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)
1. Job Planning and Management		,	
 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. 	 A-REI.A.1: 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. A-REI.B.3: Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. F-LE.A.1B: Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. G-CO.D.12: Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic partice for the straightedge, string, etc. 	Speeds & Feeds worksheets & quiz Fill out a process plan including blueprints Work sample summary	 GUIDING PRINCIPLES A. A clear and effective communicator who: Uses evidence and logic appropriately in communication 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. A self-directed and lifelong learner who: Applies knowledge to set goals and make informed decisions Demonstrates initiative and independence C. A creative and practical problem solver who: Observes and evaluates situations to define
	 which one quantity changes at a constant rate per unit interval relative to another. G-CO.D.12: Make formal geometric constructions with a variety of tools and methods (compass and straightedge, string, reflective devices, paper folding, dynamic geometric software, etc.). 		 goals and make decisions 4. Demonstrates ir independence C. A creative and problem solver 1. Observes and evisituations to deproblems

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
	Copying a segment; copying an		3. Identifies patterns, trends
	angle; bisecting a segment;		and relationships that apply
	bisecting an angle; constructing		to solutions
	perpendicular lines, including the		6. Uses information and
	perpendicular bisector of a line		technology to solve
	segment; and constructing a line		problems
	parallel to a given line through a		E. An integrative and informed
	point not on the line.		thinker who:
			1. Gains and applies know-
	MATH.MP.		ledge across disciplines and
	1. Make sense of problems and		learning contexts and to
	persevere in solving them.		real-life situations with and
	2. Reason abstractly and		without technology
	quantitatively		3. Applies ideas across
	3. Construct viable arguments and		disciplines
	critique the reasoning of others		4. Applies systems thinking to
	4. Model with mathematics		understand the interaction
	5. Use appropriate tools		and influence of related
	strategically		parts on each other and on
	6. Attend to precision		outcomes
	7. Look for and make use of		
	structure		CED
	8. Look for and express regularity		A3 Interpersonal Skills
	in repeated reasoning		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,

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			and community settings.
			A4 Career and Life Roles
			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.
			C1 The Planning Process
			Students use the planning
			process to make school-to-
			school and school-to-work
			decisions.
			C2 Decision-Making 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.
			C3 Influences on Decision-
			Making Students examine
			sources of information that
			influence their career and
			education decision-making.

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Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
2. Manual Operations: Benchwork			
a. Hand drill and hand tap holes.	None.	Teacher observations of the physical use	GUIDING PRINCIPLES
using aluminum.		of tools by students.	B. A self-directed and lifelong
b. Use hand drills, hand taps, tap			learner who:
wrench, files, scrapers, and			4. Demonstrates initiative and
coated abrasives to deburr			independence
parts.			6. Demonstrates reliability and
c. Use arbor presses to perform			concern for quality
press fits. Use bench vises and			C. A creative and practical
hand tools appropriately.			problem solver who:
			6. Uses information and tech-
			nology to solve problems
			E. An integrative and informed
			thinker who:
			1. Gains and applies knowledge
			across disciplines and
			learning contexts and to
			real-life situations with and
			without technology.
			CED
			A3: Interpersonal Skills
			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.

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Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
3. Manual Operations: Layout			
a. Layout the location of hole	N-Q.A. Reason quantitatively and	Students will follow the process to	GUIDING PRINCIPLES
centers and surfaces within an	use units to solve problems	layout the location of the hole	A. A clear and effective
accuracy of +/015.	1. Use units as a way to	centers according the to print.	communicator who:
	understand problems and to	Teacher will inspect the part to the	4. Uses a variety of modes of
	guide the solution of multi-step	specifications according the specific	expression (spoken, written
	problems, choose and interpret	part.	and visual and performing
	units consistently in formulas;		including the use of
	choose and interpret the scale		technology to create and
	and the origin in graphs and		share the expressions)
	data displays.		B. A self-directed and lifelong
	2. Define appropriate quantities		learner who:
	for the purpose of descriptive		2. Applies knowledge to set
	modeling		goals and make informed
	3. Choose a level of accuracy		decisions
	appropriate to limitations on		4. Demonstrates initiative and
	measurement when reporting		independence
	quantities.		6. Demonstrates reliability and
			concern for quality
	G-CO.D.12: Make formal geometric		C. A creative and practical
	constructions with a variety of		problem solver who:
	tools and methods (compass		6. Uses information and tech-
	and straightedge, string,		nology to solve problems
	reflective devices, paper		E. An integrative and informed
	folding, dynamic geometric		thinker who:
	software, etc.). Copying a		1. Gains and applies know-
	segment; copying an angle;		ledge across disciplines and
	bisecting a segment; bisecting		learning contexts and to
	an angle; constructing		real-life situations with and
	perpendicular lines, including		without technology
	the perpendicular bisector of a		3. Applies ideas across

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	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
	line segment; and constructing		disciplines
	a line parallel to a given line		
	through a point not on the line.		CED
			A3 Interpersonal Skills
	MATH.MP.		Students demonstrate
	4. Model with mathematics		behaviors to that reflect
	5. Use appropriate tools		positive interpersonal skills
	strategically		and evaluate successful
	6. Attend to precis <mark>ion</mark>		strategies that improve
	8. Look for and express regularity		positive interpersonal skills
	in repeated reasoning		in ways that lead to success
			in a variety of school, work,
			and community settings.
			B2 Skills for Individual/
			Personal Success in the 21 st
			Century Students evaluate
			strategies to improve skills
			that lead to lifelong learning
			and success in the class-
			room, and the achievement
			of schoolwork, work and
			career, and personal life
			goals.
			C2 Decision-Making Students
			determine and apply
			ettective decision-making
			strategies for accomplishing
			short-term and long-term
			goals related to school-to-
			school and school-to-work
			decisions.

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(pos <mark>sible b</mark> ut not required; must be	Career and Education
		determined at the District level)	Development (optional)
4. Turning Operations: Between Cen	ters Turning		
a. Setup and carry out between	A-REI.A.1: Explain each step in	Speeds & Feeds worksheets & quiz	GUIDING PRINCIPLES
centers turning operations for	solving a simple equation as		B. A self-directed and lifelong
straight turning.	following from the equality of	Teacher will inspect that the set up of	learner who:
	numbers asserted at the	the lathe is correct. As the part is	4. Demonstrates initiative and
	previous step, starting from the	being machined the teacher will	independence
	assumption that the original	ensure that the process continues to	6. Demonstrates reliability and
	equation has a solution.	follow the part's guidelines.	concern for quality
	Construct a viable argument to		C. A creative and practical
	justify a solution.		problem solver who:
	A-REI.B.3: Solve linear equations		6. Uses information and tech-
	and inequalities in one variable,		nology to solve problems
	including equations with		E. An integrative and informed
	coefficients represented by		thinker who:
	letters.		1. Gains and applies know-
	F-LE.A.1B: Recognize situations in		ledge across disciplines and
	which one quantity changes at		learning contexts and to
	a constant rate per unit interval		real-life situations with and
	relative to another.		without technology
	MATH.MP.		2. Evaluates and synthesizes
	1. Make sense of problems and		information from multiple
	persevere in solving them.		sources
	2. Reason abstractly and		3. Applies ideas across
	quantitatively		disciplines
	5. Use appropriate tools		4. Applies systems thinking to
	strategically		understand the interaction
	6. Attend to precision		and influence of related
	8. Look for and express regularity		parts on each other and on
	in repeated reasoning		outcomes

				Maine Learning Results –
	Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
		Content; Standards for	Proficiency	And
		Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
			determined at the District level)	Development (optional)
				CED
				A3 Interpersonal Skills
				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.
				C2 Decision-Making 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.
5. ⁻	Turning Operations: Chucking			
a.	Setup and carry out	A-REI.A.1: Explain each step in	Speeds & Feeds worksheets & quiz	GUIDING PRINCIPLES
	chucking operations for turning.	solving a simple equation as		B. A self-directed and lifelong
		following from the equality of	Teacher will inspect that the set up of	learner who:
		numbers asserted at the	the lathe is correct. As the part is	2. Applies knowledge to set
		previous step, starting from the	being machined the teacher will	goals and make informed
		assumption that the original	ensure that the process continues to	decisions
		equation has a solution.	follow the part's guidelines.	4. Demonstrates initiative and
		Construct a viable argument to		independence
		justify a solution.		E. An integrative and informed
		A-REI.B.3: Solve linear equations		thinker who:
		and inequalities in one variable,		1. Gains and applies know-

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	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
	including equations with		ledge across disciplines and
	coefficients represented by		learning contexts and to
	letters.		real-life situations with and
	F-LE.A.1B: Recognize situations in		without technology
	which one quantity changes at		2. Evaluates and synthesizes
	a constant rate per unit interval		information from multiple
	relative to another.		sources
	MATH.MP.		3. Applies ideas across
	1. Make sense of problems and		disciplines
	persevere in solving them.		4. Applies systems thinking to
	2. Reason abstractly and		understand the interaction
	quantitatively		and influence of related
	5. Use appropriate tools		parts on each other and on
	strategically		outcomes
	6. Attend to precision		C. A creative and practical
	8. Look for and express regularity		problem solver who:
	in repeated reasoning		6. Uses information and
			technology to solve
			problems
			E. An integrative and informed
			thinker who:
			1. Gains and applies know-
			ledge across disciplines and
			learning contexts and to
			real-life situations with and
			without technology
			CED
			A2 Internersonal Skills
			As interpersonal skills Students demonstrate
			behaviors to that reflect
			penaviors to that reflect

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	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			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.
			C2 Decision-Making 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.
6. Milling: Square Up a Block			
a. Set up and perform squaring up	A-REI.A.1: Explain each step in	Teacher will inspect the set up. After	GUIDING PRINCIPLES
the six surfaces of a block to	solving a simple equation as	the part is machined the teacher will	B. A self-directed and lifelong
within +/002 over 4.5"	following from the equality of	inspect the part to specifications	learner who:
squareness.	numbers asserted at the	according to the blueprint.	2. Applies knowledge to set
	previous step, starting from the		goals and make informed
	assumption that the original		decisions
	equation has a solution.		3. Applies knowledge in new
	Construct a viable argument to		contexts
	justify a s <mark>oluti</mark> on.		4. Demonstrates initiative and
	A-REI.B.3: Solve linear equations		independence
	and inequalities in one variable,		C. A creative and practical
	including equations with		problem solver who:
	coefficients represented by		6. Uses information and
	letters.		technology to solve
	F-LE.A.1B: Recognize situations in		problems

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Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(pos <mark>sible b</mark> ut not required; must be	Career and Education
		determined at the District level)	Development (optional)
	which one quantity changes at		E. An integrative and informed
	a constant rate per unit interval		thinker who:
	relative to another.		1. Gains and applies know-
	N-Q.A.3: Choose a level of		ledge across disciplines and
	accuracy appropriate to		learning contexts and to
	limitations on measurement		real-life situations with and
	when reporting quantities.		without technology
	MATH.MP.		
	1. Make sense of problems and		CED
	persevere in solving them.		A3 Interpersonal Skills
	2. Reason abstractly and		Students demonstrate
	quantitatively		behaviors to that reflect
	4. Model with mathematics		positive interpersonal skills
	6. Attend to precision		and evaluate successful
	8. Look for and express regularity		strategies that improve
	in repeated reasoning		positive interpersonal skills
			in ways that lead to success
			in a variety of school, work,
			and community settings.
			B2 Skills for Individual/
			Personal Success in the 21 st
			Century Students evaluate
			strategies to improve skills
			that lead to lifelong learning
			and success in the class-
			room, and the achievement
			of school work, work and
			career, and personal life
			goals.
			C2 Decision-Making Students
			determine and apply

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)
			effective decision-making strategies for accomplishing short-term and long-term goals related to school-to- school and school-to-work decisions. C3 Influences on Decision- Making Students examine sources of information that influence their career and education decision-making.
7. Vertical Milling			
 a. Setup and operate vertical milling machines. Perform routine milling, and location of hole centers within +/005". 	 A-REI.A.1: 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. A-REI.B.3: Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. F-LE.A.1B: Recognize situations in which one quantity changes at a constant rate per unit interval relative to another. N-Q.A.3: Choose a level of 	Teacher will inspect the set up. After the part is machined the teacher will inspect the part to specifications according to the blueprint.	 GUIDING PRINCIPLES B. A self-directed and lifelong learner who: 2. Applies knowledge to set goals and make informed decisions 3. Applies knowledge in new contexts 4. Demonstrates initiative and independence C. A creative and practical problem solver who: 6. Uses information and tech- nology to solve problems E. An integrative and informed thinker who: 1. Gains and applies know- ledge across disciplines and learning contexts and to

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
	accuracy appropriate to		real-life situations with and
	limitations on measurement		without technology
	when reporting quantities.		
	MATH.MP.		CED
	1. Make sense of problems and		A3 Interpersonal Skills
	persevere in solving them.		Students demonstrate
	2. Reason abstractly and		behaviors that reflect
	quantitatively		positive interpersonal skills
	4. Model with mathematics		and evaluate successful
	6. Attend to precision		strategies that improve
	8. Look for and express regularity		positive interpersonal skills
	in repeated reasoning		in ways that lead to success
			in a variety of school, work,
			and community settings.
			B2 Skills for Individual/
			Personal Success in the 21 st
			Century Students evaluate
			strategies to improve skills
			that lead to lifelong learning
			and success in the class-
			room, and the achievement
			of schoolwork, work and
			career, and personal life
			goals.
			C2 Decision-Waking Students
			determine and apply
			errective decision-making
			strategies for accomplishing
			short-term and long-term
			goals related to school-to-
			school and school-to-work

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) decisions. C3 Influences on Decision- Making Students examine
			sources of information that influence their career and education decision-making
8. Surface Grinding, Grinding Wheel	Safety		education decision-making.
 a. Ring test grinding wheels, perform visual safety inspection, mount and dress a grinding wheel in preparation for surface grinding. 	None	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.	 GUIDING PRINCIPLES B. A self-directed and lifelong learner who: 2. Applies knowledge to set goals and make informed decisions 4. Demonstrates initiative and independence 6. Demonstrates reliability and concern for quality C. A creative and practical problem solver who: 1. Observes and evaluates situations to define problems 6. Uses information and technology to solve problems E. An integrative and informed thinker who: 1. Gains and applies know- ledge across disciplines and learning contexts and to real-life situations with and

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			without technology
			CED
			A3 Interpersonal Skills
			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.
			A4 Career and Life Roles
			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.
			B2 Skills for Individual/
			Personal Success in the 21 st
			Century 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

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			personal life goals.
			C2 Decision-Making 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.
9. Surface Grinding, Horizontal Spind	lle, Reciprocating Table		
a. Setup and operate manual	A-REI.A.1: Explain each step in	The teacher will supervise the student	GUIDING PRINCIPLES
surface grinders with a 8" and	solving a simple equation as	grinding a part to specification safely.	B. A self-directed and lifelong
smaller diameter wheel.	following from the equality of		learner who:
Perform routine surface	numbers asserted at the		2. Applies knowledge to set
grinding, location of surfaces,	previous step, starting from the		goals and make informed
and squaring of surfaces.	assumption that the original		decisions
Perform wheel dressing.	equation has a solution.		4. Demonstrates initiative and
	Construct a viable argument to		independence
	justify a solution.		6. Demonstrates reliability and
	A-REI.B.3: Solve linear equations		concern for quality
	and inequalities in one variable,		C. A creative and practical
	including equations with		problem solver who:
	coefficients represented by		1. Observes and evaluates
	letters.		situations to define
	N-Q.A.3: Choose a level of		problems
	accuracy appropriate to		6. Uses information and
	limitations on measurement		technology to solve
	when reporting quantities.		problems
	G-CO.D.12: Make formal geometric		E. An integrative and informed
	constructions with a variety of		thinker who:
	tools and methods (compass and		1. Gains and applies know-

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
	straightedge, string, reflective		ledge across disciplines and
	devices, paper folding, dynamic		learning contexts and to
	geometric software, etc.).		real-life situations with and
	Copying a segment; copying an		without technology
	angle; bisecting a segment;		
	bisecting an angle; constructing		CED
	perpendicular lines, including the		A3 Interpersonal Skills
	perpendicular bisector of a line		Students demonstrate
	segment; and constructing a line		behaviors that reflect
	parallel to a given line through a		positive interpersonal skills
	point not on the line.		and evaluate successful
			strategies that improve
	MATH.MP.		positive interpersonal skills
	1. Make sense of problems and		in ways that lead to success
	persevere in solving them.		in a variety of school, work,
	2. Reason abstractly and		and community settings.
	quantitatively		A4 Career and Life Roles
	3. Construct viable arguments and		Students demonstrate and
	critique the reasoning of others		evaluate successful
	4. Model with mathematics		strategies for accomplishing
	5. Use appropriate tools		tasks, balancing career and
	strategically		life roles, and reducing
	6. Attend to precision		stress in a variety of school,
	7. Look for and make use of		work, and community
	structure		settings.
	8. Look for and express regularity		B2 Skills for Individual/
	in repeated reasoning		Personal Success in the 21 st
			Century Students evaluate
			strategies to improve skills
			that lead to lifelong learning
			and success in the class-

				Maine Learning Results –
	Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
		Content; Standards for	Proficiency	And
		Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
			determined at the District level)	Development (optional)
				room, and the achievement
				of schoolwork, work and
				career, and personal life
				goals.
				C2 Decision-Making 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.
10	Drill Press			
a.	Setup and operate drill presses.	A-REI.A.1: Explain each step in	The teacher will observe the student	GUIDING PRINCIPLES
	Perform routine drill press	solving a simple equation as	safely set up and operate the drill	B. A self-directed and lifelong
	operations.	following from the equality of	press. In addition, the teacher will	learner who:
		numbers asserted at the	ensure that the student performs	2. Applies knowledge to set
		previous step, starting from the	routine drilling operations.	goals and make informed
		assumption that the original		decisions
		equation has a solution.		4. Demonstrates initiative and
		Construct a viable argument to		independence
		justify a solution.		6. Demonstrates reliability and
				concern for quality
		A-REI.B.3: Solve linear equations		C. A creative and practical
		and inequalities in one variable,		problem solver who:
		including equations with		 Observes and evaluates
		coefficients represented by		situations to define
		letters.		problems
		F-LE.A.1B: Recognize situations in		6. Uses information and
		which one quantity changes at		technology to solve
		a constant rate per unit interval		problems

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
	relative to another.		E. An integrative and informed
			thinker who:
	N-Q.A.1		1. Gains and applies know-
	N-Q.A.3: Choose a level of		ledge across disciplines and
	accuracy appropriate to		learning contexts and to
	limitations on measurement		real-life situations with and
	when reporting quantities.		without technology
			CED
	MATH.MP.		A3 Interpersonal Skills
	5. Use appropriate tools		Students demonstrate
	strategically		behaviors that reflect
	6. Attend to precision		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.
			A4 Career and Life Roles
			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.
			B2 Skills for Individual/
			Personal Success in the 21 st
			Century Students evaluate

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			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.
			C2 Decision-Making 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.
11. CNC Programming			
a. Using the principles of Cartesian	A-REI.A.1: Explain each step in	Paper-based coordinate plane practice	GUIDING PRINCIPLES
coordinates develop a program	solving a simple equation as		A. A clear and effective
for the manufacture of a simple	following from the equality of	The teacher will provide a step-by-step	communicator who:
part.	numbers asserted at the	outline of how to develop a program	4. Uses a variety of modes of
	previous step, starting from the	on the CNC machine.	expression (spoken, written
	assumption that the original		and visual and performing
	equation has a solution.	Students will program a simple part	including the use of
	Construct a viable argument to	according to the origin.	technology to create and
	justify a solution.		share the expressions)
			B. A self-directed and lifelong
	A-REI.B.3: Solve linear equations		learner who:
	and inequalities in one variable,		2. Applies knowledge to set
	including equations with		goals and make informed
	coefficients represented by		decisions

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
	letters.		4. Demonstrates initiative and
	F-LE.A.1B: Recognize situations in		independence
	which one quantity changes at		6. Demonstrates reliability and
	a constant rate per unit interval		concern for quality
	relative to another.		C. A creative and practical
	G-CO.D.12: Make formal geometric		problem solver who:
	constructions with a variety of		1. Observes and evaluates
	tools and methods (compass and		situations to define
	straightedge, string, reflective		problems
	devices, paper folding, dynamic		3. Identifies patterns, trends
	geometric software, etc.).		and relationships that apply
	Copying a segment; copying an		to solutions
	angle; bisecting a segment;		6. Uses information and
	bisecting an angle; constructing		technology to solve
	perpendicular lines, including the		problems
	perpendicular bisector of a line		E. An integrative and informed
	segment; and constructing a line		thinker who:
	parallel to a given line through a		1. Gains and applies know-
	point not on the line.		ledge across disciplines and
	F-IF.B.4: For a function that models		learning contexts and to
	a relationship between two		real-life situations with and
	quantities, interpret key		without technology
	features of graphs and tables in		
	terms of the quantities, and		CED
	sketch graphs showing key		A3 Interpersonal Skills
	features given a verbal		Students demonstrate
	description of the relationship.		behaviors that reflect
	Key features include: intercepts;		positive interpersonal skills
	intervals where the function is		and evaluate successful
	increasing, decreasing, positive,		strategies that improve
	or negative; relative maximum		positive interpersonal skills

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
	and minimums, symmetries,		in ways that lead to success
	end behavior; and periodicity.		in a variety of school, work,
	F-IF.B.5 (domain = tolerances?)		and community settings.
	Relate the domain of a function		A4 Career and Life Roles
	to its graph and, where		Students demonstrate and
	applicable, to the quantitative		evaluate successful
	relationship it describes.		strategies for accomplishing
	MATH.MP.		tasks, balancing career and
	1. Make sense of problems and		life roles, and reducing
	persevere in solving them.		stress in a variety of school,
	2. Reason abstractly and		work, and community
	quantitatively		settings.
	3. Construct viable arguments and		B2 Skills for Individual/
	critique the reasoning of others		Personal Success in the 21 st
	4. Model with mathematics		Century Students evaluate
	5. Use appropriate tools		strategies to improve skills
	strategically		that lead to lifelong learning
	6. Attend to precision		and success in the
	7. Look for and make use of		classroom, and the
	structure		achievement of school-
	8. Look for and express regularity		work, work and career, and
	in repeated reasoning		personal life goals.
			C2 Decision-Making 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.

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

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			of the response
			6. Uses information and
			technology to solve
			problems
			E. An integrative and informed
			thinker who:
			1. Gains and applies knowledge
			across disciplines and
			learning contexts and to
			real-life situations with and
			without technology
			CED
			A3 Interpersonal Skills
			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.
			A4 Career and Life Roles
			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

Framework, Duties and Tasks	Standards for Mathematical Content; Standards for Mathematical Practice (<i>CCSS</i>)	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) settings. B2 Skills for Individual/ Personal Success in the 21 st Century 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. C2 Decision-Making 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
			school and school-to-work decisions.
13. Process Control	1		
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.	 S-IC.A.1: Understand statistics as a process for making inferences about population parameters based on a random sample from that population. S-ID.A.1: Represent data with plots on the real number line (dot plots, histograms, and box 	Does not currently do at the schools present.	GUIDING PRINCIPLES A. A clear and effective communicator who: 2. Uses evidence and logic appropriately in communication 4. Uses a variety of modes of expression (spoken, written
	plots). plots). S-IC.B.6: Represent data on two		and visual and performing including the use of

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
	quantitative variables on a		technology to create and
	scatter plot, and describe how		share the expressions)
	the variables are related.		B. A self-directed and lifelong
	S-MD.B.7: (+) Analyze decisions		learner who:
	and strategies using probability		2. Applies knowledge to set
	concepts (e.g., product testing,		goals and make informed
	medical testing, pulling a		decisions
	hockey goalie at the end of a		6. Demonstrates reliability and
	game).		concern for quality
			C. A creative and practical
			problem solver who:
			1. Observes and evaluates
			situations to define
			problems
			2. Frames questions, makes
			predictions and designs
			data/information collection
			and analysis strategies
			3. Identifies patterns, trends
			and relationships that apply
			to solutions
			4. Generates a variety of
			solutions, builds a case for a
			best response and critically
			evaluates the effectiveness
			of the response
			6. Uses information and
			technology to solve
			problems
			7. Perseveres in challenging
			situations

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			D. A responsible and involved
			citizen who:
			3. Demonstrates ethical
			behavior and the moral
			courage to sustain it
			E. An integrative and informed
			thinker who:
			1. Gains and applies knowledge
			across disciplines and
			learning contexts and to
			real-life situations with and
			without technology
			2. Evaluates and synthesizes
			information from multiple
			sources
			3. Applies ideas across
			disciplines
			4. Applies systems thinking to
			understand the interaction
			and influence of related
			parts on each other and on
			outcomes
			CED
			A3 Interpersonal Skills
			Students demonstrate
			behaviors that reflect
			positive interpersonal skills
			and evaluate successful
			strategies that improve
			positive interpersonal skills

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			in ways that lead to success
			in a variety of school, work,
			and community settings.
			A4 Career and Life Roles
			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.
			B2 Skills for Individual/
			Personal Success in the 21 st
			Century 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.
			C2 Decision-Making Students
			determine and apply
			effective decision-making
			strategies for accomplishing
			snort-term and long-term
			goals related to school-to-
			school and school-to-work
			decisions.

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
14. Process Adjustment – Single Part	Production		
a. Analyze the performance of a	MATH.MP.	The teacher will do formative	GUIDING PRINCIPLES
single-part production process.	6. Attend to precision	assessments throughout the part	A. A clear and effective
Formulate process adjustments		production to practice part	communicator who:
or improvements where		inspection and ensure the part is	2. Uses evidence and logic
appropriate. Where		manufactured according to the	appropriately in
appropriate, notify super-vision		specifications.	communication
of the proposed adjustment			4. Uses a variety of modes of
and/or improvement. Where			expression (spoken, written
authorized, carry out the			and visual and performing
strategies for process			including the use of
adjustment and/or			technology to create and
improvement			share the expressions)
			B. A self-directed and lifelong
			learner who:
			2. Applies knowledge to set
			goals and make informed
			decisions
			6. Demonstrates reliability and
			concern for quality
			C. A creative and practical
			problem solver who:
			1. Observes and evaluates
			situations to define
			problems
			2. Frames questions, makes
			predictions and designs
			data/information collection
			and analysis strategies
			3. Identifies patterns, trends
			and relationships that apply

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(pos <mark>sible but</mark> not required; must be	Career and Education
		determined at the District level)	Development (optional)
			to solutions
			4. Generates a variety of
			solutions, builds a case for a
			best response and critically
			evaluates the effectiveness
			of the response
			6. Uses information and
			technology to solve
			problems
			7. Perseveres in challenging
			situations
			D. A responsible and involved
			citizen who:
			3. Demonstrates ethical
			behavior and the moral
			courage to sustain it
			E. An integrative and informed
			thinker who:
			1. Gains and applies know-
			ledge across disciplines and
			learning contexts and to
			real-life situations with and
			without technology
			2. Evaluates and synthesizes
			information from multiple
			sources
			3. Applies ideas across
			disciplines
			4. Applies systems thinking to
			understand the interaction
			and influence of related

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			parts on each other and on
			outcomes
			CED
			A3 Interpersonal Skills
			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.
			A4 Career and Life Roles
			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.
			B2 Skills for Individual/
			Personal Success in the 21 st
			Century Students evaluate
			strategies to improve skills
			that lead to lifelong learning
			and success in the class-
			room, and the achievement
			of schoolwork, work and

				Maine Learning Results –
Frar	nework. Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
-	,	Content: Standards for	Proficiency	And
		Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		(,	determined at the District level)	Development (optional)
				career, and personal life
				goals.
				C2 Decision-Making 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
15. Par	ticipation in Process Improver	ment		
a. Ana	alvze as a member of a	None	At the high school level, the teacher will	GUIDING PRINCIPLES
nro	ocess team the performance		problem solve with the student to	A. A clear and effective
of	a production process. With		determine a more efficient	communicator who:
the	team formulate process		production process and what went	2. Uses evidence and logic
adi	ustments or improvements		well and what could be improved.	appropriately in
wh	ere appropriate. Where			communication
apr	propriate, notify super-vision			4. Uses a variety of modes of
oft	the proposed adjustments			expression (spoken, written
and	1/or improvement Where			and visual and performing
aut	horized, carry out the			including the use of
stra	ategies for process			technology to create and
adi	ustment and/or			share the expressions)
imr	provement			B. A self-directed and lifelong
				learner who:
				2. Applies knowledge to set
				goals and make informed
				decisions
				6. Demonstrates reliability and
				concern for quality
1				

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			learn and work with
			individuals from diverse
			backgrounds
			C. A creative and practical
			problem solver who:
			1. Observes and evaluates
			situations to define
			problems
			2. Frames questions, makes
			predictions and designs
			data/information collection
			and analysis strategies
			3. Identifies patterns, trends
			and relationships that apply
			to solutions
			4. Generates a variety of
			solutions, builds a case for a
			best response and critically
			evaluates the effectiveness
			of the response
			6. Uses information and
			technology to solve
			problems
			7. Perseveres in challenging
			situations
			D. A responsible and involved
			citizen who:
			3. Demonstrates ethical
			behavior and the moral
			courage to sustain it
			4. Understands and respects

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			diversity
			E. An integrative and informed
			thinker who:
			1. Gains and applies knowledge
			across disciplines and
			learning contexts and to
			real-life situations with and
			without technology
			2. Evaluates and synthesizes
			information from multiple
			sources
			3. Applies ideas across
			disciplines
			4. Applies systems thinking to
			understand the interaction
			and influence of related
			parts on each other and on
			outcomes
			CED
			A3 Internersonal Skills
			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
			A4 Career and Life Roles

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			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.
			B2 Skills for Individual/
			Personal Success in the 21 st
			Century 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.
			C2 Decision-Making 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.
16. General Housekeeping and Maint	tenance		
a. Keep the duty station clean and	None.	The teacher will inspect each student's	GUIDING PRINCIPLES
safe for work. Keep the tools,		station and assign a grade based on	B. A self-directed and lifelong
workbenches, and manual		their ability to maintain a clean and	learner who:

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
equipment clean, maintained,		safe working environment.	4. Demonstrates initiative and
and safe for work.			independence
			6. Demonstrates reliability and
			concern for quality
			C. A creative and practical
			problem solver who:
			1. Observes and evaluates
			situations to define
			problems
			5. Sees opportunities, finds
			resources and seeks results
			D. A responsible and involved
			citizen who:
			2. Accepts responsibility for
			personal decisions and
			actions
			3. Demonstrates ethical
			behavior and the moral
			courage to sustain it
			6. Demonstrates awareness of
			personal and community
			health and wellness
			E. An integrative and informed
			thinker who:
			1. Gains and applies knowledge
			across disciplines and
			learning contexts and to
			real-life situations with and
			without technology
			4. Applies systems thinking to
			understand the interaction

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			and influence of related
			parts on each other and on
			outcomes
			CED
			A1 Self-Knowledge and self-
			concept. 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.
			A2 Beliefs and Behaviors that
			Lead to Success. 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.
			A3 Interpersonal Skills.
			Students demonstrate
			behaviors that reflect
			positive interpersonal skills
			and evaluate successful
			strategies that improve
			positive interpersonal skills
			in ways that lead to success

Framework, Duties and Tasks	Standards for Mathematical Content; Standards for Mathematical Practice (<i>CCSS</i>)	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) in a variety of school, work, and community settings. C1 The Planning Process. Students use the planning process to make school-to- school and school-to-work
			decisions.
17. Preventive Maintenance, Machin	e Tools		
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.	None.	The high school level students do not perform these tasks. However, the teacher begins to make the students aware of maintenance issues.	 GUIDING PRINCIPLES B. A self-directed and lifelong learner who: 4. Demonstrates initiative and independence 6. Demonstrates awareness of personal and community health and wellness C. A creative and practical problem solver who: 1. Observes and evaluates situations to define problems 5. Sees opportunities, finds resources and seeks results D. A responsible and involved citizen who: 2. Accepts responsibility for personal decisions and actions 3. Demonstrates ethical behavior and the moral courage to sustain it

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			6. Demonstrates aware-
			ness of personal and
			community health and
			wellness
			E. An integrative and informed
			thinker who:
			 Gains and applies know- ledge across disciplines and learning contexts and to real-life situations with and without technology Applies systems thinking to understand the interaction and influence of related parts on each other and on
			outcomes
			CED A1 Solf Knowledge and solf
			AI Sell-Knowledge and Sell-
			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.
			A2 Beliefs and Behaviors that
			Lead to Success. Students
			demonstrate and evaluate
			strategies to improve their
			personal traits, behaviors,

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) and the belief that one can successfully complete tasks/goals required for success in career and school. A3 Interpersonal Skills.
			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. C1 The Planning Process. Students use the planning process to make school-to- school and school-to-work decisions.
18. Tooling Maintenance			
 a. Inspect and assess the condition of tooling. Refurbish tooling where appropriate. Refer tooling for repair or regrind where appropriate. 	None.	Ongoing formative assessment by the teacher of the student using the machines to notice when a cutting tool is becoming defective.	GUIDING PRINCIPLES B. A self-directed and lifelong learner who: 2. Applies knowledge to set goals and make informed decisions 3. Applies knowledge in new contexts 4. Demonstrates initiative and independence

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(pos <mark>sible but</mark> not required; must be	Career and Education
		determined at the District level)	Development (optional)
			C. A creative and practical
			problem solver who:
			6. Uses information and
			technology to solve
			problems
			D. A responsible and involved
			citizen who:
			1. Participates positively in the
			community and designs
			creative solutions to meet
			human needs and wants
			2. Accepts responsibility for
			personal decisions and
			actions
			3. Demonstrates ethical
			behavior and the moral
			courage to sustain it
			4. Understands and respects
			diversity
			5. Displays global awareness
			and economic and civic
			literacy
			6. Demonstrates awareness of
			personal and community
			health and wellness
			E. An integrative and informed
			thinker who:
			1. Gains and applies knowledge
			across disciplines and
			learning contexts and to
			real-life situations with and

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			without technology
			CED
			A3 Interpersonal Skills.
			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.
			B2 Skills for Individual/
			Personal Success in the 21 st
			Century 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.
			C2 Decision-Making. 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.

Framework, Duties and Tasks	Standards for Mathematical Content; Standards for Mathematical Practice (<i>CCSS</i>)	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) C3 Influences on Decision- Making. Students examine sources of information that influence their career and education decision-making.
19. Machine Operations and Materia	l Handling		
 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.	GUIDING PRINCIPLES A. A clear and effective communicator who: 3. Adjusts communication based on the audience B. A self-directed and lifelong learner who: 4. Demonstrates initiative and independence 6. Demonstrates reliability and concern for quality C. A creative and practical problem solver who: 1. Observes and evaluates situations to define problems 4. Generates a variety of solutions, builds a case for a best response and critically evaluates the effectiveness of the response 5. Sees opportunities, finds resources and seeks results 6. Uses information and technology to solve

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			problems
			D. A responsible and involved
			citizen who:
			2. Accepts responsibility for
			personal decisions and
			actions
			6. Demonstrates awareness of
			personal and community
			health and wellness
			E. An integrative and informed
			thinker who:
			1. Gains and applies knowledge
			across disciplines and
			learning contexts and to
			real-life situations with and
			without technology
			4. Applies systems thinking to
			understand the interaction
			and influence of related
			parts on each other and on
			outcomes
			CED
			A1 Self-Knowledge and self-
			concept. 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.

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			A2 Beliefs and Behaviors that
			Lead to Success. 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.
			A3 Interpersonal Skills.
			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.
			C1 The Planning Process.
			Students use the planning
			process to make school-to-
			school and school-to-work
			decisions.
20. Hazardous Materials Handling an	d Storage		
a. Handle and store hazardous	None.	Ongoing formative assessment by the	GUIDING PRINCIPLES
materials as assigned while		teacher of the student to ensure they	A. A clear and effective
adhering to safe practices in		are following safety protocol.	communicator who:
accordance with OSHA and EPA		_ ,,	3. Adjusts communication
requirements and guidelines.			based on the audience

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
Document safety activities as			B. A self-directed and lifelong
required.			learner who:
			4. Demonstrates initiative and
			independence
			6. Demonstrates reliability and
			concern for quality
			C. A creative and practical
			problem solver who:
			1. Observes and evaluates
			situations to define
			problems
			4. Generates a variety of
			solutions, builds a case for a
			best response and critically
			evaluates the effectiveness
			of the response
			5. Sees opportunities, finds
			resources and seeks results
			6. Uses information and
			technology to solve
			problems
			E1, E4
			D. A responsible and involved
			citizen who:
			2. Accepts responsibility for
			personal decisions and
			actions
			6. Demonstrates awareness of
			personal and community
			health and wellness
			E. An integrative and informed

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			thinker who:
			1. Gains and applies knowledge
			across disciplines and
			learning contexts and to
			real-life situations with and
			without technology
			4. Applies systems thinking to
			understand the interaction
			and influence of related
			parts on each other and on
			outcomes
			CED
			A1 Self-Knowledge and self-
			concept. 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.
			A2 Beliefs and Behaviors that
			Lead to Success. 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.

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

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
e. Understand and explain			learner who:
employment rights and			1. Recognizes the need for
responsibilities in metalworking			information and locates and
companies.			evaluates resources
			2. Applies knowledge to set
			goals and make informed
			decisions
			3. Applies knowledge in new
			contexts
			4. Demonstrates initiative and
			independence
			5. Demonstrates flexibility
			including the ability to learn,
			unlearn and relearn
			6. Demonstrates reliability and
			, concern for quality
			7. Uses interpersonal skills to
			learn and work with
			individuals from diverse
			backgrounds
			C. A creative and practical
			problem solver who:
			1. Observes and evaluates
			situations to define
			problems
			2. Frames questions, makes
			predictions and designs
			data/information collection
			and analysis strategies
			4. Generates a variety of
			solutions, builds a case for a

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(pos <mark>sible but</mark> not required; must be	Career and Education
		determined at the District level)	Development (optional)
			best response and critically
			evaluates the effectiveness
			of the response
			5. Sees opportunities, finds
			resources and seeks results
			6. Uses information and
			technology to solve
			problems
			7. Perseveres in challenging
			situations
			D. A responsible and involved
			citizen who:
			1. Participates positively in the
			community and designs
			creative solutions to meet
			human needs and wants
			2. Accepts responsibility for
			personal decisions and
			actions
			3. Demonstrates ethical
			behavior and the moral
			courage to sustain it
			4. Understands and respects
			diversity
			5. Displays global awareness
			and economic and civic
			literacy
			E. An integrative and informed
			thinker who:
			1. Gains and applies knowledge
			across disciplines and

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			learning contexts and to
			real-life situations with and
			without technology
			2. Evaluates and synthesizes
			information from multiple
			sources
			3. Applies ideas across
			disciplines
			4. Applies systems thinking to
			understand the interaction
			and influence of related
			parts on each other and on
			outcomes
			CED
			A4 Career and Life Roles
			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.
			B1 Relationships Among
			Learning, Work, the
			Community, and the Global
			Economy Students evaluate
			strategies for improving
			educational achievement,
			increasing participation as

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			an involved citizen, and
			increasing work options and
			earning potential in a 1 st
			century global economy.
			B2 Skills for Individual/
			Personal Success in the 21 st
			Century 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.
			B3 Education and Career
			Information 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.
			C1 The Planning Process
			Students use the planning
			process to make school-to-
			school and school-to-work
			decisions.
			C2 Decision-Making Students
			determine and apply
			effective decision-making

			Maine Learning Results –
Framework, Duties and Tasks	Standards for Mathematical	Criteria for Demonstration of	Guiding Principles
	Content; Standards for	Proficiency	And
	Mathematical Practice (CCSS)	(possible but not required; must be	Career and Education
		determined at the District level)	Development (optional)
			strategies for accomplishing
			short-term and long-term
			goals related to school-to-
			school and school-to-work
			decisions.
			C3 Influences on Decision-
			Making Students examine
			sources of information that
			influence their career and
			education decision-making.
			C4 Societal Needs and Changes
			that Influence Workplace
			Success Students analyze
			and evaluate strategies for
			addressing diverse and
			changing societal and global
			economic needs that
			influence personal decision-
			making for workplace
			success.