

**Maine Department of Education  
Career and Technical Education**

Machine Tool CIP: 48.0501

National Institute of Metalworking Skills (NIMS) Level 1

Intersections with

Maine College and Career Readiness-Mathematics

Framework, Duties and Tasks	Standards for Mathematical Content; Standards for Mathematical Practice (CCSS)	Criteria for Demonstration of Proficiency (possible but not required; must be determined at the District level)	Maine Learning Results – Guiding Principles And Career and Education Development (optional)
<b>1. Job Planning and Management</b>			
<p>a. Develop a process plan for a part requiring milling, drilling, turning, or grinding. Fill out an operation sheet detailing the process plan and required speeds and feeds.</p>	<p><b>A-REI.A.1:</b> Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.</p> <p><b>A-REI.B.3:</b> Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.</p> <p><b>F-LE.A.1B:</b> Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.</p> <p><b>G-CO.D.12:</b> Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).</p>	<p>Speeds &amp; Feeds worksheets &amp; quiz</p> <p>Fill out a process plan including blueprints</p> <p>Work sample summary</p>	<p><b>GUIDING PRINCIPLES</b></p> <p><b>A. A clear and effective communicator who:</b></p> <ol style="list-style-type: none"> <li>2. Uses evidence and logic appropriately in communication</li> <li>4. Uses a variety of modes of expression (spoken, written and visual and performing including the use of technology to create and share the expressions)</li> </ol> <p><b>B. A self-directed and lifelong learner who:</b></p> <ol style="list-style-type: none"> <li>2. Applies knowledge to set goals and make informed decisions</li> <li>4. Demonstrates initiative and independence</li> </ol> <p><b>C. A creative and practical problem solver who:</b></p> <ol style="list-style-type: none"> <li>1. Observes and evaluates situations to define problems</li> </ol>

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	<p><i>Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.</i></p> <p><b>MATH.MP.</b></p> <ol style="list-style-type: none"> <li>1. Make sense of problems and persevere in solving them.</li> <li>2. Reason abstractly and quantitatively</li> <li>3. Construct viable arguments and critique the reasoning of others</li> <li>4. Model with mathematics</li> <li>5. Use appropriate tools strategically</li> <li>6. Attend to precision</li> <li>7. Look for and make use of structure</li> <li>8. Look for and express regularity in repeated reasoning</li> </ol>		<ol style="list-style-type: none"> <li>3. Identifies patterns, trends and relationships that apply to solutions</li> <li>6. Uses information and technology to solve problems</li> </ol> <p><b>E. An integrative and informed thinker who:</b></p> <ol style="list-style-type: none"> <li>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology</li> <li>3. Applies ideas across disciplines</li> <li>4. Applies systems thinking to understand the interaction and influence of related parts on each other and on outcomes</li> </ol> <p style="text-align: center;"><b>CED</b></p> <p><b>A3 Interpersonal Skills</b> Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work,</p>

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			<p>and community settings.</p> <p><b>A4 Career and Life Roles</b> Students demonstrate and evaluate successful strategies for accomplishing tasks, balancing career and life roles, and reducing stress in a variety of school, work, and community settings.</p> <p><b>C1 The Planning Process</b> Students use the planning process to make school-to-school and school-to-work decisions.</p> <p><b>C2 Decision-Making</b> Students determine and apply effective decision-making strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work decisions.</p> <p><b>C3 Influences on Decision-Making</b> Students examine sources of information that influence their career and education decision-making.</p>

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<b>2. Manual Operations: Benchwork</b>			
<ul style="list-style-type: none"> <li>a. Hand drill and hand tap holes, using aluminum.</li> <li>b. Use hand drills, hand taps, tap wrench, files, scrapers, and coated abrasives to deburr parts.</li> <li>c. Use arbor presses to perform press fits. Use bench vises and hand tools appropriately.</li> </ul>	None.	Teacher observations of the physical use of tools by students.	<p><b>GUIDING PRINCIPLES</b></p> <p><b>B. A self-directed and lifelong learner who:</b></p> <ul style="list-style-type: none"> <li>4. Demonstrates initiative and independence</li> <li>6. Demonstrates reliability and concern for quality</li> </ul> <p><b>C. A creative and practical problem solver who:</b></p> <ul style="list-style-type: none"> <li>6. Uses information and technology to solve problems</li> </ul> <p><b>E. An integrative and informed thinker who:</b></p> <ul style="list-style-type: none"> <li>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology.</li> </ul> <p style="text-align: center;"><b>CED</b></p> <p><b>A3: Interpersonal Skills</b> Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p>

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<b>3. Manual Operations: Layout</b>			
<p>a. Layout the location of hole centers and surfaces within an accuracy of +/- .015.</p>	<p><b>N-Q.A. Reason quantitatively and use units to solve problems</b></p> <ol style="list-style-type: none"> <li>1. Use units as a way to understand problems and to guide the solution of multi-step problems, choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.</li> <li>2. Define appropriate quantities for the purpose of descriptive modeling</li> <li>3. Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.</li> </ol> <p><b>G-CO.D.12:</b> Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). <i>Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a</i></p>	<p>Students will follow the process to layout the location of the hole centers according the to print. Teacher will inspect the part to the specifications according the specific part.</p>	<p><b>GUIDING PRINCIPLES</b></p> <p><b>A. A clear and effective communicator who:</b></p> <ol style="list-style-type: none"> <li>4. Uses a variety of modes of expression (spoken, written and visual and performing including the use of technology to create and share the expressions)</li> </ol> <p><b>B. A self-directed and lifelong learner who:</b></p> <ol style="list-style-type: none"> <li>2. Applies knowledge to set goals and make informed decisions</li> <li>4. Demonstrates initiative and independence</li> <li>6. Demonstrates reliability and concern for quality</li> </ol> <p><b>C. A creative and practical problem solver who:</b></p> <ol style="list-style-type: none"> <li>6. Uses information and technology to solve problems</li> </ol> <p><b>E. An integrative and informed thinker who:</b></p> <ol style="list-style-type: none"> <li>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology</li> <li>3. Applies ideas across</li> </ol>

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	<p><i>line segment; and constructing a line parallel to a given line through a point not on the line.</i></p> <p><b>MATH.MP.</b></p> <p>4. Model with mathematics</p> <p>5. Use appropriate tools strategically</p> <p>6. Attend to precision</p> <p>8. Look for and express regularity in repeated reasoning</p>		<p>disciplines</p> <p><b>CED</b></p> <p><b>A3 Interpersonal Skills</b> Students demonstrate behaviors to that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>B2 Skills for Individual/ Personal Success in the 21<sup>st</sup> Century</b> Students evaluate strategies to improve skills that lead to lifelong learning and success in the classroom, and the achievement of schoolwork, work and career, and personal life goals.</p> <p><b>C2 Decision-Making</b> Students determine and apply effective decision-making strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work decisions.</p>

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<b>4. Turning Operations: Between Centers Turning</b>			
<p>a. Setup and carry out between centers turning operations for straight turning.</p>	<p><b>A-REI.A.1:</b> Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution.</p> <p><b>A-REI.B.3:</b> Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.</p> <p><b>F-LE.A.1B:</b> Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.</p> <p><b>MATH.MP.</b></p> <ol style="list-style-type: none"> <li>1. Make sense of problems and persevere in solving them.</li> <li>2. Reason abstractly and quantitatively</li> <li>5. Use appropriate tools strategically</li> <li>6. Attend to precision</li> <li>8. Look for and express regularity in repeated reasoning</li> </ol>	<p>Speeds &amp; Feeds worksheets &amp; quiz</p> <p>Teacher will inspect that the set up of the lathe is correct. As the part is being machined the teacher will ensure that the process continues to follow the part's guidelines.</p>	<p><b>GUIDING PRINCIPLES</b></p> <p><b>B. A self-directed and lifelong learner who:</b></p> <ol style="list-style-type: none"> <li>4. Demonstrates initiative and independence</li> <li>6. Demonstrates reliability and concern for quality</li> </ol> <p><b>C. A creative and practical problem solver who:</b></p> <ol style="list-style-type: none"> <li>6. Uses information and technology to solve problems</li> </ol> <p><b>E. An integrative and informed thinker who:</b></p> <ol style="list-style-type: none"> <li>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology</li> <li>2. Evaluates and synthesizes information from multiple sources</li> <li>3. Applies ideas across disciplines</li> <li>4. Applies systems thinking to understand the interaction and influence of related parts on each other and on outcomes</li> </ol>

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			<p><b>CEC</b></p> <p><b>A3 Interpersonal Skills</b> Students demonstrate behaviors to that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>C2 Decision-Making</b> Students determine and apply effective decision-making strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work decisions.</p>
<b>5. Turning Operations: Chucking</b>			
<p>a. Setup and carry out chucking operations for turning.</p>	<p><b>A-REI.A.1:</b> Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution.</p> <p><b>A-REI.B.3:</b> Solve linear equations and inequalities in one variable,</p>	<p>Speeds &amp; Feeds worksheets &amp; quiz</p> <p>Teacher will inspect that the set up of the lathe is correct. As the part is being machined the teacher will ensure that the process continues to follow the part’s guidelines.</p>	<p><b>GUIDING PRINCIPLES</b></p> <p><b>B. A self-directed and lifelong learner who:</b></p> <p>2. Applies knowledge to set goals and make informed decisions</p> <p>4. Demonstrates initiative and independence</p> <p><b>E. An integrative and informed thinker who:</b></p> <p>1. Gains and applies know-</p>

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	<p>including equations with coefficients represented by letters.</p> <p><b>F-LE.A.1B:</b> Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.</p> <p><b>MATH.MP.</b></p> <ol style="list-style-type: none"> <li>1. Make sense of problems and persevere in solving them.</li> <li>2. Reason abstractly and quantitatively</li> <li>5. Use appropriate tools strategically</li> <li>6. Attend to precision</li> <li>8. Look for and express regularity in repeated reasoning</li> </ol>		<p>ledge across disciplines and learning contexts and to real-life situations with and without technology</p> <ol style="list-style-type: none"> <li>2. Evaluates and synthesizes information from multiple sources</li> <li>3. Applies ideas across disciplines</li> <li>4. Applies systems thinking to understand the interaction and influence of related parts on each other and on outcomes</li> </ol> <p><b>C. A creative and practical problem solver who:</b></p> <ol style="list-style-type: none"> <li>6. Uses information and technology to solve problems</li> </ol> <p><b>E. An integrative and informed thinker who:</b></p> <ol style="list-style-type: none"> <li>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology</li> </ol> <p style="text-align: center;"><b>CED</b></p> <p><b>A3 Interpersonal Skills</b> Students demonstrate behaviors to that reflect</p>

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			<p>positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>C2 Decision-Making</b> Students determine and apply effective decision-making strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work decisions.</p>
<b>6. Milling: Square Up a Block</b>			
<p>a. Set up and perform squaring up the six surfaces of a block to within +/- .002 over 4.5" squareness.</p>	<p><b>A-REI.A.1:</b> Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution.</p> <p><b>A-REI.B.3:</b> Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.</p> <p><b>F-LE.A.1B:</b> Recognize situations in</p>	<p>Teacher will inspect the set up. After the part is machined the teacher will inspect the part to specifications according to the blueprint.</p>	<p><b>GUIDING PRINCIPLES</b></p> <p><b>B. A self-directed and lifelong learner who:</b></p> <ol style="list-style-type: none"> <li>2. Applies knowledge to set goals and make informed decisions</li> <li>3. Applies knowledge in new contexts</li> <li>4. Demonstrates initiative and independence</li> </ol> <p><b>C. A creative and practical problem solver who:</b></p> <ol style="list-style-type: none"> <li>6. Uses information and technology to solve problems</li> </ol>

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	<p>which one quantity changes at a constant rate per unit interval relative to another.</p> <p><b>N-Q.A.3:</b> Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.</p> <p><b>MATH.MP.</b></p> <ol style="list-style-type: none"> <li>1. Make sense of problems and persevere in solving them.</li> <li>2. Reason abstractly and quantitatively</li> <li>4. Model with mathematics</li> <li>6. Attend to precision</li> <li>8. Look for and express regularity in repeated reasoning</li> </ol>		<p><b>E. An integrative and informed thinker who:</b></p> <ol style="list-style-type: none"> <li>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology</li> </ol> <p style="text-align: center;"><b>CED</b></p> <p><b>A3 Interpersonal Skills</b> Students demonstrate behaviors to that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>B2 Skills for Individual/ Personal Success in the 21<sup>st</sup> Century</b> Students evaluate strategies to improve skills that lead to lifelong learning and success in the classroom, and the achievement of school work, work and career, and personal life goals.</p> <p><b>C2 Decision-Making</b> Students determine and apply</p>

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			<p>effective decision-making strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work decisions.</p> <p><b>C3 Influences on Decision-Making</b> Students examine sources of information that influence their career and education decision-making.</p>
<b>7. Vertical Milling</b>			
<p>a. Setup and operate vertical milling machines. Perform routine milling, and location of hole centers within +/- .005".</p>	<p><b>A-REI.A.1:</b> Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution.</p> <p><b>A-REI.B.3:</b> Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.</p> <p><b>F-LE.A.1B:</b> Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.</p> <p><b>N-Q.A.3:</b> Choose a level of</p>	<p>Teacher will inspect the set up. After the part is machined the teacher will inspect the part to specifications according to the blueprint.</p>	<p><b>GUIDING PRINCIPLES</b></p> <p><b>B. A self-directed and lifelong learner who:</b></p> <ol style="list-style-type: none"> <li>2. Applies knowledge to set goals and make informed decisions</li> <li>3. Applies knowledge in new contexts</li> <li>4. Demonstrates initiative and independence</li> </ol> <p><b>C. A creative and practical problem solver who:</b></p> <ol style="list-style-type: none"> <li>6. Uses information and technology to solve problems</li> </ol> <p><b>E. An integrative and informed thinker who:</b></p> <ol style="list-style-type: none"> <li>1. Gains and applies knowledge across disciplines and learning contexts and to</li> </ol>

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	<p>accuracy appropriate to limitations on measurement when reporting quantities.</p> <p><b>MATH.MP.</b></p> <ol style="list-style-type: none"> <li>1. Make sense of problems and persevere in solving them.</li> <li>2. Reason abstractly and quantitatively</li> <li>4. Model with mathematics</li> <li>6. Attend to precision</li> <li>8. Look for and express regularity in repeated reasoning</li> </ol>		<p>real-life situations with and without technology</p> <p><b>CED</b></p> <p><b>A3 Interpersonal Skills</b> Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>B2 Skills for Individual/Personal Success in the 21<sup>st</sup> Century</b> Students evaluate strategies to improve skills that lead to lifelong learning and success in the classroom, and the achievement of schoolwork, work and career, and personal life goals.</p> <p><b>C2 Decision-Making</b> Students determine and apply effective decision-making strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work</p>

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			<p>decisions.</p> <p><b>C3 Influences on Decision-Making</b> Students examine sources of information that influence their career and education decision-making.</p>
<b>8. Surface Grinding, Grinding Wheel Safety</b>			
<p>a. Ring test grinding wheels, perform visual safety inspection, mount and dress a grinding wheel in preparation for surface grinding.</p>	None	<p>The teacher will assess the student’s understanding of the grinding by giving them a ring test. This will allow the student to know if the grinding wheel is safe to use. After the wheel is determined to be safe, the student will be observed mounting it to the grinder machine. The teacher will then observe the student dress the wheel safely.</p>	<p><b>GUIDING PRINCIPLES</b></p> <p><b>B. A self-directed and lifelong learner who:</b></p> <ol style="list-style-type: none"> <li>2. Applies knowledge to set goals and make informed decisions</li> <li>4. Demonstrates initiative and independence</li> <li>6. Demonstrates reliability and concern for quality</li> </ol> <p><b>C. A creative and practical problem solver who:</b></p> <ol style="list-style-type: none"> <li>1. Observes and evaluates situations to define problems</li> <li>6. Uses information and technology to solve problems</li> </ol> <p><b>E. An integrative and informed thinker who:</b></p> <ol style="list-style-type: none"> <li>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and</li> </ol>

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			<p>without technology</p> <p><b>CED</b></p> <p><b>A3 Interpersonal Skills</b> Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>A4 Career and Life Roles</b> Students demonstrate and evaluate successful strategies for accomplishing tasks, balancing career and life roles, and reducing stress in a variety of school, work, and community settings.</p> <p><b>B2 Skills for Individual/ Personal Success in the 21<sup>st</sup> Century</b> Students evaluate strategies to improve skills that lead to lifelong learning and success in the classroom, and the achievement of schoolwork, work and career, and</p>

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			personal life goals. <b>C2 Decision-Making</b> Students determine and apply effective decision-making strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work decisions.
<b>9. Surface Grinding, Horizontal Spindle, Reciprocating Table</b>			
a. Setup and operate manual surface grinders with a 8" and smaller diameter wheel. Perform routine surface grinding, location of surfaces, and squaring of surfaces. Perform wheel dressing.	<p><b>A-REI.A.1:</b> Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution.</p> <p><b>A-REI.B.3:</b> Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.</p> <p><b>N-Q.A.3:</b> Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.</p> <p><b>G-CO.D.12:</b> Make formal geometric constructions with a variety of tools and methods (compass and</p>	The teacher will supervise the student grinding a part to specification safely.	<p><b>GUIDING PRINCIPLES</b></p> <p><b>B. A self-directed and lifelong learner who:</b></p> <ol style="list-style-type: none"> <li>2. Applies knowledge to set goals and make informed decisions</li> <li>4. Demonstrates initiative and independence</li> <li>6. Demonstrates reliability and concern for quality</li> </ol> <p><b>C. A creative and practical problem solver who:</b></p> <ol style="list-style-type: none"> <li>1. Observes and evaluates situations to define problems</li> <li>6. Uses information and technology to solve problems</li> </ol> <p><b>E. An integrative and informed thinker who:</b></p> <ol style="list-style-type: none"> <li>1. Gains and applies know-</li> </ol>

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	<p>straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.).  <i>Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.</i></p> <p><b>MATH.MP.</b></p> <ol style="list-style-type: none"> <li>1. Make sense of problems and persevere in solving them.</li> <li>2. Reason abstractly and quantitatively</li> <li>3. Construct viable arguments and critique the reasoning of others</li> <li>4. Model with mathematics</li> <li>5. Use appropriate tools strategically</li> <li>6. Attend to precision</li> <li>7. Look for and make use of structure</li> <li>8. Look for and express regularity in repeated reasoning</li> </ol>		<p>ledge across disciplines and learning contexts and to real-life situations with and without technology</p> <p style="text-align: center;"><b>CED</b></p> <p><b>A3 Interpersonal Skills</b>  Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>A4 Career and Life Roles</b>  Students demonstrate and evaluate successful strategies for accomplishing tasks, balancing career and life roles, and reducing stress in a variety of school, work, and community settings.</p> <p><b>B2 Skills for Individual/ Personal Success in the 21<sup>st</sup> Century</b> Students evaluate strategies to improve skills that lead to lifelong learning and success in the class-</p>

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			room, and the achievement of schoolwork, work and career, and personal life goals. <b>C2 Decision-Making</b> Students determine and apply effective decision-making strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work decisions.
<b>10. Drill Press</b>			
a. Setup and operate drill presses. Perform routine drill press operations.	<p><b>A-REI.A.1:</b> Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution.</p> <p><b>A-REI.B.3:</b> Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.</p> <p><b>F-LE.A.1B:</b> Recognize situations in which one quantity changes at a constant rate per unit interval</p>	The teacher will observe the student safely set up and operate the drill press. In addition, the teacher will ensure that the student performs routine drilling operations.	<p><b>GUIDING PRINCIPLES</b></p> <p><b>B. A self-directed and lifelong learner who:</b></p> <ol style="list-style-type: none"> <li>2. Applies knowledge to set goals and make informed decisions</li> <li>4. Demonstrates initiative and independence</li> <li>6. Demonstrates reliability and concern for quality</li> </ol> <p><b>C. A creative and practical problem solver who:</b></p> <ol style="list-style-type: none"> <li>1. Observes and evaluates situations to define problems</li> <li>6. Uses information and technology to solve problems</li> </ol>

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	<p>relative to another.</p> <p>N-Q.A.1  <b>N-Q.A.3:</b> Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.</p> <p><b>MATH.MP.</b>            5. Use appropriate tools strategically            6. Attend to precision</p>		<p><b>E. An integrative and informed thinker who:</b></p> <ol style="list-style-type: none"> <li>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology</li> </ol> <p style="text-align: center;"><b>CED</b></p> <p><b>A3 Interpersonal Skills</b>            Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>A4 Career and Life Roles</b>            Students demonstrate and evaluate successful strategies for accomplishing tasks, balancing career and life roles, and reducing stress in a variety of school, work, and community settings.</p> <p><b>B2 Skills for Individual/ Personal Success in the 21<sup>st</sup> Century</b> Students evaluate</p>

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			<p>strategies to improve skills that lead to lifelong learning and success in the classroom, and the achievement of school-work, work and career, and personal life goals.</p> <p><b>C2 Decision-Making</b> Students determine and apply effective decision-making strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work decisions.</p>
<b>11. CNC Programming</b>			
<p>a. Using the principles of Cartesian coordinates develop a program for the manufacture of a simple part.</p>	<p><b>A-REI.A.1:</b> Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution.</p> <p><b>A-REI.B.3:</b> Solve linear equations and inequalities in one variable, including equations with coefficients represented by</p>	<p>Paper-based coordinate plane practice</p> <p>The teacher will provide a step-by-step outline of how to develop a program on the CNC machine.</p> <p>Students will program a simple part according to the origin.</p>	<p><b>GUIDING PRINCIPLES</b></p> <p><b>A. A clear and effective communicator who:</b></p> <p>4. Uses a variety of modes of expression (spoken, written and visual and performing including the use of technology to create and share the expressions)</p> <p><b>B. A self-directed and lifelong learner who:</b></p> <p>2. Applies knowledge to set goals and make informed decisions</p>

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	<p>letters.</p> <p><b>F-LE.A.1B:</b> Recognize situations in which one quantity changes at a constant rate per unit interval relative to another.</p> <p><b>G-CO.D.12:</b> Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). <i>Copying a segment; copying an angle; bisecting a segment; bisecting an angle; constructing perpendicular lines, including the perpendicular bisector of a line segment; and constructing a line parallel to a given line through a point not on the line.</i></p> <p><b>F-IF.B.4:</b> For a function that models a relationship between two quantities, interpret key features of graphs and tables in terms of the quantities, and sketch graphs showing key features given a verbal description of the relationship. <i>Key features include: intercepts; intervals where the function is increasing, decreasing, positive, or negative; relative maximum</i></p>		<p>4. Demonstrates initiative and independence</p> <p>6. Demonstrates reliability and concern for quality</p> <p><b>C. A creative and practical problem solver who:</b></p> <p>1. Observes and evaluates situations to define problems</p> <p>3. Identifies patterns, trends and relationships that apply to solutions</p> <p>6. Uses information and technology to solve problems</p> <p><b>E. An integrative and informed thinker who:</b></p> <p>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology</p> <p style="text-align: center;"><b>CED</b></p> <p><b>A3 Interpersonal Skills</b> Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills</p>

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	<p><i>and minimums, symmetries, end behavior; and periodicity.</i></p> <p><b>F-IF.B.5</b> (domain = tolerances?) Relate the domain of a function to its graph and, where applicable, to the quantitative relationship it describes.</p> <p><b>MATH.MP.</b></p> <ol style="list-style-type: none"> <li>1. Make sense of problems and persevere in solving them.</li> <li>2. Reason abstractly and quantitatively</li> <li>3. Construct viable arguments and critique the reasoning of others</li> <li>4. Model with mathematics</li> <li>5. Use appropriate tools strategically</li> <li>6. Attend to precision</li> <li>7. Look for and make use of structure</li> <li>8. Look for and express regularity in repeated reasoning</li> </ol>		<p>in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>A4 Career and Life Roles</b> Students demonstrate and evaluate successful strategies for accomplishing tasks, balancing career and life roles, and reducing stress in a variety of school, work, and community settings.</p> <p><b>B2 Skills for Individual/ Personal Success in the 21<sup>st</sup> Century</b> Students evaluate strategies to improve skills that lead to lifelong learning and success in the classroom, and the achievement of school-work, work and career, and personal life goals.</p> <p><b>C2 Decision-Making</b> Students determine and apply effective decision-making strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work decisions.</p>

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<b>12. Part Inspection</b>			
<p>a. Develop an inspection plan and inspect simple parts using precision tools and techniques. Prepare reports on the compliance of the parts.</p>	<p><b>N-Q.A.1:</b> Use units in a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.</p> <p><b>N-Q.A.3:</b> Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.</p> <p><b>MATH.MP.</b></p> <p>4. Model with mathematics</p> <p>5. Use appropriate tools strategically</p> <p>6. Attend to precision</p>	<p>Work sample summary</p> <p>The teacher will provide sample parts to inspect manually as practice. If the part does not meet specifications according to the blueprint, the student should document the reading on the print and to the teacher.</p>	<p><b>GUIDING PRINCIPLES</b></p> <p><b>A. A clear and effective communicator who:</b></p> <p>2. Uses evidence and logic appropriately in communication</p> <p>4. Uses a variety of modes of expression (spoken, written and visual and performing including the use of technology to create and share the expressions)</p> <p><b>B. A self-directed and lifelong learner who:</b></p> <p>2. Applies knowledge to set goals and make informed decisions</p> <p>4. Demonstrates initiative and independence</p> <p>6. Demonstrates reliability and concern for quality</p> <p><b>C. A creative and practical problem solver who:</b></p> <p>1. Observes and evaluates situations to define problems</p> <p>4. Generates a variety of solutions, builds a case for a best response and critically evaluates the effectiveness</p>

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			<p>of the response</p> <p>6. Uses information and technology to solve problems</p> <p><b>E. An integrative and informed thinker who:</b></p> <p>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology</p> <p style="text-align: center;"><b>CED</b></p> <p><b>A3 Interpersonal Skills</b> Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>A4 Career and Life Roles</b> Students demonstrate and evaluate successful strategies for accomplishing tasks, balancing career and life roles, and reducing stress in a variety of school, work, and community</p>

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			<p>settings.</p> <p><b>B2 Skills for Individual/ Personal Success in the 21<sup>st</sup> Century</b> Students evaluate strategies to improve skills that lead to lifelong learning and success in the classroom, and the achievement of schoolwork, work and career, and personal life goals.</p> <p><b>C2 Decision-Making</b> Students determine and apply effective decision-making strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work decisions.</p>
<b>13. Process Control</b>			
<p>a. Follow a sampling plan. Inspect the samples for the required data. Enter the data on appropriate charts. Graph the data. Respond to the warning conditions indicated by the process charts.</p>	<p><b>S-IC.A.1:</b> Understand statistics as a process for making inferences about population parameters based on a random sample from that population.</p> <p><b>S-ID.A.1:</b> Represent data with plots on the real number line (dot plots, histograms, and box plots).</p> <p><b>S-IC.B.6:</b> Represent data on two</p>	<p>Does not currently do at the schools present.</p>	<p><b>GUIDING PRINCIPLES</b></p> <p><b>A. A clear and effective communicator who:</b></p> <ol style="list-style-type: none"> <li>2. Uses evidence and logic appropriately in communication</li> <li>4. Uses a variety of modes of expression (spoken, written and visual and performing including the use of</li> </ol>

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	<p>quantitative variables on a scatter plot, and describe how the variables are related.</p> <p><b>S-MD.B.7:</b> (+) Analyze decisions and strategies using probability concepts (e.g., product testing, medical testing, pulling a hockey goalie at the end of a game).</p>		<p>technology to create and share the expressions)</p> <p><b>B. A self-directed and lifelong learner who:</b></p> <ol style="list-style-type: none"> <li>2. Applies knowledge to set goals and make informed decisions</li> <li>6. Demonstrates reliability and concern for quality</li> </ol> <p><b>C. A creative and practical problem solver who:</b></p> <ol style="list-style-type: none"> <li>1. Observes and evaluates situations to define problems</li> <li>2. Frames questions, makes predictions and designs data/information collection and analysis strategies</li> <li>3. Identifies patterns, trends and relationships that apply to solutions</li> <li>4. Generates a variety of solutions, builds a case for a best response and critically evaluates the effectiveness of the response</li> <li>6. Uses information and technology to solve problems</li> <li>7. Perseveres in challenging situations</li> </ol>

Framework, Duties and Tasks	Standards for Mathematical Content; Standards for Mathematical Practice (CCSS)	Criteria for Demonstration of Proficiency (possible but not required; must be determined at the District level)	Maine Learning Results – Guiding Principles And Career and Education Development (optional)
			<p><b>D. A responsible and involved citizen who:</b></p> <ol style="list-style-type: none"> <li>3. Demonstrates ethical behavior and the moral courage to sustain it</li> </ol> <p><b>E. An integrative and informed thinker who:</b></p> <ol style="list-style-type: none"> <li>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology</li> <li>2. Evaluates and synthesizes information from multiple sources</li> <li>3. Applies ideas across disciplines</li> <li>4. Applies systems thinking to understand the interaction and influence of related parts on each other and on outcomes</li> </ol> <p style="text-align: center;"><b>CED</b></p> <p><b>A3 Interpersonal Skills</b> Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills</p>

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			<p>in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>A4 Career and Life Roles</b> Students demonstrate and evaluate successful strategies for accomplishing tasks, balancing career and life roles, and reducing stress in a variety of school, work, and community settings.</p> <p><b>B2 Skills for Individual/ Personal Success in the 21<sup>st</sup> Century</b> Students evaluate strategies to improve skills that lead to lifelong learning and success in the classroom, and the achievement of schoolwork, work and career, and personal life goals.</p> <p><b>C2 Decision-Making</b> Students determine and apply effective decision-making strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work decisions.</p>

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<b>14. Process Adjustment – Single Part Production</b>			
<p>a. Analyze the performance of a single-part production process. Formulate process adjustments or improvements where appropriate. Where appropriate, notify super-vision of the proposed adjustment and/or improvement. Where authorized, carry out the strategies for process adjustment and/or improvement</p>	<p><b>MATH.MP.</b> 6. Attend to precision</p>	<p>The teacher will do formative assessments throughout the part production to practice part inspection and ensure the part is manufactured according to the specifications.</p>	<p><b>GUIDING PRINCIPLES</b></p> <p><b>A. A clear and effective communicator who:</b></p> <ol style="list-style-type: none"> <li>2. Uses evidence and logic appropriately in communication</li> <li>4. Uses a variety of modes of expression (spoken, written and visual and performing including the use of technology to create and share the expressions)</li> </ol> <p><b>B. A self-directed and lifelong learner who:</b></p> <ol style="list-style-type: none"> <li>2. Applies knowledge to set goals and make informed decisions</li> <li>6. Demonstrates reliability and concern for quality</li> </ol> <p><b>C. A creative and practical problem solver who:</b></p> <ol style="list-style-type: none"> <li>1. Observes and evaluates situations to define problems</li> <li>2. Frames questions, makes predictions and designs data/information collection and analysis strategies</li> <li>3. Identifies patterns, trends and relationships that apply</li> </ol>

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			<p>to solutions</p> <p>4. Generates a variety of solutions, builds a case for a best response and critically evaluates the effectiveness of the response</p> <p>6. Uses information and technology to solve problems</p> <p>7. Perseveres in challenging situations</p> <p><b>D. A responsible and involved citizen who:</b></p> <p>3. Demonstrates ethical behavior and the moral courage to sustain it</p> <p><b>E. An integrative and informed thinker who:</b></p> <p>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology</p> <p>2. Evaluates and synthesizes information from multiple sources</p> <p>3. Applies ideas across disciplines</p> <p>4. Applies systems thinking to understand the interaction and influence of related</p>

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			<p>parts on each other and on outcomes</p> <p><b>CED</b></p> <p><b>A3 Interpersonal Skills</b> Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>A4 Career and Life Roles</b> Students demonstrate and evaluate successful strategies for accomplishing tasks, balancing career and life roles, and reducing stress in a variety of school, work, and community settings.</p> <p><b>B2 Skills for Individual/ Personal Success in the 21<sup>st</sup> Century</b> Students evaluate strategies to improve skills that lead to lifelong learning and success in the classroom, and the achievement of schoolwork, work and</p>

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			career, and personal life goals. <b>C2 Decision-Making</b> Students determine and apply effective decision-making strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work decisions.
<b>15. Participation in Process Improvement</b>			
a. Analyze as a member of a process team the performance of a production process. With the team formulate process adjustments or improvements where appropriate. Where appropriate, notify super-vision of the proposed adjustments and/or improvement. Where authorized, carry out the strategies for process adjustment and/or improvement.	None.	At the high school level, the teacher will problem solve with the student to determine a more efficient production process and what went well and what could be improved.	<b>GUIDING PRINCIPLES</b> <b>A. A clear and effective communicator who:</b> 2. Uses evidence and logic appropriately in communication 4. Uses a variety of modes of expression (spoken, written and visual and performing including the use of technology to create and share the expressions) <b>B. A self-directed and lifelong learner who:</b> 2. Applies knowledge to set goals and make informed decisions 6. Demonstrates reliability and concern for quality 7. Uses interpersonal skills to

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			<p>learn and work with individuals from diverse backgrounds</p> <p><b>C. A creative and practical problem solver who:</b></p> <ol style="list-style-type: none"> <li>1. Observes and evaluates situations to define problems</li> <li>2. Frames questions, makes predictions and designs data/information collection and analysis strategies</li> <li>3. Identifies patterns, trends and relationships that apply to solutions</li> <li>4. Generates a variety of solutions, builds a case for a best response and critically evaluates the effectiveness of the response</li> <li>6. Uses information and technology to solve problems</li> <li>7. Perseveres in challenging situations</li> </ol> <p><b>D. A responsible and involved citizen who:</b></p> <ol style="list-style-type: none"> <li>3. Demonstrates ethical behavior and the moral courage to sustain it</li> <li>4. Understands and respects</li> </ol>

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			<div data-bbox="1650 318 1755 342" data-label="Text"> <p>diversity</p> </div> <div data-bbox="1608 354 1986 415" data-label="Section-Header"> <p><b>E. An integrative and informed thinker who:</b></p> </div> <div data-bbox="1608 423 1986 951" data-label="List-Group"> <ol style="list-style-type: none"> <li>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology</li> <li>2. Evaluates and synthesizes information from multiple sources</li> <li>3. Applies ideas across disciplines</li> <li>4. Applies systems thinking to understand the interaction and influence of related parts on each other and on outcomes</li> </ol> </div> <div data-bbox="1776 992 1829 1016" data-label="Section-Header"> <p><b>CED</b></p> </div> <div data-bbox="1608 1027 1881 1057" data-label="Section-Header"> <p><b>A3 Interpersonal Skills</b></p> </div> <div data-bbox="1650 1065 1986 1373" data-label="Text"> <p>Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p> </div> <div data-bbox="1608 1385 1902 1414" data-label="Section-Header"> <p><b>A4 Career and Life Roles</b></p> </div>

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			<p>Students demonstrate and evaluate successful strategies for accomplishing tasks, balancing career and life roles, and reducing stress in a variety of school, work, and community settings.</p> <p><b>B2 Skills for Individual/ Personal Success in the 21<sup>st</sup> Century</b> Students evaluate strategies to improve skills that lead to lifelong learning and success in the classroom, and the achievement of schoolwork, work and career, and personal life goals.</p> <p><b>C2 Decision-Making</b> Students determine and apply effective decision-making strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work decisions.</p>
<b>16. General Housekeeping and Maintenance</b>			
a. Keep the duty station clean and safe for work. Keep the tools, workbenches, and manual	None.	The teacher will inspect each student’s station and assign a grade based on their ability to maintain a clean and	<p><b>GUIDING PRINCIPLES</b></p> <p><b>B. A self-directed and lifelong learner who:</b></p>

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equipment clean, maintained, and safe for work.		safe working environment.	<p>4. Demonstrates initiative and independence</p> <p>6. Demonstrates reliability and concern for quality</p> <p><b>C. A creative and practical problem solver who:</b></p> <p>1. Observes and evaluates situations to define problems</p> <p>5. Sees opportunities, finds resources and seeks results</p> <p><b>D. A responsible and involved citizen who:</b></p> <p>2. Accepts responsibility for personal decisions and actions</p> <p>3. Demonstrates ethical behavior and the moral courage to sustain it</p> <p>6. Demonstrates awareness of personal and community health and wellness</p> <p><b>E. An integrative and informed thinker who:</b></p> <p>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology</p> <p>4. Applies systems thinking to understand the interaction</p>

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			<p>and influence of related parts on each other and on outcomes</p> <p style="text-align: center;"><b>CED</b></p> <p><b>A1 Self-Knowledge and self-concept.</b> Students reflect on and/or analyze interests, skills, habits of mind, and experiences to maintain a positive self-concept and to aid them in making career and life decisions.</p> <p><b>A2 Beliefs and Behaviors that Lead to Success.</b> Students demonstrate and evaluate strategies to improve their personal traits, behaviors, and the belief that one can successfully complete tasks/goals required for success in career and school.</p> <p><b>A3 Interpersonal Skills.</b> Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success</p>

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			<p>in a variety of school, work, and community settings.</p> <p><b>C1 The Planning Process.</b> Students use the planning process to make school-to-school and school-to-work decisions.</p>
<b>17. Preventive Maintenance, Machine Tools</b>			
<p>a. Inspect and assess the general condition of an assigned machine tool. Make routine adjustments as necessary and as authorized. Report problems to super-vision which are beyond the scope of authority. Carry out daily, weekly, and/ or monthly routine upkeep chores cited on checklists for a given machine tool.</p>	None.	The high school level students do not perform these tasks. However, the teacher begins to make the students aware of maintenance issues.	<p><b>GUIDING PRINCIPLES</b></p> <p><b>B. A self-directed and lifelong learner who:</b></p> <p>4. Demonstrates initiative and independence</p> <p>6. Demonstrates awareness of personal and community health and wellness</p> <p><b>C. A creative and practical problem solver who:</b></p> <p>1. Observes and evaluates situations to define problems</p> <p>5. Sees opportunities, finds resources and seeks results</p> <p><b>D. A responsible and involved citizen who:</b></p> <p>2. Accepts responsibility for personal decisions and actions</p> <p>3. Demonstrates ethical behavior and the moral courage to sustain it</p>

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			<p>6. Demonstrates awareness of personal and community health and wellness</p> <p><b>E. An integrative and informed thinker who:</b></p> <p>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology</p> <p>4. Applies systems thinking to understand the interaction and influence of related parts on each other and on outcomes</p> <p style="text-align: center;"><b>CED</b></p> <p><b>A1 Self-Knowledge and self-concept.</b> Students reflect on and/or analyze interests, skills, habits of mind, and experiences to maintain a positive self-concept and to aid them in making career and life decisions.</p> <p><b>A2 Beliefs and Behaviors that Lead to Success.</b> Students demonstrate and evaluate strategies to improve their personal traits, behaviors,</p>

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			<p>and the belief that one can successfully complete tasks/goals required for success in career and school.</p> <p><b>A3 Interpersonal Skills.</b> Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>C1 The Planning Process.</b> Students use the planning process to make school-to-school and school-to-work decisions.</p>
<b>18. Tooling Maintenance</b>			
<p>a. Inspect and assess the condition of tooling. Refurbish tooling where appropriate. Refer tooling for repair or regrind where appropriate.</p>	None.	Ongoing formative assessment by the teacher of the student using the machines to notice when a cutting tool is becoming defective.	<p><b>GUIDING PRINCIPLES</b></p> <p><b>B. A self-directed and lifelong learner who:</b></p> <ol style="list-style-type: none"> <li>2. Applies knowledge to set goals and make informed decisions</li> <li>3. Applies knowledge in new contexts</li> <li>4. Demonstrates initiative and independence</li> </ol>

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			<p><b>C. A creative and practical problem solver who:</b></p> <p>6. Uses information and technology to solve problems</p> <p><b>D. A responsible and involved citizen who:</b></p> <p>1. Participates positively in the community and designs creative solutions to meet human needs and wants</p> <p>2. Accepts responsibility for personal decisions and actions</p> <p>3. Demonstrates ethical behavior and the moral courage to sustain it</p> <p>4. Understands and respects diversity</p> <p>5. Displays global awareness and economic and civic literacy</p> <p>6. Demonstrates awareness of personal and community health and wellness</p> <p><b>E. An integrative and informed thinker who:</b></p> <p>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and</p>

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			<p>without technology</p> <p><b>CED</b></p> <p><b>A3 Interpersonal Skills.</b> Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>B2 Skills for Individual/ Personal Success in the 21<sup>st</sup> Century</b> Students evaluate strategies to improve skills that lead to lifelong learning and success in the classroom, and the achievement of schoolwork, work and career, and personal life goals.</p> <p><b>C2 Decision-Making.</b> Students determine and apply effective decision-making strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work decisions.</p>

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			<b>C3 Influences on Decision-Making.</b> Students examine sources of information that influence their career and education decision-making.
<b>19. Machine Operations and Material Handling</b>			
a. Carry out assigned responsibilities while adhering to safe practices in accordance with OSHA requirements and guidelines. Document safety activities as required.	None.	Ongoing formative assessment by the teacher of the student to ensure they are following safety protocol.	<p><b>GUIDING PRINCIPLES</b></p> <p><b>A. A clear and effective communicator who:</b></p> <p>3. Adjusts communication based on the audience</p> <p><b>B. A self-directed and lifelong learner who:</b></p> <p>4. Demonstrates initiative and independence</p> <p>6. Demonstrates reliability and concern for quality</p> <p><b>C. A creative and practical problem solver who:</b></p> <p>1. Observes and evaluates situations to define problems</p> <p>4. Generates a variety of solutions, builds a case for a best response and critically evaluates the effectiveness of the response</p> <p>5. Sees opportunities, finds resources and seeks results</p> <p>6. Uses information and technology to solve</p>

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			<p>problems</p> <p><b>D. A responsible and involved citizen who:</b></p> <ol style="list-style-type: none"> <li>2. Accepts responsibility for personal decisions and actions</li> <li>6. Demonstrates awareness of personal and community health and wellness</li> </ol> <p><b>E. An integrative and informed thinker who:</b></p> <ol style="list-style-type: none"> <li>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology</li> <li>4. Applies systems thinking to understand the interaction and influence of related parts on each other and on outcomes</li> </ol> <p style="text-align: center;"><b>CED</b></p> <p><b>A1 Self-Knowledge and self-concept.</b> Students reflect on and/or analyze interests, skills, habits of mind, and experiences to maintain a positive self-concept and to aid them in making career and life decisions.</p>

Framework, Duties and Tasks	Standards for Mathematical Content; Standards for Mathematical Practice (CCSS)	Criteria for Demonstration of Proficiency (possible but not required; must be determined at the District level)	Maine Learning Results – Guiding Principles And Career and Education Development (optional)
			<p><b>A2 Beliefs and Behaviors that Lead to Success.</b> Students demonstrate and evaluate strategies to improve their personal traits, behaviors, and the belief that one can successfully complete tasks/goals required for success in career and school.</p> <p><b>A3 Interpersonal Skills.</b> Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>C1 The Planning Process.</b> Students use the planning process to make school-to-school and school-to-work decisions.</p>
<b>20. Hazardous Materials Handling and Storage</b>			
a. Handle and store hazardous materials as assigned while adhering to safe practices in accordance with OSHA and EPA requirements and guidelines.	None.	Ongoing formative assessment by the teacher of the student to ensure they are following safety protocol.	<p><b>GUIDING PRINCIPLES</b></p> <p><b>A. A clear and effective communicator who:</b></p> <p>3. Adjusts communication based on the audience</p>

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Document safety activities as required.			<p><b>B. A self-directed and lifelong learner who:</b></p> <ul style="list-style-type: none"> <li>4. Demonstrates initiative and independence</li> <li>6. Demonstrates reliability and concern for quality</li> </ul> <p><b>C. A creative and practical problem solver who:</b></p> <ul style="list-style-type: none"> <li>1. Observes and evaluates situations to define problems</li> <li>4. Generates a variety of solutions, builds a case for a best response and critically evaluates the effectiveness of the response</li> <li>5. Sees opportunities, finds resources and seeks results</li> <li>6. Uses information and technology to solve problems</li> </ul> <p><b>E1, E4</b></p> <p><b>D. A responsible and involved citizen who:</b></p> <ul style="list-style-type: none"> <li>2. Accepts responsibility for personal decisions and actions</li> <li>6. Demonstrates awareness of personal and community health and wellness</li> </ul> <p><b>E. An integrative and informed</b></p>

<p><b>Framework, Duties and Tasks</b></p>	<p><b>Standards for Mathematical Content; Standards for Mathematical Practice (CCSS)</b></p>	<p><b>Criteria for Demonstration of Proficiency</b> (possible but not required; must be determined at the District level)</p>	<p><b>Maine Learning Results – Guiding Principles And Career and Education Development (optional)</b></p>
			<p><b>thinker who:</b></p> <ol style="list-style-type: none"> <li>1. Gains and applies knowledge across disciplines and learning contexts and to real-life situations with and without technology</li> <li>4. Applies systems thinking to understand the interaction and influence of related parts on each other and on outcomes</li> </ol> <p style="text-align: center;"><b>CED</b></p> <p><b>A1 Self-Knowledge and self-concept.</b> Students reflect on and/or analyze interests, skills, habits of mind, and experiences to maintain a positive self-concept and to aid them in making career and life decisions.</p> <p><b>A2 Beliefs and Behaviors that Lead to Success.</b> Students demonstrate and evaluate strategies to improve their personal traits, behaviors, and the belief that one can successfully complete tasks/goals required for success in career and school.</p>

Framework, Duties and Tasks	Standards for Mathematical Content; Standards for Mathematical Practice (CCSS)	Criteria for Demonstration of Proficiency (possible but not required; must be determined at the District level)	Maine Learning Results – Guiding Principles And Career and Education Development (optional)
			<p><b>A3 Interpersonal Skills.</b> Students demonstrate behaviors that reflect positive interpersonal skills and evaluate successful strategies that improve positive interpersonal skills in ways that lead to success in a variety of school, work, and community settings.</p> <p><b>C1 The Planning Process.</b> Students use the planning process to make school-to-school and school-to-work decisions.</p>
21. Career Planning			
<ul style="list-style-type: none"> <li>a. Develop and explain a short-term career plan and resume.</li> <li>b. Complete job application form and demonstrate interviewing skills.</li> <li>c. Demonstrate appropriate interpersonal skills in job performance evaluations, group communication and decision-making, and conflict resolution.</li> <li>d. Identify and explain the major departments or functions in a metalworking company and how they affect production units.</li> </ul>	None.	<ul style="list-style-type: none"> <li>• Discussions about local job opportunities and expectations are ongoing.</li> <li>• Resumes can be written.</li> <li>• College research.</li> </ul>	<p><b>GUIDING PRINCIPLES</b></p> <p><b>A. A clear and effective communicator who:</b></p> <ul style="list-style-type: none"> <li>2. Uses evidence and logic appropriately in communication</li> <li>3. Adjusts communication based on the audience</li> <li>4. Uses a variety of modes of expression (spoken, written and visual and performing including the use of technology to create and share the expressions)</li> </ul> <p><b>B. A self-directed and lifelong</b></p>

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e. Understand and explain employment rights and responsibilities in metalworking companies.			<p><b>learner who:</b></p> <ol style="list-style-type: none"> <li>1. Recognizes the need for information and locates and evaluates resources</li> <li>2. Applies knowledge to set goals and make informed decisions</li> <li>3. Applies knowledge in new contexts</li> <li>4. Demonstrates initiative and independence</li> <li>5. Demonstrates flexibility including the ability to learn, unlearn and relearn</li> <li>6. Demonstrates reliability and concern for quality</li> <li>7. Uses interpersonal skills to learn and work with individuals from diverse backgrounds</li> </ol> <p><b>C. A creative and practical problem solver who:</b></p> <ol style="list-style-type: none"> <li>1. Observes and evaluates situations to define problems</li> <li>2. Frames questions, makes predictions and designs data/information collection and analysis strategies</li> <li>4. Generates a variety of solutions, builds a case for a</li> </ol>

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			<p>best response and critically evaluates the effectiveness of the response</p> <p>5. Sees opportunities, finds resources and seeks results</p> <p>6. Uses information and technology to solve problems</p> <p>7. Perseveres in challenging situations</p> <p><b>D. A responsible and involved citizen who:</b></p> <p>1. Participates positively in the community and designs creative solutions to meet human needs and wants</p> <p>2. Accepts responsibility for personal decisions and actions</p> <p>3. Demonstrates ethical behavior and the moral courage to sustain it</p> <p>4. Understands and respects diversity</p> <p>5. Displays global awareness and economic and civic literacy</p> <p><b>E. An integrative and informed thinker who:</b></p> <p>1. Gains and applies knowledge across disciplines and</p>

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			<p>learning contexts and to real-life situations with and without technology</p> <ol style="list-style-type: none"> <li>2. Evaluates and synthesizes information from multiple sources</li> <li>3. Applies ideas across disciplines</li> <li>4. Applies systems thinking to understand the interaction and influence of related parts on each other and on outcomes</li> </ol> <p style="text-align: center;"><b>CED</b></p> <p><b>A4 Career and Life Roles</b> Students demonstrate and evaluate successful strategies for accomplishing tasks, balancing career and life roles, and reducing stress in a variety of school, work, and community settings.</p> <p><b>B1 Relationships Among Learning, Work, the Community, and the Global Economy</b> Students evaluate strategies for improving educational achievement, increasing participation as</p>

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			<p>an involved citizen, and increasing work options and earning potential in a 1<sup>st</sup> century global economy.</p> <p><b>B2 Skills for Individual/ Personal Success in the 21<sup>st</sup> Century</b> Students evaluate strategies to improve skills that lead to lifelong learning and success in the classroom, and the achievement of schoolwork, work and career, and personal life goals.</p> <p><b>B3 Education and Career Information</b> Students use previously acquired knowledge and skills to evaluate and utilize a variety of resources to articulate a plan and make decisions for post-secondary education, training, and career choices.</p> <p><b>C1 The Planning Process</b> Students use the planning process to make school-to-school and school-to-work decisions.</p> <p><b>C2 Decision-Making</b> Students determine and apply effective decision-making</p>

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			<p>strategies for accomplishing short-term and long-term goals related to school-to-school and school-to-work decisions.</p> <p><b>C3 Influences on Decision-Making</b> Students examine sources of information that influence their career and education decision-making.</p> <p><b>C4 Societal Needs and Changes that Influence Workplace Success</b> Students analyze and evaluate strategies for addressing diverse and changing societal and global economic needs that influence personal decision-making for workplace success.</p>