

Mount Prospect School District 57

# **Applied Technology Education Curriculum Grades 6-8**

Mount Prospect School District 57

# **Applied Technology Education**

## **Synergistic Systems Curriculum**

### **Broad Experience Grades 6-8**

Curriculum developed based on Synergistic Systems (Pitsco, Inc.) and aligned to Illinois Learning Standards (1997) by Ken Nakai, Applied Technology teacher, 2006.

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The curriculum used in the Applied Technology Education broad experience class at Lincoln Junior High School is a product of Synergistic System curriculum from Pitsco, Inc. As part of their broad experience, students participate in four of these modules each year at Lincoln. More information on the specific modules can be obtained at [www.synergistic-systems.com](http://www.synergistic-systems.com).

The following modules are included in the current selection available to Lincoln students:

**Audio Broadcasting**

- Students who would like to be weather broadcasters, news anchors, sport announcers, talk show hosts, or disk jockeys get to enjoy the experience and use their imagination and creativity.
- In this module, students receive an opportunity to experience the important medium of radio and produce their own radio broadcast.
- They will learn how to operate all the equipment in the studio and record several announcements and stories on tape.
- Once the students have taped their broadcast they learn about radio waves and how they send sound from the station to people's radios in their homes and cars miles away.

**Aquaculture**

- The students are introduced to aquaculture as an alternative farming operation.
- They learn major aquaculture species and their general requirements.
- Students maintain a 20-gallon aquarium and "manage" an aquaculture operation doing hands-on activities that cover a wide range of topics.

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### **Body Systems**

- Students explore the structure and functions of the nervous, digestive, skeletal, muscular, respiratory, and circulatory systems.
- They measure functions of their own bodies, including lung volume, reaction time, pulse, and blood pressure.
- Students use computer software to explore the inner workings of the systems.
- Students complete a personal medical chart and a diagnostic analysis on their partner's chart.

### **Computer Graphics and Animation**

- The students will learn about the field of animation and using the computer to create special effects in movies and television shows.
- During this module students work with some basic software programs that allow them to experience the same things that are being used in this exciting industry, like "morphing," virtual reality," and "computer animation."

### **Early Childhood**

- Students explore the physical, intellectual, social, and emotional development of children from birth to age eight.
- Students research a wide variety of activities and meals identified as age appropriate for children.
- Students examine career opportunities within the field of early childhood development.

### **Electronics**

- Student's lives are filled with all types of electrical devices that affect the way they live.
- The purpose of this module is to introduce students to some of the common electronic components and to some of the basic electronic circuits used today.
- Students will learn to control electricity using various electronic components such as resistors, diodes, transistors, and integrated circuits.
- Applying what they have learned the students will use an electronic kit to make their own Blinky Board.

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**Energy, Power, and Mechanics**

- In this module students learn the concepts of energy, power, and mechanics and how these elements of physics can be applied to many different and useful purposes.
- They will have a basic understanding of energy sources, the principles of power technology and the concept of mechanical advantage and machines by the end of this module.

**Engineering Towers**

- Students will learn about towers in the form of engineering structures used to support a load.
- In this module students are given the challenge to build a tower that will hold more weight than the towers built by their classmates.
- This involves thinking, research, design, and then the construction of a tower.
- At the end of the quarter the towers will be tested to see who designed and made the strongest tower - some of which hold several hundred pounds.

**Fitness and Health**

- Students explore the basics of personal fitness and learn how to keep their bodies fit both inside and outside.
- Students analyze their own fitness level.
- They also learn ways to measure and improve cardiovascular and muscular fitness.
- Students learn the basics of proper nutrition, and the proper care of their hair, skin, and teeth.
- Students develop a plan to improve and maintain their own fitness.

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### **Flight Technology**

- In this module students learn about airplanes and how they fly, the principles of flight, and about different kinds of airplanes.
- The students will then design and build a wing that actually flies and then test it on the synergistic wing tester to determine how well each student's design works compared to his or her partners.
- The students will also use a computer flight simulator to experience piloting an aircraft.
- Lastly, students are introduced to navigation and plot a course using angular measurement and mathematical computation.

### **Interior Design**

- Students study many concepts that today's interior decorator utilizes on a daily basis.
- Students explore the principles of design from interior design to color coordination, to floor plans, home furnishings, and budgets for remodeling.
- Students learn about the relationships between material costs and personal choices by creating a cost proposal for a remodeling project.

### **Practical Skills**

- Being able to troubleshoot a situation, develop a solution, and then implement that solution can be very rewarding.
- In practical skills, students will learn about common tools and their uses.
- Students will measure, repair faulty systems, follow directions to assemble prefabricated furniture, and recognize situations that are best left to the professionals.

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### **Research and Design**

- In this module students learn some of the principles of design that are used by industry to produce a marketable product while designing and building a CO2 powered race car.
- They will then test the cars in several ways and predict their performance based on aerodynamics, weight control, and friction.
- At the end of the quarter students will race their cars and test their design skills.
- The students really enjoy the experience of trying to build the fastest car in school.

### **Robotics**

- In this module students learn about the fascinating role that robots play in their lives.
- They will learn how to operate, program, and use robots in different environments.
- Initially each student learns to manipulate the robot and program it to conduct repeatable tasks.
- Ultimately, they operate a robot located in a remote location away from direct view via a televised image of the work task.

### **Rocketry and Space**

- In this module students learn about the development of the field rocketry and the space program.
- They build a model rocket that works like a real one and then at the end of the quarter we will have a special day set aside for the students to launch their rockets.

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<b>Content Area: Applied Technology Education</b>			
<b>Module:</b> Research & Design	<b>Aligned Instructional Resources:</b> Pitsco Research & Design Module Software		
<b>Session</b>	<b>Objectives</b>	<b>Illinois Learning Standards</b>	<b>Assessment Options</b>
Session 1	Identify the steps in the design process Draw three thumbnail sketches Select a design Have design approved	-1.C.3f Interpret tables that display textual information and data in visual formats -6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers -7.A.3a Measure length, capacity, weight/mass and angles using sophisticated instruments	Multiple Choice Pre-Assessment Performance Assessment
Session 2	Knowledge survey questions Make a full-size pattern Cut and trace the pattern onto wood block	-7.A.3b Apply the concepts and attributes of length, capacity, weight/mass, perimeter, area, volume, time, temperature and angle measures in practical situations	
Session 3	Knowledge survey questions Drill axle holes Cut the side and top profiles	-7.C.3a Construct a simple scale drawing for a situation -10.A.3a Construct, read, and interpret tables, graphs and charts to organize and represent data	Performance Assessment
Session 4	Knowledge survey questions Finalize the shape of the dragster Sand away all saw marks	-11.A.3c Collect and record data accurately using consistent measuring and recording technique and media -11.A.3f Interpret and represent results of analysis to produce findings	
Session 5	Knowledge survey questions Finish Sanding	-11.B.3b Sketch, propose and compare design solutions to the problem considering available materials, tools, cost effectiveness and safety	
Session 6	Review for Assessment Apply a coat of paint	-11.B.3c Select the most appropriate design and build a prototype or simulation	
Session 7	Assemble the dragster Verify that dragster meets limitations Perform tests to predict success	-11.B.3d Test the prototype using available materials, instruments and technology and record the data -13.B.3c Describe how occupations use scientific and technological knowledge and skills	Multiple Choice Assessment Performance Assessment

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<b>Content Area: Applied Technology Education</b>			
<b>Module:</b> Aquaculture	<b>Aligned Instructional Resources:</b> Pitsco Aquaculture Module Software		
<b>Session</b>	<b>Objectives</b>	<b>Illinois Learning Standards</b>	<b>Assessment Options</b>
Session 1	Review the definition and history of aquaculture Learn the importance of accurate record keeping Measure temperature and pH of aquarium	-1.C.3f Interpret tables that display textual information and data in visual formats -6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers	Multiple Choice Pre-Assessment
Session 2	Knowledge survey questions List other water quality tests that are important Measure several water quality characteristics Observe different forms of tank filtration	-7.A.3b Apply the concepts and attributes of length, capacity, weight/mass, perimeter, area, volume, time, temperature and angle measures in practical situations	Performance Assessment
Session 3	Knowledge survey questions Learn the taxonomy and classification of fish Identify external and internal fish structures Observe fish swimming movements Explore temperature requirements for fish	-10.A.3a Construct, read, and interpret tables, graphs and charts to organize and represent data 11.A.4c Collect and record data accurately using consistent measuring and recording techniques and media	
Session 4	Knowledge survey questions Review five types of businesses in aquaculture Learn a typical fish life cycle Measure the length and weight of goldfish Enter data into the digital data book	-11.A.3e Use data manipulation tools and quantitative and representational methods to analyze measurements -11.A.3f Interpret and represent results of analysis to produce findings	
Session 5	Knowledge survey questions Understand factors limiting fish growth rates Analyze fish growth curves Learn the importance of stocking rates Measure dissolved oxygen levels in tank	-12.A.3c Compare and contrast how different forms and structures reflect different functions -12.B.3a Identify and classify biotic and abiotic factors in an environment that affect population density, habitat and placement of organisms in an energy pyramid	
Session 6	Review for Assessment Explore fish metabolic rates Calculate fish nutritional needs Study the effect of nutrition on fish productivity	-13.A.3a Identify and reduce potential hazards in science activities -13.B.3c Describe how occupations use scientific and technological knowledge and skills	Performance Assessment
Session 7	Compare the fisheries and aquaculture industries Summarize environmental impacts of aquaculture Graph and analyze data from your system	-13.B.3d Analyze the interaction of resource acquisition, technological development and ecosystem impact	Multiple Choice Assessment Performance Assessment

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<b>Content Area: Applied Technology Education</b>			
<b>Module:</b> Audio Broadcasting	<b>Aligned Instructional Resources:</b> Pitsco Audio Broadcasting Module Software		
<b>Session</b>	<b>Objectives</b>	<b>Illinois Learning Standards</b>	<b>Assessment Options</b>
Session 1	Learn how a radio station operates Be introduced to various radio program formats Learn how to use digital editing software	-1.C.3d Summarize and make generalizations from content and relate them to the purpose of the material	Multiple Choice Pre-Assessment
Session 2	Learn about the role advertising plays in radio Use digital audio editing software program Record and apply effects to a pre-written commercial Write and record a commercial	-1.C.3f Interpret tables that display textual information and data in visual formats -3.B.3a Produce documents that convey a clear understanding and interpretation of ideas and information and display focus, organization, elaboration and coherence	Commercial worksheet Performance Assessment
Session 3	Write an introduction to a newscast Write at least three news stories Write a commentary	-3.C.3b Using available technology, produce compositions and multimedia works for specified audiences	Performance Assessment
Session 4	Record an introduction to a newscast Record at least three news stories Record a commentary	-6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers	
Session 5	Create music lead-ins and lead-outs news broadcast	-10.A.3a Construct, read, and interpret tables, graphs and charts to organize and represent data	
Session 6	Complete lead-ins and lead-outs for broadcast	-13.B.3c Describe how occupations use scientific and technological knowledge and skills	
Session 7	Assemble the media files created into a final file Burn the final broadcast to a CD		Multiple Choice Assessment Performance Assessment

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<b>Content Area: Applied Technology Education</b>			
<b>Module:</b> Body Systems	<b>Aligned Instructional Resources:</b> Pitsco Body Systems Module Software		
<b>Session</b>	<b>Objectives</b>	<b>Illinois Learning Standards</b>	<b>Assessment Options</b>
Session 1	Learn the levels of organization Identify and define each human body systems Define the anatomical position	-1.C.3f Interpret tables that display textual information and data in visual formats -6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers -7.A.3a Measure length, capacity, weight/mass and angles using sophisticated instruments -10.A.3a Construct, read, and interpret tables, graphs and charts to organize and represent data -11.A.3f Interpret and represent results of analysis to produce findings -12.A.3c Compare and contrast how different forms and structures reflect different functions -12.B.3b Compare and assess features of organisms for their adaptive, competitive and survival potential -20.B.3a Monitor intensity of exercise through a variety of methods, with and without the use of technology -23.A.3 Explain how body systems interact with each other	Multiple Choice Pre-Assessment
Session 2	Explore the anatomy of the digestive system Define the functions of the digestive system Discover how nutrients are absorbed Complete the digestion activity		Performance Assessment
Session 3	Investigate the components and function of the circulatory system Explore the anatomy of the lymphatic system Explore the functions of organs in the lymphatic system		Performance Assessment
Session 4	Explore the anatomy of the respiratory system Complete respiratory system activity Investigate the form and function of the integumentary system		
Session 5	Identify main structures of the nervous system Recognize how the nervous system functions Discover the endocrine chemical communication system Discover how the body maintains homeostasis		Performance Assessment
Session 6	Compare and contrast the three muscle tissues Identify the major functions of skeletal system Discuss what factors make bones strong Explore a variety of joints found in the human body		
Session 7	Identify major organs of male/female reproductive systems Explain the functions of the organs in the reproductive system Describe the form and function of the excretory system Describe how kidneys affect the body's homeostasis		

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<b>Content Area: Applied Technology Education</b>			
<b>Module:</b> Computer Graphics & Animation	<b>Aligned Instructional Resources:</b> Pitsco Computer Graphics and Animation Module Software		
<b>Session</b>	<b>Objectives</b>	<b>Illinois Learning Standards</b>	<b>Assessment Options</b>
Session 1	Learn how to use digital camera Learn how to create a stop motion animation Produce a stop motion animation	-1.C.3f Interpret tables that display textual information and data in visual formats -3.C.3b Using available technology, produce compositions and multimedia works for specified audiences -6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers -9.A.3a Draw or construct two- and three-dimensional geometric figures including prisms, pyramids, cylinders and cones -10.A.3a Construct, read, and interpret tables, graphs and charts to organize and represent data -13.B.3c Describe how occupations use scientific and technological knowledge and skills	Multiple Choice Pre-Assessment
Session 2	Use software to take two still photographs Use software to morph two photographs together		Performance Assessment
Session 3	Learn how to use 3D virtual reality software Build an obstacle course using 3D software		Performance Assessment
Session 4	Construct a virtual environment using software		Performance Assessment
Session 5	Learn how to using 3D animation software Create and save a 3D logo using software		Multiple Choice Assessment Performance Assessment
Session 6	Create an animated movie using software Save animated movie in correct folder		
Session 7	Create a complex animation movie Save animation movie in correct folder		

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<b>Content Area: Applied Technology Education</b>			
<b>Module:</b> Early Childhood	<b>Aligned Instructional Resources:</b> Pitsco Early Childhood Module Software		
<b>Session</b>	<b>Objectives</b>	<b>Illinois Learning Standards</b>	<b>Assessment Options</b>
Session 1	Define early childhood Explore different intellectual development stages Create an activity for specified age	-1.C.3f Interpret tables that display textual information and data in visual formats -6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers	Multiple Choice Pre-Assessment
Session 2	Explore physical stages of early childhood development	-6.D.3 Apply ratios and proportions to solve practical problems	
Session 3	Explore the social and emotional development Brainstorm possible solutions to several scenarios Prepare a bacteria culture	-7.A.3a Measure length, capacity, weight/mass and angles using sophisticated instruments	Performance Assessment
Session 4	Define and explore the role of play in development Select age-appropriate toys for different ages Swab bacteria culture with cotton swabs	-7.C.3a Construct a simple scale drawing for a situation -10.A.3a Construct, read, and interpret tables, graphs and charts to organize and represent data	
Session 5	Examine nutrition labels Plan a healthy noonday meal for children	-22.A.3b Identify how positive health practices and relevant health care can help reduce health risks	Performance Assessment
Session 6	Identify several childhood diseases and symptoms Define “communicable disease” and “fever” Identify ways to prevent from spreading germs Examine ways to treat sick children	-22.B.3 Describe how the individual influences the health and well being of the workplace and the community	Multiple Choice Assessment Performance Assessment
Session 7	Practice correctly holding a baby Practice correctly diapering a baby Design a safe environment for a child in a day care center		

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<b>Content Area: Applied Technology Education</b>			
<b>Module:</b> Electronics	<b>Aligned Instructional Resources:</b> Pitsco Electronics Module Software		
<b>Session</b>	<b>Objectives</b>	<b>Illinois Learning Standards</b>	<b>Assessment Options</b>
Session 1	Assemble a solder less circuit Discover how resistors control the flow of electricity Assemble a night light	-1.C.3f Interpret tables that display textual information and data in visual formats -6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers -10.A.3a Construct, read, and interpret tables, graphs and charts to organize and represent data -13.B.3c Describe how occupations use scientific and technological knowledge and skills	Multiple Choice Pre-Assessment
Session 2	Assemble an invisible beam alarm Explore uses for invisible beam alarms		Performance Assessment
Session 3	Specify two major discoveries in electronics Assemble a police siren Describe how a microchip controls the siren		Performance Assessment
Session 4	Explore the process of manufacturing a printed circuit board List tools and materials needed to solder circuits to a board Identify the two metals that make up solder Practice soldering		Performance Assessment
Session 5	Describe the correct method for applying solder Solder components to the circuit board		
Session 6	Connect transistors, capacitors, and resistors to the board		
Session 7	Complete construction of Blinky Board Confirm that all joints are correctly attached to the board Label all the components of the board Trace the flow of electric current through the board		Multiple Choice Assessment Performance Assessment

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<b>Content Area: Applied Technology Education</b>			
<b>Module:</b> Energy Power & Mechanics	<b>Aligned Instructional Resources:</b> Pitsco Energy Power & Mechanics Module Software		
<b>Session</b>	<b>Objectives</b>	<b>Illinois Learning Standards</b>	<b>Assessment Options</b>
Session 1	Differentiate between renewable and non-renewable energy Generate electricity using wind turbine and fan Measure electrical voltage	-1.C.3f Interpret tables that display textual information and data in visual formats -6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers	Multiple Choice Pre-Assessment
Session 2	Control the electricity production Evaluate how the blade angles affects electricity production Estimate the number of turbines a city needs	-10.A.3a Construct, read, and interpret tables, graphs and charts to organize and represent data	Performance Assessment
Session 3	Cook a hot dog using a solar cooker Select the shape that best focuses the Sun's light for energy Explain advantages and disadvantages of solar energy List the most practical uses of solar energy	-11.A.3f Interpret and represent results of analysis to produce findings -11.A.4c Collect and record data accurately using consistent measuring and recording techniques and media	
Session 4	Build a simple mechanical system Calculate the revolutions of different gears Invent machines that meet challenge requirements	-11.B.3c Select the most appropriate design and build a prototype or simulation -11.B.3d Test the prototype using available materials, instruments and technology and record the data	Performance Assessment
Session 5	Label the parts of a lever Evaluate the effects of moving the fulcrum Classify objects by lever type	-12.C.3a Explain interactions of energy with matters including changes of state and conservation of mass and energy	
Session 6	Set up a fluid-powered machine Conduct experiments with the fluid trainer	-13.B.3c Describe how occupations use scientific and technological knowledge and skills	
Session 7	Explore fluid powered machines Power a game using air pressure Control energy by adjusting the flow of air pressure	-13.B.3d Analyze the interaction of resource acquisition, technological development and ecosystem impact -13.B.3f Apply classroom-developed criteria to determine the effects of policies on locals science and technology	Multiple Choice Assessment Performance Assessment

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<b>Content Area: Applied Technology Education</b>			
<b>Module:</b> Engineering Towers	<b>Aligned Instructional Resources:</b> Pitsco Engineering Towers Module Software		
<b>Session</b>	<b>Objectives</b>	<b>Illinois Learning Standards</b>	<b>Assessment Options</b>
Session 1	Draw three thumbnail sketches Choose a final design Have design approved Begin transferring the design to the pattern	-1.C.3f Interpret tables that display textual information and data in visual formats -6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers	Multiple Choice Pre-Assessment Performance Assessment
Session 2	Learn about load as it relates to structures Transfer design to the pattern Differentiate between an engineer and an architect	-7.A.3b Apply the concepts and attributes of length, capacity, weight/mass, perimeter, area, volume, time, temperature and angle measures in practical situations	Performance Assessment
Session 3	Measure and cut vertical braces Measure and cut horizontal crossbraces Glue wood joints together Learn about the forces which act upon structures	-7.C.3a Construct a simple scale drawing for a situation -10.A.3a Construct, read, and interpret tables, graphs and charts to organize and represent data	
Session 4	Continue constructing the sides of your tower Learn how to strengthen the design of structures	-11.B.3b Sketch, propose and compare design solutions to the problem considering available materials, tools, cost effectiveness and safety	
Session 5	Learn how towers structures strengthen other structures Continue construction the sides of your towers	-11.B.3c Select the most appropriate design and build a prototype or simulation	
Session 6	Complete construction of all sides of your tower	-11.B.3d Test the prototype using available materials, instruments and technology and record the data	
Session 7	Assemble all sides of your tower Weigh your tower	-13.B.3c Describe how occupations use scientific and technological knowledge and skills	Multiple Choice Assessment Performance Assessment

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<b>Content Area: Applied Technology Education</b>			
<b>Module:</b> Fitness & Health	<b>Aligned Instructional Resources:</b> Pitsco Fitness & Health Module Software		
<b>Session</b>	<b>Objectives</b>	<b>Illinois Learning Standards</b>	<b>Assessment Options</b>
Session 1	Examine different ways to strengthen your heart Create a health plan for yourself Complete “Pulse Rate” activity	-1.C.3f Interpret tables that display textual information and data in visual formats -6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers	Multiple Choice Pre-Assessment
Session 2	Role play physicians who have been assigned to write an “Ask The Doctor” column for a national fitness magazine Use medical software for research	-10.A.3a Construct, read, and interpret tables, graphs and charts to organize and represent data	Performance Assessment
Session 3	Try various exercises to determine the most effective personal workout plan Create a muscle training workout plan	-10.C.3b Analyze problem situations and make predictions about results -11.A.3c Collect and record data accurately using consistent measuring and recording technique and media	
Session 4	Research dental information Understand the importance of proper dental hygiene Demonstrate proper dental hygiene	-11.A.3e Use data manipulation tools and quantitative and representational methods to analyze measurements	
Session 5	Research hair and shampooing information Complete shampoo experiment	-12.A.3c Compare and contrast how different forms and structures reflect different functions	
Session 6	Research skin care information Complete oil, soap and water experiment Explain the importance of soap in skin care Understand the benefits of proper skin care	-20.A.3b Identify and participate in activities associated with the components of health related fitness -20.B.3a Monitor intensity of exercise through a variety of methods, with and without the use of technology	Performance Assessment
Session 7	Measure percent body fat Establish your optimum calorie intake	-20.B.3b Evaluate the strengths and weaknesses of a personal fitness profile -20.C.3c Apply the principles of training to the health related fitness goals -22.A.3b Identify how positive health practices and relevant health care can help reduce health risks	Multiple Choice Assessment

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<b>Content Area: Applied Technology Education</b>			
<b>Module:</b> Flight Technology	<b>Aligned Instructional Resources:</b> Pitsco Flight Technology Module Software		
<b>Session</b>	<b>Objectives</b>	<b>Illinois Learning Standards</b>	<b>Assessment Options</b>
Session 1	Learn about basic aerodynamics Experiment with software that simulates airflow	-1.C.3f Interpret tables that display textual information and data in visual formats -6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers -10.A.3a Construct, read, and interpret tables, graphs and charts to organize and represent data -11.A.3c Collect and record data accurately using consistent measuring and recording technique and media -11.A.3e Use data manipulation tools and quantitative and representational methods to analyze measurements -11.A.3f Interpret and represent results of analysis to produce findings -11.B.3b Sketch, propose and compare design solutions to the problem considering available materials, tools, cost effectiveness and safety -11.B.3c Select the most appropriate design and build a prototype or simulation -11.B.3d Test the prototype using available materials, instruments and technology and record the data -12.D.3a Explain and demonstrate how forces affect motion -12.D.3a Explain the factor that affect the gravitational forces on objects -13.B.3c Describe how occupations use scientific and technological knowledge and skills	Multiple Choice Pre-Assessment Performance Assessment
Session 2	Examine the factors that change lift Begin construction of airfoil		
Session 3	Complete wing construction		
Session 4	Test the amount of lift produced by wind Complete Wing Lift activity		Performance Assessment
Session 5	Explore the basic controls on a Cessna Fly a Cessna using a flight simulation software Learn how to complete a pilot logbook		
Session 6	Perform basic flight maneuvers using simulator Evaluate partners flying		
Session 7	Determine the direction and distance of a flight Determine the heading of a flight Complete the Navigation worksheet Using the simulator to test accuracy of calculations		Multiple Choice Assessment Performance Assessment

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<b>Content Area: Applied Technology Education</b>			
<b>Module:</b> Interior Design	<b>Aligned Instructional Resources:</b> Pitsco Interior Design Module Software		
<b>Session</b>	<b>Objectives</b>	<b>Illinois Learning Standards</b>	<b>Assessment Options</b>
Session 1	Watch “interior design zone” Complete a color combination activity Explore color combinations using color addition/subtraction	-1.C.3f Interpret tables that display textual information and data in visual formats	Multiple Choice Pre-Assessment       Performance Assessment       Performance Assessment    Multiple Choice Assessment Performance Assessment
Session 2	Create a wallpaper design Explore how elements and principles of design can enhance a pattern	-3.C.3b Using available technology, produce compositions and multimedia works for specified audiences	
Session 3	Use computer software to create room compositions Distinguish between formal and informal balance Print out wall designs	-6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers	
Session 4	Use computer software to create a floor plan	-7.A.3b Apply the concepts and attributes of length, capacity, weight/mass, perimeter, area, volume, time, temperature and angle measures in practical situations	
Session 5	Continue working on floor plan	-9.A.3a Draw or construct two- and three-dimensional geometric figures including prisms, pyramids, cylinders and cones	
Session 6	Apply lighting information to floor plan Complete “Interior Lighting” worksheet	-10.A.3a Construct, read, and interpret tables, graphs and charts to organize and represent data	
Session 7	Create a remodeling budget Determine the correct amount of carpet and wallpaper for a room		

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<b>Content Area: Applied Technology Education</b>				
<b>Module:</b> Practical Skills	<b>Aligned Instructional Resources:</b> Pitsco Practical Skills Module Software			
<b>Session</b>	<b>Objectives</b>	<b>Illinois Learning Standards</b>	<b>Assessment Options</b>	
Session 1	Learn the history of two different measuring systems Learn how to correctly measure using a ruler Complete a measuring activity sheet	-1.C.3f Interpret tables that display textual information and data in visual formats -6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers	Multiple Choice Pre-Assessment Performance Assessment	
Session 2	Learn how to safely use three different pliers Learn how plumbing within a house functions Complete a plumbing activity	-7.A.3b Apply the concepts and attributes of length, capacity, weight/mass, perimeter, area, volume, time, temperature and angle measures in practical situations		
Session 3	Learn the safety, use, and history of wrenches Learn how water is supplied to homes Calculate water usage and price Learn about the home plumbing system Perform a plumbing activity	-7.B.3 Select and apply instruments including rulers and protractors and units of measure to the degree of accuracy required -10.A.3a Construct, read, and interpret tables, graphs and charts to organize and represent data		
Session 4	Learn the importance of electricity in everyday life Learn basic electricity concepts Learn how a light bulb works Learn how lights can be effectively used for security Complete activities using three types of lights	-13.B.3c Describe how occupations use scientific and technological knowledge and skills		
Session 5	Learn how to properly use a screwdriver Learn basic home security hints Learn about different types of doors Learn about door construction Install a doorknob, dead bolt and a wide angle viewer			
Session 6	Learn to properly use a hammer and drill Complete a shelf mounted on brackets			Performance Assessment
Session 7	Follow a written set of instructions to assemble a cart Make decisions about which tools to use for assembly			Multiple Choice Assessment Performance Assessment

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<b>Content Area: Applied Technology Education</b>			
<b>Module:</b> Robotics	<b>Aligned Instructional Resources:</b> Pitsco Robots Module Software		
<b>Session</b>	<b>Objectives</b>	<b>Illinois Learning Standards</b>	<b>Assessment Options</b>
Session 1	Define the term robot List several uses for robots Identify the advantages and disadvantages of robots Explain how robots are programmed	-1.C.3f Interpret tables that display textual information and data in visual formats -6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers	Multiple Choice Pre-Assessment Performance Assessment
Session 2	Use software to operate the SAM robot Characterize the shape of SAM's envelope List advantages and disadvantages for using robots	-10.A.3a Construct, read, and interpret tables, graphs and charts to organize and represent data -13.A.3a Identify and reduce potential hazards in science activities	
Session 3	Design a task for SAM Teach SAM the task Properly save and carry out the task	-13.B.3c Describe how occupations use scientific and technological knowledge and skills	Performance Assessment
Session 4	Navigate a Cartesian coordinate system using SAM Navigate a set of coordinates using a laser		
Session 5	Learn the assembly process for making SAM Simulate work on an assembly line Determine the importance of quality control		
Session 6	Maneuver the rooster Trim the control levers List situations where robots are 'better' than humans		Performance Assessment
Session 7	View a monitor to maneuver the rooster Simulate using robots in dangerous environments		Multiple Choice Assessment

**Mount Prospect School District 57**  
Applied Technology Education Curriculum

<b>Content Area: Applied Technology Education</b>			
<b>Module:</b> Rocketry & Space	<b>Aligned Instructional Resources:</b> Pitsco Rocketry & Space Module Software		
<b>Session</b>	<b>Objectives</b>	<b>Illinois Learning Standards</b>	<b>Assessment Options</b>
Session 1	Trace the history of rocketry and space travel Match individuals with their accomplishments Describe the principles of combustion	-1.C.3f Interpret tables that display textual information and data in visual formats -6.B.3a Solve practical computation problems involving whole numbers, integers and rational numbers -10.A.3a Construct, read, and interpret tables, graphs and charts to organize and represent data -12.D.3a Explain and demonstrate how forces affect motion -12.D.3a Explain the factor that affect the gravitational forces on objects -13.B.3c Describe how occupations use scientific and technological knowledge and skills	Multiple Choice Pre-Assessment
Session 2	Label the main parts of a rocket Identify the parts of a space shuttle Inspect kit Attach rocket fins Outline main stages of flight		Performance Assessment
Session 3	Identify common uses of rockets Assemble shock cord		
Session 4	Identify types of recovery systems Describe the recovery system of space shuttle Create a recovery system		
Session 5	Install the engine mount Assemble your rocket Examine the engine design of the space shuttle		Performance Assessment
Session 6	Explore Newton's third law relation to rockets Decorate rocket		Performance Assessment
Session 7	Describe how astronauts prepare for space travel Examine the lifestyle of astronauts Identify how ground controllers support astronauts		Multiple Choice Assessment