OUTCOMES	ASSESSMENT RUBRICS						
FP. 10.1 Demonstrate	understanding	g of factors of wh	ole numbers by a	determining the: prime factors,			
greatest co	mmon factor,	least common mult	iple, principal sq	uare root, cube root			
Level	Beginning	<u>Approaching</u>	Proficient	<u>Mastery</u>			
	Spend some	Good start. You are	You did it and you	Great work! This is going extra well for			
	extra time with	beginning to make	did it on your own.	you. You have understood the outcome, are			
Criteria	the criteria and	sense of this on your	You are able to	able to explain your strategies and apply			
	ask for help.	own. You are	complete the	these to situations. Your work is always			
		consistent with the	processes for this	accurate.			
		basic learning goals for	outcome. Your work				
		this outcome.	is thorough and				
			consistently				
			accurate.				
Outcome 1: Students will	I need more	I can consistently	I can find the	I can report about the numbers 0 and 1			
demonstrate understanding of	help with	determine the prime	principal square	with respect to factors and multiples.			
factors of whole numbers by	becoming	factors of a whole	root and cube root				
determining the prime factors,	consistent with	number, GCF and LCM	of whole numbers	I can perform error analysis.			
greatest common factor and	the criteria.	of whole numbers	using the factors				
least common multiple, square root and cube root			of the number.	I am able to solve situational problems involving GCF, LCM, square roots and cube			
			I am able to	roots.			
			explain the				
			strategy I use for				
			finding prime				
			factors, GCF or				
			LCM, square root				
			and cube roots.				

OUTCOMES	ASSESSMENT RUBRICS						
FP10.2 Demonstrate understanding of irrational numbers in both radical (including mixed radical) and exponent forms through: representing; identifying; simplifying; ordering; relating to rational numbers; applying exponent laws							
Level Criteria	<u>Beginning</u> Spend some extra time with the criteria and ask for help.	<u>Approaching</u> Good start. You are beginning to make sense of this on your own. You are consistent with the basic learning goals for this outcome.	<u>Proficient</u> You did it and you did it on your own. You are able to complete the processes for this outcome. Your work is thorough and consistently accurate.	<u>Mastery</u> Great work! This is going extra well for you. You have understood the outcome, are able to explain your strategies and apply these to situations. Your work is always accurate.			
Outcome 2A: Students will demonstrate understanding of irrational numbers by determining if a number is an irrational number, ordering rational numbers, and knowing where they may be used.		I am consistently able to change an entire radical to a mixed radical and a mixed radical to an entire radical for simple numbers (ie. not a lot of factors). I am consistently able to order real numbers including rational and irrational.	I am able to change all radical numbers from mixed to entire and vice versa. I am able to consistently determine and justify if a number is irrational in radical form (by simplifying).	I am able to answers questions involving irrational numbers and explain how they are used in the question. I am able to perform error analysis			
<b>Outcome 2B</b> : Students will demonstrate understanding of irrational numbers in exponent form	I need more help with becoming consistent with the criteria	I am consistently able to evaluate and simplify expressions using all exponent laws including a negative or rational exponent (numerical and variable bases) where there is one step.	I am consistently able to simplify expressions by applying the exponent laws (numerical and variable bases) involving more than one step, including negative and rational exponents	I am able to perform error analysis. I am able to determine which value is larger/smaller in a set of numbers. I am able to answer situational questions. I am able to explain my strategies.			

## ASSESSMENT RUBRICS

FP10.3 Demonstrate understanding of SI and imperial units of measurement including: linear measurement; surface area of spheres, right cones, cylinders, prisms and pyramids; volume of spheres, right cones, cylinders, cylinders, prisms, and pyramids; relationships between and within measurement systems

Level	Beginning	<u>Approaching</u>	<u>Proficient</u>	Mastery
	Spend some	Good start. You are	You did it and you did it on	Great work! This is going extra well
	extra time with	beginning to make sense of	your own. You are able to	for you. You have understood the
Criteria	the criteria and	this on your own. You are	complete the processes for this	outcome, are able to explain your
	ask for help.	consistent with the basic	outcome. Your work is	strategies and apply these to
		learning goals for this	thorough and consistently	situations. Your work is always
		outcome.	accurate.	accurate.
Outcome 3A:	I need more	I can use referents to	I can consistently convert	I can solve situational questions
Demonstrate	help with	estimate linear lengths.	between systems of	involving measurements and
understanding of SI	becoming		measurements.	conversions.
and imperial units of	consistent with	I can convert when there		
measurements	the criteria.	is a single step involved in	I can consistently measure	I understand the difference
including linear		the conversion.	linear lengths using	between comparable measures
measurement and			appropriate measurement	between systems (ie. Yards to
relationships between			tools.	metres)
and within				
measurement systems				I can verify my conversions.
Outcome 3B:	I need more	I can consistently find	I can consistently find the	I can accurately determine an
Demonstrate	help with	the surface area and	surface area and volume of	unknown measurements given the
understanding of	becoming	volume when the	right pyramids, right cones,	surface area/volume and some
surface area and	consistent with	necessary dimensions are	right prisms, cylinders and	measurements.
volume	the criteria.	given.	spheres	
				I can solve situational questions
				involving surface area/volume.
L				

		I can find the surface area/volume
		of composite objects.

OUTCOMES	ASSESSMENT RUBRICS						
FP10.4 Develop and apply the primary trigonometric ratios (sine, cosine, tangent) to solve problems that							
	Destination	involve right t		Marsham.			
Level	<u>Beginning</u> Spend some	<u>Approaching</u> Good start. You are beginning	<u>Proficient</u> You did it and you did it on	<u>Mastery</u> Great work! This is going extra			
	extra time with	to make sense of this on your	your own. You are able to	well for you. You have			
Criteria	the criteria and	own. You are consistent with	complete the processes for this	understood the outcome, are able			
	ask for help.	the basic learning goals for	outcome. Your work is	to explain your strategies and			
		this outcome.	thorough and consistently	apply these to situations. Your			
			accurate.	work is always accurate.			
Outcome 4:	I need more	I can apply relationships	I am able to consistently	I am able to consistently solve			
Demonstrate	help with	between the ratios of side	solve problems for a missing	right triangles.			
understanding of how to	becoming	lengths and angle sizes in	value involving one right				
develop and apply the	consistent with	similar right triangles.	triangle by applying the	I am able to create and solve			
primary trigonometric	the criteria.		primary trigonometric ratios	problems that involve indirect			
ratios (sine, cosine,		I can demonstrate how to	and/or the Pythagorean	and direct linear measurements			
tangent) to solve		identify the hypotenuse of a	Theorem.	by using the primary			
problems that involve		right triangle and the		trigonometric ratios, the			
right triangles.		adjacent and opposite sides		Pythagorean Theorem, and			
		to an acute angle in that right triangle.		measurement instruments.			
		ngrit triangle.		I will be able to explain and			
		I can set up the trig ratios		analyse problems involving right			
		correctly.		triangles. I can solve problems			
				involving more than one right			
		I can use my calculator to		triangle.			
		find trig ratio values and					
		measures of angles.					

OUTCOMES	ASSESSMENT RUBRICS						
FP10.5 Demonstrate understanding of the multiplication and factoring of polynomial expressions (concretely, pictorially, and symbolically) including: multiplying of monomials, binomials, and trinomials; common factors; trinomial factoring; relating multiplication and factoring of polynomials							
Level Criteria	<u>Beginning</u> Spend some extra time with the criteria and ask for help.	<u>Approaching</u> Good start. You are beginning to make sense of this on your own. You are consistent with the basic learning goals for this outcome.	<u>Proficient</u> You did it and you did it on your own. You are able to complete the processes for this outcome. Your work is thorough and consistently accurate.	<u>Mastery</u> Great work! This is going extra well for you. You have understood the outcome, are able to explain your strategies and apply these to situations. Your work is always accurate.			
Outcome 5A: Students will demonstrate an understanding of the multiplication of monomials, binomials, and trinomials concretely, pictorially and symbolically.	I need more help with becoming consistent with the criteria.	I am consistent with multiplying monomials by polynomials I am consistent with the process of how to multiply binomials by binomials, but I make consistent mistakes, maybe with signs	I am consistent with multiplying binomials by binomials	<ul> <li>I am able to simplify, model and explain multiplying polynomials. Some ways I might show this are:</li> <li>I am able to multiply all types of polynomials accurately.</li> <li>I am able to perform error analysis on multiplication of polynomials.</li> <li>I am able to show multiplication pictorially, concretely and symbolically.</li> <li>I can explain the relationship of binomial multiplication.</li> </ul>			
Outcome 5B: Students will demonstrate an understanding of factoring concretely, pictorially and symbolically.	I need more help with becoming consistent with the criteria.	I am consistent with factoring 2 of the 3 types of polynomial factoring (GCF, trinomials, difference of squares) where there is only one method to the question (ie. I only have to do GCF or box method ONCE in	I am consistent with factoring polynomials where there is only one method to the question. I am able to perform the first step in a multiple strategy question (ie. where you have to do GCF and then factor a trinomial, or where you have to continue difference of	I am consistent with factoring polynomials of all types and any number of steps. I am able to perform error analysis. I am able to explain the relationship between multiplying and factoring polynomials			

	th	e question) squar	es more than once)					
OUTCOMES		ASSESSMENT RUBRICS						
FP10.6 Expand a	FP10.6 Expand and apply understanding of relations and functions including: 1) relating data, graph							
and situation	s 2) analyzing	and interpreting 3)	distinguishing between relations a	nd functions				
Level	<b>Beginning</b>	<u>Approaching</u>	<u>Proficient</u>	<u>Mastery</u>				
	Spend some	Good start. You are	You did it and you did it on your own. You	Great work! This is				
	extra time with	beginning to make sense of	are able to complete the processes for this	going extra well for				
Criteria	the criteria and	this on your own. You are	outcome. Your work is thorough and	you. You have				
	ask for help.	consistent with the basic	consistently accurate.	understood the				
		learning goals for this		outcome, are able to				
		outcome.		explain your strategies				
				and apply these to				
				situations. Your work				
				is always accurate.				
Outcome 6: Students	I need more	I am able to consistently	I can determine the domain and range of	I am able to analyze				
will demonstrate	help with	determine if a relation is a	any type of relation(from all types,	graphs of relations to				
understanding of	becoming	function.	graphs, pairs, table of values).	determine the				
relations and functions	consistent with the criteria.	T seu determine the demain	T and determine and compain and	situation that it could				
	the criteria.	I can determine the domain and range of relations of	I can determine and explain any restrictions on the domain and range of a	represent.				
		discrete data (points).	relation.	I can draw a graph				
		disci ere duru (points).		given a situation.				
			I am able to match a graph to its given	given a orraditori.				
			situation.	I am able to explain				
				the difference				
				between relations and				
				functions.				

## ASSESSMENT RUBRICS

FP10.7 Demonstrate, with and without the use of technology, understanding of slope (concretely, pictorially, and symbolically) with respect to: line segments and lines, rate of change, ratio of rise to run parallel lines, perpendicular lines

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Level	Beginning	<u>Approaching</u>	<u>Proficient</u>	<u>Mastery</u>
	Spend some	Good start. You are beginning to	You did it and you did it	Great work! This is going extra
	extra time with	make sense of this on your own.	on your own. You are	well for you. You have
Criteria	the criteria and	You are consistent with the basic	able to complete the	understood the outcome, are
	ask for help.	learning goals for this outcome.	processes for this	able to explain your strategies
			outcome. Your work is	and apply these to situations.
			thorough and consistently	Your work is always accurate.
			accurate.	
Outcome 7: Students	I need more	I am consistently able to	I am consistently able to	I am able to justify why lines
will demonstrate	help with	determine the rate of	determine the slope of	are parallel, perpendicular or
understanding of linear	becoming	change/slope of a linear relation	parallel lines and	neither.
relations by	consistent with	from a graph (rise/run), from two	perpendicular lines given	
determining rate of	the criteria.	given points (slope formula), from	the slope of one of the	I am able to explain what the
change/slope		a given equation.	lines.	rate of change/slope
				represents in the context of a
		I am consistently able to classify	I am consistently able to	situation.
		lines as having positive or negative	determine if lines are	
		slopes.	parallel, perpendicular or	
			neither.	
			I am able to draw the	
			graph of a relation given	
			the slope.	

## ASSESSMENT RUBRICS

FP10.8: Demonstrate understanding of linear relations including: 1) representing in words, ordered pairs, tables of values, graphs, function notation, and equations 2) Determining characteristics including intercepts, slope, domain and range.

Level	<u>Beginning</u>	<u>Approaching</u>	<u>Proficient</u>	<u>Mastery</u>
	Spend some	Good start. You are	You did it and you did it on	Great work! This is going extra
	extra time	beginning to make sense	your own. You are able to	well for you. You have
Criteria	with the	of this on your own. You	complete the processes for	understood the outcome, are able
	criteria and	are consistent with the	this outcome. Your work is	to explain your strategies and
	ask for help.	basic learning goals for	thorough and consistently	apply these to situations. Your
		this outcome.	accurate.	work is always accurate.
Outcome 8A: Students will	I need more	I am able to consistently	I am able to interpolate and	I am able to analyze a graph to
demonstrate and	help with	determine if a relation is	extrapolate a linear relation	predict values in situational
understanding of linear	becoming	linear.	in function notation, a graph,	questions.
relations by representing in	consistent		and an equation.	
words, ordered pairs, tables	with the	I can consistently state		I can explain why a function is a
of values, graphs, function	criteria.	the independent,	I can state the domain and	linear function.
notation and equations and		dependent variable, x-	range of a linear function.	
determining characteristics		intercept and y intercept		I am able to explain the
		of a linear relation.	I can determine and explain	relationship between a linear
			restrictions on domain and	function written in function
			range of a linear relation.	notation and as an equation in
				two variables.
Outcome 8B: Students will	I need more	I am consistently able to	I am consistently able to	I am able to perform error
demonstrate understanding	help with	graph a linear relation	graph a linear relation given	analysis.
of linear relations through	becoming	given a table of	the equation.	
graphing a linear relation	consistent	values/ordered pairs		I can explain their graphing
	with the criteria.			strategy.
				I am able to graph a linear
				relation given the context of
				the relation.

## ASSESSMENT RUBRICS

FP10.9 Demonstrate understanding of the writing and application of equations of linear relations, given: a graph of a relation, a point that satisfies a relation and the slope of the relation, two distinct points that satisfy a relation, a point that satisfies the relation and the equation of a line parallel or

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Level	<b>Beginning</b>	<u>Approaching</u>	<u>Proficient</u>	<u>Mastery</u>
	Spend some	Good start. You are	You did it and you did it on your	Great work! This is going extra
	extra time	beginning to make sense of	own. You are able to complete the	well for you. You have
Criteria	with the	this on your own. You are	processes for this outcome. Your	understood the outcome, are
	criteria and	consistent with the basic	work is thorough and consistently	able to explain your strategies
	ask for help.	learning goals for this	accurate.	and apply these to situations.
		outcome.		Your work is always accurate.
Outcome 9: Students	I need more	I am consistently able to	l can consistently write linear	I am able to write an equation
will demonstrate	help with	write the equation of a line	equations in slope-intercept form,	when dealing with parallel or
understanding of linear	becoming	when given the slope and a	slope-point form and general form	perpendicular lines.
relations through	consistent	point.	given any acceptable pieces of	
writing the equation of	with the		information (excluding parallel or	I am able to write an equation
the relation	criteria.		perpendicular lines).	from a given situation.
				I am able to describe my
				strategies of writing
				equations.
				I can verify my equations
				using points on the line.

#### ASSESSMENT RUBRICS

FP10.10 Solve problems that involve systems of linear equations in two variables, graphically, and									
	algebraically								
Level	<u>Beginning</u>	<u>Approaching</u>	Proficient	<u>Mastery</u>					
	Spend some	Good start. You are beginning	You did it and you did it on your	Great work! This is going extra					
	extra time	to make sense of this on your	own. You are able to complete the	well for you. You have					
Criteria	with the	own. You are consistent with	processes for this outcome. Your	understood the outcome, are					
	criteria and	the basic learning goals for	work is thorough and consistently	able to explain your strategies					
	ask for help.	this outcome.	accurate.	and apply these to situations.					
				Your work is always accurate.					
Outcome 10: Students	I need more	I am able to determine the	I am able to solve a system of	I am able to solve a system of					
will demonstrate	help with	solution to a system of	linear equations to find the <u>exact</u>	linear equations to find the					
understanding of	becoming	linear equations when the	solution when there are no	exact solution when fraction					
systems of linear	consistent	graphs of the systems are	fractional or decimal coefficients.	or decimal coefficients are					
equations.	with the	given. I can explain the		involved.					
	criteria.	meaning of this solution.	I can determine the number of						
			solutions to a linear system if the	I am able to solve problems					
		I am able to determine if a	equations are already in slope-	involving systems of linear					
		point is a solution to the	intercept form.	equations.					
		system.							
				I am able to analyze a system					
		I am able to solve a basic		of linear equations to					
		system of linear equations		determine how many solutions					
		algebraically (basic means		it will have.					
		coefficients are already the							
		same or a variable is		I am able to solve a system					
		isolated)		multiple ways and discuss the					
				solutions found.					