



North Polk Community Schools Pacing & Course Description Guide



Grade Level: 10-12

Content: FOUNDATIONS OF CONSTRUCTION

Year: 2022-23

Course Description/Rationale

This course exposes students to the opportunities available in construction-related trades. Students learn about the processes involved in construction projects and may engage in a variety of small projects. This course emphasizes responsibility, qualifications, work environment and career paths within construction-related fields. (1 HS credit)

Name of Unit	Time Frame	Essential Learning Target	Standard(s)
Tools and Machines	2-3 weeks	<p>Students will be able to identify basic shop tools and understand proper uses.</p> <p>Students will be able to correctly select the proper tool for the job and use it safely.</p>	<p>8. Recognize and identify some of the basic hand tools and their proper uses in the construction trade.</p> <p>1. Demonstrate the ability to use the proper hand tool for the application/process.</p> <p>2. Visually inspect hand tools to determine if they are safe to use.</p> <p>3. Safely use hand tools.</p>

<p>Safety</p>	<p>2-3 weeks</p>	<p>Students will demonstrate safe use of tools and machines.</p> <p>The aspect of safety and the respect for coworkers (classmates) will be achieved by reports, demonstrations, and observations.</p> <p>Work area will be kept tidy and respectful of sharing space - clean-up roles will be observed.</p> <p>Measurements will be demonstrated to be accurate on the US scale.</p>	<ol style="list-style-type: none"> 1. Demonstrate basic employability skills 2. Identify methods for productive workplace relations in a multicultural environment. 2. Demonstrate basic communication skills <ol style="list-style-type: none"> 1. Interpret information and instructions presented in both verbal and written form. 2. Communicate effectively in on-the-job situations using verbal and written skills. 3. Demonstrate understanding of the benefits of productive multicultural communications. 5. Understand the basic safety and safety operating procedures necessary for a construction project. 1. Explain the idea of a safety culture and its importance in the construction crafts. 2. Identify causes of accidents and the impact of accident costs. 13. Inspect
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workplaces for safe working environment and report unsafe conditions.

15. Clean and maintain work area and leave in safe condition.

6. Demonstrate competency in the mathematics and geometry required for construction layout, including machinery, cut lists, fractions, decimals, area, volume, and percentages.

7. Demonstrate competency in various measuring systems in the construction field, including English, metrics, engineers, and scales used in construction processes and basic surveying.

2. Use a standard ruler, a metric ruler, and a measuring tape to measure.

4. Add, subtract, multiply, and divide decimals, with and without a calculator.

5. Convert decimals to percentages and percentages to decimals.

6. Convert fractions to

			<p>decimals and decimals to fractions.</p> <p>12. Demonstrate the ability to safely handle materials</p> <p>13. Use proper materials-handling techniques.</p>
<p>Sketching and Drawing</p>	<p><u>Up to 3 weeks</u></p>	<p>Students will be able to draw basic shapes and objects, size accordingly, and adjust angles as needed. They will also be able to sketch out ideas to transform their thoughts.</p> <p>Students will gain important depth on the importance of detail and accuracy.</p> <p>Communicate ideas with pictures - sketches.</p>	<p>1. Demonstrate basic employability skills</p> <p>3. Demonstrate critical thinking skills and the ability to solve problems using those skills.</p> <p>9. Use time efficiently to manage workload.</p> <p>10. Assess one's own mastery of skills</p> <p>6. Demonstrate competency in the mathematics and geometry required for construction layout, including machinery, cut lists, fractions, decimals, area, volume, and percentages.</p> <p>7. Demonstrate competency in various measuring systems in the construction field, including English, metrics, engineers, and scales used in construction</p>

			<p>processes and basic surveying.</p> <ol style="list-style-type: none"> 1. Add, subtract, multiply, and divide whole numbers, with and without a calculator. 3. Add, subtract, multiply, and divide fractions. 4. Add, subtract, multiply, and divide decimals, with and without a calculator.
Finishes	2-3 weeks	<p>Students will be able to identify possible blemishes and correct if need be on projects.</p> <p>Students will be able to produce a visibly appealing project free from blemishes.</p>	<ol style="list-style-type: none"> 1. Demonstrate basic employability skills 3. Demonstrate critical thinking skills and the ability to solve problems using those skills. 10. Assess one's own mastery of skills 2. Demonstrate basic communication skills 6. Use different perspectives to increase innovation and the quality of work

4. Demonstrate knowledge regarding the essential components of sustainable design and construction

6. Incorporate and identify Universal Design Standards into the design and construction.

9. Describe the basic physical principles that apply to the built environment

5. Understand the basic safety and safety operating procedures necessary for a construction project.

13. Inspect workplaces for safe working environment and report unsafe conditions.

15. Clean and maintain work area and leave in safe condition.

6. Demonstrate competency in the mathematics and geometry

			<p>required for construction layout, including machinery, cut lists, fractions, decimals, area, volume, and percentages.</p> <p>7. Demonstrate competency in various measuring systems in the construction field, including English, metrics, engineers, and scales used in construction processes and basic surveying.</p> <p>9. Recognize some of the basic shapes used in the construction industry and apply basic geometry to measure them.</p>
Wood Skills	3-5 weeks	<p>Students will be able to confidently use tools and handle material safely and efficiently to complete a project/s.</p> <p>Students will be able to use a variety of tools to complete different projects.</p>	<p>1. Demonstrate basic employability skills</p> <p>3. Demonstrate critical thinking skills and the ability to solve problems using those skills.</p> <p>5. Understand the basic safety and safety operating procedures</p>

necessary for a construction project.

15. Clean and maintain work area and leave in safe condition.

6. Demonstrate competency in the mathematics and geometry required for construction layout, including machinery, cut lists, fractions, decimals, area, volume, and percentages.

7. Demonstrate competency in various measuring systems in the construction field, including English, metrics, engineers, and scales used in construction processes and basic surveying.

1. Add, subtract, multiply, and divide whole numbers, with and without a calculator.

2. Use a standard ruler, a metric ruler, and a measuring tape to measure.

3. Add, subtract, multiply, and divide fractions.

8. Recognize and identify some of the basic hand tools and their proper uses in the construction trade.

2. Visually inspect hand tools to determine if they are safe to use.

3. Safely use hand tools.

9. Recognize and identify some of the basic power tools and their proper uses in the construction trade.

2. Visually inspect hand tools to determine if they are safe to use.

3. Safely use hand tools.

12. Demonstrate the ability to safely handle materials

			3. Use proper materials-handling techniques.
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Tool Identification 1-2 weeks

Students will be able to identify the proper tool for the correct application material and process.

Students will be able to select multiple tools for job at hand and select the one they want to use.

8. Recognize and identify some of the basic hand tools and their proper uses in the construction trade.

1. Demonstrate the ability to use the proper hand tool for the application/process.