



**WILLOWS UNIFIED SCHOOL DISTRICT  
Office of the Superintendent**

**DATE:** February 1<sup>st</sup>, 2024

**AGENDA TOPIC:** New Course(s) Approval

**PRESENTER:** Scott J. Booth, Director of Curriculum, Instruction, and Assessment

**BACKGROUND INFORMATION:**

In an effort to increase elective offerings, Willows High School has followed the process for this pending approval of several new courses, which have been vetted through the Curriculum, Instruction, and Assessment Advisory (CIA). These pending courses may or may not be viable for the 2024/25 school year, depending upon this approval by the Board, availability of sections in the Master Schedule, and student interest.

Pending courses include:

- Construction
- Emergency Medical Response

**RECOMMENDATION:**

Approval is recommended.

# Construction Syllabus

## Course Description

- Construction is an overview of the construction trades, with integrated Geometry content. Students master measurement systems, safe use of hand and power tools, calculation and characteristics of materials, basic carpentry, framing, introduction to electrical wiring and plumbing, and site preparation. Students will learn scale modeling, sketching, and basic blueprinting. Students learn about construction careers. Coursework is research and project-based, developing teamwork and project management skills. The culminating project is a house design project: scale modeling, sketches, rough blueprints, materials lists and pricing, personnel needed, and in-class presentation. Students demonstrate responsibility for personal, occupational safety on the job site and have the opportunity to obtain OSHA cards certifying their competence.
- Construction allows for hands-on mastery of rigorous geometrical and mathematical concepts within a context of Construction career preparation. In Construction I, students will apply major concepts of Geometry, including measurement of angles and segments, polygon properties, area and surface area, congruence, proportion and similarity. Additionally, they will demonstrate the ability to read and create basic blueprints. Applying these skills, students use safe and appropriate practices following construction processes and systems vital to the industry. In addition, students maintain and troubleshoot equipment used in the construction industry. This year-long, multiple-project integration course will also provide a sequential series of industry experiences with the ultimate goal of providing a clear pathway for students interested in professions in Building Trades. These experiences will include hands-on certifications in tools and building trades, field trips, job shadows, preliminary certifications, and internships offered through partnerships with the construction companies. Internships and training our students in OSHA Safety course, CTE certifications NAHB (National Association of Home Builders and Home Builders Institute), and the NCCER certification (The National Center for Construction Education And Research). These partnerships play a key role in highlighting the importance of labor unions' impact on workers rights, protections and fair wages. In addition, these work-based learning opportunities provide applicable knowledge of the Southern California construction industry and economy. The value of the integration lies in the project-based process, which will include critical thinking, problem-solving, and analysis of mathematical problems following the progression of core geometrical concepts from inception to contextual (hands-on) completion. Students understand the attributes of good design and how it applies to the design, construction and servicing of structures. In small heterogeneous work groups, students mirror construction sites by demonstrating effective leadership styles, key concepts of group dynamics and individual decision making that will result in a tangible physical product.

## Course Units

### Unit 1: Orientation and Safety

Students receive instruction and extended practice in the orientation and industry awareness of the construction industry. Students understand and use the vocabulary of the construction trades, as well as the vocabulary of various math concepts as they apply to the construction industry. They study math and building sequences related to measurements, geometry and practical building applications that are related to the construction industry. Students will receive instruction in measurement and marking/layout, the fundamental skills which will be needed to complete all of the applied mathematics, and construction units and assignments that follow in this course. This will include, review of fractions and decimals, converting fractions to higher or lower terms, mixed numbers, common denominators and adding, subtracting, multiplying and dividing with decimals and fractions; reading an ruler and tape measure while incorporating fractional measurements to 1/16<sup>th</sup> of an inch in a building project; reading a fractional caliper to measure material to desired thickness. Students practice the key concepts of general shop safety, learning the specific safety rules for the tooling that is applicable to the task at hand and acquiring the knowledge and skills required to work in and create a safe work environment. Shop safety procedures will include, transporting sharp woodworking tools to prevent injury, shop etiquette as it applies to cleanliness and good housekeeping, safe and appropriate use of basic non-powered hand tools, including cross cut saws, rip saws, pull-saws, coping saws, hammers and chisels, hand planes, various grit sandpaper and it's appropriate uses etc. Students will take written and practical safety tests that are applicable to each tool demonstrated as well as general shop safety procedures. Students receive certifications in tool safety, use and maintenance. Parts of this units requirements are to prepare students for successful completion of the OSHA 10 hr. safety certification.

#### Project 1

After instruction on specific tool safety for each applicable tool, students will choose Project 1, from a list of approved projects, in order to demonstrate safe operation of shop tools. To prepare them for this, they are given an orthographic drawing that they must interpret to create the project 1. Students are given supplies, and using the tools of instruction they demonstrate the proper tool safety to the instructor. In order to demonstrate understanding of applied math concepts, students also use geometry tools (i.e. protractor, compass) in order to create shapes in the material. Ultimately the shapes need to match the provided orthographic drawing. While demonstrating, students should also communicate with the instructor, using the vocabulary of the instructional trades and proving their understanding of how to properly use the tools as intended, with safety as a paramount goal.

### Unit 2: Measurement Systems

Within this unit, students will learn to measure accurately to the sixteenth of an inch using tape, ruler, framing square and calculate areas and volumes using algebra, geometry and arithmetic. Students will learn to safely and properly use the common hand tools of the trade, such as hammers, pliers, wire cutters, saws, wood chisels, and wrenches. As well, students will learn to safely and properly use portable power tools, such as circular saws, table saws, saber saws, drills, planers, and sanders. Teams of students will work collectively to construct project 2.

## **Project 2**

Each student constructs a project, to demonstrate their mastery of measurement systems, hand tools, and power tools. Students are given a drawing to understand how the project goes together. Students self-assess using a rubric described below.

Self Assessment Rubric:

Students will self-assess their completed projects using a rubric and write-up to evaluate the following criteria:

**PROBLEM/NEED:** What is the problem or need that drives this project? How effectively have you / your team solved this problem or met this need?

**CONNECTIONS:** How did you use the concepts presented in your Geometry course and in your Construction course to design and build your project?

**CALCULATIONS:** How precisely have you / your team applied geometrical concepts to design and construct the project?

**CONSTRUCTION:** How did you apply measurement systems in the planning and layout process of your project? Does your construction reflect your dimensions in relation to the blueprints?

**PRESENTATION:** How thoroughly have you / your team explained the geometrical rationales and building trade rationales throughout your construction process?

The focus on meta-cognition, team process, and mathematical precision will prepare students for success in future construction courses, allow them to access our developing Construction pathway, and support their future success in college prep mathematics courses.

## **Unit 3: Construction Careers**

Within this unit, students learn about construction careers, including building trades unions such as electricians, plumbers, roofers, and carpenters. Students will identify the likely effect of the local economy and government programs and incentives for the construction industry. Through project based learning, students understand the construction process, , engineering and commercial projects, and residential and remodeling projects. Within teams, students will complete construction career projects that demonstrate all their learning from this unit.

### **Powerpoint Presentation**

Teams of students complete construction career projects, utilizing research to identify skills required, education required, earning power, role in the construction process, mathematical knowledge utilized on the job, workforce demand, available internships and apprenticeships, and career pathways.

Students use Google Drive to take notes and add photos to their projects. After each module, students will write a brief summary about the project and define what was learned.

This project will include an in-class presentation, with Powerpoint, demonstrating knowledge of careers and needed education.

## Unit 4: Materials

Within this unit, students demonstrate mastery of building materials classifications, terminology, and applications, including fasteners, fastening methods, wood products, finishing materials, and cement-based products. In applying their learning, students will choose between screw nails or glue, nails, sealant, or caulk to fasten together common construction materials and will evaluate which fastening method is most appropriate for which materials.

### **Materials Demonstration**

Students take notes during lecture regarding building materials classifications, terminology, and applications, including fasteners, fastening methods, wood products, finishing materials, and cement-based products. Teams of students then participate in stations activities requiring them to select, justify, and model correct applications of fasteners and fastening methods and finishing materials.

## Unit 5: Site Preparation and Framing Techniques

Students solve mechanical reasoning problems. Sketch their design, and demonstrate knowledge in measurement and scale drawings. Students prepare a site for a small wood-framed structure. Students solve layout problems using knowledge of building materials and framing processes.

### **Framing Project:**

Student teams prepare a site for a small wood-framed structure, calculating area and volume of excavation, form materials, and concrete. Students calculate framing materials needed from plans, and prepare budgets. Students will present project to class, explaining process and justification for group decisions.

## Unit 6: Hand Tools

In this unit students will learn the fundamental use of hand tools and the importance of these tools in the construction trade. Students will use a variety of hand tools to perform basic and safe woodworking operations. Using inexpensive pine or poplar students apply common woodworking practices to build a take-home project.

### **Project 3**

Students will make project 3 using basic hand tools that they will be able to take home. This will include safety certification for each tool, and application of all manufacturers guidelines for tool use and safety.

## Unit 7: Power and Pneumatic Tools

In this unit students first learn to safely use a table saw, jig saw, and pneumatic nail gun and stapler. Students will cut all boards in preparation to joining and finishing the bird house. Students will then use a router to create the final pieces for assembling the parts to a project 4 .

### Project 4:

Students will assemble a wooden bird house as the culminating activity. They will use power and pneumatic tools for the project. This will include scale drawing, artistic sketch, and supplies list, with measurements.

## Unit 9: Drywall

In this unit, students assemble a stud wall as the basis for the rest of the activities. Using an abrasive saw and studs, students measure and cut stud sections and then fasten them in place with a drill and screws. After squaring the wall, students cut and hang drywall pieces to form a butt joint, taper joint, and inside and outside corners. Students apply tape, fit corner beading, and apply joint filler. Then they sand and apply different types of decorative finish.

### Wall Framing and Drywall Project

Students will apply sheetrock, tape, texture, mud and sand a wall in preparation for painting

## Unit 10: Introduction to Plumbing and Electrical

Students learn the career options in each industry. They will learn, and demonstrate knowledge of materials and uses, for plumbing and electrical. Students will learn and demonstrate safety procedures for plumbing and electrical.

## Course Materials

--	- Multi-Craft Core	Building and Construction Trades Department,	-
	- Curriculum.	AFL-CIO. Building Trades	-
Floyd	- Workbook	Residential Construction Academy: Carpentry	
Vogt	-		



# Emergency Medical Response Course Syllabus

## Course Description

The Emergency Medical Responder course prepares 11th-grade students to provide prehospital assessment and care for patients of all ages with a variety of medical conditions and traumatic injuries. Areas of study include:

- Introduction to emergency medical services systems
- Roles and responsibilities of EMRs
- Anatomy and physiology
- Medical emergencies
- Trauma
- Special considerations for working in the prehospital setting

## Course Units

### Preparatory

In Unit 1, students will learn to summarize the history and origins of the emergency medical services (EMS) system.

- Describe the components of an EMS system and discuss factors related to “right to practice.”
- Explain the different levels of EMS training.
- Discuss the continuity of care and the importance of working with other responders.
- Define who an emergency medical responder (EMR) is.
- List the roles and responsibilities of an EMR.
- Describe the personal characteristics and professional behavior expected of an EMR.
- Discuss medical oversight.
- Discuss factors related to the “right to practice.”

Students will collaborate within their assigned groups and create an emergency medical scenario via video or live skit. They will demonstrate the proper technique for removing disposable latex-free gloves, gown, and mask and practice infection control throughout the scenario. Each group will then share their scenario to the class. Students and instructors will assess the scene and provide the correct actions.

### Assessment

In Unit 2, Students will focus on assessing scenes and obtaining health information and explain the rationale for sizing up a scene.

- Identify the elements of a scene size-up.
- Determine when a scene is safe to enter.
- Describe common hazards found at the scene of a trauma or medical emergency.



- Have a basic understanding of scene and traffic control and related safety issues.
- Describe the principles of personal safety at an emergency scene.
- Identify standard and specialized personal protective equipment (PPE).
- Describe common mechanisms of injury (MOIs) and natures of illness.
- Recognize an unstable vehicle.
- Explain the safety fundamentals of vehicle stabilization.
- Know when to request and what types of additional resources may be necessary at the scene.
- Describe other dangerous situations and hazardous materia

At the end of this unit, students will create a short Environmental Emergency PSA Film. In groups, students will create a short 1-2 minute PSA film designed to help non-trained EMR individuals that may encounter a given medical or environmental emergency situation. The PSA must consist of Students performing a primary assessment, demonstrating how to assess LOC, demonstrating how to open the airway using the head-tilt/chin-lift maneuver and the jaw-thrust maneuver, and demonstrating how to use a resuscitation mask then share their completed films to the class.

## Airway

Students will learn and be able to describe the structure and function of the respiratory system

- List the signs of inadequate breathing .
- Describe how to care for a patient experiencing respiratory distress
- Relate the maneuver used to open the airway to the mechanism of injury .
- Explain why basic airway management and ventilation skills take priority over many other basic life-support skills.
- Describe how to perform mouth-to-mouth, mouth-to-nose and mouth-to-stoma ventilations

Students will complete a skills key assignment at the end of this unit. In groups of 4, each student will be given a mannequin, airway equipment, including various sizes of oral and nasal airways, oxygen tubing, masks, a bag-valve mask, a pocket mask, and an oxygen regulator and tank. Students will take turns being blind folded and the remaining members of the group act as observers to evaluate the effectiveness of the blindfolded provider's treatment. The following skills must be observed: Demonstrate how to give ventilations using a resuscitation mask.

- Demonstrate how to give ventilations using a bag-valve-mask (BVM) resuscitator.
- Demonstrate how to give ventilations if a head, neck or spinal injury is suspected

## Circulation

Unit 4 focuses on Describing how to recognize and care for a patient who may be experiencing a heart attack .

- Describe how to care for a patient who may be experiencing cardiac arrest .
- List the reasons for the heart to stop beating

Students will create a step by step guide on recognizing and treating cardiac arrest. The guide must include the following skills: one-responder CPR for an adult, a child and an infant, two-responder CPR for an adult, a child and an infant, how to use an AED for adult and pediatric patients in cardiac

arrest. They will present these guides to lower grade level students and will then teach, evaluate, and provide feedback.

## Medical Emergencies

Unit 5 focus is on Identifying a patient who has a general medical complaint.

- Describe the general care for a patient with a general medical complaint
- Identify the signs and symptoms of an altered mental status
- Describe the care for a patient who has an altered mental status
- Describe the different types of seizures
- Identify the signs and symptoms of seizures
- Describe the care for a patient who has a seizure
- Identify the signs and symptoms of a diabetic emergency
- Describe the care for a patient who has a diabetic emergency
- Identify the different causes of a stroke
- Identify the signs and symptoms of a stroke
- Describe the care for a patient who has a stroke
- Identify the signs and symptoms of abdominal pain
- Describe the care for a patient who has abdominal pain
- Describe the special considerations for a patient on hemodialysis

Students will participate in a mini triage. Students will be assigned to an emergency situation. Students will need to identify, describe, and provide care according to the emergency. Skills that must be performed during the mini triage include: the use of an epinephrine auto-injector and appropriate handling and disposal of an epinephrine auto-injector. Students will be evaluated by the instructor.

## Trauma Emergencies

Unit 6 focuses on the different types of shock, causes, and treatments.

- List the signs and symptoms of shock.
- Describe how to provide care to minimize shock.
- Make appropriate decisions about care when given an example of an emergency in which shock is likely to occur

Students will split into several small groups with each group receiving a scenario to role-play, using either a manikin or another member of the class as the patient. The skills that must be present are:

how to control external bleeding with direct pressure, dressings and bandages,

including caring for shock and how to control severe, life-threatening bleeding using a commercial tourniquet. Students will need to formulate a response to the scenario integrating the key points and skills learned explaining their actions while providing care. Students will be evaluated by instructors and classmates by being able to answer scenario based questions.

## Special Populations

Unit 7 focuses on pregnancy, delivery, complications, and describes each trimester of pregnancy.

- Describe the four stages of labor
- Describe how to help the mother with labor and normal delivery
- Describe how to assess a newborn.
- Describe how to control bleeding after birth.
- Describe how to care for the newborn and mother.
- List complications during pregnancy.
- Describe complications during delivery

Students will create presentations on the different birthing styles and birthing options, using a final product of their choice (poster, digital, spoken). Students will then present their projects to class for evaluation and feedback.

## EMS Operations

Unit 8 focuses on describing the roles of traditional and nontraditional emergency medical responders (EMRs)

- Explain all phases of an emergency medical services (EMS) response and associated responsibilities of an EMR.
- Identify the basic equipment used by an EMR
- Define air medical transport and the criteria for when it should be requested.
- Discuss safety issues related to air medical transport and landing zones (LZs)
- Discuss emergency vehicle safety and other safety issues during response
- Identify and describe high-risk situations.
- Summarize patient care issues in the ambulance

Students will participate in a skills final relating to EMR. In teams, students will need to gather their emergency supplies, assign team roles, divide responsibilities, assign an incident command center, search and rescue disaster victims, tag and transport victims accordingly. Students will be assessed by instructors during the disaster event. Grades will be based on performance and correct injury tagging on disaster victims.

## Course Materials

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American Red Cross	December 2017	Workbook	Emergency Medical Response Workbook, (EA) Rev. 12/17
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