

Name _____ Date _____

Master 1.1

Unit Rubric: Patterning

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual Understanding				
Shows understanding of increasing and decreasing patterns by: <ul style="list-style-type: none"> - explaining and applying pattern rules - identifying and explaining errors in patterns - describing patterning strategies - identifying patterns in the environment - creating patterns 	may be unable to: <ul style="list-style-type: none"> - explain and apply pattern rules - identify and explain errors in patterns - describe patterning strategies - identify patterns in the environment - create patterns 	partially able to: <ul style="list-style-type: none"> - explain and apply pattern rules - identify and explain errors in patterns - describe patterning strategies - identify patterns in the environment - create patterns 	able to: <ul style="list-style-type: none"> - explain and apply pattern rules - identify and explain errors in patterns - describe patterning strategies - identify patterns in the environment - create patterns 	in various contexts, able to fully: <ul style="list-style-type: none"> - explain and apply pattern rules - identify and explain errors in patterns - describe patterning strategies - identify patterns in the environment - create patterns
Procedural Knowledge				
For increasing and decreasing patterns, accurately: <ul style="list-style-type: none"> - states pattern rules - extends patterns - compares patterns - represents patterns - determines missing elements 	limited accuracy; often makes major errors/omissions in: <ul style="list-style-type: none"> - stating pattern rules - extending patterns - comparing patterns - representing patterns - determining missing elements 	partially accurate; makes frequent minor errors/omissions in: <ul style="list-style-type: none"> - stating pattern rules - extending patterns - comparing patterns - representing patterns - determining missing elements 	generally accurate; makes few errors/omissions in: <ul style="list-style-type: none"> - stating pattern rules - extending patterns - comparing patterns - representing patterns - determining missing elements 	accurate; rarely makes errors/omissions in: <ul style="list-style-type: none"> - stating pattern rules - extending patterns - comparing patterns - representing patterns - determining missing elements
Problem-Solving Skills				
Uses increasing and decreasing patterns to solve problems	does not select and use appropriate patterning strategies to solve problems	with limited help, selects and uses some patterning strategies to solve problems with partial success	selects and uses appropriate patterning strategies to solve problems successfully	selects and uses appropriate patterning strategies to solve problems with a high degree of success
Communication				
Records and explains reasoning and procedures clearly and completely, including appropriate terminology	unable to record and explain reasoning and procedures clearly and completely	records and explains reasoning and procedures with partial clarity; may be incomplete	records and explains reasoning and procedures clearly and completely	records and explains reasoning and procedures with precision and thoroughness

Name _____ Date _____

Master 1.3

**Performance Assessment Rubric:
It's a Pattern Party!**

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual Understanding				
Shows understanding of patterning by: – creating and representing an increasing or decreasing sound or action pattern – creating and drawing an increasing or decreasing pattern – explaining how to extend a pattern	shows very limited understanding of patterning; unable to: – create and represent a sound or action pattern – create and draw a pattern – explain how to extend a pattern	shows limited understanding of patterning; partially able to: – create and represent a sound or action pattern – create and draw a pattern – explain how to extend a pattern	shows understanding of patterning; able to: – create and represent a sound or action pattern – create and draw a pattern – explain how to extend a pattern	shows thorough understanding of patterning; fully able to: – create and represent a sound or action pattern – create and draw a pattern – explain how to extend a pattern
Procedural Knowledge				
– Writes a pattern rule – Extends a pattern – Represents a pattern (clap/stamp)	limited accuracy; major errors or omissions in: – writing a pattern rule – extending a pattern – representing a pattern	somewhat accurate; several minor errors in: – writing a pattern rule – extending a pattern – representing a pattern	generally accurate; few errors or omissions in: – writing a pattern rule – extending a pattern – representing a pattern	accurate; very few or no errors in: – writing a pattern rule – extending a pattern – representing a pattern
Problem-Solving Skills				
Chooses and carries out appropriate patterning strategies to solve the problems (creates appropriate patterns for the context)	chooses and carries out a limited range of appropriate strategies; unable to solve most parts of the problem	chooses and carries out some appropriate strategies; successfully solves some parts of the problem	chooses and carries out appropriate strategies; successfully solves most parts of the problem	chooses and carries out effective strategies; successfully solves all or almost all parts of the problem
Communication				
Presents work and explanations clearly, using appropriate mathematical terminology	does not present work and explanations clearly; uses few appropriate mathematical terms	presents work and explanations with some clarity, using some appropriate mathematical terms	presents work and explanations clearly, using appropriate mathematical terms	presents work and explanations precisely, using a range of appropriate mathematical terms

Name _____ Date _____

Master 1.6

To Parents and Adults at Home ...

Your child's class is starting a mathematics unit on increasing and decreasing patterns. Recognizing and analysing patterns is an important part of mathematical thinking. Patterning concepts lead to work with algebra in higher grades.

In this unit, your child will:

- Identify, extend, create, and compare increasing patterns.
- Identify, extend, create, and compare decreasing patterns.
- Find pattern rules.
- Display number patterns on hundred charts.
- Use patterns to solve problems.

Patterns can be found all around us. Encourage your child to look for patterns around the home, and talk about them.

Here are some suggestions for activities you can do at home:

- Look for patterns in your family's activities as marked on a calendar at home. What activities do you do daily? Twice a week? Every week?
- Use small objects like buttons or coins to make patterns that grow or shrink. Encourage your child to describe and extend the patterns.
- Count collections of nickels and dimes by 5s and by 10s. Count pennies by 2s.
- Find examples of geometric patterns in floor tiles or on game boards.

Master 2.1

Unit Rubric: Numbers to 1000

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual Understanding				
Shows understanding by explaining and/or demonstrating: <ul style="list-style-type: none"> - various ways to represent the same number or amount of money - verifying a sequence - correcting errors or missing numbers in a sequence or 100-chart - using a referent to estimate to 1000 - place value for numerals to 1000 (concretely and pictorially) 	may be unable to demonstrate or explain: <ul style="list-style-type: none"> - various ways to represent the same number or amount of money - verifying a sequence - correcting errors or missing numbers in a sequence or 100-chart - using a referent to estimate to 1000 - place value 	partially able to demonstrate or explain: <ul style="list-style-type: none"> - various ways to represent the same number or amount of money - verifying a sequence - correcting errors or missing numbers in a sequence or 100-chart - using a referent to estimate to 1000 - place value 	able to demonstrate and explain: <ul style="list-style-type: none"> - various ways to represent the same number or amount of money - verifying a sequence - correcting errors or missing numbers in a sequence or 100-chart - using a referent to estimate to 1000 - place value 	in various contexts, appropriately demonstrates and explains: <ul style="list-style-type: none"> - various ways to represent the same number or amount of money - verifying a sequence - correcting errors or missing numbers in a sequence or 100-chart - using a referent to estimate to 1000 - place value
Procedural Knowledge				
Accurately: <ul style="list-style-type: none"> - skip counts forward and back by 5s, 10s, and 100s from any starting point - skip counts forward and back by 25s, 3s, and 4s, starting at a multiple - reads, writes, and represents numbers to 1000 (concretely, pictorially, symbolically, and in words) - compares and orders numbers to 1000 	limited accuracy with numbers to 1000; often makes major errors/omissions in: <ul style="list-style-type: none"> - skip counting by 3s, 4s - skip counting by 5s, 10s, 25s, 100s - reading and writing numbers - representing numbers concretely, pictorially, symbolically, in words - comparing and ordering numbers 	partially accurate with numbers to 1000; makes frequent minor errors/omissions in: <ul style="list-style-type: none"> - skip counting by 3s, 4s - skip counting by 5s, 10s, 25s, 100s - reading and writing numbers - representing numbers concretely, pictorially, symbolically, in words - comparing and ordering numbers 	generally accurate with numbers to 1000; makes few errors/omissions in: <ul style="list-style-type: none"> - skip counting by 3s, 4s - skip counting by 5s, 10s, 25s, 100s - reading and writing numbers - representing numbers concretely, pictorially, symbolically, in words - comparing and ordering numbers 	accurate with numbers to 1000; rarely makes errors/omissions in: <ul style="list-style-type: none"> - skip counting by 3s, 4s - skip counting by 5s, 10s, 25s, 100s - reading and writing numbers - representing numbers concretely, pictorially, symbolically, in words - comparing and ordering numbers
Problem-Solving Skills				
Selects and uses appropriate strategies, including estimation and making an organized list, to solve problems involving numbers	does not select and use appropriate strategies to solve problems involving numbers successfully	with limited help, selects and uses some strategies to solve problems involving numbers with partial success	selects and uses appropriate strategies to solve problems involving numbers successfully	selects and uses appropriate strategies to solve problems involving numbers with a high degree of success
Communication				
Records and explains reasoning and procedures clearly and completely, including appropriate terminology	does not record and explain reasoning and procedures clearly or completely	records and explains reasoning and procedures with partial clarity; may be incomplete	records and explains reasoning and procedures clearly and completely	records and explains reasoning and procedures with precision and thoroughness

Master 2.3

Performance Assessment Rubric: The Market

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual Understanding				
Shows understanding of number by demonstrating and/or explaining: <ul style="list-style-type: none"> - use of a referent to estimate (Part 1) - which problem was harder to solve (Part 2) - their ideas about using numbers to set up a booth (Part 3) 	shows very limited understanding of number; inappropriate explanations of: <ul style="list-style-type: none"> - using a referent to estimate - which problem was harder - using numbers in their booth 	shows limited understanding of number; gives appropriate but incomplete explanations of: <ul style="list-style-type: none"> - using a referent to estimate - which problem was harder - using numbers in their booth 	shows understanding of number; gives reasonable explanations of: <ul style="list-style-type: none"> - using a referent to estimate - which problem was harder - using numbers in their booth 	shows thorough understanding of number; gives effective and detailed explanations of: <ul style="list-style-type: none"> - using a referent to estimate - which problem was harder - using numbers in their booth
Procedural Knowledge				
Counts by 4s Uses a referent to estimate Represents 265 in 3 ways Draws coins to show 3 combinations of coins that total \$3 Solves own problem	limited accuracy; majors errors or omissions in: <ul style="list-style-type: none"> - counting by 4s - representing 265 in 3 ways - drawing 3 combinations of coins that total \$3 - solving own problem 	somewhat accurate; several minor errors or omissions in: <ul style="list-style-type: none"> - counting by 4s - representing 265 in 3 ways - drawing 3 combinations of coins that total \$3 - solving own problem 	generally accurate; few errors or omissions in: <ul style="list-style-type: none"> - counting by 4s - representing 265 in 3 ways - drawing 3 combinations of coins that total \$3 - solving own problem 	accurate; very few or no errors or omissions in: <ul style="list-style-type: none"> - counting by 4s - representing 265 in 3 ways - drawing 3 combinations of coins that total \$3 - solving own problem
Problem-Solving Skills				
Uses appropriate strategies to: <ul style="list-style-type: none"> - create and solve a story problem about the market - design a booth for the market 	does not use appropriate strategies, unsuccessful in: <ul style="list-style-type: none"> - creating and solving a story problem - designing a booth 	uses some appropriate strategies, partially successful in: <ul style="list-style-type: none"> - creating and solving a story problem (may be relatively basic) - designing a booth (may be relatively simple) 	uses appropriate strategies, successful in: <ul style="list-style-type: none"> - creating and solving a story problem - designing a booth 	uses effective and often innovative strategies to successfully: <ul style="list-style-type: none"> - create and solving a relatively complex story problem - design a relatively complex booth
Communication				
Presents work and explanations clearly, using appropriate mathematical terminology	does not present work and explanations clearly, uses few appropriate mathematical terms	presents work and explanations with some clarify, using some appropriate mathematical terms	presents work and explanations clearly, using appropriate mathematical terms	presents work and explanations precisely, using a range of appropriate mathematical terms

Master 2.6**To Parents and Adults at Home....**

Your child's class is beginning a mathematics unit on Numbers to 1000.

In this unit, your child will:

- Show a 3-digit number in different ways, using concrete materials, pictures, words, and numbers.
- Compare and order 2-digit and 3-digit numbers.
- Skip count by 5s, 10s, and 100s forward and backward to 1000.
- Skip count by 3s, 4s, and 25s forward and backward to 1000.
- Estimate how many items are in a large collection by comparing it to a known quantity.

Here are some activities you can do at home to support this learning:

- Use play money to model numbers and to develop understanding of trading or grouping. For example, show that \$342 can be modelled as \$300 + \$40 + \$2. Using play bills for \$1, \$10, and \$100 helps to reinforce place value.
- Play a number comparison game:
Remove the tens and face cards from a deck of regular playing cards. Deal 3 cards to each player.
Each player uses the cards to make the greatest possible 3-digit number. The person with the greater number gets a point. Repeat. The first player to get 10 points is the winner.

Play the game again, this time making the least number possible.

Master 3.1

Unit Rubric: Addition and Subtraction

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual Understanding				
Shows understanding by explaining and/or demonstrating: <ul style="list-style-type: none"> – mental math strategies for adding and subtracting – using estimation strategies to predict sums and differences – personal strategies for adding and subtracting (numbers with up to 3-digits) 	may be unable to demonstrate or explain: <ul style="list-style-type: none"> – mental math strategies for adding and subtracting – estimating to predict sums and differences – personal strategies for adding and subtracting 	partially able to demonstrate or explain: <ul style="list-style-type: none"> – mental math strategies for adding and subtracting – estimating to predict sums and differences – personal strategies for adding and subtracting 	able to demonstrate and explain: <ul style="list-style-type: none"> – mental math strategies for adding and subtracting – estimating to predict sums and differences – personal strategies for adding and subtracting 	in various contexts, appropriately demonstrates and explains: <ul style="list-style-type: none"> – mental math strategies for adding and subtracting – estimating to predict sums and differences – personal strategies for adding and subtracting
Procedural Knowledge				
<ul style="list-style-type: none"> – Adds 2-digit numbers – Subtracts 2-digit numbers – Recalls basic addition facts to 18 and related subtraction facts – Solves addition or subtraction equations (one unknown) 	limited accuracy; often makes major errors/omissions in: <ul style="list-style-type: none"> – adding 2-digit numbers – subtracting 2-digit numbers – recalling basic addition facts to 18 and related subtraction facts – solving addition or subtraction equations 	partially accurate; makes frequent minor errors/omissions in: <ul style="list-style-type: none"> – adding 2-digit numbers – subtracting 2-digit numbers – recalling basic addition facts to 18 and related subtraction facts – solving addition or subtraction equations 	generally accurate; makes few errors/omissions in: <ul style="list-style-type: none"> – adding 2-digit numbers – subtracting 2-digit numbers – recalling basic addition facts to 18 and related subtraction facts – solving addition or subtraction equations 	accurate; rarely makes errors/omissions in: <ul style="list-style-type: none"> – adding 2-digit numbers – subtracting 2-digit numbers – recalling basic addition facts to 18 and related subtraction facts – solving addition or subtraction equations
Problem-Solving Skills				
Selects and uses appropriate strategies to create and solve problems involving addition and subtraction up to 3 digits	does not select and use appropriate strategies to create and solve problems with up to 3 digits successfully	with limited help, selects and uses some strategies to solve problems with up to 3 digits with partial success	selects and uses appropriate strategies to solve problems with up to 3 digits successfully	selects and uses appropriate strategies to solve problems with up to 3 digits with a high degree of success
Communication				
Records and explains reasoning and procedures clearly and completely, including appropriate terminology	does not record and explain reasoning and procedures clearly and completely	records and explains reasoning and procedures with partial clarity; may be incomplete	records and explains reasoning and procedures clearly and completely	records and explains reasoning and procedures with precision and thoroughness

Master 3.3

**Performance Assessment Rubric:
Plants in Our National Parks**

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual Understanding				
Shows understanding by: – applying and explaining mental math strategies – choosing the correct operation – explaining solutions	shows very limited understanding; does not: – apply strategies appropriately – choose the correct operation – explain strategies and solutions	shows limited understanding; is partially able to: – apply strategies appropriately – choose the correct operation – explain strategies and solutions	shows understanding; is able to: – apply strategies appropriately – choose the correct operation – explain strategies and solutions	shows thorough understanding; fully able to: – apply strategies appropriately – choose the correct operation – explain strategies and solutions
Procedural Knowledge				
– Adds numbers (to 3 digits) – Subtracts (to 3-digit numbers) – Writes and solves an equation	limited accuracy; major errors/omissions in: – adding – subtracting – writing and solving equations	somewhat accurate; several minor errors in: – adding – subtracting – writing and solving equations	generally accurate; few errors or omissions in: – adding – subtracting – writing and solving equations	accurate; very few or no errors in: – adding – subtracting – writing and solving equations
Problem-Solving Skills				
Uses appropriate estimating and problem-solving strategies to create and solve story problems involving addition and subtraction	does not successfully create and solve story problems	partially successful in creating and solving story problems (problems may be very basic or have some flaws)	uses appropriate and successful strategies to create and solve story problems	uses effective, and sometimes innovative, strategies to create and solve relatively complex or challenging story problems
Communication				
Presents work and explanations clearly, using appropriate mathematical terminology	does not present work and explanations clearly, uses few appropriate mathematical terms	presents work and explanations with some clarity, using some appropriate mathematical terms	presents work and explanations clearly, using appropriate mathematical terms	presents work and explanations precisely, using a range of appropriate mathematical terms

To Parents and Adults at Home ...

Your child's class is starting a mathematics unit on addition and subtraction. Your child will develop strategies for adding and subtracting whole numbers by using addition charts, mental math, estimation, Base Ten Blocks, place-value mats, and pencil and paper.

In this unit, your child will:

- Recall basic addition and subtraction facts
- Identify and apply relationships between addition and subtraction
- Add and subtract 2-digit numbers
- Use mental math to add and subtract
- Estimate sums and differences
- Add and subtract 3-digit numbers

The ability to use a variety of strategies to add and subtract leads to the development of a strong sense of number.

Here are some suggestions for activities you can do with your child.

- Play *Store* with your child. Price some of the items in your home in cents (for example, the cup of noodles costs 149 cents and the baguette costs 35 cents). You are the *Shopper* and your child is the *Cashier*. Have your child add the cost of the items you buy.
- Roll a number cube 4 times. Use the numbers rolled to make two 2-digit numbers. Have your child subtract the lesser number from the greater number. Repeat the activity. This time, roll the number cube 6 times and make two 3-digit numbers.

Master 4.1

Unit Rubric: Measurement

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual understanding				
Shows understanding of measurement by explaining and/or demonstrating: <ul style="list-style-type: none"> – choice of personal referents for various measures – relationships between cm and m; g and kg – choice of personal referents for various measures – that many shapes are possible for a given perimeter – that two similar objects may have different masses 	may be unable to demonstrate or explain: <ul style="list-style-type: none"> – choice of personal referents – relationships between cm/m; g/kg – that many shapes are possible for a given perimeter – that similar objects may have different masses 	partially able to demonstrate or explain: <ul style="list-style-type: none"> – choice of personal referents – relationships between cm/m; g/kg – that many shapes are possible for a given perimeter – that similar objects may have different masses 	able to demonstrate and explain: <ul style="list-style-type: none"> – choice of personal referents – relationships between cm/m; g/kg – that many shapes are possible for a given perimeter – that similar objects may have different masses 	in various contexts; appropriately demonstrates and explains: <ul style="list-style-type: none"> – choice of personal referents – relationships between cm/m; g/kg – that many shapes are possible for a given perimeter – that similar objects may have different masses
Procedural knowledge				
Accurately relates: <ul style="list-style-type: none"> – seconds to a minute; minutes to an hour; days to a month – cm to m; g to kg – passage of time (standard and non-standard units) – length, width, and height (cm, m) – perimeter (cm, m) – mass (g, kg) 	limited accuracy; often makes major errors/omissions in: <ul style="list-style-type: none"> – relating measures of time, length, and mass – measuring time – measuring length, width, height – measuring perimeter – measuring mass 	partially accurate; makes frequent minor errors/omissions in: <ul style="list-style-type: none"> – relating measures of time, length, and mass – measuring time – measuring length, width, height – measuring perimeter – measuring mass 	generally accurate; makes few errors/omissions in: <ul style="list-style-type: none"> – relating measures of time, length, and mass – measuring time – measuring length, width, height – measuring perimeter – measuring mass 	accurate; rarely make errors/omissions in: <ul style="list-style-type: none"> – relating measures of time, length, and mass – measuring time – measuring length, width, height – measuring perimeter – measuring mass
Problem-solving skills				
Selects and uses appropriate strategies to: <ul style="list-style-type: none"> – estimate time, length, mass, and perimeter – solve problems involving measurement 	does not select and use appropriate strategies to successfully: <ul style="list-style-type: none"> – estimate measures – solve problems 	with limited help, selects and uses strategies with partial success to: <ul style="list-style-type: none"> – estimate measures – solve problems 	selects and uses appropriate strategies to successfully: <ul style="list-style-type: none"> – estimate measures – solve problems 	selects and uses appropriate strategies with a high degree of success to: <ul style="list-style-type: none"> – estimate measures – solve problems
Communication				
Records and explains reasoning and procedures clearly and completely, including appropriate terminology	does not record and explain reasoning and procedures clearly and completely	records and explains reasoning and procedures with partial clarity; may be incomplete	records and explains reasoning and procedures clearly and completely	records and explains reasoning and procedures with precision and thoroughness

Master 4.3

Performance Assessment Rubric: Eat Your Veggies

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual understanding				
Shows understanding by applying and justifying: – units of time – various ways of measuring the same object – choice of garden shape	shows very limited understanding of measurement; does not apply or explain appropriate processes	shows limited understanding of measurement; applies some appropriate processes, and gives appropriate but incomplete explanations	shows understanding of measurement; applies appropriate processes, and gives reasonable explanations	shows thorough understanding of measurement; applies effective processes, and gives detailed explanations
Procedural knowledge				
Selects appropriate units of time for each activity Measures and records attributes of vegetables Confirms that perimeter of shapes they draw is 16 m	limited accuracy; major errors or omissions in: – selecting appropriate units – measuring and recording attributes of vegetables – confirming a perimeter of 16 m	somewhat accurate; several minor errors or omissions in: – selecting appropriate units – measuring and recording attributes of vegetables – confirming a perimeter of 16 m	generally accurate; few minor errors or omissions in: – selecting appropriate units – measuring and recording attributes of vegetables – confirming a perimeter of 16 m	accurate; very few or no errors in: – selecting appropriate units – measuring and recording attributes of vegetables – confirming a perimeter of 16 m
Problem-solving skills				
Chooses and carries out appropriate estimation and problem-solving strategies to solve the problems Successfully solves the problem	chooses and carries out a limited range of estimation and problem-solving strategies may successfully solve one part of the problem; does not find more than one way to measure or create a shape with perimeter 16 m	chooses and carries out some estimation and problem-solving strategies successfully solves some parts of the problem; may rely on limited ways to measure or create a shape with perimeter 16 m	chooses and carries out appropriate estimation and problem-solving strategies successfully solves most parts of the problem; measures more than one attribute of each vegetable; creates at least two shapes with perimeter 16 m	chooses and carries out highly effective estimation and problem-solving strategies successfully solves all parts of the problem; innovative; measures multiple attributes of the vegetables, including mass; creates a variety of shapes with perimeter 16 m
Communication				
Presents work and explanations clearly, using appropriate mathematical terminology	does not present work and explanations clearly, uses few appropriate mathematical terms	presents work and explanations with some clarity, uses some appropriate mathematical terms	presents work and explanations clearly, uses appropriate mathematical terms	presents work and explanations precisely, uses a range of appropriate mathematical terms

Master 4.6**To Parents and Adults at Home...**

Your child's class is starting a mathematics unit on the measurement of time, length, perimeter, and mass.

In this unit, your child will:

- Use non-standard units, such as pendulum swings, to measure the passage of time.
- Identify activities that can be completed in minutes, hours, days, months, and years.
- Use a calendar to determine the number of days in a given month.
- Create a calendar to show personal events.
- Estimate and measure length and perimeter in centimetres and metres.
- Construct different shapes for the same perimeter.
- Estimate and measure mass in grams and kilograms.

Here are some activities you can try with your child:

- Keep a calendar of family events and activities. Encourage your child to refer to it frequently and to add to it as new events are planned.
- Ask your child to estimate and measure the length, width, height, or perimeter of objects around the house. For example, when your child is setting the table, ask for an estimate, then work together to measure the perimeter of the table, or a place mat.
- When shopping, have your child identify items sold by mass (g or kg).

Master 5.1

Unit Rubric: Fractions

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual Understanding				
Shows understanding by explaining and/or demonstrating: <ul style="list-style-type: none"> - a fraction represents part of a whole - situations where fractions are used - comparisons of fractions with the same denominator 	may be unable to demonstrate or explain: <ul style="list-style-type: none"> - a fraction represents part of a whole - situations where fractions are used - comparisons of fractions with the same denominator 	partially able to demonstrate or explain: <ul style="list-style-type: none"> - a fraction represents part of a whole - situations where fractions are used - comparisons of fractions with the same denominator 	able to demonstrate or explain: <ul style="list-style-type: none"> - a fraction represents part of a whole - situations where fractions are used - comparisons of fractions with the same denominator 	in various contexts, appropriately demonstrates or explains: <ul style="list-style-type: none"> - a fraction represents part of a whole - situations where fractions are used - comparisons of fractions with the same denominator
Procedural Knowledge				
Accurately: <ul style="list-style-type: none"> - finds equal parts of a whole - represents and names fractions - identifies and explains numerator and denominator - compares fractions with like denominators 	makes major errors in: <ul style="list-style-type: none"> - recognizing equal parts - identifying and counting fractional parts - identifying and explaining numerator and denominator - comparing fractions with like denominators 	partially accurate in: <ul style="list-style-type: none"> - recognizing equal parts - identifying and counting fractional parts - identifying and explaining numerator and denominator - comparing fractions with like denominators 	generally accurate in: <ul style="list-style-type: none"> - recognizing equal parts - identifying and counting fractional parts - identifying and explaining numerator and denominator - comparing fractions with like denominators 	consistently accurate in: <ul style="list-style-type: none"> - recognizing equal parts - identifying and counting fractional parts - identifying and explaining numerator and denominator - comparing fractions with like denominators
Problem-Solving Skills				
Selects and uses appropriate strategies to solve problems involving fractions	does not select and use appropriate strategies to solve problems involving fractions successfully	with limited help, selects and uses some strategies to solve problems involving fractions with partial success	selects and uses appropriate strategies to solve problems involving fractions successfully	selects and uses appropriate strategies to solve problems involving fractions with a high degree of success
Communication				
Records and explains reasoning and procedures clearly and uses appropriate terminology and fraction symbols	unable to record and explain reasoning and procedures clearly and rarely uses appropriate terminology and fraction symbols	partially records and explains reasoning and procedures and uses some appropriate terminology and fraction symbols	records and explains reasoning and procedures clearly and usually uses appropriate terminology and fraction symbols	records and explains reasoning and procedures clearly and precisely and consistently uses appropriate terminology and fraction symbols

Master 5.3

Performance Assessment Rubric: At the Pizza Shop

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual Understanding				
Shows understanding by identifying and describing fractions in the context of an everyday situation	shows very limited understanding of fractions	shows limited understanding of fractions	shows understanding of fractions	shows thorough understanding of fractions
Procedural Knowledge				
Models the different pizzas split into equal portions and names and records fractions to describe the pizzas	limited accuracy; major errors or omissions in: - models of the pizzas - naming and recording fractions	somewhat accurate; several minor errors in: - models of the pizzas - naming and recording fractions	generally accurate; few errors or omissions in: - models of the pizzas - naming and recording fractions	accurate; very few or no errors in: - models of the pizzas - naming and recording fractions
Problem-Solving Skills				
Uses an appropriate strategy to solve problems involving fractions	does not adequately solve the problems	uses some appropriate strategies; partially successful in solving the problems	uses appropriate and successful strategies to solve the problems	uses effective, and often innovative, strategies to solve the problems
Communication				
Presents work and explanations clearly, using appropriate mathematical terminology (e.g., denominator; halves; tenths)	does not present work and explanations clearly, using few appropriate mathematical terms	presents work and explanations with some clarity, using some appropriate mathematical terms	presents work and explanations clearly, using appropriate mathematical terms	presents work and explanations precisely, using a range of appropriate mathematical terms

Master 5.6

To Parents and Adults at Home...

Your child's class is starting a mathematics unit on fractions. Children will build upon their real-world experiences of "fair shares" to recognize a fraction as an expression that relates a part and a whole.

In this unit, your child will:

- Find fractions of a whole.
- Compare fractions with the same denominators.
- Solve fraction problems.

We use fractions every day in many different situations. Encourage your child to recognize the use of fractions in daily life, for example, when filling a glass half full, measuring ingredients for a recipe, or sharing an apple.

Here are some activities you can do with your child to help reinforce the concept of fractions.

Fraction Activities

- When you serve your child food, such as a sandwich or an orange, cut it in half (or thirds, or fourths, and so on) and challenge your child to name the fraction for each part. After some is eaten, have your child name the fraction for the parts that are left.
- Provide your child with opportunities to divide food items into equal parts. Have your child tell the fraction name for each part.
- Play a game of "fraction concentration." On index cards, write fraction symbols, such as $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, ..., $\frac{1}{12}$. Prepare a second set of cards, on which you draw pictures to illustrate each fraction. Shuffle the cards and arrange them face down in a grid. To play, take turns turning over two cards. If the fraction picture matches the fraction symbol, the player keeps the cards. If not, the player replaces the cards. Play continues until all the cards have been matched.

Master 6.1

Unit Rubric: Geometry

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual understanding				
Shows understanding by explaining and/or demonstrating: - how a skeleton relates to its 3-D object - attributes of 3-D objects and polygons	may be unable to demonstrate or explain: - relation of skeleton to 3-D object - attributes of 3-D objects - attributes of polygons	partially able to demonstrate or explain: - relation of skeleton to 3-D object - attributes of 3-D objects - attributes of polygons	able to demonstrate and explain: - relation of skeleton to 3-D object - attributes of 3-D objects - attributes of polygons	in various contexts, appropriately demonstrates and explains: - relation of skeleton to 3-D object - attributes of 3-D objects - attributes of polygons
Procedural knowledge				
Accurately describes 3-D objects in terms of their numbers of faces, edges, vertices - Classifies polygons by number of sides including triangles, quadrilaterals, pentagons, hexagons, octagons - Compares orientation and dimensions of polygons	limited accuracy; often makes major errors/omissions in: - identifying and describing attributes of 3-D objects - classifying polygons by number of sides - comparing orientation and dimensions of polygons	partially accurate; makes frequent minor errors/ omissions in: - identifying and describing attributes of 3-D objects - classifying polygons by number of sides - comparing orientation and dimensions of polygons	generally accurate; makes few errors/ omissions in: - identifying and describing attributes of 3-D objects - classifying polygons by number of sides - comparing orientation and dimensions of polygons	accurate; rarely make errors/omissions in: - identifying and describing attributes of 3-D objects - classifying polygons by number of sides - comparing orientation and dimensions of polygons
Problem-solving skills				
Selects and uses appropriate strategies to solve problems involving 3-D objects, polygons, and their attributes	does not select and use appropriate strategies to solve problems successfully	with limited help, selects and uses some strategies to solve problems with partial success	selects and uses appropriate strategies to solve problems successfully	selects and uses appropriate strategies to solve problems with a high degree of success
Communication				
Records and explains reasoning and procedures clearly and completely, including appropriate terminology	does not record and explain reasoning and procedures clearly and completely	records and explains reasoning and procedures with partial clarity; may be incomplete	records and explains reasoning and procedures clearly and completely	records and explains reasoning and procedures with precision and thoroughness

Master 6.3

Performance Assessment Rubric: Under Construction

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual Understanding				
shows understanding by - describing 3-D objects, polygons, and their attributes in the context of building a castle - comparing a skeleton and the 3-D object	shows very limited understanding of 3-D objects and polygons; inappropriate descriptions	shows limited understanding of 3-D objects and polygons; gives appropriate but incomplete descriptions	shows understanding of 3-D objects and polygons; gives appropriate and detailed descriptions	shows thorough understanding of 3-D objects and polygons; gives precise descriptions
Procedural Knowledge				
Identifies 3-D objects and their attributes Classifies/names polygons by number of sides Constructs a skeleton	limited accuracy; major errors or omissions in: - identifying 3-D objects and their attributes - classifying polygons by number of sides - constructing a skeleton	somewhat accurate; several minor errors in: - identifying 3-D objects and their attributes - classifying polygons by number of sides - constructing a skeleton	generally accurate; few errors or omissions in: - identifying 3-D objects and their attributes - classifying polygons by number of sides - constructing a skeleton	accurate; very few or no errors in: - identifying 3-D objects and their attributes - classifying polygons by number of sides - constructing a skeleton
Problem-Solving Skills				
Chooses and carries out appropriate strategies to create a castle using 3-D objects	chooses and carries out a limited range of appropriate strategies; does not successfully construct a castle	chooses and carries out some appropriate strategies; successfully constructs and decorates a relatively simple castle	chooses and carries out appropriate strategies; successfully constructs and decorates a castle with some complexity	chooses and carries out effective and often innovative strategies; successfully constructs and decorates a complex castle using a variety of objects and shapes
Communication				
Presents work and explanations clearly, using appropriate mathematical terminology	does not present work and explanations clearly, uses few appropriate mathematical terms	presents work and explanations with some clarity, using some appropriate mathematical terms	presents work and explanations clearly, using appropriate mathematical terms	presents work and explanations precisely, using a range of appropriate mathematical terms

Name _____ Date _____

Master 6.6

To Parents and Adults at Home...

Your child's class is starting a mathematics unit on geometry. Geometric shapes are all around us, and mathematics can help your child recognize them. Understanding geometric form will help your child appreciate the geometry found in art, design, architecture, and nature.

In this unit, your child will:

- Identify and name various shapes with 3 or more sides
- Build, represent, and describe geometric objects
- Draw and talk about 2-D shapes and 3-D objects

Encourage your child to look for geometric shapes and objects around the home and neighbourhood, and talk about them. Here are some suggestions for activities that you can do at home:

Look for geometric shapes in buildings and street signs. For example, a stop sign is the shape of an octagon, and a yield sign is the shape of a triangle.

Look around the house for geometric shapes. Talk about the shapes you find. As you do, look closely at the corners and sides of the shapes. Count the corners and sides with your child.

Look for 3-D objects around your home, such as a fridge, stove, table legs, and so on. If possible, ask your child to count the number of corners and edges. Talk about how the object's shape is related to its purpose.

Look through magazines with your child to find as many different 2-D shapes and 3-D objects as you can find.

Master 7.1

Unit Rubric: Data Analysis

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual Understanding				
Shows understanding by explaining and/or demonstrating: <ul style="list-style-type: none"> – ways to collect and organize data to answer questions – common attributes of line plots and bar graphs – drawing conclusions based on a bar graph 	may be unable to explain or demonstrate: <ul style="list-style-type: none"> – ways to collect data – methods of organizing data – common attributes of line plots – common attributes of bar graphs – conclusions based on a bar graph 	partially able to explain or demonstrate: <ul style="list-style-type: none"> – ways to collect data – methods of organizing data – common attributes of line plots – common attributes of bar graphs – conclusions based on a bar graph 	able to explain and demonstrate: <ul style="list-style-type: none"> – ways to collect data – methods of organizing data – common attributes of line plots – common attributes of bar graphs – conclusions based on a bar graph 	in various contexts, appropriately explains and demonstrates: <ul style="list-style-type: none"> – ways to collect data – methods of organizing data – common attributes of line plots – common attributes of bar graphs – conclusions based on a bar graph
Procedural Knowledge				
Accurately: <ul style="list-style-type: none"> – records and organizes data using tally marks, charts, lists – creates and interprets line plots – creates and interprets bar graphs including labels (title and axes) – answers questions using data 	limited accuracy; often makes major errors or omissions in: <ul style="list-style-type: none"> – recording and organizing data – creating line plots – interpreting line plots – creating bar graphs – interpreting bar graphs – answering questions using data 	partially accurate; makes frequent minor errors or omissions in: <ul style="list-style-type: none"> – recording and organizing data – creating line plots – interpreting line plots – creating bar graphs – interpreting bar graphs – answering questions using data 	generally accurate; makes few errors or omissions in: <ul style="list-style-type: none"> – recording and organizing data – creating line plots – interpreting line plots – creating bar graphs – interpreting bar graphs – answering questions using data 	accurate; rarely makes errors or omissions in: <ul style="list-style-type: none"> – recording and organizing data – creating line plots – interpreting line plots – creating bar graphs – interpreting bar graphs – answering questions using data
Problem-Solving Skills				
Selects and uses appropriate strategies to solve problems involving bar graphs	does not select and use appropriate strategies to solve problems using bar graphs successfully	with limited help, selects and uses some strategies to solve problems using bar graphs with partial success	selects and uses appropriate strategies to solve problems using bar graphs successfully	selects and uses appropriate strategies to solve problems using bar graphs with a high degree of success
Communication				
Records procedures and explains reasoning clearly and completely using mathematical language (e.g., data, axes)	does not record procedures or explain reasoning clearly and completely	records procedures and explains reasoning with partial clarity; may be incomplete	records procedures and explains reasoning clearly and completely	records procedures and explains reasoning with precision and thoroughness

Master 7.3

Performance Assessment Rubric: At the Vet

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual Understanding				
Shows understanding by explaining: – how he or she organized a tally chart or line plot – what the data show – questions that can be answered by using the bar graph	shows very limited understanding; inappropriate or missing explanations of: – how he or she organized a tally chart or line plot – what the data show – questions that can be answered by using the bar graph	shows limited understanding; gives appropriate but incomplete explanations of: – how he or she organized a tally chart or line plot – what the data show – questions that can be answered by using the bar graph	shows understanding; gives reasonable explanations of: – how he or she organized a tally chart or line plot – what the data show – questions that can be answered by using the bar graph	shows thorough understanding; gives effective and detailed explanations of: – how he or she organized a tally chart or line plot – what the data show – questions that can be answered by using the bar graph
Procedural Knowledge				
Accurately: – records and organizes data in a tally chart or line plot – answers questions about the bar graph – creates a bar graph including labels	limited accuracy; major omissions or errors in: – recording and organizing data – answering questions about the bar graph – creating a bar graph including labels	somewhat accurate; several minor omissions or errors in: – recording and organizing data – answering questions about the bar graph – creating a bar graph including labels	generally accurate; few omissions or errors in: – recording and organizing data – answering questions about the bar graph – creating a bar graph including labels	accurate; very few or no omissions or errors in: – recording and organizing data – answering questions about the bar graph – creating a bar graph including labels
Problem-Solving Skills				
Creates and solves problems by collecting first-hand data (asking a question), creating and interpreting a bar graph	does not adequately create and solve a problem	partially successful in creating and solving a problem; problem may be very basic or have some flaws	uses appropriate and successful strategies to create and solve a problem	uses effective and often innovative strategies to create and solve a relatively complex or challenging problem
Communication				
Presents work and explanations clearly using appropriate mathematical terminology	does not present work and explanations clearly; uses few appropriate mathematical terms	presents work and explanations with some clarity; uses some appropriate mathematical terms	presents work and explanations clearly; uses appropriate mathematical terms	presents work and explanations precisely; uses a range of appropriate mathematical terms

Master 7.6**To Parents and Adults at Home...**

Your child's class is starting a mathematics unit on data analysis. Data analysis relates to the collection, organization, and interpretation of information.

In this unit, your child will:

- Collect data to find information or solve a problem.
- Organize data using tally marks, charts, lists, and line plots.
- Construct and label line plots and bar graphs.
- Read and interpret charts, line plots, and bar graphs.

Here are some suggestions for activities you can do with your child.

Have your child collect and organize data at home to help make an important decision. For example, he or she could collect and organize data to decide the flavour of birthday cake to bake for the next family birthday. Your child should write a question to ask family members, collect and organize the results, and decide what flavour of birthday cake to bake.

With your child, look for examples of bar graphs in newspapers, magazines, or on the Internet. Have your child share 3 things that she or he knows by looking at the bar graph.

Master 8.1

Unit Rubric: Multiplication and Division

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual Understanding				
Shows understanding by demonstrating and explaining: <ul style="list-style-type: none"> – multiplication using equal grouping and arrays – relating multiplication to repeated addition and to division – division using equal grouping and equal sharing – relating division to repeated subtraction and to multiplication 	shows very limited understanding; unable to show/explain: <ul style="list-style-type: none"> – multiplication using equal grouping and arrays – relating multiplication to repeated addition and to division – division using equal grouping and equal sharing – relating division to repeated subtraction and to multiplication 	shows limited understanding; is partially able to show/explain: <ul style="list-style-type: none"> – multiplication using equal grouping and arrays – relating multiplication to repeated addition and to division – division using equal grouping and equal sharing – relating division to repeated subtraction and to multiplication 	shows understanding; is able to show/explain: <ul style="list-style-type: none"> – multiplication using equal grouping and arrays – relating multiplication to repeated addition and to division – division using equal grouping and equal sharing – relating division to repeated subtraction and to multiplication 	shows thorough understanding; fully able to show/explain: <ul style="list-style-type: none"> – multiplication using equal grouping and arrays – relating multiplication to repeated addition and to division – division using equal grouping and equal sharing – relating division to repeated subtraction and to multiplication
Procedural Knowledge				
Models multiplication Models equal sharing and equal grouping Records multiplication and division symbolically	limited accuracy; major errors/omissions in: <ul style="list-style-type: none"> – multiplying – dividing – recording symbolically 	somewhat accurate; several minor errors in: <ul style="list-style-type: none"> – multiplying – dividing – recording symbolically 	generally accurate; few errors or omissions in: <ul style="list-style-type: none"> – multiplying – dividing – recording symbolically 	accurate; very few or no errors in: <ul style="list-style-type: none"> – multiplying – dividing – recording symbolically
Problem-Solving Skills				
Uses appropriate strategies to create and solve story problems involving multiplication and division	does not successfully create and solve story problems that involve <ul style="list-style-type: none"> – multiplication – division 	partially successful in creating and solving story problems (problems may be very basic or have some flaws) that involve: <ul style="list-style-type: none"> – multiplication – division 	uses appropriate and successful strategies to create and solve story problems that involve: <ul style="list-style-type: none"> – multiplication – division 	uses effective, and sometimes innovative, strategies to create and solve relatively complex or challenging story problems that involve: <ul style="list-style-type: none"> – multiplication – division
Communication				
Presents work and explanations clearly, using appropriate mathematical terminology	does not present work and explanations clearly, uses few appropriate mathematical terms	presents work and explanations with some clarity, using some appropriate mathematical terms	presents work and explanations clearly, using appropriate mathematical terms	presents work and explanations precisely, using a range of appropriate mathematical terms

Master 8.3

Performance Assessment Rubric: Sports Day

	Not Yet Adequate	Adequate	Proficient	Excellent
Conceptual Understanding				
Shows understanding by choosing and applying appropriate processes and strategies for multiplying and dividing	shows very limited understanding; does not choose and apply appropriate processes and strategies	shows limited understanding; is partially able to choose and apply appropriate processes and strategies	shows understanding; is able to choose and apply appropriate processes and strategies	shows thorough understanding; fully able to choose and apply appropriate processes and strategies
Procedural Knowledge				
Organizes each class into equal teams Uses strategies to multiply and divide up to 5×5 Represents multiplication and division symbolically (writes number sentences)	limited accuracy; major errors or omissions in: – organizing classes into equal teams – multiplying – dividing – writing number sentences	somewhat accurate; several minor errors in: – organizing classes into equal teams – multiplying – dividing – writing number sentences	generally accurate; few errors or omissions in: – organizing classes into equal teams – multiplying – dividing – writing number sentences	accurate; very few or no errors in: – organizing classes into equal teams – multiplying – dividing – writing number sentences
Problem-Solving Skills				
Uses appropriate strategies to create and solve story problems involving multiplication and division	does not successfully create and solve story problems for: – multiplication – division	partially successful in creating and solving story problems (problems may be very basic or have some flaws) for: – multiplication – division	uses appropriate and successful strategies to create and solve story problems for: – multiplication – division	uses effective, and sometimes innovative, strategies to create and solve relatively complex or challenging story problems for: – multiplication – division
Communication				
Presents work and explanations clearly, using appropriate mathematical terminology	does not present work and explanations clearly, uses few appropriate mathematical terms	presents work and explanations with some clarity, using some appropriate mathematical terms	presents work and explanations clearly, using appropriate mathematical terms	presents work and explanations precisely, using a range of appropriate mathematical terms

Master 8.6**To Parents and Adults at Home ...**

Your child's class is starting a mathematics unit on multiplication and division. Multiplication and division are basic computational skills that children must eventually master in order to succeed in higher levels of mathematics. The focus of this unit is on developing an understanding of the processes of multiplication and division in order to develop strategies for multiplying and dividing whole numbers up to 5×5 . Children will use counters, number lines, and arrays to develop their understanding.

In this unit, your child will:

- Model multiplication and division up to 5×5
- Find strategies to multiply and divide up to 5×5
- Pose and solve story problems involving multiplication and division.

Encourage your child to share different strategies used to multiply and divide.

We use multiplication and division in many day-to-day situations. Here are some suggestions for activities you can do at home:

- Look for things that come in groups of 2, 3, 4, and 5. Create problems. For example: Bikes have 2 tires. How many tires are on 4 bikes?
- Use a deck of playing cards, using only the 1s (Aces) to 5s. Shuffle the cards. Flip the first card. This represents the number of groups. Flip the second card. This represents the number of objects in each group. Have your child draw a picture to match the cards, and write a multiplication and division sentence to match the picture. Continue until all cards are used up.