



***Department of Teaching & Learning***  
***Parent/Student Course Information***

***Carpentry***  
***(VO8602)***

***Three Credits, One Year***  
***Grades 10 - 12***

*Counselors are available to assist parents and students with course selections and career planning. Parents may arrange to meet with the counselor by calling the school's guidance department.*

**COURSE DESCRIPTION**

In this course, students learn the use and maintenance of hand and power tools utilized in the field of carpentry. The kinds, grades, and characteristics of building materials are covered in depth, as well as the proper method of cutting, shaping and joining. This course also includes reading blueprints; building foundations; framing floors, walls, stairs and roofs; installing windows and doors; and applying exterior and interior finishes.

**CERTIFICATION**

Skills Connect: Carpentry

**STUDENT ORGANIZATION**

SkillsUSA is a co-curricular organization for all students enrolled in trade and industrial education programs. SkillsUSA is a partnership of students, teachers and industry working together to ensure America has a skilled workforce. SkillsUSA helps students excel by providing educational programs, events and competitions that support career and technical education (CTE) in the nation's classrooms. Students are highly encouraged to participate.

**PREREQUISITE**

Construction Technology

**OPTIONS FOR NEXT COURSE**

None

**REQUIRED STUDENT TEXTBOOK**

None

## COMPETENCIES FOR CARPENTRY

### Demonstrating Personal Qualities and Abilities

- 1 Demonstrate creativity and innovation.
- 2 Demonstrate critical thinking and problem solving.
- 3 Demonstrate initiative and self-direction.
- 4 Demonstrate integrity.
- 5 Demonstrate work ethic.

### Demonstrating Interpersonal Skills

- 6 Demonstrate conflict-resolution skills.
- 7 Demonstrate listening and speaking skills.
- 8 Demonstrate respect for diversity.
- 9 Demonstrate customer service skills.
- 10 Collaborate with team members.

### Demonstrating Professional Competencies

- 11 Demonstrate big-picture thinking.
- 12 Demonstrate career- and life-management skills.
- 13 Demonstrate continuous learning and adaptability.
- 14 Manage time and resources.
- 15 Demonstrate information-literacy skills.
- 16 Demonstrate an understanding of information security.
- 17 Maintain working knowledge of current information-technology (IT) systems.
- 18 Demonstrate proficiency with technologies, tools, and machines common to a specific occupation.
- 19 Apply mathematical skills to job-specific tasks.
- 20 Demonstrate professionalism.
- 21 Demonstrate reading and writing skills.
- 22 Demonstrate workplace safety.

### Examining All Aspects of an Industry

- 23 Examine aspects of planning within an industry/organization.
- 24 Examine aspects of management within an industry/organization.
- 25 Examine aspects of financial responsibility within an industry/organization.
- 26 Examine technical and production skills required of workers within an industry/organization.
- 27 Examine principles of technology that underlie an industry/organization.
- 28 Examine labor issues related to an industry/organization.
- 29 Examine community issues related to an industry/organization.
- 30 Examine health, safety, and environmental issues related to an industry/organization.

### Addressing Elements of Student Life

- 31 Identify the purposes and goals of the student organization.
- 32 Explain the benefits and responsibilities of membership in the student organization as a student and in professional/civic organizations as an adult.
- 33 Demonstrate leadership skills through participation in student organization activities, such as meetings, programs, and projects.
- 34 Identify Internet safety issues and procedures for complying with acceptable use standards.

### Exploring Work-Based Learning

- 35 Identify the types of work-based learning (WBL) opportunities.

- 36 Reflect on lessons learned during the WBL experience.
- 37 Explore career opportunities related to the WBL experience.
- 38 Participate in a WBL experience, when appropriate.

### **Applying Basic Construction Safety Standards (Core Safety)**

- 39 Comply with federal, state, and local safety legal requirements, including OSHA, VOSHA, and EPA.
- 40 Identify personal protective equipment (PPE) requirements.
- 41 Inspect and maintain a safe working environment.
- 42 Explain safe working practices around electrical hazards.
- 43 Identify emergency first aid procedures.
- 44 Identify the types of fires and the methods used to extinguish them.
- 45 Inspect course-specific hand and power tools to visually identify defects.
- 46 Demonstrate lifting and carrying techniques.
- 47 Demonstrate safe laddering techniques.
- 48 Demonstrate safe scaffolding techniques.
- 49 Report personal injuries, environmental, and equipment safety violations to the appropriate authority.
- 50 Pass a safety exam for shop/site safety and specific tool use.

### **Focusing on the Carpentry Profession**

- 51 Identify the responsibilities and personal characteristics of a professional carpenter.
- 52 Research local and regional opportunities in the construction industry.
- 53 Describe the interrelationship among professional entities common to the construction industry.
- 54 Communicate verbally and in writing, using construction terminology.
- 55 Identify communication technology and hand signals common to the construction site.
- 56 Measure materials, using a standard measuring device.

### **Using Hand and Power Tools**

- 57 Identify the basic hand tools and commonly used power tools used in carpentry.
- 58 Maintain hand and power tools.
- 59 Describe the safe use of nail guns.

### **Interpreting Blueprints**

- 60 Correlate information on blueprints to actual locations on the print.
- 61 Interpret drawing dimensions.
- 62 Describe the importance of the Virginia Unified Statewide Building Code (USBC), what it governs, and how to use it as a reference.

### **Identifying Basic Rigging Procedures**

- 63 Identify the use of slings and common rigging hardware.
- 64 Identify the basic inspection techniques and rejection criteria used for slings and hardware.
- 65 Identify the basic hitch configurations and their proper connections.
- 66 Identify basic load-handling safety practices.
- 67 Demonstrate American National Standards Institute (ANSI) hand signals.

### **Assembling and Fastening Components**

- 68 Identify nailing schedules for selected materials, according to local building codes.

### **Estimating and Selecting Materials**

- 69 Determine materials from a blueprint.
- 70 Estimate labor and material cost.

71 Determine the proper use of materials.

### **Building and Installing Foundations and Forms**

- 72 Set up a builder's level and a laser level.
- 73 Establish elevation points from a benchmark.
- 74 Install batter boards.
- 75 Identify types of footings.
- 76 Construct and align the foundation wall and wall forms to include pilasters and beam pockets.
- 77 Describe wall-framing techniques (e.g., block, poured) used in masonry construction.
- 78 Describe the installation of window and door jambs in masonry openings.
- 79 Describe form maintenance.

### **Framing a Floor**

- 80 Install the sill plate.
- 81 Install a solid or composite wood beam/girder.
- 82 Install the lally column (i.e., basement pole).
- 83 Assemble floor framing detail on the sill plate.
- 84 Assemble floor joists.
- 85 Frame the floor opening.
- 86 Install floor joists.
- 87 Install bridging and blocking.
- 88 Install subfloor sheathing.
- 89 Select subfloor framing fasteners and adhesives.

### **Framing Walls**

- 90 Lay out the floor deck for walls.
- 91 Lay out stud spacing on wall plates.
- 92 Cut and assemble studs, headers, jacks, rough sills, and cripples.
- 93 Assemble the corner and tee posts.
- 94 Assemble the header.
- 95 Frame the door opening.
- 96 Frame the window opening.
- 97 Assemble wall sections, including metal studs.
- 98 Install the double top plate (i.e., cap plate).
- 99 Install wall blocking (i.e., backing).
- 100 Describe the procedures and requirements for installing fire stops.
- 101 Install a corner brace.
- 102 Install exterior wall sheathing.
- 103 Raise a wall.

### **Framing a Ceiling**

- 104 Lay out ceiling framing detail on the top wall plate.
- 105 Cut ceiling joists.
- 106 Install the ceiling joists.
- 107 Frame the ceiling opening.
- 108 Install a strongback (i.e., stiffener or catwalk).

### **Framing a Roof**

- 109 Lay out roof framing detail on the cap plate.
- 110 Lay out the common, header, and cripple rafters.

- 111 Lay out a common rafter as a pattern.
- 112 Reproduce common rafters from a pattern.
- 113 Install the ridge board.
- 114 Frame the roof opening.
- 115 Install common rafters.
- 116 Frame a gable end.
- 117 Frame a blind valley (i.e., overlay valley).
- 118 Frame a gable dormer.
- 119 Frame a shed dormer.
- 120 Install the collar beams (i.e., rafter ties).
- 121 Install the purlins.
- 122 Install roof sheathing.
- 123 Frame a chimney saddle (i.e., cricket).

### **Installing Trusses**

- 124 Lay out a truss installation.
- 125 Describe the safe selection, setting, and anchoring of trusses by hand or by crane.
- 126 Brace the roof assembly.
- 127 Frame an opening in the roof assembly.

### **Installing Roofing**

- 128 Install roof underlayment.
- 129 Install valley flashing.
- 130 Install 3-tab composite shingles.
- 131 Install the ridge cap.
- 132 Install composite shingles in a valley.
- 133 Install composite shingles around the roof opening.
- 134 Identify attic area ventilators.

### **Constructing and Installing Straight (i.e., Basic) Stairs**

- 135 Calculate the rise and run for stairs.
- 136 Lay out a straight-run stair stringer.
- 137 Cut the stair components.
- 138 Construct the unfinished stair unit.

### **Installing Exterior Doors and Windows**

- 139 Install pre-hung exterior door units.
- 140 Identify types of exterior doors.
- 141 Identify types of interior doors.
- 142 Install the garage door and jamb.
- 143 Identify types of windows.
- 144 Install new-construction windows.

### **Framing Decks and Porches**

- 145 Install footings.
- 146 Identify superstructure of attachment.
- 147 Install ledger board, fasteners, wind bracing, joist hangers, and flashing.
- 148 Install posts.
- 149 Install a solid or composite wood beam/girder.
- 150 Install the deck joist.

- 151 Install decking material.
- 152 Install railings.
- 153 Identify types of decking materials.

### **Installing Exterior Finishes**

- 154 Construct a box and a rake cornice.
- 155 Install a fascia.
- 156 Install a soffit.
- 157 Install a corner board for siding.
- 158 Install siding and accompanying accessories.

### **Installing Interior Finishes**

- 159 Install gypsum board.
- 160 Install paneling and trim.
- 161 Install shelving.
- 162 Install baseboards.
- 163 Install ceiling molding.
- 164 Case an interior opening.
- 165 Install an interior door jamb.
- 166 Install a pre-hung interior door unit.
- 167 Install a sliding, bi-fold, swinging, or pocket door.
- 168 Install a cylinder lockset.
- 169 Install weather stripping.
- 170 Construct open shelving.

Aaron C. Spence, Ed.D., Superintendent  
Virginia Beach City Public Schools  
2512 George Mason Drive, Virginia Beach, VA 23456-0038

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For further information, please call (757) 263-1070.

### **Notice of Non-Discrimination Policy**

Virginia Beach City Public Schools does not discriminate on the basis of race, color, religion, national origin, sex, sexual orientation/gender identity, pregnancy, childbirth or related medical condition, disability, marital status, age, genetic information or veteran status in its programs, activities, employment, or enrollment, and provides equal access to the Boy Scouts and other designated youth groups. School Board policies and regulations (including, but not limited to, Policies 2-33, 4-4, 5-7, 5-19, 5-20, 5-44, 6-33, 6-7, 7-48, 7-49, 7-57 and Regulations 4-4.1, 4-4.2, 5-44.1, 7-11.1, 7-17.1 and 7-57.1) provide equal access to courses, programs, enrollment, counseling services, physical education and athletic, vocational education, instructional materials, extracurricular activities and employment.

Title IX Notice: Complaints or concerns regarding discrimination on the basis of sex or sexual harassment should be addressed to the Title IX Coordinator, at the VBCPS Office of Student Leadership, 641 Carriage Hill Road, Suite 200, Virginia Beach, 23452, (757) 263-2020, [Mary.Dees@vbschools.com](mailto:Mary.Dees@vbschools.com) (student complaints) or the VBCPS Department of School Leadership, 2512 George Mason Drive, Municipal Center, Building 6, Virginia Beach, Virginia, 23456 (757) 263-1088, [Elizabeth.Bryant@vbschools.com](mailto:Elizabeth.Bryant@vbschools.com) (employee complaints). Additional information regarding Virginia Beach City Public Schools' policies regarding discrimination on the basis of sex and sexual harassment, as well as the procedures for filing a formal complaint and related grievance processes, can be found in School Board Policy 5-44 and School Board Regulations 5-44.1 (students), School Board Policy 4-4 and School Board Regulation 4-4.3 (employees), and on the School Division's website at [Diversity, Equity and Inclusion/Title IX](#). Concerns about the application of [Section 504 of the Rehabilitation Act](#) should be addressed to the Section 504 Coordinator/Executive Director of Student Support Services at (757) 263-1980, 2512 George Mason Drive, Virginia Beach, Virginia, 23456 or the Section 504 Coordinator at the student's school. For students who are eligible or suspected of being eligible for special education or related services under IDEA, please contact the Office of Programs for Exceptional Children at (757) 263-2400, Plaza Annex/Family and Community Engagement Center, 641 Carriage Hill Road, Suite 200, Virginia Beach, VA 23452.

The School Division is committed to providing educational environments that are free of discrimination, harassment, and bullying. Students, staff, parents/guardians who have concerns about discrimination, harassment, or bullying should contact the school administration at their school. Promptly reporting concerns will allow the school to take appropriate actions to investigate and resolve issues. School Board Policy 5-7 addresses non-discrimination and anti-harassment, Policy 5-44 addresses sexual harassment and discrimination based on sex or gender. Policy 5-36 and its supporting regulations address other forms of harassment.

Alternative formats of this publication which may include taped, Braille, or large print materials are available upon request for individuals with disabilities. Call or write The Department of Teaching and Learning, Virginia Beach City Public Schools, 2512 George Mason Drive, P.O. Box 6038, Virginia Beach, VA 23456-0038. Telephone 263-1070 (voice); fax 263-1424; 263-1240 (TDD) or email at [Brandon.Martin@vbschools.com](mailto:Brandon.Martin@vbschools.com).

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