Math Wizards

Grade 3 Measurement

Teacher's Notes

Ontario Mathematics Curriculum Grades 1 to 8, 1997
Strand: Measurement
Grade: 3

Overall Expectations:
- demonstrate an understanding of and ability to apply measurement terms: centimetre, metre, kilometre; millilitre, litre; gram, kilogram; degree Celsius; week, month, year
- identify relationships between and among measurement concepts
- solve problems related to their day-to-day environment using measurement and estimation (eg. in finding the height of the school fence)
- estimate, measure, and record the perimeter and the area of two-dimensional shapes, and compare the perimeters and areas
- estimate, measure, and record the capacity of containers and the mass of familiar objects, and compare the measures

** All specific expectations are covered with the exception of the following, which are covered in the “everyday math” unit.
M6:estimate and measure the passage of time in five-minute intervals, and in days, weeks, months, and years
M11:make purchases and change for money amounts up to $10, and estimate, count and record the value up to $10 of a collection of coins and bills

Resource Overview

The Measurement unit is divided into two units. Unit one consists of content activities and unit two consists of a week of centres and the cumulative activity of writing a "measuring object" book.

Content UNIT ONE	001: non-standard units	002: standard units	003: measuring classroom objects	004: biggest to smallest	005: biggest to smallest
	006: perimeter	007: perimeter	008: perimeter of classroom objects	009: area	010: area
	011: area of classroom objects	012: mass	013: weighing classroom objects	014: capacity	015: measuring the capacity of classroom objects
	016: Alexander's money	017: money notation	018: smart money	019: money problems win one	020: money problems win one
	021: money problems win one	022: money problems win one	023: money problems win one	024: temperature book	025: making a clock
	026: telling time flash cards	027: telling time flash cards	028: telling time flash cards	029: telling time flash cards	030: time relationships
	031: time book				
Centres UNIT TWO	032: Centre and problem	032: Centre and problem	032: Centre and problem	032: Centre and Problem	032: Centre and Story (Measuring Penny)
Cumulative UNIT TWO	033: Story Planner	034: Rough Draft	035: Editor's Checklist	036: Rubric	

Materials Box

The materials needed to implement this measurement resource should be readily available or are easily and inexpensively made. Below is a list of those materials that you will need, organized by activity.

UNIT ONE	
Mactivity001	- Counting on Frank by Rod Clement (ISBN: 0-8368-0358-2) - a piece of chart paper for the "Non-Standard Measuring Units Poster" - a variety of objects that could be used as non-standard measuring units (cube-a-links, teddy bears, pencils, erasers, etc.)
Mactivity002	- a brand new long pencil - a very short pencil - a metre stick
Mactivity003 Mactivity004 Mactivity005	- a variety of rulers, metre sticks and tape measures - classroom objects to measure
Mactivity006	- the classroom carpet (or a part of the classroom squared off with masking tape) - students' shoes - desks - post-it notes - a variety of non-standard measuring units
Mactivity008	- a variety of rulers, metre sticks and tape measures - classroom objects to measure
Mactivity009	- the classroom carpet (or a part of the classroom squared off with masking tape) - construction paper - a variety of non-standard measuring units
Mactivity011	- a variety of non-standard measuring units - classroom objects to measure
Mactivity012	- Weighing the Elephant by Ting-Xing Ye and Illustrated by Suzane Langlois (ISBN: 1-55037-526-1) - standardized scales and weights
Mactivity013	- standardized scales and weights - classroom objects to weigh

Mactivity014	- a small jar - a variety of non-standard units to measure capacity - water - a graduated cylinder
Mactivity015	- a variety of cups and jars or containers - water - graduated cylinders
Mactivity016	- Alexander, Who Used to Be Rich Last Sunday by Judith Viorst and Illustrated by Ray Cruz (ISBN: 0-590-46896-0)
Mactivity018	- Where the Sidewalk Ends by Shel Silverstein (for the poem Smart on page 35) (ISBN: 06-025667-2)
Mactivity019 Mactivity020 Mactivity021 Mactivity022 Mactivity023	- plastic coins available for students - win one games (see the following pages for instructions and game pages)
Mactivity025	- cardstock to photocopy clock BLM - scissors - hole punch - butterfly pins - Pigs on a Blanket by Amy Axelrod and Illustrated by Sharon McGinly-Nally (ISBN: 0-689-80505-5)
Mactivity026 Mactivity027 Mactivity028 Mactivity029	- time flash cards. After students have finished the work sheets, have them line up in four equal groups. Show a time flash card to the first four students, the first person to get the correct time is given the card, and the four students move to the back of the line while the next four take their places. The group with the most cards at the end of the deck wins. - At the end of the materials is a blank time worksheet that can be filled out by hand and photocopied if students need more practice or extra individual work is needed.
Mactivity031	- The Grouchy Ladybug by Eric Carle (ISBN: 0-694-01320-x)
Mactivity032	- Be sure to send home the parent's letter requesting that the students bring in a stuffed animal. - The materials needed will change depending on the centres you choose. Please see the centre activities overview for your choices. - Measuring Penny by Loreen Leedy (ISBN0-439-08328-1)

WIN ONE GAMES

The directions will use ‘win one loonie’ as an example, however, please note that the rules are the same for all the games.

Materials:	Method:
1) dice 2) plastic coins and fake paper bills 3) at least two players	1) Player A rolls one die. The number that comes up is the number of pennies player A places on their game card in the penny column. 2) Step one is repeated between players. 3) Once a player gets 10 pennies, they may trade the 10 pennies in for one dime. 4) Once a player gets 10 dimes they may trade the 10 dimes for one loonie. 5) The first player to get a loonie wins the game.

The variations of Win One Loonie:
- Win one quarter
- Win one loonie (but using nickels and quarters)
- Win one Sir John A. MacDonald ($10)
- Win one Queen Elizabeth ($20)
- Win one William Lyon MacKenzie King ($50)
- Win one Robert Borden ($100)
- Win one Robert Borden ($100) (using fives and twenties)

Win one games cover:
M10:demonstrate the relationship between all coins and bills up to $100

Math Wizards
Win one loonie

Pennies	Dimes	Loonies

Grade 3 Win One Loonie Covers:
M10:demonstrate the relationship between all coins and bills up to $100

Math Wizards
Win one Quarter

Pennies	Nickels	Quarters

Grade 3 Win One Quarter Covers:
M10:demonstrate the relationship between all coins and bills up to $100

Math Wizards
Win one loonie

Nickels	Quarters	Loonies

Grade 3 Win One Loonie Covers:
M10:demonstrate the relationship between all coins and bills up to $100

Math Wizards
Win one Sir John A. MacDonald ($10)

Loonies	Sir Wilfred Lauriers ($5.00)	Sir John A. MacDonald ($10.00)

Grade 3 Win One Sir John A. MacDonald Covers:
M10:demonstrate the relationship between all coins and bill up to $100

Math Wizards
Win one Queen Elizabeth ($20)

Loonies	Sir Wilfred Lauriers ($5.00)	Queen Elizabeth ($20.00)

Grade 3 Win One Queen Elizabeth Covers:
M10:demonstrate the relationship between all coins and bills up to $100

Math Wizards
Win one William Lyon MacKenzie King ($50.00)

Loonies	Sir Wilfred Lauriers ($5.00)	William Lyon MacKenzie King ($50.00)

Grade 3 Win One William Lyon MacKenzie King Covers:
M10:demonstrate the relationship between all coins and bills up to $100

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Win one Robert Borden ($100.00)

Loonies	Sir John A. MacDonalds ($10.00)	Robert Borden ($100.00)

Grade 3 Win One Robert Border Covers:
M10:demonstrate the relationship between all coins and bills up to $100

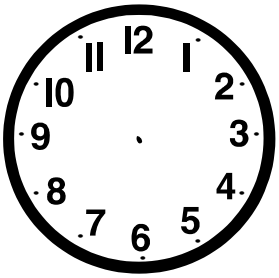
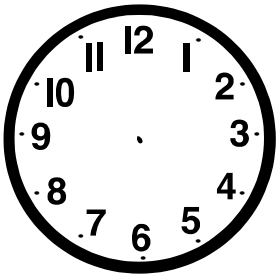
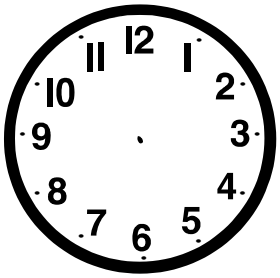
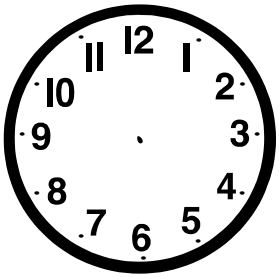
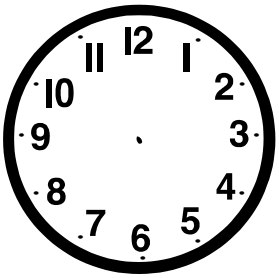
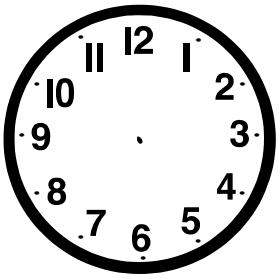
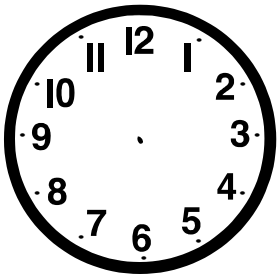
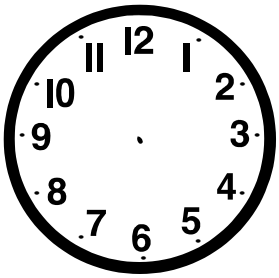
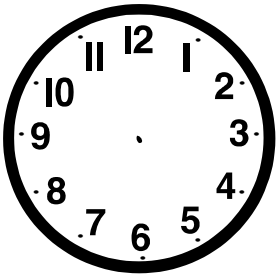
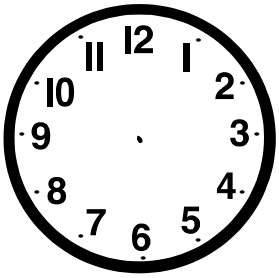
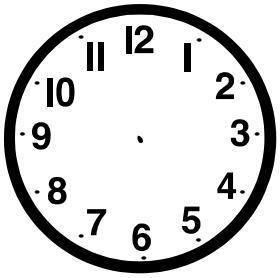
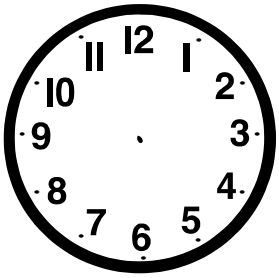
Math Wizards
Win one Robert Borden ($100.00)

Sir Wilfred Lauriers ($5.00)	Queen Elizabeths ($20.00)	Robert Borden ($100.00)

Grade 3 Win One Robert Borden Covers:
M10:demonstrate the relationship between all coins and bills up to $100

Measurement
Telling Time

Merlin is a very busy wizard! But he is always late. He needs your help to tell time so that he is not late for his very important dates!

 _____ : _____	 _____ : _____	 _____ : _____	 _____ : _____
 _____ : _____	 _____ : _____	 _____ : _____	 _____ : _____
 _____ : _____	 _____ : _____	 _____ : _____	 _____ : _____

Grade 3 extra time sheets covers:
M7:tell and write time to the nearest minute in 12-hour notation using digital clocks
M8:read and write time to the nearest five minutes using analog clocks

Math Wizards

Grade 3 Measurement

Unit One

Name:_____

Measurement
Measuring on You!

As a class, let's read the book Counting on Frank by Rod Clement.

**** After reading the book, draw a line of any length on a piece of chart paper on the chalk board (you may want to prepare this before class). Using a non-standard measuring unit, for example, a paper clip, a piece of chalk, a pencil etc., measure the length of the line. Record that length. Have students find a different non-standard measuring unit and measure the line in front of the class, one at a time. After several children have measured, encourage the class to predict the length of the line using the different non-standard measuring units.****

**** On a separate piece of chart paper, with a title of "Non-Standard Measuring Units," tape the measuring units the children used to measure the line. This will become your class's non-standard measuring unit poster to be hung in the classroom. You may want to prepare the chart paper before class.****

I used _____ as a non-standard measuring unit to measure the line.

Merlin has a problem!

Benjamin is taller than Merlin. Gweneth is shorter than Charlotte. Charlotte is shorter than Merlin. Who is the tallest? Who is the shortest?

Grade 3 Mactivity001 covers:
M2:select the most appropriate unit of measure to measure length (centimetre, metre, kilometre)

Measurement
Standard Units

**** Have one really short pencil and one brand new pencil. Ask one of the students to measure something (like their desk) with the brand new pencil. Record the length on chart paper or the chalk board. Then ask the class what would happen if you wanted to build a desk the same number of pencil lengths but your pencil looked like this (hold up the short pencil). Explain that this is why we have created standard units of measure.****

Let's look at a metre. What could you use on your body to represent a metre?

_____

What is the short form for metre?_____

Let's look at a centimetre. What could you use on your body to represent a centimetre?_____

How many centimetres are in a metre?_____

What's the short form for centimetre?_____

Let's look at a millimetre. What could you use on your body to represent a millimetre?_____

How many millimetres are in a centimetre?_____

How many millimetres are in a metre?_____

What is the short form for millimetre?_____

If metres, centimetres and millimetres are standard units, what would we call our body measures? _____

Why would we use standard units?

_____

_____

_____

Draw a picture of something that is about . . .

. . . a metre long	. . . a centimetre long	. . . a millimetre long

Grade 3 Mactivity002 covers:
M1:explain the use of standard units of measurement and the relationships between linear measures (eg. millimetres are smaller than metres)

Measurement
Let's Measure it UP!

Pick various objects from around the classroom. Estimate the length of the objects. Measure the length of these objects. Record your work in the chart below.

Object	Estimation	Measurement (remember your units)

Grade 3 Mactivity003 covers:
M2:select the most appropriate unit of measure to measure length (centimetre, metre, kilometre)
M3:estimate, measure, and record linear dimensions of objects (using centimetre, metre, kilometre)

Measurement
Biggest to Smallest

Pick FIVE objects from around the classroom. Order them from biggest to smallest. Measure them using the best measure of standard units. Record your work in the charts below.

	Biggest				Smallest
Object					
Length (remember units)					

	Biggest				Smallest
Object					
Length (remember units)					

	Biggest				Smallest
Object					
Length (remember units)					

	Biggest				Smallest
Object					
Length (remember units)					

Grade 3 Mactivity004 covers:
M2:select the most appropriate unit of measure to measure length (centimetre, metre, kilometre)
M3:estimate, measure, and record linear dimensions of objects (using centimetre, metre, kilometre)
M4:compare and order objects by their linear dimensions

Measurement
Biggest to Smallest

Pick FIVE objects from around the classroom. Order them from biggest to smallest. Measure them using the best measure of standard units. Record your work in the charts below.

	Biggest				Smallest
Object					
Length (remember units)					

	Biggest				Smallest
Object					
Length (remember units)					

Merlin has a Problem!

In a race, Basil was 6m behind Merlin. Olivia was 7m ahead of Charlotte. Charlotte was 2m ahead of Merlin. Who finished first, second, third and fourth?

Grade 3 Mactivity005 covers:
M2:select the most appropriate unit of measure to measure length (centimetre, metre, kilometre)
M3:estimate, measure, and record linear dimensions of objects (using centimetre, metre, kilometre)
M4:compare and order objects by their linear dimensions

Measurement
Perimeter

What is perimeter?
Perimeter is the length around an object or shape.

_____
_____
_____
_____

**** Bring the students to the carpet and explain that we are going to measure the length around the carpet using shoes. Record the perimeter on chart paper or on the chalk board.****

As a class, let's measure the perimeter of our carpet using our shoes.

The perimeter of our carpet is _____ shoes.

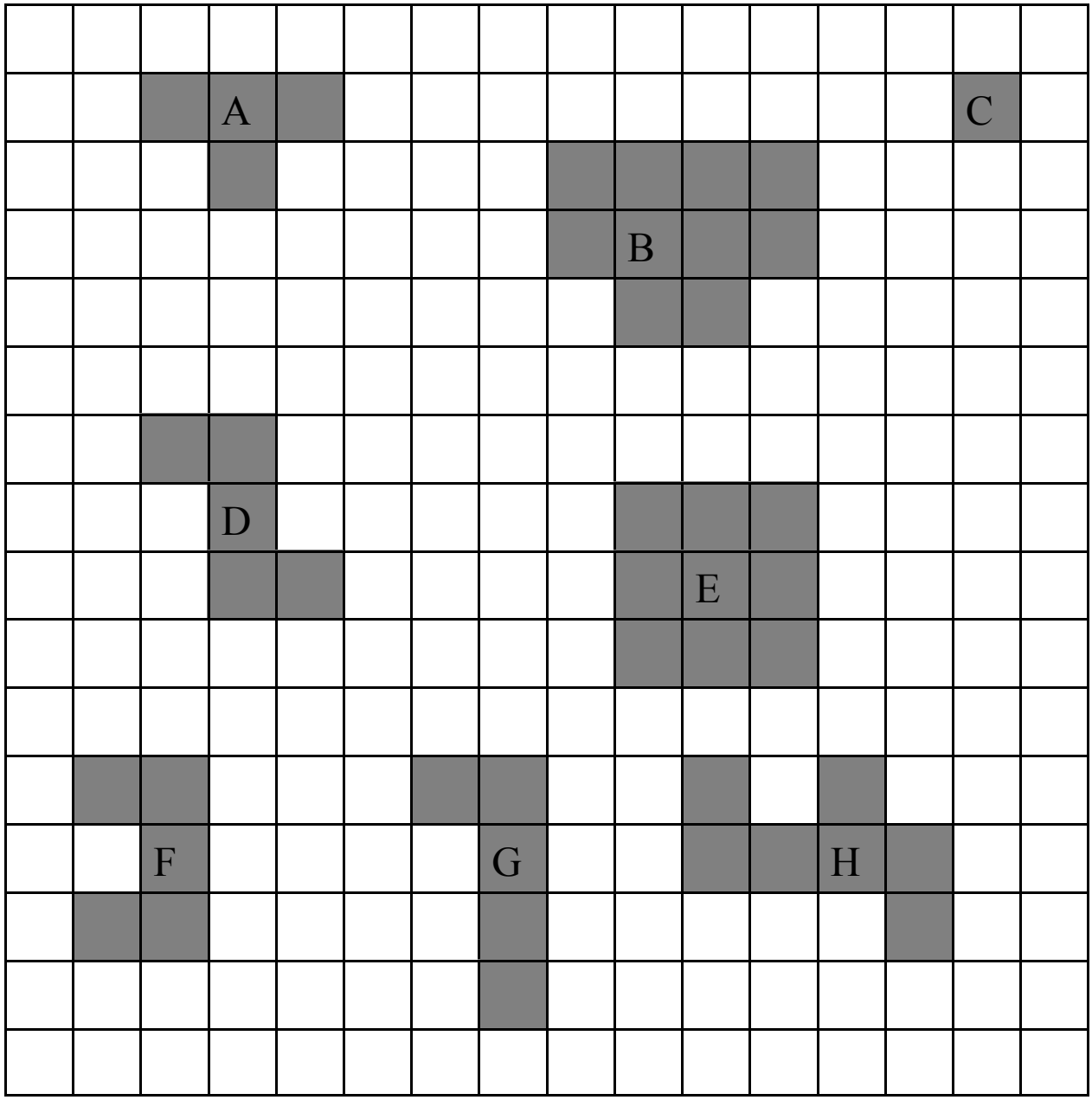
**** Have the students pick a non-standard unit of measure to measure the perimeter of their desks. Give each child a post-it note to record the perimeter (remind them to include the units). When everyone is finished, have the students walk around the class looking at the perimeter of their desks measured in various non-standard units.****

Pick another non-standardized object and measure the perimeter of your desk.

The perimeter of my desk is _____.

Grade 3 Mactivity006 covers:
M13:measure the perimeter of two-dimensional shapes using standard units (centimetre and metre), and compare the perimeters.

Measurement
Perimeter



Object	A	B	C	D	E	F	G	H
Perimeter								

Which object has the largest perimeter?_____

Which object has the smallest perimeter? _____

Merlin has a Problem!

Merlin has a shape with a perimeter of 12cm. The sides are all equal. The sum of half the sides is equal to 6cm. How many sides does the shape have? What shape does Merlin have?

Grade 3 Mactivity007 covers:
M13:measure the perimeter of two-dimensional shapes using standard units (centimetre and metre), and compare the perimeters

Measurement
Let's Measure Perimeter

Basil has a challenge for you. With various objects around the classroom, estimate the perimeter, then measure the perimeter. Remember to include your units (cm or m).
How do you measure perimeter?_____

Object	Estimate Perimeter	Real Perimeter

Place the objects in order from the smallest perimeter to the largest perimeter:

smallest								largest

Grade 3 Mactivity008 covers:
M13:measure the perimeter of two-dimensional shapes using standard units (centimetre and metre), and compare the perimeters

Measurement
Area

What is area?

Area is a measure of how much flat space is covered by an object.

_____

_____

**** Bring the students to the carpet and explain that we are going to measure the area of the carpet using pieces of construction paper. Record the area on chart paper or on the chalk board.****

As a class, let's meet at the carpet and measure the area of the carpet, using pieces of construction paper.

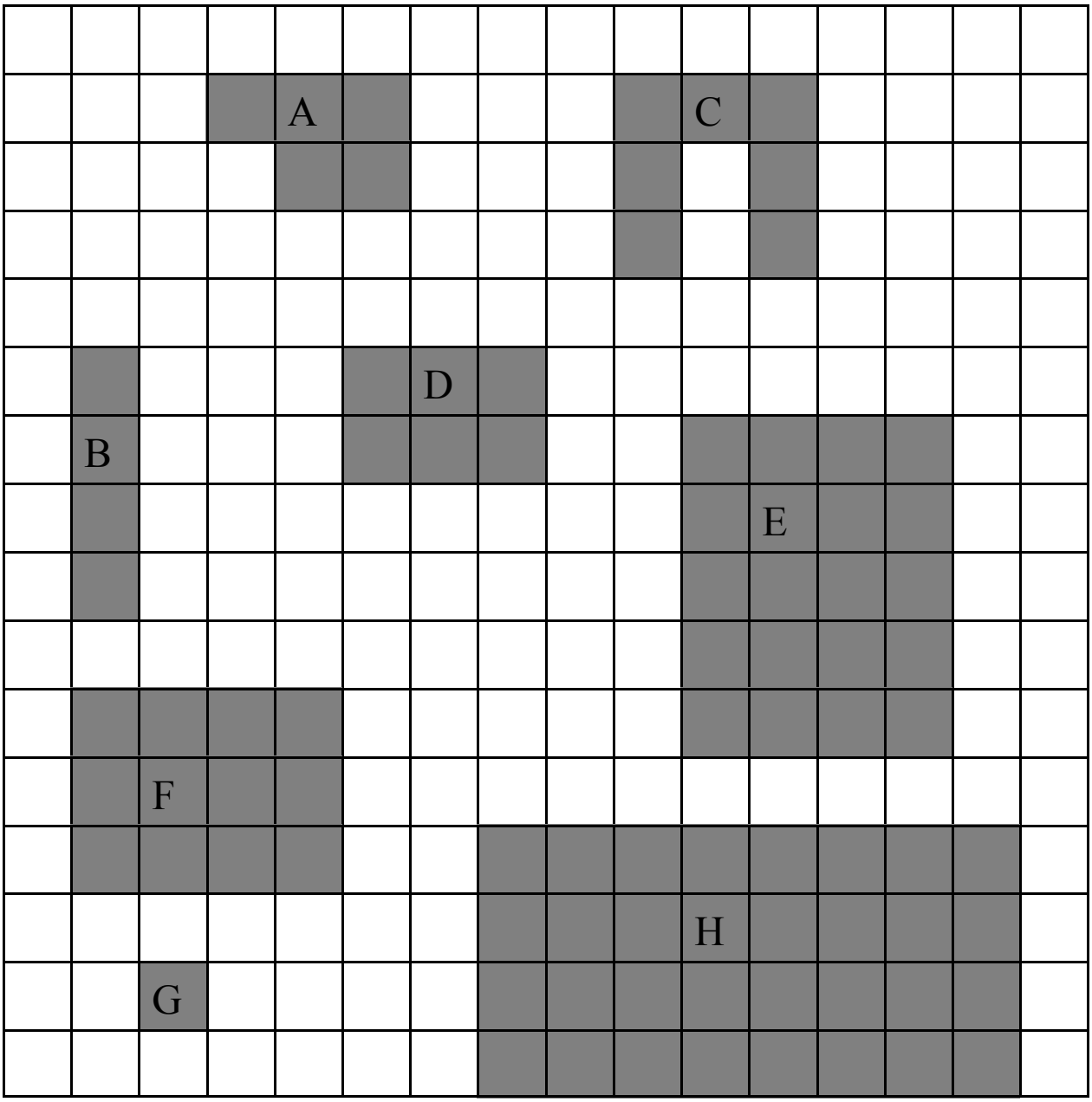
The area of our carpet is _____ pieces of construction paper.

Back at your desk, trace your hand in the box below. Using an appropriate non-standard unit, measure the area of your hand.

The area of my hand is _____.

Grade 3 Mactivity009 covers:
M14:estimate and measure the area of shapes using uniform non-standard units, and compare and order the shapes by area.

Measurement
Area



Object	A	B	C	D	E	F	G	H
Area								

Which object has the smallest area?_____

Which object has the largest area?

Grade 3 Mactivity010 covers:
D14:estimate and measure the area of shapes using uniform non-standard units, and compare and order the shapes by area.

Measurement
The Area of Classroom Objects

Pick out five classroom objects. Knowing that you'll measure the area of each object using lima beans, estimate the lima bean area of each object. Measure the area of each object using lima beans and complete the chart below.

Object					
Estimate					
Area					

Were your estimates accurate?

_____

_____

What is the hardest part about measuring area?

_____

_____

_____

_____

_____

How would you standardize measuring area?

_____

_____

_____

_____

_____

Order the objects from the largest area to the smallest area:

largest				smallest

Grade 3 Mactivity011 covers:
M14:estimate, measure the area of shapes using uniform non-standard units, and compare and order the shapes by area

Measurement
How would you weigh an elephant?

As a class, let's read Weighing the Elephant by Ting-Xing Ye and Illustrated by Suzane Langlois.

How did Hei-do weigh the elephant?

_____
_____
_____

What are some of the things we weigh everyday?

_____
_____
_____

**** Introduce how to use standardized scales to the students. Allow time for the students to practice using the scales.****

Merlin has a Problem!

Merlin is travelling to the Bermuda triangle for a vacation. He is only allowed to take 20 kg of luggage on the airplane. Suppose Merlin packs at least 5 kg in each suitcase. How could he divide the 20 kg of luggage among 3 suitcases?

Grade 3 Mactivity012 covers:
M16:estimate, measure, and record the mass of familiar objects using standard units (gram, kilogram)

Measurement
Let's Mass!

Basil has placed some objects at the front of the class. Fill in the chart below by following Basil's steps.
Step 1: Choose eight objects.
Step 2: Write the names of the objects under the object column.
Step 3: Guess what the mass of the object is and write it down.
Step 4: Measure the mass using our scale and write down the "For Real" mass.

Object	Your Guesstimate	For Real

What was the heaviest object? _____

What was the lightest object? _____

What was the hardest part of weighing objects?

_____

_____

_____

Grade 3 Mactivity013 covers:
M16estimate, measures, and record the mass of familiar objects using standard units (gram, kilogram)

Measurement
Capacity

What is capacity?

Capacity is the maximum amount that can be held by an object.

_____

_____

_____

_____

As a class, let's measure the capacity of this jar with different non-standard units. Be sure to record our estimates and measures in the chart below:

**** It is suggested that you use a small jar, so that you're not counting out hundreds of lima beans, unit cubes or smarties. You may also choose to use sweet snacks to share with your students for fun.****

Non-Standard Unit of Measure	Estimate	Capacity of the jar

Now let's measure our jar using a standard measure. There are two standard units of measure for capacity, millilitre (mL) and litre (L). There are 1000 mL in one L.

**** Show something that is 1 L (like a carton of milk).****

We are going to use mL to measure the capacity of our jar. To do this we fill our jar with water and using an instrument called a graduated cylinder.

**** Fill the jar with water and then pour the water into a graduated cylinder to measure the capacity in mL.****

The capacity of our jar is _____ mL.

Draw the procedure for measuring capacity in standard units below:

Grade 3 Mactivity014 covers:
M15:estimate, measure, and record the capacity of containers using standard units (millilitre, litre), and compare the measures

Math Wizards
Let's Capacitize!

Basil has placed some containers at the front of the class. Fill in the chart below by following Basil's steps.
Step 1: Choose eight containers.
Step 2: Write the names of the containers under the object column.
Step 3: Guess what the containers capacity is and write it down.
Step 4: Measure the capacity using our capacity instruments and write down the "For Real" capacity.

Object	Your Guesstimate	For Real

Put the objects in order from largest capacity to smallest:

largest							smallest

Grade 3 Mactivity015 covers:
M15:estimate, measure, and record the capacity of containers using standard units (millilitre, litre), and compare the measures

Measurement
Alexander!

As a class, let's read Alexander, Who Used to Be Rich Last Sunday by Judith Viorst and Illustrated by Ray Cruz.

Retell what happened to Alexander's money in the story.

Alexander started with one dollar. It was a gift from his grandparents.	
Alexander bought bubble gum for 15¢.	Draw how much money he had left: Alexander had _____¢ left.
Alexander lost 15¢ to Anthony because he couldn't hold his breath, jump to the top of a stoop or trick his mom.	Draw how much money he had left: Alexander had _____¢ left.
Alexander rented Eddie's snake for 12¢.	Draw how much money he had left: Alexander had _____¢ left.
Alexander was fined 10¢ because he said bad words.	Draw how much money he had left: Alexander had _____¢ left.

Alexander flushed 3¢ down the toilet and a nickel fell down a floor crack (along with a butter knife and his mom's scissors).	Draw how much money he had left: Alexander had _____¢ left.
Alexander had to give Anthony 11¢ for eating his chocolate bar.	Draw how much money he had left: Alexander had _____¢ left.
He lost 4¢ to Nick's disappearing magic trick.	Draw how much money he had left: Alexander had _____¢ left.
Alexander was fined 5¢ for kicking.	Draw how much money he had left: Alexander had _____¢ left.
Alexander spent 20¢ at Cathy's garage sale.	Draw how much money he had left: Alexander had _____¢ left.

Grade 3 Mactivity016 covers:
M10:demonstrate the relationship between all coins and bills up to $100
M12:read and write money amounts using two forms of notation (89¢ and $0.89)

Measurement
Writing Money Amounts

	
The amount of money above can be written like: 67¢ OR $0.67	Write the amount of money above in the two different forms.

Let's practice:

¢		56¢	32¢			61¢		99¢
$	$0.89			$0.24	$0.45		$0.75	

Merlin has a Problem!

Merlin is trying to find the best value on slugs at the magic potions store. One pack of 4 slugs costs $3.99, another pack of 6 slugs costs $4.99. Which pack of slugs would be a better value?

Grade 3 Mactivity017 covers:
M10:demonstrate the relationship between all coins and bills up to $100
M12:read and write money amounts using two forms of notation (89¢ and $0.89)

Measurement
So Smart!

As a class, let's read the poem "Smart" by Shel Silverstein.

Retell what happened to the money in the poem.

Started with a dollar	
Traded the dollar for two quarters.	Draw how much money he had left: He had _____¢ left and lost _____¢.
Traded the two quarters for three dimes.	Draw how much money he had left: He had _____¢ left and lost _____¢.
Traded the three dimes for four nickels.	Draw how much money he had left: He had _____¢ left and lost _____¢.
Traded the four nickels for five pennies.	Draw how much money he had left: He had _____¢ left and lost _____¢.

Grade 3 Mactivity018 covers:
M10:demonstrate the relationship between all coins and bills up to $100
M12:read and write money amounts using two forms of notation (89¢ and $0.89)

Measurement
Merlin has Problems!

Merlin has a Problem!

Merlin has 8 coins in his pocket. They total 72¢. What coins does Merlin have?

Merlin has a Problem!

Merlin owes Basil 50¢. List 3 combinations of coins that Merlin could use to repay Basil.

Grade 3 Mactivity019 covers:
M10:demonstrate the relationship between all coins and bills up to $100
M12:read and write money amounts using two forms of notation (89¢ and $0.89)

Measurement
Merlin has Problems!

Merlin has a Problem!

Merlin bought a plant for $3.50. He paid with a five dollar bill. How much change will Merlin get? What coins might the cashier give Merlin for change?

Merlin has a Problem!

Merlin had $1.00. He bought a can of addition potion for 60¢. Merlin got 3 coins back as change. What coins did he get?

Grade 3 Mactivity020 covers:
M10:demonstrate the relationship between all coins and bills up to $100
M12:read and write money amounts using two forms of notation (89¢ and $0.89)

Measurement
Merlin has Problems!

Merlin has a Problem!

Merlin and Olivia have each saved some money. Basil promised to give them enough money so that they would both have 75¢ each. Merlin has 3 dimes and 3 pennies. How much does Basil have to give Merlin. Olivia has the amount that Basil gave Merlin. How much more does Olivia need?

Merlin has a Problem!

Merlin was offered $8.00 to rake the school grounds. On the first day, Merlin raked half the yard. On the second day, Merlin asked a friend for help. Merlin and his friend finished raking the yard. How much should Merlin pay his friend?

Grade 3 Mactivity021 covers:
M10:demonstrate the relationship between all coins and bills up to $100
M12:read and write money amounts using two forms of notation (89¢ and $0.89)

Measurement
Merlin has Problems!

Merlin has a Problem!

Basil and Merlin take turns doing chores. They earn 1 quarter every time they set the table and 2 quarters every time they wash the dishes. For the last 2 nights, Basil washed the dishes and Merlin set the table. Who earned more money? How much more?

Merlin has a Problem!

Merlin is saving money to buy a new wand that costs $5.00. He has $3.70 already. He saves 10¢ a day. In how many days will he have enough money to buy the wand?

Grade 3 Mactivity022 covers:
M10:demonstrate the relationship between all coins and bills up to $100
M12:read and write money amounts using two forms of notation (89¢ and $0.89)

Measurement
Merlin has Problems!

Merlin has a Problem!

Merlin has 35¢ in his bank. He adds 1 dime everyday. Will he have more or less than one dollar after 10 days?

Merlin has a Problem!

Basil and Merlin had a party. Basil bought a cake for $9.00. Merlin spent $3.00 on juice. They decided to share the cost. How much did Merlin need to pay Basil so that they each spent the same amount?

Grade 3 Mactivity023 covers:
M10:demonstrate the relationship between all coins and bills up to $100
M12:read and write money amounts using two forms of notation (89¢ and $0.89)

Measurement
My Temperature Book

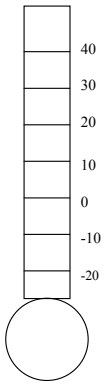
In your temperature book, draw the temperature on the thermometer. Afterwards, write down what you would wear at that temperature and draw an activity that you could do.

Grade 3 Mactivity024 covers:
M9:estimate, read, and record temperature to the nearest degree Celsius

**** Photocopy the following pages and staple into little booklets for students.****

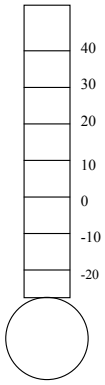
My Temperature Book

Name:_____



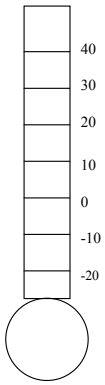
Temperature: -20°C

I would wear _____



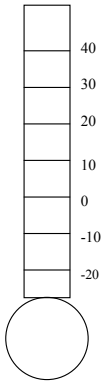
Temperature: -10°C

I would wear _____



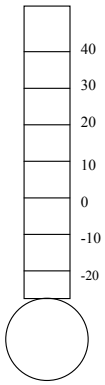
Temperature: 0°C

I would wear _____



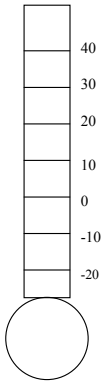
Temperature: 10°C

I would wear _____



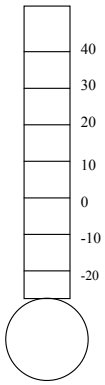
Temperature: 20°C

I would wear _____



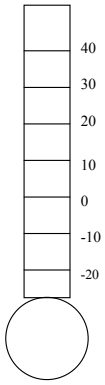
Temperature: 30°C

I would wear _____



Temperature: 36.5°C

This is also called body temperature because it is the temperature of my body.



My favourite temperature is: _____

And I would be wearing _____

Grade 3 Mactivity024 covers:
M9:estimate, read, and record temperature to the nearest degree Celsius

Measurement
Hickory Dickory Dock

**** You may choose to read the nursery rhyme Hickory Dickory dock.****

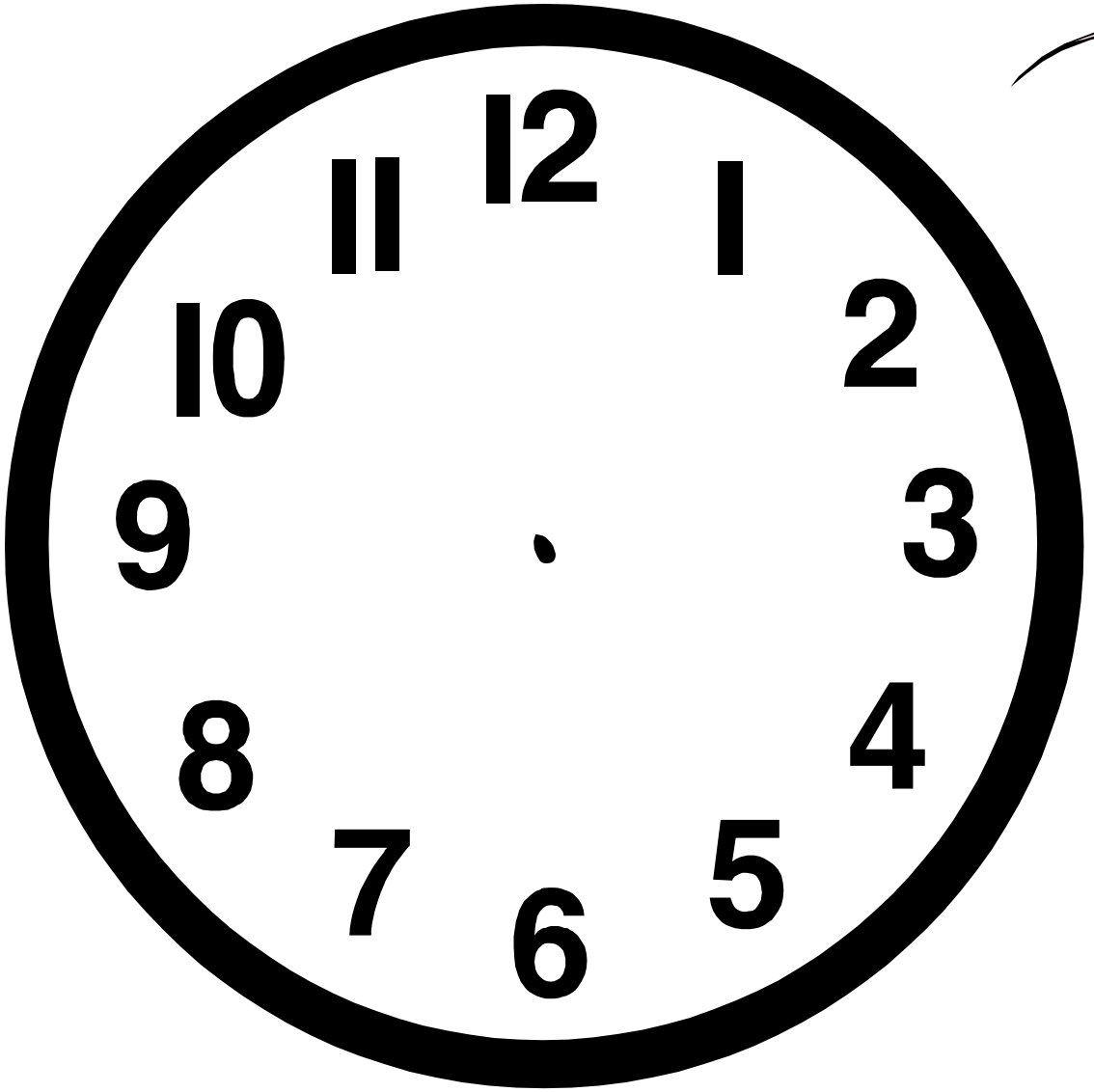
Basil wants to help you practice telling time. Follow the directions below to create your own special clock.

Materials:	Method:
1) the clock cut out 2) scissors 3) hole punch 4) butterfly pin	**** photocopy the clock onto cardstock.**** 1) Cut the clock out. 2) Punch holes in the two hands and in the middle of the clock. 3) Attach the hands to the clock using the butterfly pin.

Once you've finished your clock, let's meet at the carpet and read Pigs on a Blanket by Amy Axelrod and Illustrated by Sharon McGinly-Nally.

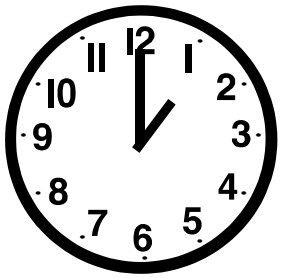
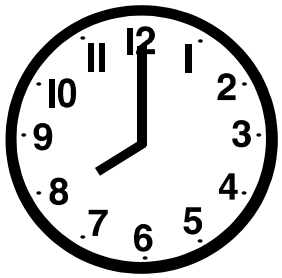
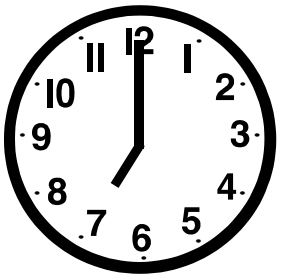
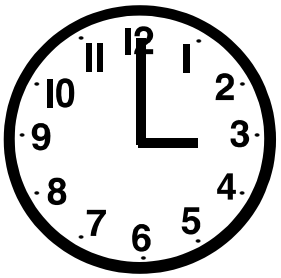
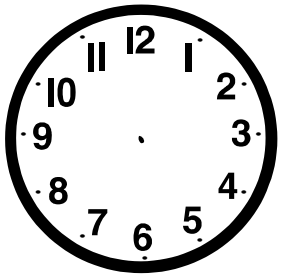
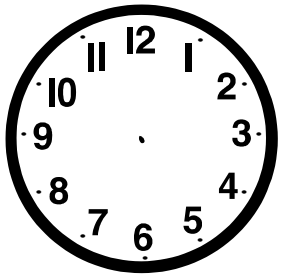
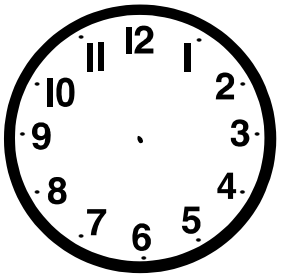
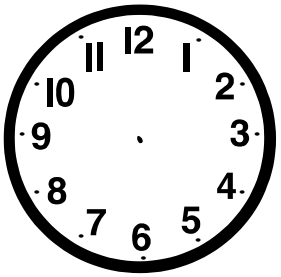
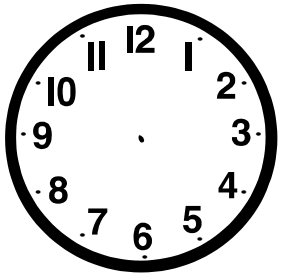
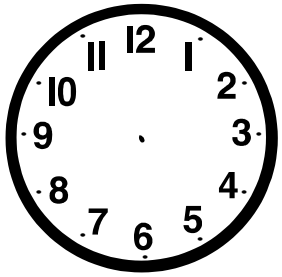
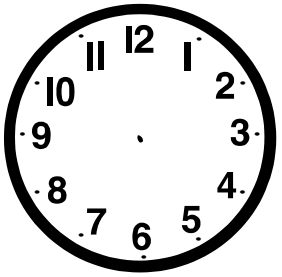
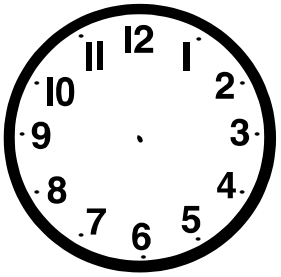
****Have student follow the story along using their clocks.****

Grade 3 Mactivity025 covers:
M8:read and write time to the nearest five minutes using analog clocks


12
1
2
3
4
5
6
7
8
9
10
11

Measurement
Telling Time

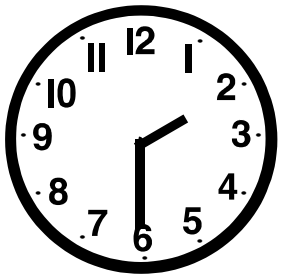
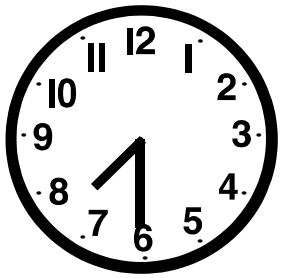
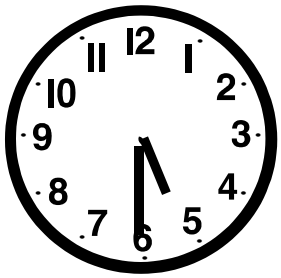
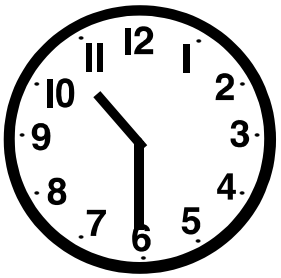
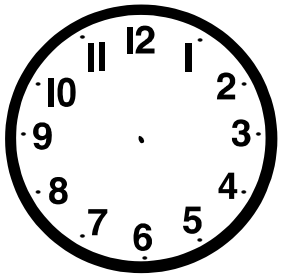
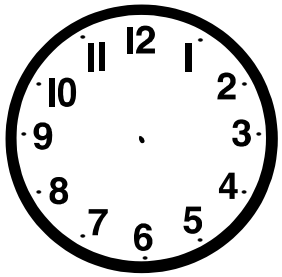
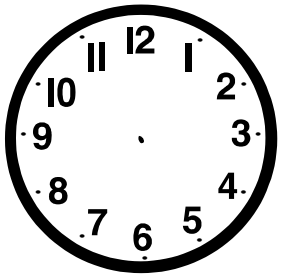
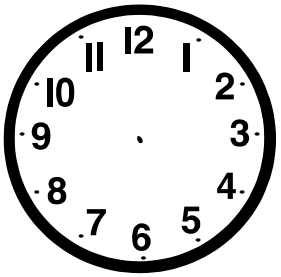
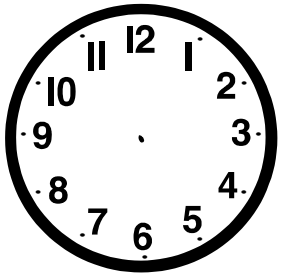
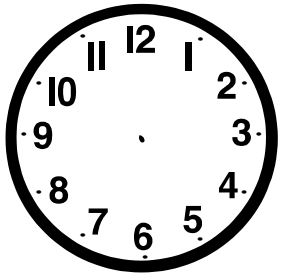
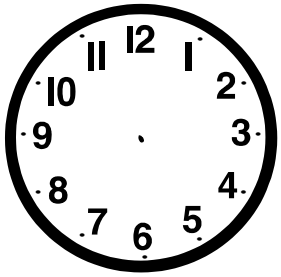
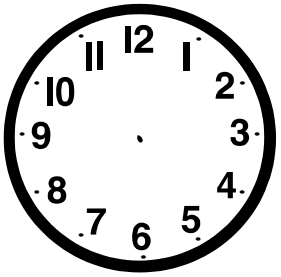
Merlin is a very busy wizard! But he is always late. He needs you to help him tell time so that he is not late for his very important dates!

 _____ : _____	 _____ : _____	 _____ : _____	 _____ : _____
 _____ 4:00	 _____ 11:00	 _____ 2:00	 _____ 6:00
 twelve o'clock _____ : _____	 five o'clock _____ : _____	 nine o'clock _____ : _____	 ten o'clock _____ : _____

Grade 3 Mactivity026 covers:
M7:tell and write time to the nearest minute in 12-hour notation using digital clocks
M8:read and write time to the nearest five minutes using analog clocks

Measurement
Telling Time

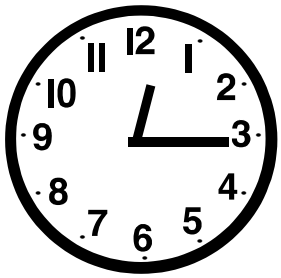
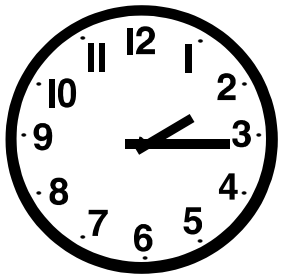
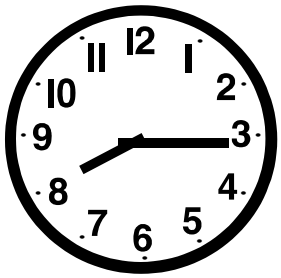
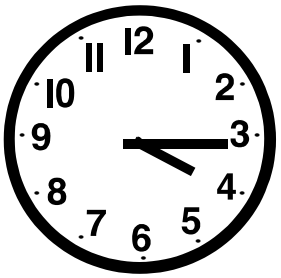
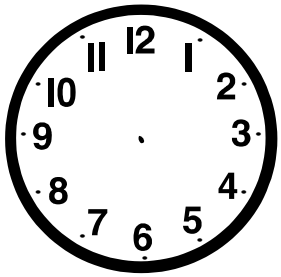
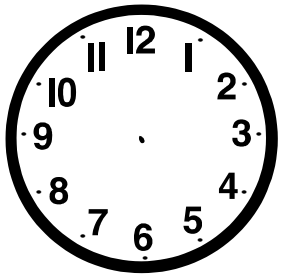
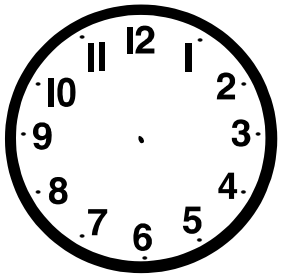
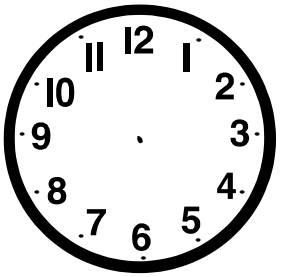
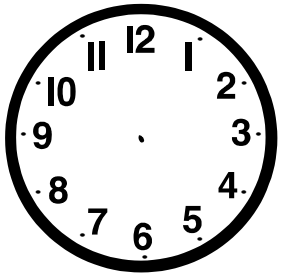
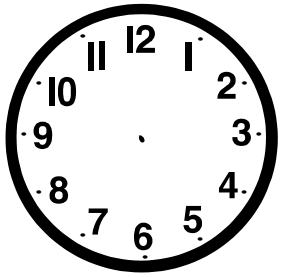
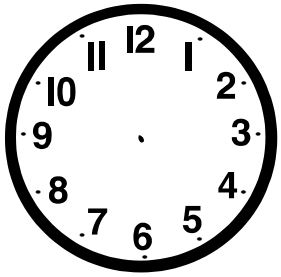
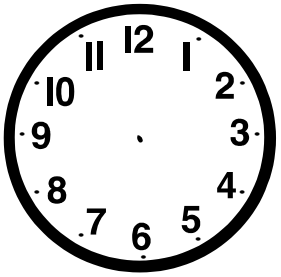
Merlin is a very busy wizard! But he is always late. He needs you to help him tell time so that he is not late for his very important dates!

 _____ : _____	 _____ : _____	 _____ : _____	 _____ : _____
 _____ 1:30	 _____ 4:30	 _____ 9:30	 _____ 11:30
 half past eight _____ : _____	 half past six _____ : _____	 half past twelve _____ : _____	 half past three _____ : _____

Grade 3 Mactivity027 covers:
M7:tell and write time to the nearest minute in 12-hour notation using digital clocks
M8:read and write time to the nearest five minutes using analog clocks

Measurement
Telling Time

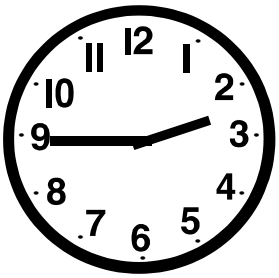
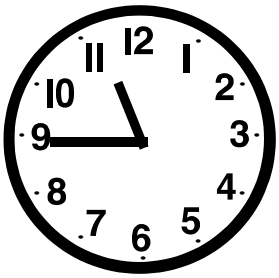
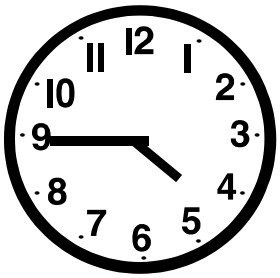
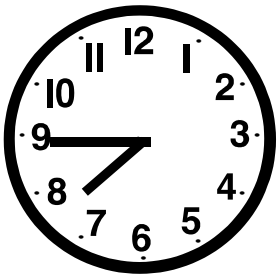
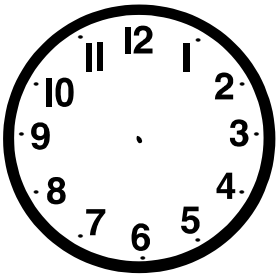
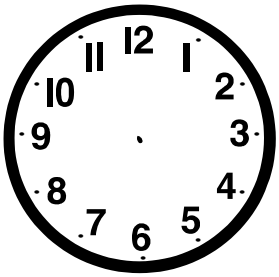
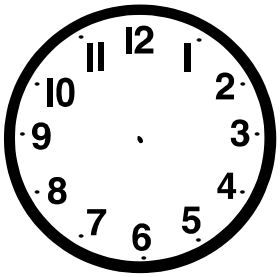
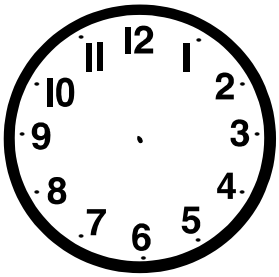
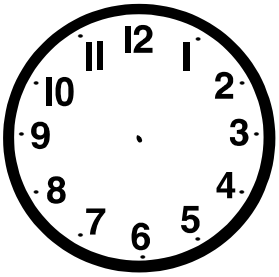
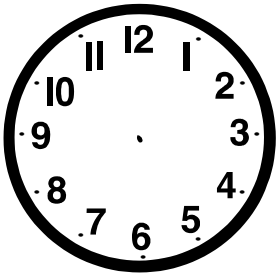
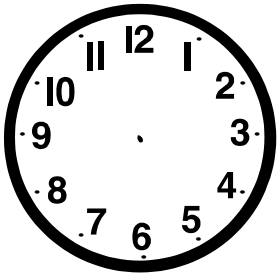
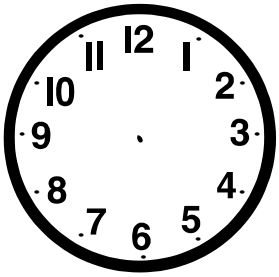
Merlin is a very busy wizard! But he is always late. He needs you to help him tell time so that he is not late for his very important dates!

 _____ : _____	 _____ : _____	 _____ : _____	 _____ : _____
 _____ 5:15	 _____ 1:15	 _____ 7:15	 _____ 9:15
 quarter past six _____ : _____	 quarter past eleven _____ : _____	 quarter past ten _____ : _____	 quarter past three _____ : _____

Grade 3 Mactivity028 covers:
M7:tell and write time to the nearest minute in 12-hour notation using digital clocks
M8:read and write time to the nearest five minutes using analog clocks

Measurement
Telling Time

Merlin is a very busy wizard! But he is always late. He needs you to help him tell time so that he is not late for his very important dates!

 _____ : _____	 _____ : _____	 _____ : _____	 _____ : _____
 8:45	 6:45	 10:45	 1:45
 quarter to ten _____ : _____	 quarter to four _____ : _____	 quarter to six _____ : _____	 quarter to one _____ : _____

Grade 3 Mactivity029 covers:
M7:tell and write time to the nearest minute in 12-hour notation using digital clocks
M8:read and write time to the nearest five minutes using analog clocks

Measurement
How many?

Merlin needs a chart in his math book to help remind him how many seconds there are in one minute and how many months are in one year. Help Merlin fill in the chart and glue it in your math book.

How many seconds in one minute?	
How many minutes in one hour?	
How many hours in one day?	
How many days in one week?	
How many days in one month?	
How many days in one year?	
How many weeks in one year?	
How many months in one year?	

Merlin has a Problem!

Merlin decided he wanted to run like Donovan Bailey, so, he started practising running around the track. The first day it took him 54 seconds. Each day after that, it took him 4 fewer seconds than the day before. What is the difference between Merlin's times on Day 1 and Day 5?

Grade 3 Mactivity030 covers:
M5:demonstrate an understand of the relationship between days and years, weeks and years.

Measurement
My Timetable

As a class, let's read the book The Grouchy Ladybug by Eric Carle.

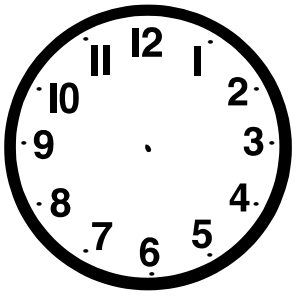
Today, we are going to make a timetable book. On each page, write the time down using an analog clock and a digital clock for each activity you do during the day. Draw a picture of what you look like doing that activity.

Grade 3 Mactivity031 covers:
M7:tell and write time to the nearest minute in 12-hour notation using digital clocks
M8:read and write time to the nearest five minutes using analog clocks.

**** Photocopy the following pages and staple into a booklet for students.****

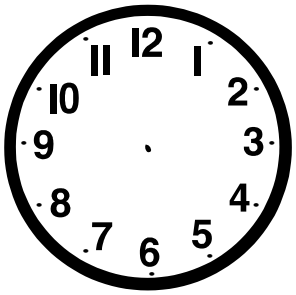
My Timetable Book

Name:_____



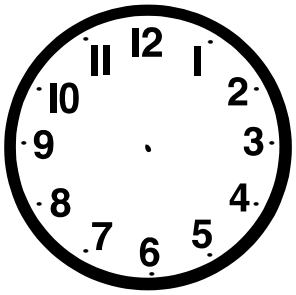
_____:_____

I wake up at:_____



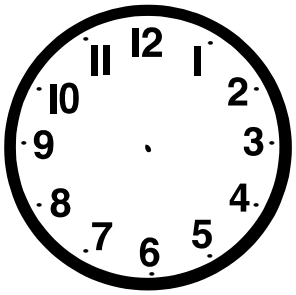
_____:_____

I get dressed at:_____



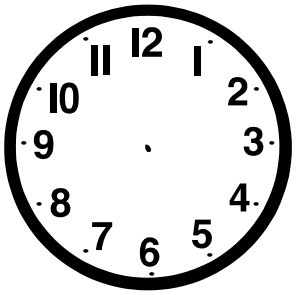
_____:_____

I eat breakfast at:_____



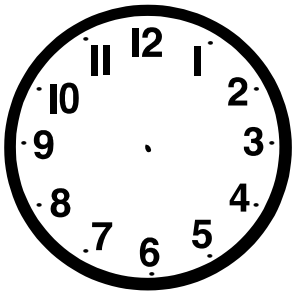
_____:_____

I go to school at:_____



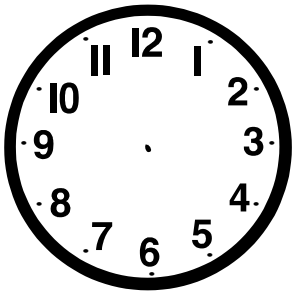
_____:_____

I have math class at:_____



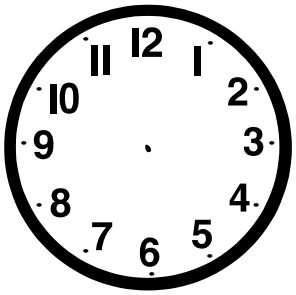
_____:_____

I'm finished math at:_____



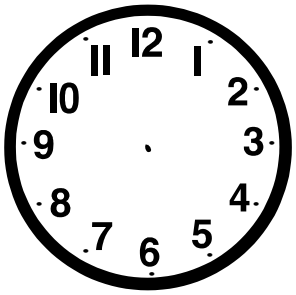
_____:_____

I go home at:_____



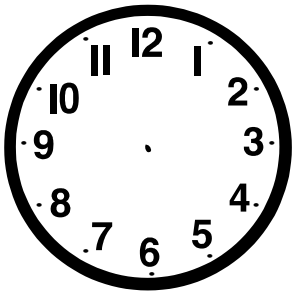
_____:_____

I do my homework at:_____



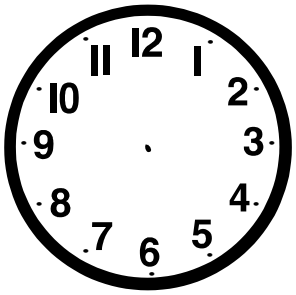
_____:_____

My favourite TV program is on at:_____



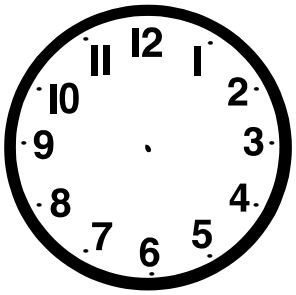
_____:_____

I eat dinner at:_____



_____:_____

I read a book at:_____



_____:_____

I go to bed at:_____

Grade 3 Mactivity031 covers:
M7:tell and write time to the nearest minute in 12-hour notation using digital clocks
M8:read and write time to the nearest five minutes using analog clock

Math Wizards

Grade 3 Measurement

Unit Two

Name:_____

Measurement
Centre Activities Overview

**** The Measurement centres are designed for one week (five days). Every centre day has the same structure:**
FIRST: The centre. Once the students finish the centre activity or when only 15 minutes are left of math class (whichever comes first), they can meet at a specified location for the problem of the day.
SECOND: Problem of the Day (on day five this is replaced by reading Measuring Penny by Loreen Leedy). You may want students to meet at their desks or at the carpet for the problem of the day. The problem can be written on the chalk board or chart paper for students to read and solve.
Choices are provided within the following pages and the black line masters for the students are found at the end.**

FIRST: The Centres

**** You may choose five centres listed below (one for each day) or incorporate your favourite patterning centres. The students receive a centre activity sheet where they record what they did in the centre.****

Centre A - Money Play 'win one loonie' (or a different 'win one game'). M10:demonstrate the relationship between all coins and bills up to $100
Centre B - Time Play time bingo or time flash cards. M7:tell and write time to the nearest minute in 12-hour notation using digital clocks M8:read and write time to the nearest five minutes using analog clocks
Centre C - Perimeter Have students measure the perimeter of various things in the classroom. M13:measure the perimeter of two-dimensional shapes using standard units (centimetre and metre), and compare the perimeters
Centre D - Area Have students measure the area of various things in the classroom. M14: estimate and measure the area of shapes using uniform non-standard units, and compare and order the shapes by area
Centre E - Volume Have students measure the volume of various things in the classroom. M15:estimate, measure, and record the capacity of containers using standard units (millilitre, litre), and compare the measures
Centre F - Mass Have students measure the mass of various things in the classroom. M16:estimate, measure, and record the mass of familiar objects using standard units (gram, kilogram)
Centre G - Length Have students measure the length of various things in the classroom. M2:select the most appropriate unit of measure to measure length (centimetre, metre, kilometre) M3:estimate, measure, and record linear dimensions of objects (using centimetre, metre, kilometre)

SECOND: Problem of the day

**** You may use the following five problems of the day or replace them with some of your own favourites. To save on photocopying, write the problem of the day on chart paper or the chalk board and have the students respond to it in the space provided on their daily centre activity record sheet. The last day's problem is replaced by reading the book Measuring Penny by Loreen Leedy.**

Problem 1 Merlin's plant is 40 cm tall. Basil's plant is 5 cm taller than Merlin's plant. Olivia's plant is 2 cm shorter than Basil's. How tall is Olivia's plant?
Problem 2 Merlin has some dimes and pennies in his pocket. There are six coins in all. He has 2 more dimes than he has pennies. What coins does Merlin have? How much money does Merlin have?
Problem 3 Merlin has a quarter, a dime, a nickel and a penny. For how many different prices could Merlin give the exact amount?
Problem 4 Merlin can write his name 7 times in a minute. How many times can he write his name in 2 minutes? What about in 3 minutes?
Problem 5 Read Measuring Penny by Loreen Leedy. Explain to the class that they will be writing their own measuring books next week and will need to bring in a stuffed animal (send home letter to parents, on next page)

Dear Parent or Guardian,
Today we read Measuring Penny by Loreen Leedy in class. The book is about a girl who measures every aspect of her dog, Penny. Next week, we will be creating our own measuring books. To complete this in-class assignment, every student is required to bring in a stuffed animal. Over the weekend, you may want to look up any interesting mathematical facts about your chosen animal, using the internet, library etc.

Sincerely,

Dear Parent or Guardian,
Today we read Measuring Penny by Loreen Leedy in class. The book is about a girl who measures every aspect of her dog, Penny. Next week, we will be creating our own measuring books. To complete this in-class assignment, every student is required to bring in a stuffed animal. Over the weekend, you may want to look up any interesting mathematical facts about your chosen animal, using the internet, library etc.

Sincerely,

Measurement
Daily Centre Activity Record Sheet

Today I completed the centre:
Record what you did in the centre today:
Merlin has a Problem!

Grade 3 Mactivity032 covers:
- the centres cover a variety of overall and specific expectations

Measurement
Story Planner

**** At the end of the project you may want to organize a time with the kindergarten teacher to read the measuring books to the younger students.****

I will be measuring:		
Some interesting facts about this animal: _____ _____ _____		
DIMENSIONS: length:_____ height:_____ width:_____ notes: _____ _____ _____	VOLUME: notes: _____ _____ _____ _____ _____ _____ _____	MASS: mass:_____ notes: _____ _____ _____ _____ _____
TEMPERATURE preferred climate: _____ notes: _____ _____ _____	TIME notes: _____ _____ _____ _____ _____ _____ _____	MONEY: notes: _____ _____ _____ _____ _____ _____
Beginning _____ _____ _____ _____ _____ _____	Middle _____ _____ _____ _____ _____ _____	End _____ _____ _____ _____ _____ _____

Grade 3 Mactivity033 covers:
- a variety of overall and specific expectations

Measurement
Rough Draft

page 1- picture	text:_____ _____ _____
page 2 - picture	text:_____ _____ _____
page 3 - picture	text:_____ _____ _____
page 4 - picture	text:_____ _____ _____
page 5 - picture	text:_____ _____ _____
page 6 - picture	text:_____ _____ _____
page 7 - picture	text:_____ _____ _____

page 8- picture	text:_____ _____ _____
page 9 - picture	text:_____ _____ _____
page 10 - picture	text:_____ _____ _____
page 11- picture	text:_____ _____ _____
page 12 - picture	text:_____ _____ _____
page 13 - picture	text:_____ _____ _____
page 14 - picture	text:_____ _____ _____

Grade 3 Mactivity034 covers:
- a variety of overall and specific expectations

Measurement
Editor's Checklist

Does your story have
- ☐ a beginning
- ☐ a middle
- ☐ an ending
- ☐ a pattern

Does your story include a variety of measurements? _____

Are your ideas
- ☐ in order
- ☐ clear
- ☐ interesting

I checked my capitals
- ☐ at the beginning of sentences
- ☐ in names
- ☐ in dates

I checked my punctuation for
- ☐ periods (.)
- ☐ question marks (?)
- ☐ exclamation marks (!)

☐ I checked my story for spelling

☐ I reread my WHOLE story after editing it

☐ My pictures give clues to the words and the story

Now you may write your final copy.

Grade 3 Mactivity035 covers:
- a variety of overall and specific expectations

Measurement
Measuring Book Rubric

	Level 1	Level 2	Level 3	Level 4
Understanding of measurement concepts in written story	• Limited understanding of concepts through partially complete and unclear explanations in the story.	• Understanding of concepts is incomplete based on appropriate but inaccurate explanations in the story.	• Solid understanding of concepts through complete and appropriate explanations and procedures in the story.	• Complex and/or thorough understanding of concepts explained throughout the story.
Communication of measurement knowledge through the written story	• Mathematical language is imprecise or inappropriate. • Measurement tools used were inappropriate.	• some mathematical language and symbols are used appropriately, but are compromised by errors or vagueness. • Measurement tools used were at times inappropriate.	• Mathematical language and symbols are used appropriately, no errors of terms. • Measurement tools were appropriate.	• Mathematical language and symbols are used purposefully and with elaboration to enhance the story. • Several measurement tools are used and the most appropriate tool highlighted.
Communication of measurement procedures in illustrations	• Illustrations are not used to communicate the measurement procedures.	• Measurement procedures are often correct in illustrations but include minor flaws or errors.	• Measurement procedures are accurate in illustrations with only a few minor errors. • Details of how things were measured is included.	• Measurement procedures are accurate in illustrations. • Additional information of measurement procedures and details of steps are included.
During the production of the story the student	required assistance	required some assistance	was independent	was independent
The overall presentation of the story	needs improvement	is satisfactory	is good	is excellent