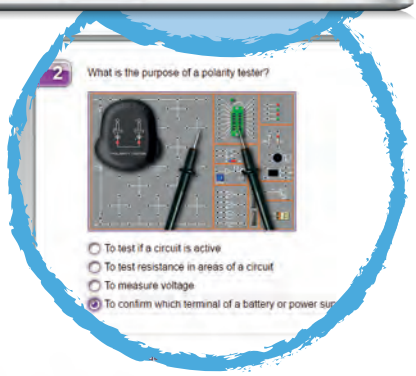
Students explore the design, development, and production of electronic systems. Students also use simulation tools to model electronic circuits and develop a series of electronic circuits using the systems approach.

Learning Objectives

- Recognize electronic components and their application in electronic systems
- Use simulation tools to model electronic systems
- Design and build electronic systems to solve problems

Typical Careers

Electronics Engineer, Electronics Engineering Technologist, Electrical and Electronics Drafter, Microsystems Engineer

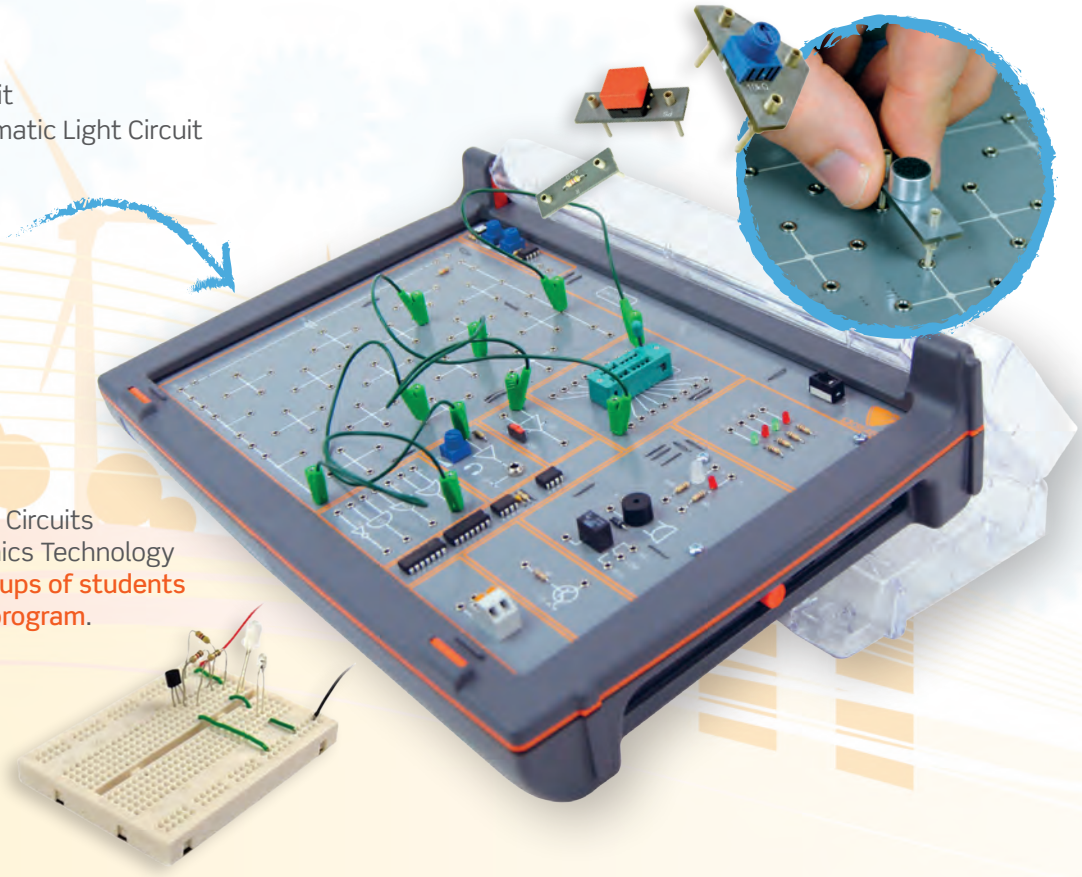


Lessons

- Simple Lamp Circuit
- Polarity Tester
- LED Lamp Circuit
- Automatic Light Circuit
- Breadboarding
- The Voltage Divider
- Improved Automatic Light Circuit
- Design Project - Improved Automatic Light Circuit

Design Project

Students design and develop an automatic lighting system.



Equipment

Electronic Circuits Trainer Teaching Set (450-00)

Notes

With access to a single Electronic Circuits Trainer Teaching Set, the Electronics Technology Course can be studied by two groups of students as part of an optional rotational program.

Industrial Robotics Course (15 Lessons)

Students explore the deployment of industrial machines and their impact on society. They also investigate the basic components of robotic systems and design a series of automated robotic systems to solve industrial problems.

Learning Objectives

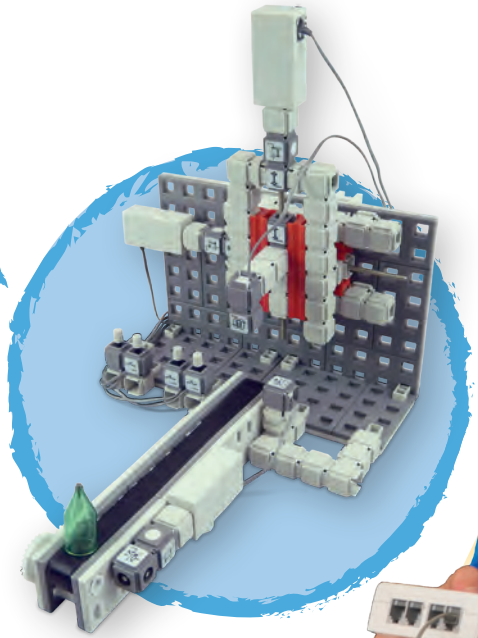
- Investigate the development of industrial machinery and its impact
- Recognize and apply control theory to robotic systems
- Design control systems for industrial machines and robotic systems
- Investigate the impact of computer systems and robotics on manufacturing

Typical Careers

Robotics Engineer, Industrial Maintenance Technician, Automation Specialist, Industrial Production Manager

Lessons

- Industrial Machines
- Controlling Machines
- The Control Loop
- Sensors
- Actuators
- Industrial Robots
- Computers and Manufacturing
- Design Project - An Industrial Robotic System



Design Project

Students design and develop an industrial robotic system.

Equipment

Engineering Construction Kit (220-01)

Notes

The Industrial Robotics Course can be studied by a whole class or as part of an optional rotational program.

Mass Transportation Course (15 Lessons)

Students can explore the design of mass transit systems with a controlled model: they use their programming skills to develop the functionality of a mass transit system and then apply physical science principles to develop safety systems to protect the occupants in the event of a crash.

Learning Objectives

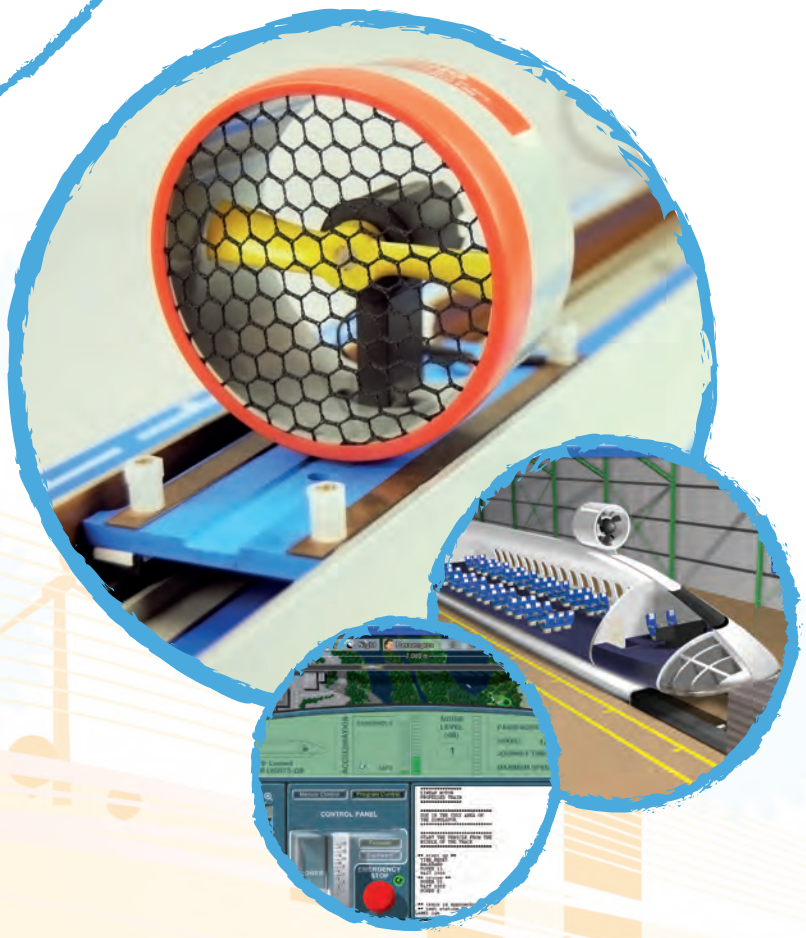
- Explore how the design process is used in developing a mass transportation system
- Model and develop the control system for a mass transportation system
- Apply the conservation of momentum principles to a mass transportation system

Typical Careers

Health and Safety Engineer, Rail-Track Laying and Maintenance Equipment Operator, Traffic Technician, Transportation Planner

Lessons

- Research and Design Approach
- Transit System
- Types of Propulsion
- Modes of Operation
- Programming
- Controlling the Service
- Momentum
- Passenger Safety
- Design Project - Passenger Safety



Design Project

Students use the design process to develop a crash protection system for a mass transportation system.

Equipment

Research and Design Teaching Set (150-00)

Notes

With access to a single Research and Design Teaching Set, the Mass Transportation Course can be studied by two groups of students as part of an optional rotational program.

Agricultural Technology Course (15 Lessons)

Students investigate the development of agricultural technology and its impact. The application of biotechnology in agriculture is also explored. Students also design a series of automated agricultural machines and environmental control systems.

Learning Objectives

- Investigate the development of agricultural machinery and its impact
- Explore the application of biotechnology in producing sustainable energy resources
- Design and program automated agricultural machinery
- Explore the use of technology in the design and control of artificial environments

Typical Careers

Agricultural Engineer, Agricultural and Food Science Technician, Farm Equipment Mechanic, Precision Agriculture Technician

Lessons

- Irrigation
- Agricultural Machines 1
- Agricultural Machines 2
- Creating Power from Biomass
- Artificial Environments
- Design Project - Vertical Farming System

Notes

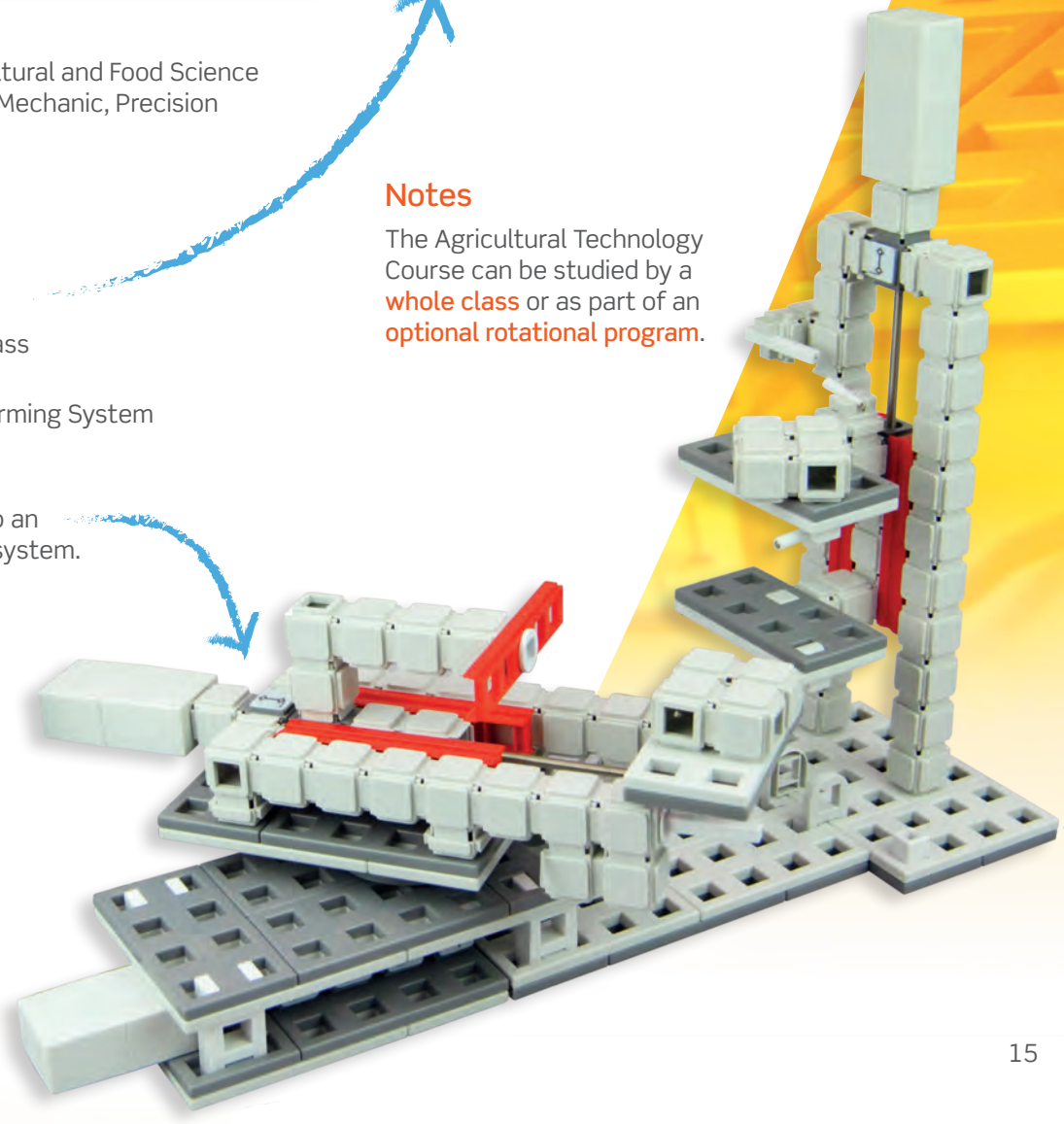
The Agricultural Technology Course can be studied by a whole class or as part of an optional rotational program.

Design Project

Students design and develop an automated vertical farming system.

Equipment

Engineering Construction Kit (220-01)



Manufacturing Technology Course (15 Lessons)

Students investigate how products are manufactured by processing materials. They also explore the process of injection molding of plastics, and they design and produce a series of injection molded products.

Learning Objectives

- Explore how materials are selected for manufacturing projects
- Investigate how plastic products are mass produced using injection molding technology
- Design and develop plastic products, and produce them using an injection molding machine

Typical Careers

Production, Planning, and Expediting Clerk, Production Engineer, Machinist, Extruding, Forming, Pressing, and Compacting Machine Operator

Lessons

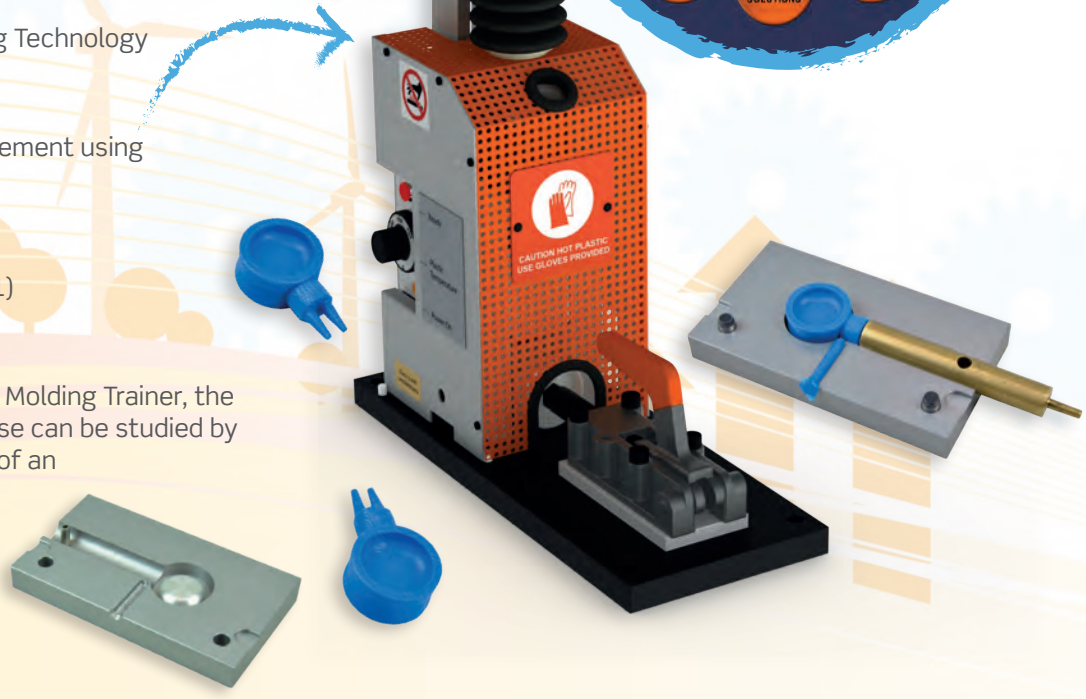
- Plastic Materials
- Injection Machine Controls
- Mechanical Properties of Materials
- Testing Materials
- Design Choices
- Design and Make a Door Knob
- Waste
- Reducing Waste and Cost
- Manufacturing Technology
- Design Loop
- Design Project - Manufacturing Technology

Design Project

Develop a design for a food implement using injection molding technology.

Equipment

Injection Molding Trainer (350-01)



Notes

With access to a single Injection Molding Trainer, the Manufacturing Technology Course can be studied by two groups of students as part of an optional rotational program.

Mobile Robotics Course (15 Lessons)

Students explore applications of mobile robotic systems and investigate how mobile robotic systems are powered and controlled. Students also design a series of mobile robotic systems to meet a design brief.

Learning Objectives

- Investigate applications of mobile robotic systems
- Explore how mobile robotic systems are powered and controlled
- Investigate sensing systems used by mobile robots
- Design mobile robotic systems to meet a given brief

Typical Careers

Robotics Technician, Robotics Engineer, Planetary Scientist, Aerospace Engineer, Mechatronics Engineer

Lessons

- Introduction to Mobile Robots
- Powering Mobile Robots
- Controlling Mobile Robots
- Sensors for Mobile Robots
- Space Robots
- Design Project - An Automated Guided Vehicle

Design Project

Students design and develop an automated guided vehicle.

Equipment

Engineering Construction Kit (220-01)

Notes

The Mobile Robotics Course can be studied by a whole class or as part of an optional rotational program.

Mechatronics Course (15 Lessons)

This course explores basic mechanical principles, including simple machines such as gears, pulleys, and levers. Students design and develop solutions to a range of engineering problems using mechanical systems. The principles of fluid power and its application in construction machines is also investigated.

Learning Objectives

- Recognize basic mechanical principles and machines such as gears and levers
- Identify how to use gears to change direction of motion, speed, and torque
- Identify the basic principles of fluid power systems
- Recognize applications of fluid power systems

Typical Careers

Industrial Engineering Technician, Machinery Maintenance Worker, Mechanical Engineer, Industrial Production Manager

Lessons

- Simple Machines
- Mechanical Systems
- Gears and Simple Gear Trains
- Designing a Winch
- Compound Gear Trains
- Special Gears
- Designing a Slow Turntable
- Basic Fluid Power Engineering
- Fundamental Principles of Pneumatics
- Fluid Power Cylinders
- Basic Control Valves
- Hydraulic Applications
- Hydraulics in Operation
- Lever Principles
- Design Project - A Fairground Ride

Design Project

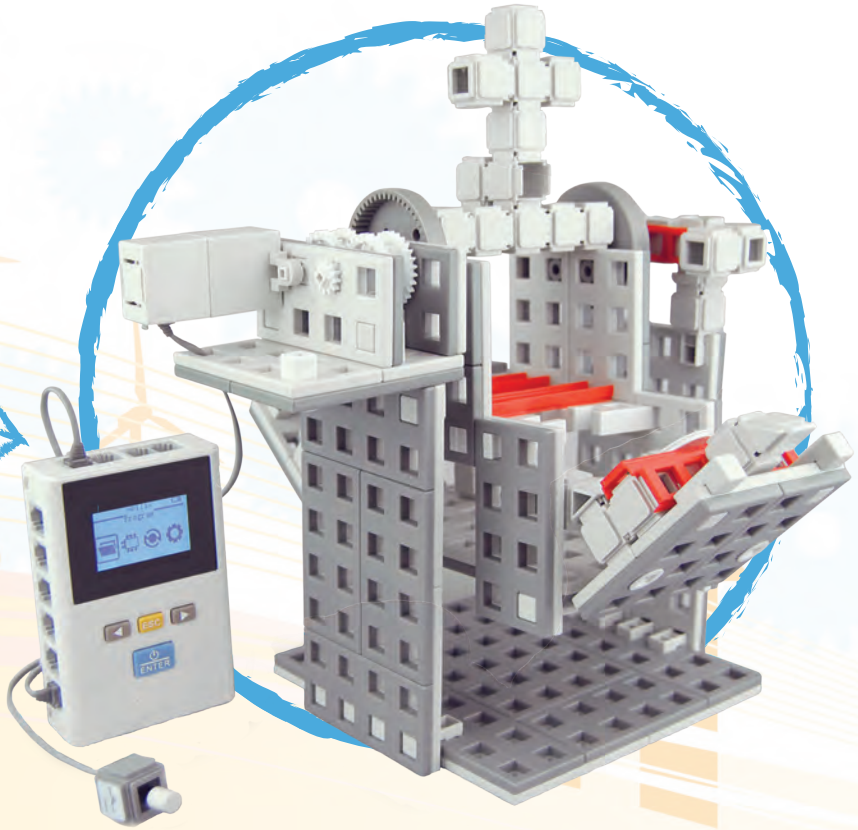
Students design a fairground ride.

Equipment

Engineering Construction Kit (220-01)
Fluid Power Student Resource Pack (278-01)

Notes

This course introduces basic mechanical principles and should be carried out as a whole-class activity.



Energy in Buildings Course (15 Lessons)

Discover how energy is used in modern buildings and explore technology that helps reduce the energy used in buildings, including glazing insulation and heat pumps. Students also explore how renewable energy generation can be used to provide energy for buildings.

Learning Objectives

- Explore how energy is used in buildings
- Investigate technology that can be used to reduce the energy consumption of a building
- Model the impact of various systems on the energy use of a building

Typical Careers

Solar Energy Systems Engineer, Surveyor, Architect, Wind Turbine Service Technician, Solar Photovoltaic Installer, Energy Engineer

Lessons

- Energy and Power
- Small Scale Wind Turbines
- Solar Electricity for the Home
- Solar Tracking
- Solar Water Heating
- Insulating Buildings
- Glazing Systems
- Cooling
- Design Project - An Automatic Sunshade

Design Project

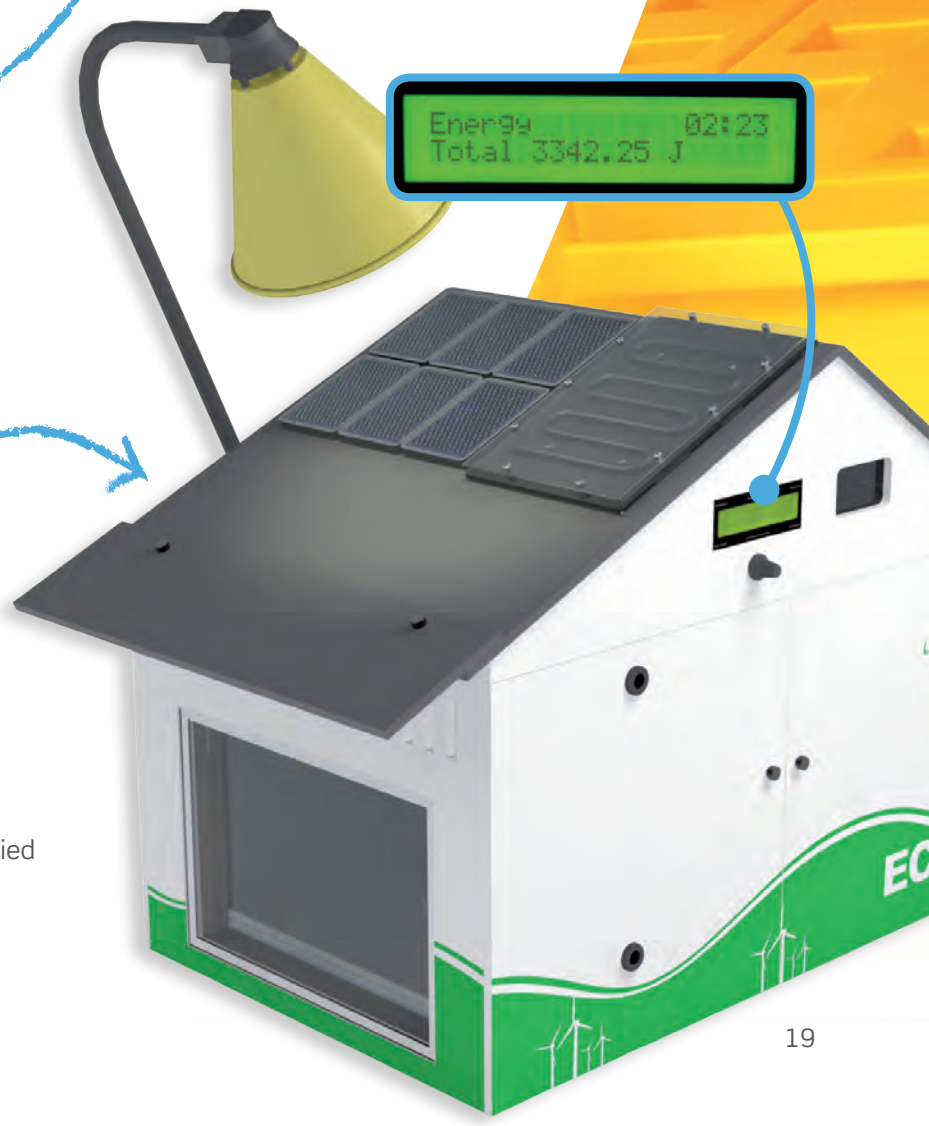
Design and build a model of an automatic sunshade that automatically closes when the temperature or light level goes above a set limit.

Equipment

Engineering Construction Kit (220-01)
Green Energy in Buildings Trainer (122-01)

Notes

With access to a single Green Energy in Buildings Trainer, the Energy in Buildings Course can be studied by two groups of students as part of an optional rotational program.

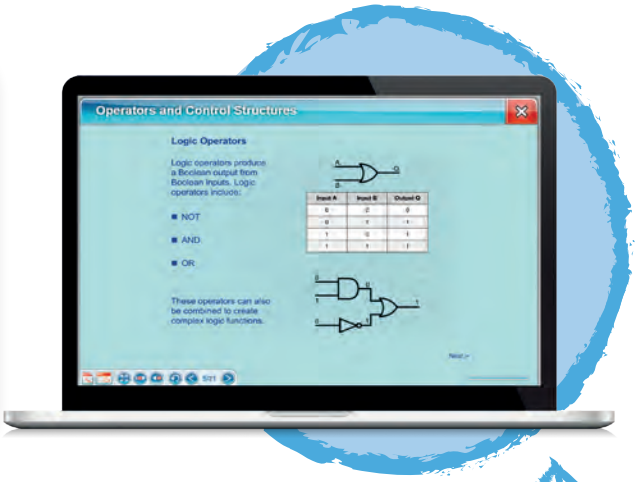


Computer Science (Mechatronics) Course (15 Lns.)

Students explore techniques for algorithm development, including problem-solving methods, flowchart design, and pseudo code. Students also design algorithms and then develop and test programs to control an elevator.

Learning Objectives

- Use algorithm problem-solving processes to develop solutions to engineering problems
- Develop algorithms that use sensor inputs and physical outputs
- Recognize the use of control structures in design programs
- Design and program solutions to a range of engineering problems



Typical Careers

Applications Software Developer, Computer Programmer, Software Quality Assurance Engineer, Robotics Engineer, Mechatronics Engineer

Lessons

- Computing Concepts
- Algorithms and Problem Solving
- Inputs and Outputs
- Data, Constants, and Variables
- Operators and Control Structures
- Documentation and Testing
- Design Project - An Elevator

Design Project

Design and build a control system for an elevator.

Equipment

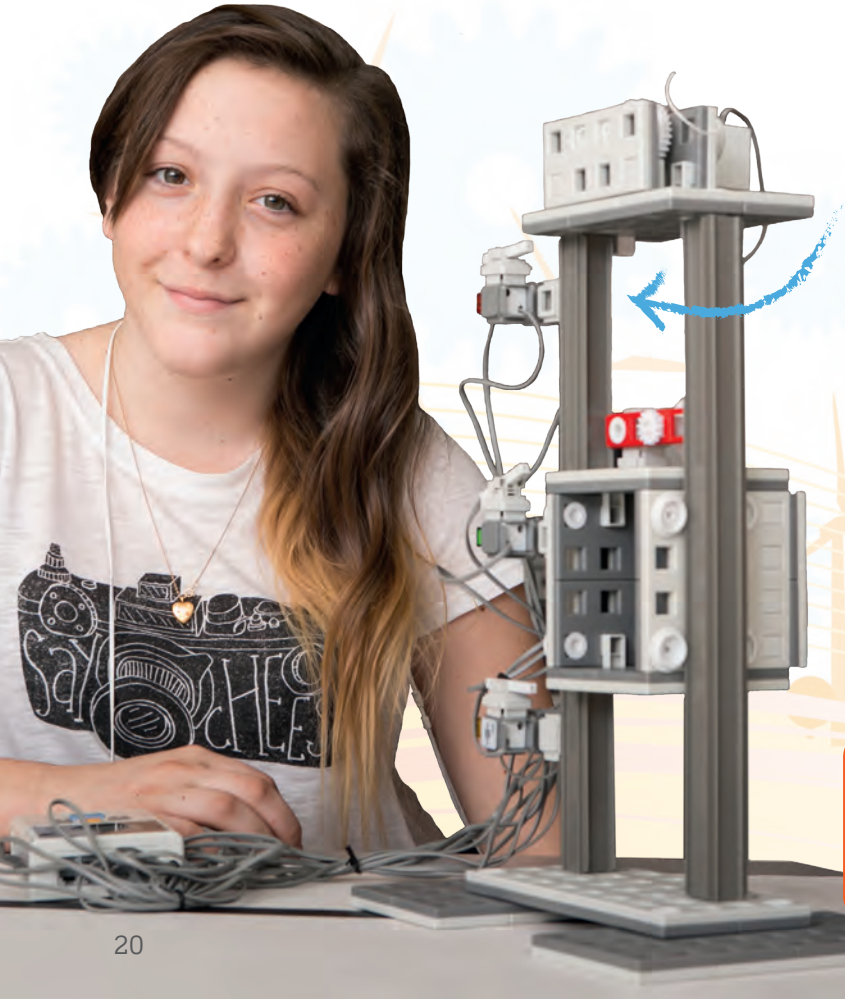
Engineering Construction Kit (220-01)

Notes

The Computer Science Course can be studied by a whole class or as part of an optional rotational program.

There are two versions of the Computer Science Course using different hardware. Students should only study one of these courses:

- Computer Science (Mechatronics)
- Computer Science (Robotics)



My name's ERIK and I'm used in the Computer Science (Robotics) course!

Programming Robots Course (15 Lessons)

This course **exclusively contains practical tasks**. Students design algorithms and then develop and test programs to control a range of robotic systems. The course uses the Educational Robotics Invention Kit and is designed for students that have **already studied the Computer Science (Mechatronics)** course.

Learning Objectives

- Use algorithm problem-solving processes to develop solutions to engineering problems
- Develop algorithms that use sensor inputs and physical outputs
- Use control structures in the design of programs for robotic systems
- Design and program solutions to a range of robotic systems

Typical Careers

Applications Software Developer, Computer Programmer, Software Quality Assurance Engineer, Robotics Engineer

Lessons

- Algorithms and Problem Solving
- Inputs and Outputs
- Data, Constants, and Variables
- Operators and Control Structures
- Documentation and Testing
- Design Project 1
- Design Project 2
- Design Project 3

Design Project

Students design and program a robotic control system.

Equipment

Educational Robotics Invention Kit (250-01)

Notes

The Programming Robotics Course can be studied by a **whole class** or as part of an **optional rotational program**.

The Programming Robots Course should be **studied after the Computer Science (Mechatronics) Course** that uses the Engineering Construction Kit.

(Students do not need to study the Programming Robots Course if they have completed the Computer Science (Robotics) Course that uses the Educational Robotics Invention Kit).

Energy Generation Course (15 Lessons)

Students explore how electricity is generated in fossil-fuel power plants. Students investigate a range of sustainable methods of power generation, including wind, solar, geothermal, hydro, and nuclear power. A simulation tool is used to design a series of plans for sustainable power generation.

Learning Objectives

- Investigate the generation of electricity in power plants
- Explore sustainable energy production technology
- Explore fuel cell technology and its efficiency
- Design plans for sustainable energy generation

Typical Careers

Solar Thermal Technician, Power Distributor and Dispatcher, Nuclear Engineer, Wind Energy Engineer, Environmental Science Technician, Power Plant Operator

Lessons

- Generating Electricity
- Wind Power
- Solar Power
- Hydropower
- Biomass Power
- Geothermal Energy
- Nuclear Power
- Hydrogen Fuel Cell
- Efficiency of Power Generation
- Power Transmission
- Design Project - National Grid Challenge

Design Project

Students design and develop a plan for sustainable energy generation for a country-wide grid system.

Equipment

Sustainable Energy Production
Student Resource Pack (100-02)

Notes

The Energy Generation Course can be studied by a whole class or as part of an optional rotational program.

Transportation Technology Course (15 Lessons)

This course investigates the development of transportation technology and its impact on society. Students explore the fundamental principles of transport technology and apply the physical science concepts to design transportation systems. Development of automated transportation systems is also covered.

Learning Objectives

- Explore the development of transportation systems
- Apply the science concepts of power and torque to transportation systems
- Investigate the application of computer technology in modern vehicles

Typical Careers

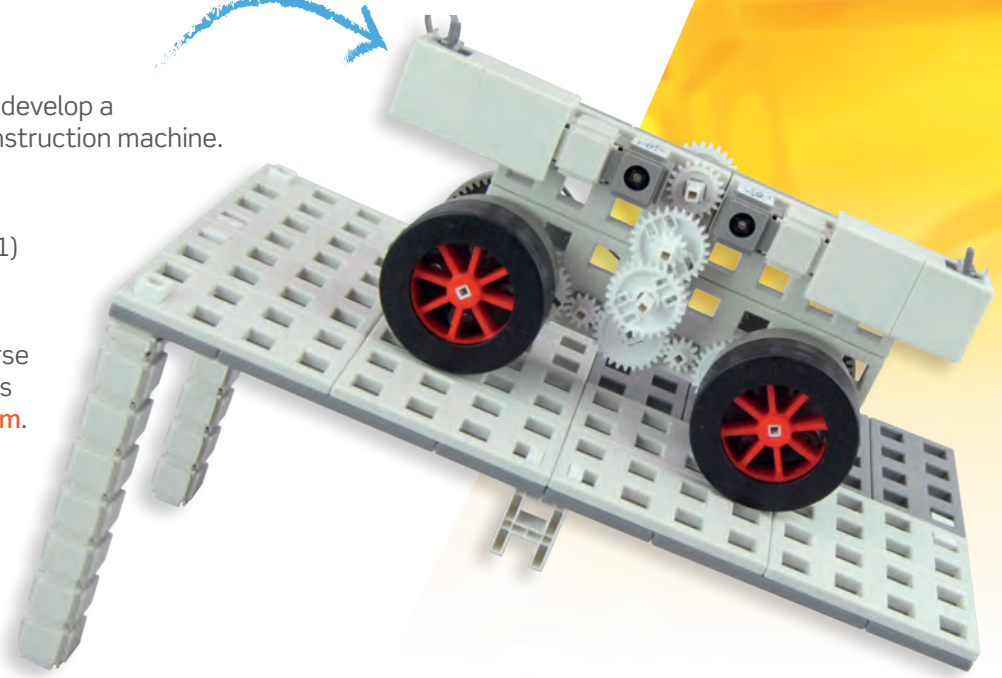
Automobile Engineer, Vehicle Designer, Automotive Technician, Cargo and Freight Agent

Lessons

- Introduction to Transportation
- Power and Control
- Torque
- Intelligent Vehicles
- Freight Transport
- Design Project - A Dump Truck

Design Project

Students use the design process to develop a computer-controlled automated construction machine.



Equipment

Engineering Construction Kit (220-01)

Notes

The Transportation Technology Course can be studied by a whole class or as part of an optional rotational program.

IT Requirements

For your Design and Technology Program

The courses within our Design and Technology program are delivered by the ClassAct II Learning Management System. ClassAct II is a cloud-based LMS system that runs in the following web browsers:

- Chrome
- Internet Explorer
- Edge
- Safari
- Firefox

The content consists of a range of lesson components that include presentations, investigations, assessments, and hands-on practical tasks.

Presentations and Assessments

All presentations and assessments will run on any modern HTML5 browser.

Practical Tasks

Practical tasks that use the Engineering Construction Kit require the use of VJC 6 programming software. The VJC 6 programming software is available to run on both Microsoft Windows PCs and Chromebooks. If using a Chromebook, a mouse is recommended - using a Windows PC is our preferred solution.

Some practical tasks require access to specific hardware which has to be connected to a Microsoft Windows PC.

Investigations

Some investigations require the use of ClassAct II applications or third party applications - which must be installed locally on a Microsoft Windows PC.

Software installation requirements for each Design and Technology project:

COURSE	SOFTWARE INSTALLATION REQUIRED	WINDOWS PC
Engineering Design	VJC 6 Programming Software*	RECOMMENDED
Mechatronics	VJC 6 Programming Software*	RECOMMENDED
Computer Science (Mechatronics)	VJC 6 Programming Software*	RECOMMENDED
Agricultural Technology	VJC 6 Programming Software*	RECOMMENDED
Mobile Robotics	VJC 6 Programming Software*	RECOMMENDED
Industrial Robotics	VJC 6 Programming Software*	RECOMMENDED
Biomedical Technology	VJC 6 Programming Software*	RECOMMENDED
Construction Engineering	N/A	
Energy Generation	Virtual Sustainable Energy Simulator	REQUIRED
Electronics Technology	Electronic Circuits Design & Simulation Software* Virtual Electric Circuits Trainer	REQUIRED
Energy in Buildings	Eco Building Interface Software	REQUIRED
Manufacturing Technology	Injection Molder Simulator, Virtual Materials Tester	REQUIRED
Transportation Technology	VJC 6 Programming Software*	RECOMMENDED
Computer Science (Robotics)	VJ H Robot Programming Software*	REQUIRED
Mass Transportation	Maglev Control Software	REQUIRED
Machine Tools	CNC Control Software	REQUIRED
Programming Robots Course	VJ H Robot Programming Software*	REQUIRED
Marketing and Sales	N/A	
Rapid Manufacturing	Requires 3D Printer and Software (Not Supplied)	
3D Printing and Fabrication Projects	Requires 3D Printer and Software (Not Supplied)	

Typical Presentation

Typical Investigation

Typical Assessment

Typical Practical Lesson

For details of software system requirements for the D&T Program, please visit: tiny.cc/43mddz

* Third party applications

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