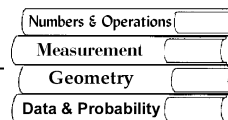


DRAFT
ASSESSABLE VOCABULARY
Kindergarten

The mathematical words in the Assessable Vocabulary list are terms that all children should be able to understand, read, write, and use independently by the end of the Kindergarten.

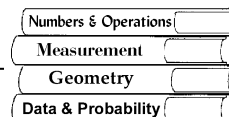
Numbers & Operations	after backward before change count	difference forward greater than larger than least	less less than middle more more than most	next next to numbers pattern smaller than sort
Measurement	day greater than heavier than heavy hour	larger than less less than light lighter than	line money month more	more than most same smaller than week
Geometry	above below big box circle different down	front inside line little outside oval over	rectangle round same same shape same size sides solid	sort square thick thin top triangle turn up
Technology	calculator	CD	clear	on
Other	above back	below closed	open	out under



DRAFT
INSTRUCTIONAL VOCABULARY
Kindergarten

The mathematical words in the Instructional Vocabulary list are terms that students should have a variety of classroom experiences with during Kindergarten, but they would NOT be expected to understand, read, write, and use these terms independently.

Numbers & Operations	addition altogether column equal even fraction half	hundred chart hundreds inch left mathematical sentence number line number sentence	odd ones order ordinal numbers (ex. 1 st , 2 nd , 3 rd) pairs relationship right	sequence series set subtraction sum take away tens unit
Measurement	balance capacity centimeter cents coins dime	distance dollar estimate exchange foot height	length measure minute nickel penny quarters	ruler scale temperature thermometer volume weight width
Geometry	angle classify compare cone	corners cube cylinder degree	edge pattern blocks rhombus solid	sphere template tile trapezoid
Data and Probability	column data equals key	graph less likely more likely	overlap picture graph predict	prediction real graph record tally
Technology	attribute display dot	file internet keyboard log on	minus key monitor mouse	plus key printer software
Other	compare	extend	label	observation

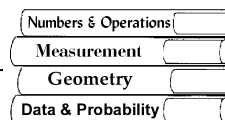


DRAFT

COMBINED MATHEMATICS VOCABULARY

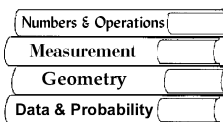
Kindergarten

above	edge	money	right
addition	equal	monitor	round
after	equals key	month	ruler
altogether	estimate	more	same
angle	even	more likely	same shape
attribute	exchange	more than	same size
back	extend	most	scale
backward	file internet	mouse	sequence
balance	foot	next	series
before	forward	next to	set
below	fraction	nickel	sides
big	front	number line	smaller than
box	graph	number sentence	software
calculator	greater than	numbers	solid
capacity	half	observation	solid
CD	heavier than	odd	sort
centimeter	heavy	on	sphere
cents	height	ones	square
change	hour	open	subtraction
circle	hundred chart	order	sum
classify	hundreds	ordinal numbers (ex. 1 st , 2 nd , 3 rd)	take away
clear	inch	out	tally
closed	inside	outside	temperature
coins	keyboard	oval	template
column	label	over	tens
compare	larger than	overlap	thermometer
cone	least	pairs	thick
corners	left	pattern	thin
count	length	pattern blocks	tile
cube	less	penny	top
cylinder	less likely	picture graph	trapezoid
data	less than	plus key	triangle
day	light	predict	turn
degree	lighter than	prediction	under
difference	line	printer	unit
different	little	quarters	up
dime	log on	real graph	volume
display	mathematical sentence	record	week
distance	measure	rectangle	weight
dollar	middle	relationship	width
dot	minus key	rhombus	
down	minute		



KINDERGARTEN

MEAP MATHEMATICS CONSTRUCTED RESPONSE ITEMS



CONSTRUCTED RESPONSE ITEMS

Kindergarten

1. a. Orally count to 100.

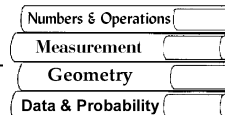
b. Count up to 30 objects (one-to-one correspondence).

2. Orally count to 30:

a. by 2's

b. by 5's

c. by 10's



CONSTRUCTED RESPONSE ITEMS

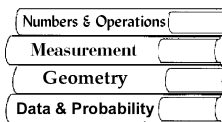
Kindergarten

3. Teacher puts out a set of 12 objects and a set of 22 objects. Student is asked to describe and compare the sets.

4. a. Write numbers to 30.

b. Match written number to the set with the correct number of objects.

- i. 5
- ii. 13
- iii. 19
- iv. 24
- v. 30



CONSTRUCTED RESPONSE ITEMS

Kindergarten

5. Show as many different ways to make the number 7 as you can think of.
6. a. Bob has 5 cookies. Susie has 3 cookies. How many cookies do Bob and Susie have altogether? Students may use pictures or objects to represent and solve the problem.
- b. Henequen has 7 toy cars. She nicely gives 3 cars with DaVante. How many cars does Sheniqua have left? Students may use pictures or objects to represent and solve the problem.

CONSTRUCTED RESPONSE ITEMS

Kindergarten

7. a. Place 3 measuring tools in front of the child (a ruler, a scale, and a clock). Students will pick the tool they would use to tell time with.
- b. Students will show on the tool 8:00 in the morning and identify an activity they would usually do at that time of day.
8. Students will order a marker, paper clip, crayon, and Unifix cube by length, from shortest to longest. Students must then verbalize what they did, using words such as shorter than and longer than.

CONSTRUCTED RESPONSE ITEMS

Kindergarten

9. Given various objects such as a paper clip, empty glass, full soup can, students should compare them based on weight and order them from lightest to heaviest. Students should verbalize what they did using such words as heavier and lighter.

10. Have children state the geometric name of familiar 3-D items from the classroom such as a marble (sphere).

Numbers & Operations

Measurement

Geometry

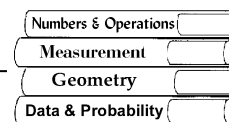
Data & Probability

CONSTRUCTED RESPONSE ITEMS

Kindergarten

11. a. Given a collection of blue paper stars of different sizes and one red paper triangle, ask student to identify the object in the group that does not belong and explain why it does not belong.

b. Given a collection of different buttons, students will identify an attribute and then sort the buttons according to the chosen attribute.



ANSWER KEY

Kindergarten

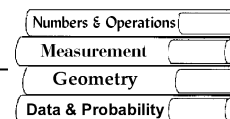
Question(s)	GLCE	Response
1, 1a, 2, 2a, 2b, 2c	N.ME.00.05	Orally counts with no errors.
3	N.ME.00.02	Look for phrases such as this set has “more than” or “less than” another set.
4, 4a	N.ME.00.04	Writes and matches numbers to sets with no errors.
5	N.ME.00.07	Includes at least 3 examples such as 4 objects and 3 objects, or writes $1 + 6 = 7$.
6a	N.MR.00.08	Models an addition situation correctly combining 5 objects and 3 objects to make a total of 8 objects.
6b	N.MR.00.08	Models a subtraction situation correctly, showing 7 take away 3 leaving 4 objects remaining.
7a	M.UN.00.02	Student should select the clock
7b	M.UN.00.03	Student should offer example such as “have breakfast” or “go to school.”
8, 9	M.UN.00.04	Explanation is detailed and clear.
10	M.UN.00.04	Other examples include ball/sphere; wooden cube block, cube; and soup can/cylinder.
11a	G.GS.00.01	Student should select the red triangle and explain it is a different color and shape.
11b	G.GS.00.02	Student could pull out all the buttons with 4 holes, or all the black buttons.

MATHEMATICS WEBSITES

Kindergarten

As expectations in mathematics continue to change, the use of technology should have an integral part in enhancing the way students learn and understand algebraic concepts. The web offers a plethora of free materials that can be used to support these efforts. Listed below are some websites where teachers can find interactive math applets, Internet-based lesson plans, and technology projects that can be utilized to create effective standards-based mathematics lessons.

Math Games	www.funbrain.com
Everyday Math Web Page	www.everydaymath.org/trial.htm (Great resource for teachers, parents, as well as links and support for lessons and concepts.)
Kids Domain Math Games	http://www.kidsdomain.com/games/math1.html (Great website for math games as well as other subjects.)
Pattern Blocks: Exploring Fractions with Shapes.	http://ejad.best.vwh.net/java/patterns/patterns_j.shtml (Kids can build pictures with pattern blocks.)
Math Word Problems for Children.	www.Mathstories.com (Good for word problems but you do need a password to get in...check with your librarian.)
Yahooligans!—School Bell: Math: Games and Puzzles.	http://yahooligans.yahoo.com/school_bell/math/Games_and_Puzzles/ (Great to search for math websites.)
PrimaryGAMES.com—Math	http://www.primarygames.com/math.htm (More online games such as shape sorting and fishing for numbers...also good website for other subjects)
AAA Math	http://www.aaamath.com/ (All ages. Teaches lessons and keeps reports for teachers. Subjects such as addition, counting, recognizing numbers, number patterns, telling time.)
Kindergarten Mathematics Index	http://www.kidport.com/GradeK/Math/MathIndex.htm (More math games.)



MATHEMATICS WEBSITES

Kindergarten

ProTeacher! The Web's Little Secret for Elementary School Teachers.

<http://www.proteacher.com>

(Good website for searching for lesson ideas and there are message boards to share ideas with other teachers.)

Mrs. Nash's Class

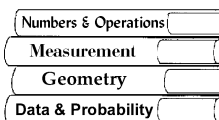
<http://www.myschoolonline.com/page/0,1871,53964-135059-56-14534,00.html>

(More resources for Everyday Math Games)

Books on line

Penny, The Forgotten Coin by Denise Brennan-Nelson. Sleeping Bear Press.

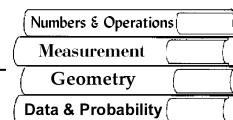
<http://www.kent.k12.wa.us/library/files/2ndEdiCrossCurricLinksLitList.xls>



DRAFT
ASSESSABLE VOCABULARY
Grade 1

The mathematical words in the Assessable Vocabulary list are terms that all children should be able to understand, read, write, and use independently by the end of the first grade.

Number and Operations	less more	most	numbers	same
Measurement	calendar distance	height	length	week
Geometry	above back balance below circle front inside	line money next to on open out outside	oval over pattern rectangle right same shape same size	square tile top triangle turn under up
Data and Probability	bar graph	estimate	graph	Picture graph



DRAFT
COMBINED INSTRUCTIONAL VOCABULARY
Grade 1

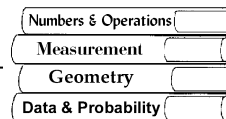
The mathematical words in the Instructional Vocabulary list are terms that students should have a variety of classroom experiences with during first grade, but they would NOT be expected to understand, read, write, and use these terms independently.

Number and Operations	add	difference	fraction	ordinal numbers
	addend	digit	greater than (>)	place
	altogether	doubles	left	place value (hundreds, tens, one)
	backward	doubles plus one	less than (<)	record
	base ten block	equal	number line	skip count
	between	equation	number sentences	subtract
	compare	estimate	numbers	sum
	counting back	fact family	odd and even	turnarounds
	counting on	facts	operation	unit
	counting up	forward	order	
	Measurement	between	dime	length
capacity		distance	liter	pound
Celsius		dollar bills	measurement	quart
centimeter		estimate	meter	quarter
circumference		gallon	metric	ruler
clock		gram	minute	scale
coin		hour	money	time
cup		inch	nickel	volume
degree		increase	penny	weight
				width
Geometry		angle	decrease	on
	balance	dot	overlap	sphere
	box	edge	parallel	symmetry
	category	face	part	tangrams
	change	flipping	perpendicular	texture
	closed	folding	reducing	thermometer
	color	geoboard	segment	thick
	cone	group	shape	thin
	construct	hexagon	side	tile
	corner	large	size	trapezoid
	cube	left	sliding	turning
	curve	line	small	unit
	cylinder	objects	solid	
	Data & Probability	bar graph	fewer	most
chance		graph	organize	survey
chart		growth	picture graph	table
collect		interpret	predict	tally
compare		least	record	tally marks
estimate		less	represent	traits
experiment		line graph	results	
fair share		more	same	

Numbers & Operations	
Measurement	
Geometry	
Data & Probability	

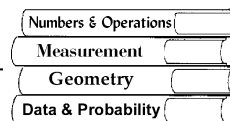
DRAFT
COMBINED MATHEMATICS VOCABULARY
Grade 1

above	dollar bills	metric	same
add	dot	minute	same shape
addend	doubles	money	same size
altogether	doubles plus one	more	scale
angle	edge	most	segment
back	equal	next to	shape
backward	equation	nickel	side
balance	estimate	number line	size
bar graph	experiment	number sentences	skip count
base ten block	face	numbers	sliding
below	fact family	objects	small
between	facts	odd and even	solid
box	fair share	on	sort
calendar	fewer	open	sphere
capacity	flipping	operation	square
category	folding	order	subtract
Celsius	forward	ordinal numbers	sum
centimeter	fraction	organize	survey
chance	front	out	symmetry
chart	gallon	outside	table
circle	geoboard	oval	tally
circumference	gram	over	tally marks
clock	graph	overlap	tangrams
closed	greater than (>)	parallel	texture
coin	group	part	thermometer
collect	growth	pattern	thick
color	height	penny	thin
compare	hexagon	perpendicular	tile
cone	hour	picture graph	time
construct	inch	pint	top
corner	increase	place	traits
counting back	inside	place value (hundreds, tens, ones)	trapezoid
counting on	interpret	pound	triangle
counting up	large	predict	turn
cube	least	quart	turnarounds
cup	left	quarter	turning
curve	length	record	under
cylinder	less	rectangle	unit
decrease	less than (<)	reducing	up
degree	line	represent	volume
difference	line graph	results	week
digit	liter	right	weight
dime	measurement	ruler	width
distance	meter		



GRADE 1

MEAP
MATHEMATICS
SAMPLE
ASSESSMENT
ITEMS



ASSESSMENT ITEMS

Grade 1

NOTE: The test items included within involve multiple choice problems that require a great deal of reading. Teachers testing at the first grade level should make developmentally appropriate modifications to the testing as needed. The suggested modification is to read the test items aloud to students (several times) and administer the test in small groups of 4-5 students.

1. One day at lunch Tony used straws to show his friend 3 ways to make 24. What picture does NOT show one of his ways?

a. | | | |

b. | | | | | | | | | | | | | |

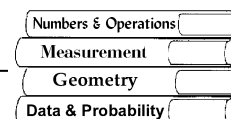
c. | | | |

2. Bill had a brother Max. Bill and Max like to play checkers. Bill won 12 games and Max won 7. How many more games did Bill win?

a. 19

b. 5

c. 6



ASSESSMENT ITEMS

Grade 1

3. Sue looked at the night sky. She saw 12 stars. Then she saw 7 more. What number sentence shows how she counted the total number of stars she saw?

a. $12 - 7 = 5$

b. $12 + 7 = 5$

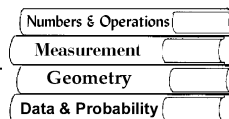
c. $12 + 7 = 19$

4. Which number is **ONE MORE** than 27?

a. 37

b. 26

c. 28



ASSESSMENT ITEMS

Grade 1

5. Which number sentence is **NOT** a part of the fact family: 3, 6, 9?

a. $3 + 6 = 9$

b.. $9 - 3 = 6$

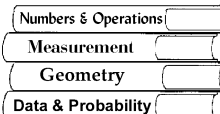
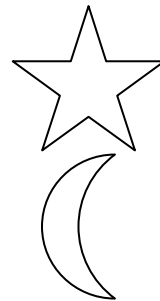
c. $6 - 3 = 9$

6. Sally looked up in the night sky. She saw that the moon was close to a big star. Which sentence is true?

a. The moon is **BESIDE** the star.

b. The moon is **BELOW** the star.

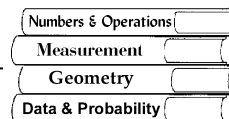
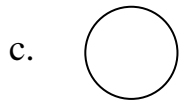
c. The moon is **ABOVE** the star.



ASSESSMENT ITEMS

Grade 1

7. Jim likes to draw. He made a pattern. What would come next in his pattern?

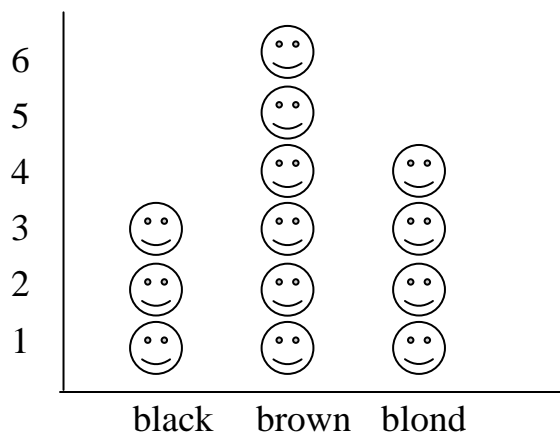


ASSESSMENT ITEMS

Grade 1

8.

Hair Color in Mrs. Moss' Class

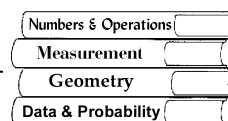


Look at the pictograph. What hair color did most children in Mrs. Moss' class have?

- a. brown
- b. black
- c. blond

How many children had black hair?

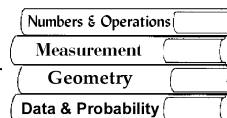
- a. 2
- b. 4
- c. 3



ASSESSMENT ITEMS

Grade 1

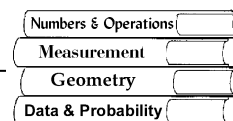
9. Mike had 2 quarters in his pocket. He traded his 2 quarters with his friend Pam. They made an even trade. Mike got:
- a. 25 pennies
 - b. 6 nickels
 - c. 5 dimes
10. In September of first grade, Katie was 48 inches tall. In September of second grade, Katie was 51 inches tall. How many inches did Katie grow, from first grade to second grade?
- a. 1 inch
 - b. 3 inches
 - c. 7 inches



CONSTRUCTED RESPONSE ITEMS

Grade 1

11. Give the child a educational clock with moveable hands. Say to the child, “Show me seven-thirty.” (Or other times to the hour or half hour)
12. Using pattern blocks, make a pattern. (circle, circle, trapezoid, circle, circle, trapezoid...) Say to the child, “Can you show me what block would come next?” Child should place the appropriate block next to the last block. Say again, “Can you show me what would come after that one?” (repeat three times).



ANSWER KEY

Grade 1

ANSWER KEY FOR SAMPLE ITEMS

ITEM #	GLCE	ANSWER
1	N.ME.01.07	C
2	N.MR.01.09	B
3	N.MR.01.10	C
4	N.ME.01.04	C
5	N.MR.01.11	C
6	G.LO.01.02	B
7	G.SR.01.03	B
8	D.RE.01.02	part 1:A part 2:C
9	M.UN.01.05	C
10	M.PS.01.08	B

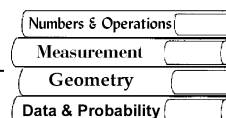
CONSTRUCTED RESPONSE SCORING:

Rubric for # 11

1 point	for the hour hand being on the right number
1 point	for the minute hand being on the right number
1 point	for the hands being reversed, but on correct numbers. (Example: for 7:30, the minute hand is on the seven and the hour hand is on the six.)

Rubric for #12

1 point	for adding the correct block
1 point	for adding an additional correct block
1 point	for adding an additional correct block to complete the pattern of 3



MATHEMATICS WEBSITES

Grade 1

As expectations in mathematics continue to change, the use of technology should have an integral part in enhancing the way students learn and understand algebraic concepts. The web offers a plethora of free materials that can be used to support these efforts. Listed below are some websites where teachers can find interactive math applets, Internet-based lesson plans, and technology projects that can be utilized to create effective standards-based mathematics lessons.

This site offers teachers a place to go for current facts on money. It offers fun facts, history and activities.

<http://www.usmint.gov/>

This child friendly site offers tips about earning money and options for what to do with money.

<http://www.themint.org/>

<http://www.mmforkids.org/>

This site offers teachers and parents a place to order books, games and activities that reinforce money skills.

<http://www.kidsmoney.org/>

This site offers a wide variety of games relative to each math strand at a variety of levels. For lower elementary classrooms choose math info and select games.

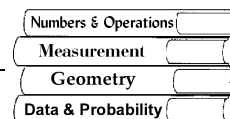
<http://www.factmonster.com/>

This site offers the world of math online. Included are math tools, tables, games and activities. For lower elementary classrooms choose basic math from the site menu.

<http://www.math.com/>

This Everyday Math site offers games directly linked to this math curriculum.

<http://www.EMGames.com/>



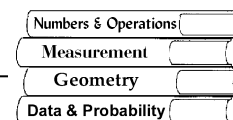
DRAFT

ASSESSABLE VOCABULARY

Grade 2

The mathematical words in the Assessable Vocabulary list are terms that all children should be able to understand, read, write and use independently by the end of the second grade. These words may appear in items on the MEAP assessment that covers the grade 2 GLCE's. (Tested in the fall of grade 3.)

Number and Operations	add all together back base ten blocks count back	count on each even fraction hundreds	left less than many more more than number	odd ones pattern take away tens
Measurement	east foot inch	long measure money	north ruler south	unit west
Geometry	between circle cone front	inside line open outside	oval over rectangle right	shape side square tile triangle
Data & Probability	set			



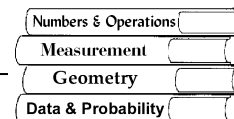
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INSTRUCTIONAL VOCABULARY

Grade 2

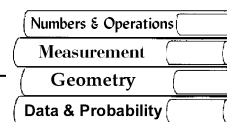
The mathematical words in the Instructional Vocabulary list are terms that students should have a variety of classroom experiences with during second grade, but they would NOT be expected to understand, read, write and use these terms independently. These words would be considered too advanced for use on the MEAP assessment that covers the grade 2 GLCE's.

Number and Operations	addend addition backwards changes combine commutative property compare difference	differences doubles equal equations estimate extend fact families mathematical sentences	model multiplication ordinal numbers place value predict prediction repeat rounding	sequences series skip counting subtraction sum tallies thousands whole number
Measurement	a.m. balance capacity Celsius centimeter decimeter degree distance	Fahrenheit gram height kg kilogram kilometer km length	linear liter (l) measurement meter (m) metric milliliter (ml) monetary value	p.m. scale temperature thermometer volume weight width
Geometry	angle attribute attributes center circle circumference closed	congruent coordinate corner cube cylinder dimension edge	face flipping geometric parallel perpendicular prism rotate	segment similar solid sphere symmetry turning vertices
Data & Probability	bar graph certainty chance classify data diagram	given graph information less likely mean median	more likely pictograph picture graph probability random	record relationships select variable Venn diagram
Technology	addition key calculator clear key	display division key equals key	keys minus key	screen software



DRAFT
COMBINED MATHEMATICS VOCABULARY
Grade 2

a.m.	corner	graph	multiplication	series
add	count back	height	north	set
addend	count on	hundreds	number	shape
addition	cube	inch	odd	side
addition key	cylinder	information	ones	similar
all together	data	inside	open	skip counting
angle	decimeter	keys	ordinal numbers	software
attribute	degree	kg.	outside	solid
attributes	diagram	kilogram	oval	south
back	difference	kilometer	over	sphere
backwards	differences	km	p.m.	square
balance	dimension	left	parallel	subtraction
bar graph	display	length	pattern	sum
base ten blocks	distance	less likely	perpendicular	symmetry
between	division key	less than	pictograph	take away
calculator	doubles	line	picture graph	tallies
capacity	each	linear	place value	temperature
Celsius	east	liter (l)	predict	tens
center	edge	long	prediction	thermometer
centimeter	equal	many more	prism	thousands
certainty	equals key	mathematical	probability	tile
chance	equations	sentences	random	triangle
changes	estimate	mean	record	turning
circle	even	measure	rectangle	unit
circumference	extend	measurement	relationships	variable
classify	face	median	repeat	Venn diagram
clear key	fact families	meter (m)	right	vertices
closed	Fahrenheit	metric	rotate	volume
combine	flipping	milliliter (ml)	rounding	weight
commutative	foot	minus key	ruler	west
property	fraction.	model	scale	whole number
compare	front	monetary value	screen	width
cone	geometric	money	segment	
congruent	given	more likely	select	
coordinate	gram	more than	sequences	



GRADE 2

MEAP
MATHEMATICS
SAMPLE
ASSESSMENT
ITEMS

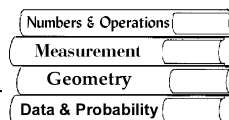
Numbers & Operations	<input type="text"/>
Measurement	<input type="text"/>
Geometry	<input type="text"/>
Data & Probability	<input type="text"/>

ASSESSMENT ITEMS

Grade 2

1. Each pack of gum has five sticks. How many sticks of gum are in three packs of gum?
 - a. 8
 - b. 5
 - c. 15

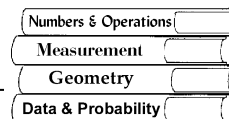
2. Mary saved \$5.60 in a week. The next week she saved \$1.25. How much money did she save altogether?
 - a. \$6.85
 - b. \$4.35
 - c. \$5.85



ASSESSMENT ITEMS

Grade 2

3. It took Jon a month to save \$25.00. How many months will he have to save money to buy a \$200.00 bike?
- a. 8
 - b. 225
 - c. 4
4. a. A second grade square table measures 5 feet on each of the four sides. What is the total measurement of its perimeter?
- a. 10 ft.
 - b. 15 ft.
 - c. 20 ft.
- b. What is the area of the same table?
- a. 20 sq. ft.
 - b. 25 sq. ft.
 - c. 40 sq. ft.



ASSESSMENT ITEMS

Grade 2

5. School is over at 3:15. It is a half-hour bus ride home. What time will you arrive home from school?

a. 4:45

b. 3:45

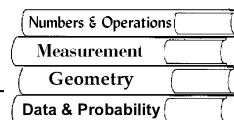
c. 3:30

6. Tamiko wanted 100 trading cards. She had 55 cards. How many more cards did she need?

a. 155

b. 45

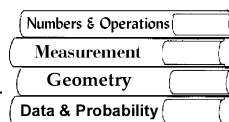
c. 50



ASSESSMENT ITEMS

Grade 2

7. My piggy bank has 3 quarters, 3 dimes, 3 nickels, and 7 pennies. How much money do I have?
- a. \$1.27
 - b. \$1.22
 - c. \$ 1.17
8. Joe draws a shape that has 3 sides and 3 angles. What shape did he draw?
- a. triangle
 - b. circle
 - c. square



ASSESSMENT ITEMS

Grade 2

9. There are six juice boxes in a pack. How many packs are needed for 18 students?

a. 6

b. 18

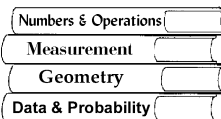
c. 3

10. Complete these number patterns.

3, 6, 9, , ,

11. Complete this pattern:

130, 140, 150, , ,



CONSTRUCTED RESPONSE ITEMS

Grade 2

12. Make a bar graph to show class pets. There were 4 dogs, 5 cats, 3 birds, and 7 fish.

13. The whole pizza had 4 equal pieces. David ate 1 piece. Draw the whole pizza and shade the part David ate. What fraction of the pizza did David eat? _____

Numbers & Operations	<input type="checkbox"/>
Measurement	<input type="checkbox"/>
Geometry	<input type="checkbox"/>
Data & Probability	<input type="checkbox"/>

ANSWERS

Grade 2

ANSWER KEY FOR SAMPLE ITEMS

Item #	GLCE	Answers
1	N.MR.02.16	C (15 sticks)
2	N.FL.02.10	A (\$6.85)
3	N.MR.02.13	A (8 months)
4	G.GS.02.03	C, B (20 feet, 25 sq. ft).
5	M.UN.02.06	B (3:45)
6	N.MR.02.08	B (45 cards)
7	M.PS.02.08	A (\$1.27)
8	G.GS.02.01	A (triangle)
9	N.MR.02.16	C (3 packs)
10	N.ME.02.04	12,15,18
11	N.ME.02.04	160,170, 180

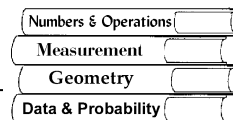
CONSTRUCTED RESPONSE SCORING:

Rubric for # 12

1 point	for labeling the categories (dogs, cats, birds, etc.)
1 point	for numbering the other axis (1 – 7)
1 point	for drawing a bar the correct length
1 point	for a title — Pets

Rubric for # 13

1 point	for drawing and dividing the pizza (round or rectangular) with four equal sized regions
1 point	for shading one of the equal sized regions
1 point	for correctly naming the fraction

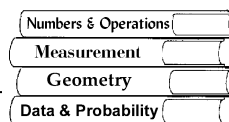


MATHEMATICS WEBSITES

Grade 2

As expectations in mathematics continue to change, the use of technology should have an integral part in enhancing the way students learn and understand algebraic concepts. The web offers a plethora of free materials that can be used to support these efforts. Listed below are some websites where teachers can find interactive math applets, Internet-based lesson plans, and technology projects that can be utilized to create effective standards-based mathematics lessons.

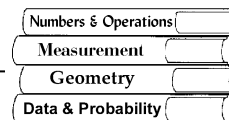
National Library of Virtual Manipulatives!	www.matti.usu.edu
Everyday Math	www.everydaymath.com
A Plus Math	www.Aplusmath.com
Triple A Math	www.AAAMath.com
Math	www.Aol@school.com
British Broadcasting Co.	www.bbc.co.uk/schools/numbertime/games
Cool Math	www.coolmath4kids.com
Graphic Organizers for Math	www.enchantedlearning.com
Fun Brain	www.funbrain.com
Glossary of math vocabulary with demonstrations. Leveled by grade.	www.hhschool.com
Play Kids Games	www.playkidsgames.com
Math Goodies	www.mathgoodies.com
Kids Edge Math	www.kidsedge.com
Math T.V.	www.mathtv.com
Fleet kids Math	www.fleetkids.com



DRAFT
ASSESSABLE VOCABULARY
Grade 3

The mathematical words in the Assessable Vocabulary list are terms that all children should be able to understand, read, write and use independently by the end of the third grade. These words may appear in items on the MEAP assessment that covers the grade 3 GLCE's. (Tested in the fall of grade 4.)

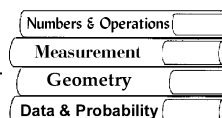
Number and Operations	addition compare decimals denominator difference division	equal estimate even factor greater than half	less than multiple multiplication number line numerator odd	order pattern place value product remainder subtraction sum
Measurement	a.m. analog clock area balance Celsius centimeter – cm cents cup day degree	digital clock dollar East Fahrenheit foot – ft. gallons hour inch – in. measurement meter – m	metric minute month North N-S-E-W ounces – oz. p.m. perimeter pounds – lbs. quotient	ruler second South temperature thermometer time week weight West yard – yd. year – yr.
Geometry	2D 3D circle cone corner cylinder distance edge	face(s) line segment lines parallel parallelogram perpendicular points prism	pyramid rectangle rhombus right angle right triangle same shape same size segment side	solid square surfaces symmetrical symmetry trapezoid triangle vertex vertices
Data and Probability	axis bar graph chart circle graph	data graph grid(s) horizontal	less likely maximum mean median	minimum mode range set vertical
Technology	addition key calculator	clear key division key	equals key keystrokes minus key	multiplication key off on



DRAFT
INSTRUCTIONAL VOCABULARY
Grade 3

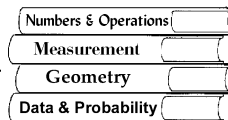
The mathematical words in the Instructional Vocabulary list are terms that students should have a variety of classroom experiences with during second grade, but they would NOT be expected to understand, read, write and use these terms independently. These words would be considered too advanced for use on the MEAP assessment that covers the grade 3 GLCE's.

Numbers and Operations	addend alternately ascending associative property attribute base ten block classify combination commutative property	consecutive numbers descending digit distributive property double equation equitable estimate pattern extend	formulate fourths frequency function hundredths identify mathematical sentences mixed numbers ordinal numbers population	predict reduced relationships rounding sequence symbols tenths triple values whole numbers
Measurement	cubic unit decimeter – dm dimension gram	kilogram – kg kilometer – km linear unit mass	milliliter – ml monetary value non-standard units pints quart	scale square centimeters standard units surface area volume
Geometry	angle base closed congruent	coordinates hexagon open orientation polygon	polyhedron position quadrangles rotation scale drawing	sphere tangram template tessellate tile
Data and Probability	category extraneous information	given information number pairs	picture graph survey	title vertical bars



DRAFT
COMBINED MATHEMATICAL VOCABULARY
Grade 3

2D	digit	linear unit	position
3D	digital clock	lines	pounds – lbs.
a.m.	dimension	mass	predict
addend	distance	mathematical sentences	prism
addition	distributive property	maximum	product
addition key	division	mean	pyramid
alternately	division key	measurement	quadrangles
analog clock	dollar	median	quart
angle	double	meter – m	quotient
area	East	metric	range
ascending	edge	milliliter – ml	rectangle
associative property	equal	minimum	reduced
attribute	equals key	minus key	relationships
axis	equation	minute	remainder
balance	equitable	mixed numbers	rhombus
bar graph	estimate	mode	right angle
base	estimate pattern	monetary value	right triangle
base ten block	even	month	rotation
calculator	extend	multiple	rounding
category	extraneous information	multiplication	ruler
Celsius	face(s)	multiplication key	same shape
centimeter – cm	factors	non-standard units	same size
cents	Fahrenheit	North	scale
chart	foot – ft.	N-S-E-W	scale drawing
circle	formulate	number line	second
circle graph	fourths	number pairs	segment
classify	fraction	numerator	sequence
clear key	frequency	odd	set
closed	function	off	side
combination	gallons	on	solid
commutative property	given information	open	South
compare	gram	order	sphere
cone	graph	ordinal numbers	square
congruent	greater than	orientation	square centimeters
consecutive numbers	grid(s)	ounces – oz.	standard units
coordinates	half	p.m.	subtraction
corner	hexagon	parallel	sum
cubic unit	horizontal	parallelogram	surface area
cup	hour	pattern	surfaces
cylinder	hundredths	perimeter	survey
data	identify	perpendicular	symbols
day	inch – in.	picture graph	symmetrical
decimals	keystrokes	pints	symmetry
decimeter – dm	kilogram – kg	place value	tangram
degree	kilometer – km	points	temperature
denominator	less likely	polygon	template
descending	less than	polyhedron	tenths
difference	line segment	population	tessellate



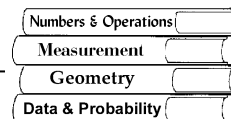
DRAFT
COMBINED MATHEMATICAL VOCABULARY
Grade 3

thermometer
tile
time
title
trapezoid

triangle
triple
values
vertex
vertical

vertical bars
vertices
volume
week
weight

West
whole numbers
yard – yd.
year – yr.



GRADE 3

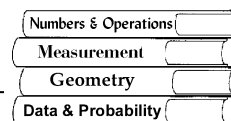
MEAP

MATHEMATICS

SAMPLE

ASSESSMENT

ITEMS

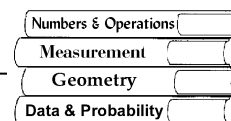


ASSESSMENT ITEMS

Grade 3

1. Use the number 68,173. What is the digit in the ten-thousands place?
 - a. 8
 - b. 7
 - c. 6

2. Using estimation, which problem below has a difference greater than 300?
 - a. $1,010 - 675$
 - b. $851 - 652$
 - c. $906 - 651$



ASSESSMENT ITEMS

Grade 3

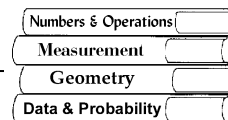
3. What is the missing number in the problem x 9 = 63?

- a. 8
- b. 7
- c. 6

4. What is the fraction for the shaded part of this set?



- a. $\frac{3}{8}$
- b. $\frac{3}{4}$
- c. $\frac{3}{7}$

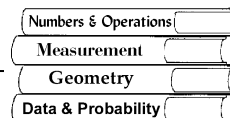
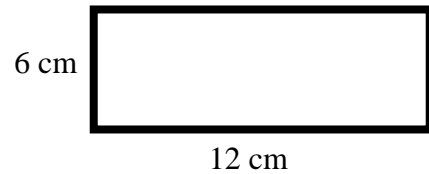


ASSESSMENT ITEMS

Grade 3

5. Annie and Carla earned \$3.00 for raking the lawn. The girls split the money in half. How much did each girl receive?
- a. \$1.00 each with \$1.00 left over
 - b. \$1.75 each
 - c. \$1.50 each

6. What is the perimeter of the rectangle?
- a. 18 cm
 - b. 30 cm
 - c. 36 cm



ASSESSMENT ITEMS

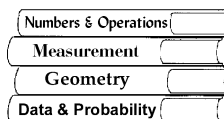
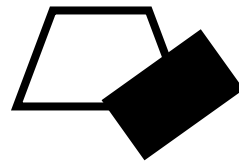
Grade 3

7. Andy had \$9.00. He bought a baseball glove for \$5.56. How much money does Andy have left over?

- a. \$3.44
- b. \$4.44
- c. \$14.56

8. What is the name of the shape that is partially covered?

- a. rhombus
- b. parallelogram
- c. trapezoid

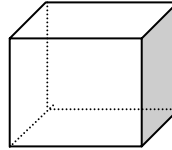


ASSESSMENT ITEMS

Grade 3

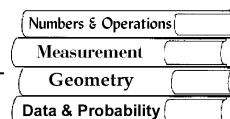
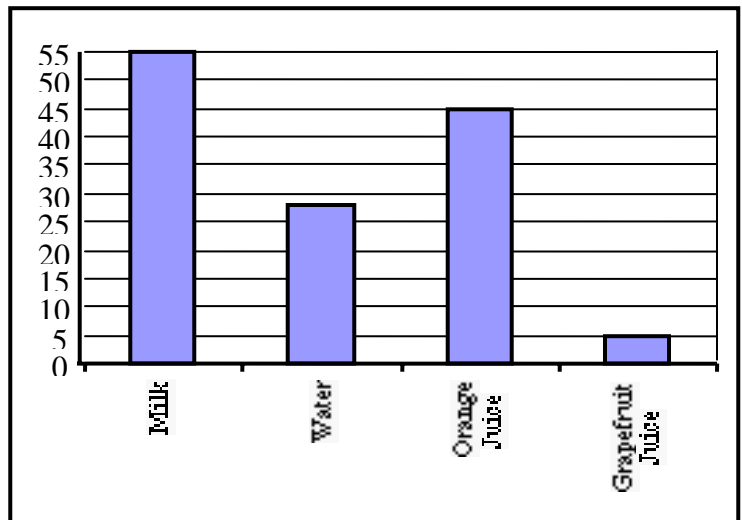
9. How many vertices are in the cube?

- a. 4 vertices
- b. 6 vertices
- c. 8 vertices



10. 123 fourth grade students were asked what they drank with breakfast in the morning. Below is a bar graph of the responses. Using the information from the bar graph, find the **range** of the set. The range is:

- a. 50
- b. 55
- c. 60



ASSESSMENT ITEMS

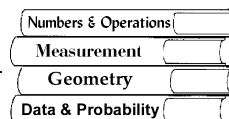
Grade 3

11. Which letter represents the number fifty-two thousand, three hundred nine?

- a. 5,239
- b. 52,039
- c. 52,309

12. What is the name of the shape?

- a. rectangle
- b. parallelogram
- c. rhombus



ASSESSMENT ITEMS

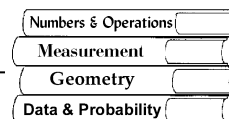
Grade 3

13. Look at the data below:

Player	Number of Points Scored
Scott	8
Mindy	12
Tomas	3
Jasmine	10
Alex	6
Fran	14
Aldo	3

What is the **mean** of this set of data?

- a. 7
- b. 8
- c. 56



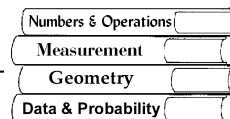
CONSTRUCTED RESPONSE

Grade 3

14. Fill in the missing numbers below that will complete the number pattern and describe the rule.

2, 4, _____, 16, _____, 64, _____

Rule: _____



ANSWER KEY

Grade 3

ANSWER KEY FOR SAMPLE ITEMS

Item #	GLCE	Answer
1	N.ME.03.01	C
2	N.FL.03.07	A
3	N.MR.03.12	B
4	N.ME.03.16	C
5	N.ME.03.21	C
6	M.UN.03.05	C
7	N.PS.03.01	A
8	G.GS.03.04	C
9	G.GS.03.06	C
10	D.RE.03.02	A
11	N.ME.03.01	C
12	G.GS.03.04	B
13	D.RE.03.02	B

CONSTRUCTED RESPONSE SCORING:

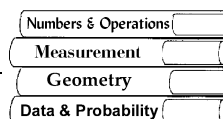
Rubric for # 14

1 point for
each correct
missing
number

for correctly filling in each missing number (8, 32, 128)

2 points

for using appropriate language to correctly describe the number pattern
such as “the numbers double” or “multiply by 2”



MATHEMATICS WEBSITES

Grade 3

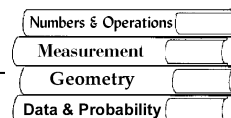
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Teacher Resources

The Math Forum	http://mathforum.org/teachers/
Math.Com	http://www.math.com/teachers.html
Cool Math for Teachers	http://www.coolmath4teachers.com/
Everyday Math for Teachers	http://www.everydaymath.org/teachers.htm
National Library of Virtual Manipulative	http://matti.usu.edu/nlvm/nav/index.html
NCTM Illuminations	http://illuminations.nctm.org/
Education World	http://www.education-world.com/

Student Resources

AAA Math	http://www.aaamath.com/
A Plus Math	http://www.aplusmath.com/
Web Math	http://www.webmath.com/
All Math	http://www.allmath.com/
Fun Brain	http://www.funbrain.com/
Kid's Domain	http://www.kidsdomain.com/games/math2.html
Cool Math for Kids	http://www.coolmath4kids.com/



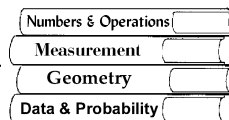
DRAFT

ASSESSABLE VOCABULARY

Grade 4

The mathematical words in the Assessable Vocabulary list are terms that all children should be able to understand, read, write and use independently by the end of the fourth grade. These words may appear in items on the MEAP assessment that covers the grade 4 GLCE's. (Tested in the fall of grade 5.)

Patterns Relationships & Functions	arithmetic pattern	geometric pattern	multiples	rule	
	at least	if...then	odd/even	sequence	
	at most	increase	pattern	statement	
	calendar	insufficient information	process	table	
	column	investigate	relationship	textured	
	construct	months	row	Venn diagram	
	decrease				
Geometry & Measurement	actual	gram (g)	ordered pairs	reflections	
	acute	greater	origin	right angles	
	angle: acute, obtuse	grid	parallel	rotations: half-turn,	
	right, straight, reflex	horizontal	parallel lines	quarter-turn	
	appropriate	image	perimeter	segments	
	areas	intersect	perpendicular	similar	
	Celsius degrees	kilogram (kg)	perpendicular lines	slide	
	centimeter (cm)	kiloliter (kl)	polygon: pentagon,	sphere	
	circle: center, radius	kilometer (km)	hexagon,	symmetrical	
	diameter, semicircle	kite	octagon	symmetry, line of	
	cone	length	cube: edges, faces	tan grams	
	congruence	less than	prism: rectangular,	translation	
	congruent	line	square, triangular	trapezoid	
	coordinates	line segment	protractor	triangle: right,	
	cylinder	liter	pyramid - square,	equilateral, isosceles	
	decimeter (dm)	meter (m)	triangular	vertex	
	diagonal	milligram (mg)	quadrilateral – kite,	vertical	
	elapsed time	milliliter (ml)	parallelogram	view: front, side, top	
	estimate	millimeter (mm)	rhombus	weight	
	flip	obtuse	ray	width	
	Data Analysis & Statistics	analysis	frequency	minimum	sample
		average	horizontal	mean	schedule
axis		inference	median	simple event	
bar graph		intervals	mode	statistics	
bias		investigation	pictograph	survey	
data		line graph	probability	temperature	
descriptive statistics		line plot	random	thermometer	
equally like		maximum	range	vertical	
events					
Number Sense & Numeration	array	expanded notation	pictograph	round	
	cardinal	factor	place value (ten	schedule	
	common factor	greatest	thousand, hundred	standard form	
	common multiple	horizontal	thousand, million)	statistics	
	decimals (tenths)	investigation	prime	vertical	
	divisor	least	factorization	written form	
	equivalent	multiple	prime numbers		
	expanded form	ordinal	quotient		



DRAFT
ASSESSABLE VOCABULARY
Grade 4

Numerical & Algebraic Operations

algebraic
 associative property
 common denominator
 commutative property
 computations
 decimal

denominator
 distributive property
 equation
 equivalent
 decimals
 equivalent fractions
 exponent

factor
 formula
 higher term fraction
 improper fraction
 inequality
 lowest term fraction
 mixed number

negative integer
 numerator
 parentheses
 percent
 positive integer
 ratio
 square root

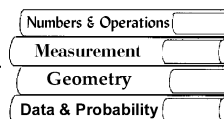
Probability & Discrete Mathematics

equivalent
 factors
 mileage

polygon
 predict
 probability

route
 sequence
 simplest form

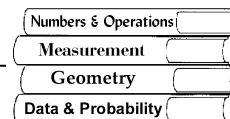
Venn diagram
 versus



DRAFT
INSTRUCTIONAL VOCABULARY
Grade 4

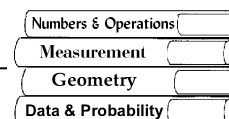
The mathematical words in the Instructional Vocabulary list are terms that students should have a variety of classroom experiences with during fourth grade, but they would NOT be expected to understand, read, write and use these terms independently. These words would be considered too advanced for use on the MEAP assessment that covers the grade 4 GLCE's.

Patterns Relationships and Functions	multiples	pattern	rule sequence	table Venn diagram
Geometry & Measurement	angle: acute, right, obtuse, straight, reflex area congruent, similar diameter, radius edges, faces, vertices flip	intersect line, line segment, ray liter, meter, gram milli, centi, deci, kilo parallel	perpendicular prism, pyramid, cone, cylinder quadrilateral- kite, parallelogram, rhombus trapezoid	slide symmetry translation triangle: equilateral, isosceles, right
Data Analysis & Statistics	axis equally likely events	line graph line plot	maximum, minimum mean, median, mode	range
Number Sense & Numeration	equivalent expanded form	expanded notation factor (common)	multiple (common) prime factorization	prime number quotient/ divisor
Numerical & Algebraic Operations	denominator (common) equation equivalent- fraction/decimal	exponent inequality improper fraction	mixed number numerator parentheses	ratio square root
Probability & Discrete Mathematics	predict	probability	simplest	



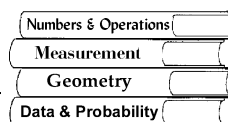
DRAFT
COMBINED MATHEMATICAL VOCABULARY
Grade 4

actual	decimals (tenths)	insufficient information	parentheses	rotations – half-turn, quarter-turn
acute	decimeter (dm)	intersect	pattern	round
algebraic	decrease	intervals	percent	route
analysis	denominator	investigate	perimeter	row
angle: acute, obtuse, right, straight, reflex	descriptive statistics	investigation	perpendicular lines	rule
appropriate	diagonal	kilogram (kg)	pictograph	sample
areas	distributive property	kiloliter (kl)	place value (ten thousand, hundred thousand, million)	schedule
arithmetic pattern	divisor	kilometer (km)	polygon – pentagon, hexagon, octagon,	segments
array	elapsed time	kite	positive integer	sequence
associative property	equally like events	least	predict	similar
at least	equation	length	prime factorization	simple event
at most	equivalent	less than	prime numbers	simplest form
average	equivalent	line	prism – rectangular, square, triangular	slide
axis	equivalent decimals	line graph	probability	sphere
bar graph	equivalent fractions	line plot	process	square root
bias	estimate	line segment	protractor	standard form
calendar	expanded form	liter	pyramid – square, triangular	statement
cardinal	expanded notation	lowest term fraction	quadrilateral – kite, parallelogram, rhombus	statistics
Celsius degrees	exponent	maximum	quotient	survey
centimeter (cm)	factor	mean	random	symmetrical
circle: center, diameter, radius, semicircle	factors	median	range	symmetry, line of
column	flip	meter (m)	ratio	table
common denominator	formula	mileage	ray	tangrams
common factor	frequency	milligram (mg)	reflections	temperature
common multiple	geometric pattern	milliliter (ml)	relationship	textured
commutative property	gram (g)	millimeter (mm)	right angles	thermometer
computations	greater	minimum		translation
cone	greatest	mixed number		trapezoid
congruence	grid	mode		triangle – equilateral, isosceles, right
congruent	higher term fraction	months		Venn diagram
construct	horizontal	multiple		versus
coordinates	if...then	multiples		vertex
cube, edges, faces	image	negative integer		vertical
cylinder	improper fraction	numerator		view – front, side, top
data	increase	obtuse		weight
decimal	inequality	odd/even		width
	inference	ordered pairs		written form
		ordinal		
		origin		
		parallel		
		parallel lines		



GRADE 4

MEAP
MATHEMATICS
SAMPLE
ASSESSMENT
ITEMS

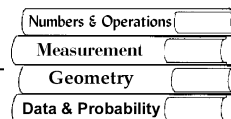


ASSESSMENT ITEMS

Grade 4

1. Which number is both a factor and multiple of the number 20?
 - a. 2
 - b. 5
 - c. 10
 - d. 20

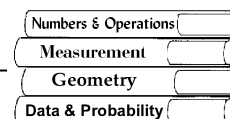
2. Name the geometric solid with 5 faces, only four of which are the same congruent polygon.
 - a. triangular pyramid
 - b. triangular prism
 - c. square prism
 - d. square pyramid



ASSESSMENT ITEMS

Grade 4

3. John has a cube, 3 inches on each side. What is its surface area?
- a. 54 in.^3
 - b. 27 in.^3
 - c. 54 in.^2
 - d. 36 in.^2
4. A rectangle has a length of 4 meters and an area of 24 square meters. What is its perimeter?
- a. 16 meters
 - b. 10 meters
 - c. 20 meters
 - d. 24 meters



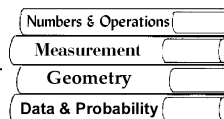
ASSESSMENT ITEMS

Grade 4

5. a. Which set of numbers will complete the data set with numbers so that the range is 26 and the mode is 10.

3, 7, 6, 8, _____, _____, 14, 21, _____

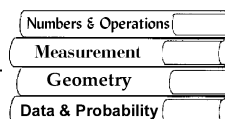
- a. 10, 12, 29
 - b. 10, 10, 29
 - c. 8, 14, 26
 - d. 9, 10, 26
-
- b. What is the median number for this set of data? {2, 2, 3, 5, 10, 10, 10}
- a. 5
 - b. 6
 - c. 7
 - d. 10



ASSESSMENT ITEMS

Grade 4

6. 5 and 3 are both factors of two numbers. What is one possible pair of numbers?
- a. 20 and 30
 - b. 50 and 60
 - c. 60 and 90
 - d. 30 and 40
7. A father gave \$5,440 to his 4 children to share equally. How much money did each child receive?
- a. \$1350
 - b. \$1340
 - c. \$1358
 - d. \$1360



ASSESSMENT ITEMS

Grade 4

8. Mrs. Johnson's class of 30 students had a pizza party. Ten pizzas were equally cut into 8 pieces. After each student took 2 pieces, how many pizzas were left?

a. $\frac{20}{80}$

b. 2

c. $2\frac{1}{2}$

d. $\frac{20}{30}$

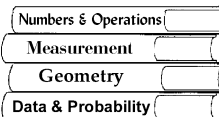
9. It rained in the Amazon Rain Forest for three months an average of 2 cm per day. How much total rain is this?

a. 90 cm

b. 1.8 m

c. 18 m

d. 9 m



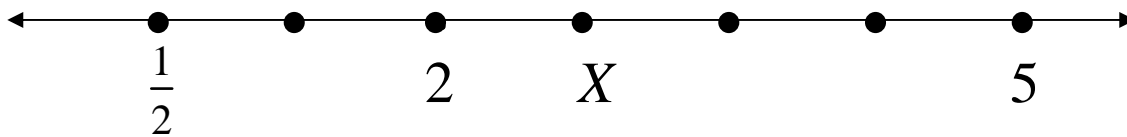
ASSESSMENT ITEMS

Grade 4

10. During each 24 hour day, Jane spends $\frac{1}{3}$ of her day sleeping, $\frac{1}{4}$ of her day in school, $\frac{1}{8}$ of her day doing homework and chores, and $\frac{1}{8}$ of her day eating. What fraction of the day is left?

- a. $\frac{2}{5}$
- b. $\frac{2}{6}$
- c. $\frac{1}{6}$
- d. $\frac{3}{5}$

11. The marked points are equally spaced on the number line. Name point X.



- a. $2\frac{3}{4}$
- b. 3
- c. $2\frac{1}{2}$
- d. $2\frac{5}{6}$

Numbers & Operations	
Measurement	
Geometry	
Data & Probability	

CONSTRUCTED RESPONSE

Grade 4

12. Stacy is a 5th grader. She wants to go swimming at her neighborhood pool on Saturday but she is not sure when she is allowed to swim. All she has is the schedule below.

Neighborhood Pool Schedule

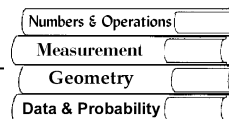
Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:30 – 9:00	Senior Citizens Only	Open Swim	Senior Citizens Only	Open Swim	Senior Citizens Only
9:15 – 9:55	Open Swim	Senior Citizens Only	Open Swim	Senior Citizens Only	Open Swim
11:10 – 12:00	Water Polo	Open Swim	Water Polo	Open Swim	Water Polo
12:05 – 1:00	Open Swim	Water Polo	Open Swim	Water Polo	Open Swim
1:20 – 2:10	Lifeguard Training	Open Swim	Lifeguard Training	Open Swim	Lifeguard Training
3:20 – 4:10	Open Swim	Lifeguard Training	Open Swim	Lifeguard Training	Open Swim

*** No children under the age of 15 are allowed in the pool during Lifeguard Training or Water Polo.

*** Weekend classes start 15 minutes later than weekday classes.

*** Weekend classes follow the Tuesday and Thursday schedule.

At what times can Stacy swim on Saturday? _____



CONSTRUCTED RESPONSE

Grade 4

13. A gardener has 16 feet of fencing. Draw 3 possible rectangular gardens he can make with his fencing.

a. Label the width and the length of each garden

b. What would be the area of the largest garden he could make still using 16 feet of fencing?

Numbers & Operations	<input type="checkbox"/>
Measurement	<input type="checkbox"/>
Geometry	<input type="checkbox"/>
Data & Probability	<input type="checkbox"/>

ANSWER KEY

Grade 4

ANSWER KEY FOR SAMPLE ITEMS

<u>Problem</u>	<u>Expectation</u>	<u>Answer</u>
1	G.SR.04.03	(d) square pyramid
2	M.TE.04.04	(c) 54 square inches
3	M.TE.04.06	(c) 20 m
4	DRE.04.02	(a) 10
5a	N.ME.04.05	(b) 10, 10, 29
5b	N.ME.04.05	(a) 5
6	N.ME.04.05	(c) 60 and 90
7	N.FL.04.11	(d) \$1360
8	N.ME.04.20	(c) 2 1/2
8	N.ME.04.25	
9	N.FL.04.14	(b) 1.8 m
10	N.ME.04.20	(c) 1/6
10	N.MR.04.23	
11	N.MR.04.24	(a) 2 3/4

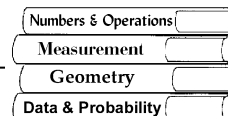
CONSTRUCTED RESPONSE SCORING:

Rubric for # 12

1 point	for showing eliminated or allowed days
1 point	for identifying 8:45 – 9:15
1 point	for identifying 11:25 – 12:15
1 point	for identifying 1:35 – 2:25

Rubric for # 13

1 point	for drawing and labeling a 5 x 3 rectangle
1 point	for drawing and labeling a 6x2 rectangle
1 point	for drawing and labeling a 4 x 4 square
1 point	for identifying the 4 x 4 as the largest garden

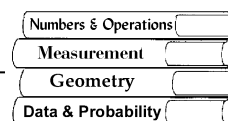


MATHEMATICS WEBSITES

Grade 4

As expectations in mathematics continue to change, the use of technology should have an integral part in enhancing the way students learn and understand algebraic concepts. The web offers a plethora of free materials that can be used to support these efforts. Listed below are some websites where teachers can find interactive math applets, Internet-based lesson plans, and technology projects that can be utilized to create effective standards-based mathematics lessons.

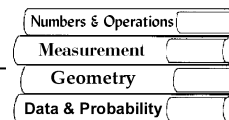
Free math activities		www.shodor.org
Resources for teaching and reinforcing fraction		www.kn.pacbell.com/wired/fil/pages/listfractionst.html
All operations for fractions		http://www.aaamath.com/B/fra.htm
Math lesson plans		http://mathforum.org/teachers/lem/lessons-collections.html
Many math links		http://homeworkspot.com/elementary/math
Resources for elementary math		http://www.math.ttu.edu~dmettler/title.html
Elementary math activities: i.e. fractions, data (line plot), probability		http://members.tripod.com/exworthy/elmath.htm
Math Cats- challenging games		http://www.mathcats.com/contents.html
Fun activities		http://math.rice.edu/~anius/Lessons/index/html



DRAFT
ASSESSABLE VOCABULARY
Grade 5

The mathematical words in the Assessable Vocabulary list are terms that all children should be able to understand, read, write and use independently by the end of the fourth grade. These words may appear in items on the MEAP assessment that covers the grade 4 GLCE's. (Tested in the fall of grade 5.)

Number and Operation	common denominator denominator dividend divisibility divisor	equivalent fractions equivalent ratios exponential notation hundredths least common	notation percentages prime (product of) prime factorization ratio	remainder repeated subtraction rounding tenths thousandths unlike denominators
Measurement	area formula of triangle parallelogram	conversions among: liters milliliters cubic centimeters cube in liquid too	(know abbreviations) parallelograms rectangular prism relationships	volume cubic meter cubic inch cubic feet cubic yard
Geometry	angles acute interior obtuse right straight vertical	comparing degrees with turns degrees	diagonal point	properties point
Data and Probability	axis distance-time graph	events fair share	likely outcomes line graph mean	mode scale x,y axes



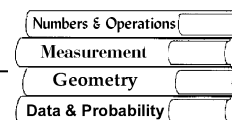
DRAFT

INSTRUCTIONAL VOCABULARY

Grade 5

The mathematical words in the Instructional Vocabulary list are terms that students should have a variety of classroom experiences with during fourth grade, but they would NOT be expected to understand, read, write and use these terms independently. These words would be considered too advanced for use on the MEAP assessment that covers the grade 4 GLCE's.

Number and Operation	absolute value equal distance integer exponents	negative fraction negative rational numbers	positive rational numbers quotient rational numbers	scaling up/down scientific notation tax terminating decimals
Algebra	algebraic expression coefficient coordinate plane	linear equations ordered pairs perimeter	plot quadrants	quantities specific value
Measurement	square feet	square inches		
Geometry	angle bisectors complementary angles	congruence convex polygon	midpoint remote angles	rigid motions in plane supplementary angles triangle inequality
Data and Probability	likely outcomes			



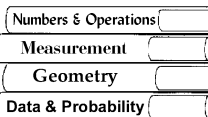
DRAFT
COMBINED MATHEMATICS VOCABULARY
Grade 5

(know abbreviations)
 absolute value
 algebraic expression
 angle bisectors
 angles: acute, interior,
 obtuse, right,
 straight, vertical
 area formula of triangle,
 parallelogram
 axis
 coefficient
 common denominator
 comparing degrees with
 turns
 complementary angles
 congruence
 conversions among:
 liters milliliters,
 cubic centimeters
 convex polygon
 coordinate plane
 cube
 degrees
 denominator

diagonal
 distance-time graph
 dividend
 divisibility
 divisor
 equal distance
 equivalent fractions
 equivalent ratios
 events
 exponential notation
 fair share
 hundredths
 in liquid too
 integer exponents
 least common
 likely outcomes
 likely outcomes
 line graph
 linear equations
 mean
 midpoint
 mode
 negative fraction
 negative rational
 numbers

notation
 ordered pairs
 parallelograms
 percentages
 perimeter
 plot
 point
 point
 positive rational
 numbers
 prime (product of)
 prime factorization
 properties
 quadrants
 quantities
 quotient
 ratio
 rational numbers
 rectangular prism
 relationships
 remainder
 remote angles
 repeated subtraction
 rigid motions in plane
 rounding

scale
 scaling up/down
 scientific notation
 specific value
 square feet
 square inches
 supplementary angles
 tax
 tenths
 terminating decimals
 thousandths
 triangle inequality
 unlike denominators
 volume: cubic meter,
 cubic inch, cubic
 feet, cubic yard
 x,y axes



GRADE 5

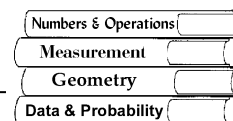
MEAP

MATHEMATICS

SAMPLE

ASSESSMENT

ITEMS



ASSESSMENT ITEMS

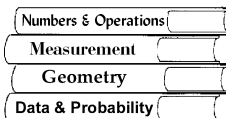
Grade 5

1. Jennie was assigned this problem:

$$\begin{array}{r} 146 \\ \times 25 \\ \hline \end{array}$$

She worked out the problem in this way. $146 \times 2 = 292$; then $146 \times 5 = 730$. Then she added $292 + 730$. She knew that her answer was wrong because her answer was too small. What should she have done?

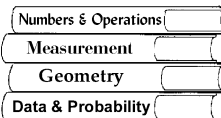
- a. $146 \times 50 =$
 - b. $146 \times 200 =$
 - c. $146 \times 20 =$
 - d. $140 \times 2 =$
2. Barb and Phil were eating a 12 piece pizza. Barb ate $\frac{2}{4}$ of the pizza and Phil ate $\frac{1}{3}$ of the pizza. Help their mom figure out what fraction of their pizza is left over.
- a. $\frac{2}{12}$
 - b. $\frac{3}{12}$
 - c. $\frac{4}{12}$
 - d. $\frac{1}{12}$



ASSESSMENT ITEMS

Grade 5

3. Josh's mom was shopping at a store for something new for their house. The original price of what she wanted was \$100.00 and was on sale for 20% off. How much did it cost?
- a. \$ 20.00
 - b. \$ 40.00
 - c. \$ 60.00
 - d. \$ 80.00
4. Joe wanted to buy his mom something special for her birthday. He had saved \$10.00 to spend. He chose five different colored pens and was trying to decide if he had enough money. Each pen costs \$2.19. Help Joe see how much five pens will cost.
- a. \$ 11.00
 - b. \$ 10.95
 - c. \$ 11.15
 - d. \$ 10.90

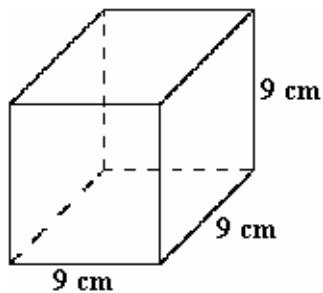


ASSESSMENT ITEMS

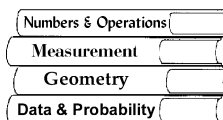
Grade 5

5. There are 570 fourth graders and 658 fifth graders. What is the ratio of fourth graders to fifth graders?
- 570 to 658
 - 570 to 88
 - 88 to 570
 - 658 to 570

6. What is the volume of this figure?



- 108 cubic centimeters
- 6,561 cubic centimeters
- 729 cubic centimeters
- 81 cubic centimeters



ASSESSMENT ITEMS

Grade 5

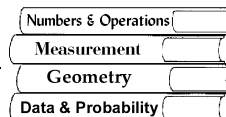
7. Estimate the measure of angle $\angle BAD$ and then select the appropriate angle name for $\angle BAD$.



- a. an acute angle
- b. an obtuse angle
- c. a straight angle
- d. a right angle



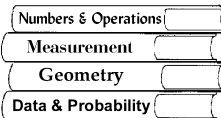
8. How many more magazines were sold in 1990 than in 1989?
- a. 100 more magazines
 - b. 200 more magazines
 - c. 250 more magazines
 - d. 50 more magazines



ASSESSMENT ITEMS

Grade 5

9. There are 968 basketball fans waiting for the shuttle to the game. Each shuttle holds sixteen fans. How many shuttles will it take to get all of the fans to the game?
- a. 70 shuttles
 - b. 59 shuttles
 - c. 63 shuttles
 - d. 61 shuttles
10. Bobby bought $3\frac{3}{5}$ ice cream cones. Jose Miquel bought $5\frac{1}{3}$ ice cream cones. How many ice cream cones did they buy together?
- a. $8\frac{6}{8}$ ice cream cones
 - b. $8\frac{3}{4}$ ice cream cones
 - c. $9\frac{1}{15}$ ice cream cones
 - d. $8\frac{14}{15}$ ice cream cones



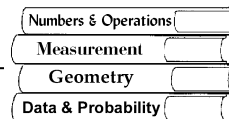
CONSTRUCTED RESPONSE

Grade 5

11. Mary bought a dress that was on sale. The original price of the dress was \$40.00. The dress was 20% off of this original price. How much did Mary pay for the dress? Show your work.

12. DaShawn is training to run a marathon. She jogs six miles every morning. On Saturday DaShawn kept track of her times at several points along the way and recorded the data in the table below. Construct a line graph using her data (distance, time) and be sure to label the scale and title for of each the axis's.

Distance (miles)	Time (minutes)
0	0
2	20
4	50
6	70



ANSWER KEY

Grade 5

ANSWER KEY FOR SAMPLE ITEMS

Problem #	GLCE	Answer
1	N.FL.05.04	B- It should be $490 + 4900 = 5390$
2	N.FL.05.12	A - $\frac{2}{12}$
3	N.ME.05.09	D - \$80.00
4	N.MR.05.17	B - \$10.95
5	N.ME.05.23	A - 570 to 658
6	M.TE.05.10	C - 729 Cubic Centimeters
7	N.GS.05.07	A - An acute angle
8	D.RE.05.01	D - 50 Magazines
9	N.FL.05.06	D - 61
10	N.FL.05.14	D - $8\frac{14}{15}$

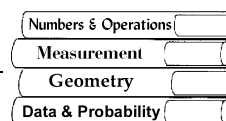
CONSTRUCTED RESPONSE SCORING:

Rubric for #11

1 point	for any evidence that indicates that the student correctly represents percent as a fraction of 100 in determining an answer
2 points	for showing the ability to use algorithms correctly in solving the problem
2 points	for showing the ability to write a clear explanation on how the answer was determined

Rubric for #12

2 points	for correctly plotting all four data points
1 point	for correctly labeling the x-axis (Distance)
1 point	for correctly labeling the y-axis (Time)
1 point	for marking and correctly labeling a reasonable x-axis scale (equally spaced segments with an appropriate scale)
1 point	for marking and correctly labeling a reasonable y-axis scale (equally spaced segments with an appropriate scale)



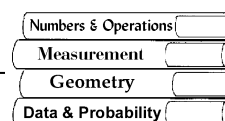
MATHEMATICS WEBSITES

Grade 5

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Michigan Teacher Network	http://mtn.merit.edu/mcf/MAT.html
Michigan Council of Teachers of Mathematics	http://www.mictm.org/
National Center for Education Studies	http://nces.ed.gov/nationsreportcard/mathematics/results/
MI Climb	http://www.miclimb.net/content/
National Council of Teachers of Mathematics	http://standards.nctm.org/
Everyday Math Resources	http://www.center.k12.mo.us/edtech/everydaymath.htm
The World of Math Online	http://www.math.com/
Center for Technology and Teacher Education:	http://www.teacherlink.org/content/math/home.html
Coolmath4kids	http://www.coolmath4kids.com
Count On	http://www.counton.org/
Educational Java Programs	http://www.arcytech.org/java/java.shtml
Eisenhower National Clearinghouse	http://www.enc.org/
Figure This	http://www.figurethis.org/
Fun Mathematics Lessons by Cynthia Lanius*	http://math.rice.edu/~lanius/Lessons/
H.I.P. Pocket Change	http://www.usmint.gov/kids/

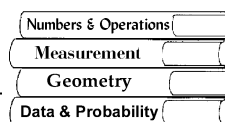
*Must be a capital "L" at the beginning of Lessons



MATHEMATICS WEBSITES

Grade 5

Illuminations (National Council of Teachers of Mathematics)	http://illuminations.nctm.org
Interactive Mathematics Miscellany and Puzzles	http://www.cut-the-knot.com/
Math Forum	http://mathforum.org/
A Maths Dictionary for Kids by Jenny Eather	http://www.amathsdictionaryforkids.com
National Library of Virtual Manipulatives	http://matti.usu.edu/nlvm/nav/vlibrary.html
Pi Day	http://mam2000.mathforum.org/t2t/faq/faq.pi.html
Project Interactive	http://www.shodor.org/interactivate/



DRAFT

ASSESSABLE VOCABULARY

Grade 6

The mathematical words in the Assessable Vocabulary list are terms that all children should be able to understand, read, write and use independently by the end of the sixth grade. These words may appear in items on the MEAP assessment that covers the grade 6 GLCE's. (Tested in the fall of grade 7.)

Number & Operations	absolute value base cross multiplication decimal denominator dividend divisibility division division symbols: (\div $\sqrt{\quad}$ $\frac{\quad}{\quad}$)	divisor exponents equivalent fraction equivalent ratios factor fractions integers LCD- Least Common Denominator mixed numbers	multiple multiplication multiplication symbols: (\bullet $3 \times$ $[\]$ $() \times *$) number line (rational) numerator operation percent percentage power(s)	quantities quotient rate rational numbers sales tax scaling up or down simplest form/simplify tips terminating decimals unit(s)
Measurement	area conversions degree cup, pint, quart, gallon	inch, foot, yard, mile length mg, g, kg ml, l, kl mm, cm, dm, m, km	nets perimeter square inches square feet surface area of cubes	surface area of rectangular prism volume of cubes volume of rectangular prisms
Geometry	alternate interior angles angle bisector angles complementary angles congruent constructions convex polygon coordinate plane /system coordinate(s) corresponding angles	corresponding sides cube exterior angles face interior angle line line segment midpoints of a line segment opposite interior angles ordered pairs	origin parallel lines perpendicular lines plane point prisms: triangular & rectangular properties quadrant reflections rotations	supplementary angles transformation translation transversal triangle: equilateral, isosceles, right, scalene triangle inequalities vertical angles width x and y axis x and y coordinate
Data & Probability	certain events equally likely events	equally likely outcomes events	experimental probability impossible event	outcome probability theoretical probability
Algebra	algebraic expression algebraic equation coefficients discount distance	formula(s) function, $f(x)=$ graphs inverse operations like terms	linear linear functions parenthesis scientific notation	solutions speed (mph) tables variable

Numbers & Operations	<input type="checkbox"/>
Measurement	<input type="checkbox"/>
Geometry	<input type="checkbox"/>
Data & Probability	<input type="checkbox"/>
Algebra	<input type="checkbox"/>

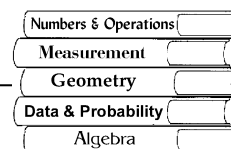
DRAFT

INSTRUCTIONAL VOCABULARY

Grade 6

The mathematical words in the Instructional Vocabulary list are terms that students should have a variety of classroom experiences with during sixth grade, but they would NOT be expected to understand, read, write and use these terms independently. These words would be considered too advanced for use on the MEAP assessment that covers the grade 6 GLCE's.

Number & Operations	<ul style="list-style-type: none"> common factor composite consecutive integers equivalent exponential notation factor tree fractions (positive and negative) 	<ul style="list-style-type: none"> GCF- greatest common factor LCM- least common multiple order of operations perfect squares pi (the symbol) (π) 	<ul style="list-style-type: none"> place value (ten thousands, hundred thousands, millions) powers of ten prime prime factorization ratio(s) reciprocal 	<ul style="list-style-type: none"> reduce repeating decimals roots scale factor square roots squares unit rate
Geometry	<ul style="list-style-type: none"> angle of rotation center of rotation circle: circumference, center, diameter, radius, semicircle concave polygon 	<ul style="list-style-type: none"> geometric shapes geometry image lines of reflection orientation pre-image 	<ul style="list-style-type: none"> prime notation Y' ray rotational symmetry similar skew lines 	<ul style="list-style-type: none"> slide straight angle vertex vertices view: front, side, top
Data & Probability	<ul style="list-style-type: none"> average chances favorable outcomes frequency 	<ul style="list-style-type: none"> intersecting organized list possible outcomes random sample 	<ul style="list-style-type: none"> sample space simulations survey 	<ul style="list-style-type: none"> statistics tree diagram Venn diagram
Algebra	<ul style="list-style-type: none"> brackets constant distributive property evaluate 	<ul style="list-style-type: none"> inequality labels linear equations negative integer 	<ul style="list-style-type: none"> non-linear positive integer standard notation term 	<ul style="list-style-type: none"> values variable equations word problems
Technology	<ul style="list-style-type: none"> calculate carrot key cells 	<ul style="list-style-type: none"> clear entry key CE decimal key division key estimate 	<ul style="list-style-type: none"> memory & functions of the keys: memory minus M-, memory plus M+, recall memory RM, clear memory CM 	<ul style="list-style-type: none"> Spreadsheet X^Y key X² key



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COMBINED MATHEMATICS VOCABULARY
Grade 6

absolute value	division	line segment	possible outcomes
algebraic equation	division key	linear	power(s)
algebraic expression	division symbols: (\div , $\sqrt{\quad}$, \rightarrow)	linear equations	powers of ten
alternate interior angles	divisor	linear functions	pre-image
angle bisector	equally likely events	lines of reflection	prime
angle of rotation	equally likely outcomes	memory & functions of the keys: memory	prime factorization
angles	equivalent	minus M-, memory	prime notation Y'
area	equivalent fraction	plus M+, recall	prisms: triangular & rectangular
average	equivalent ratios	memory RM, clear	probability
base	estimate	memory CM	properties
brackets	evaluate	mg, g, kg	quadrant
calculate	events	midpoints of a line segment	quantities
carrot key	experimental probability	mixed numbers	quotient
cells	exponential notation	ml, l, kl	random sample
center of rotation	exponents	mm, cm, dm, m, km	rate
certain events	exterior angles	multiple	ratio(s)
chances	face	multiplication	rational numbers
circle: circumference, center, diameter, radius, semicircle	factor	multiplication symbols: $x \cdot \bullet 3x [] ()$	ray
clear entry key CE	factor tree	negative integer	reciprocal
coefficients	favorable outcomes	nets	rectangular prism
common factor	formula(s)	non-linear	reduce
complementary angles	fractions (positive and negative)	number line (rational)	reflections
composite	frequency	numerator	repeating decimals
concave polygon	function, f(x)=	operation	roots
congruent	GCF- greatest common factor	opposite interior angles	rotational symmetry
consecutive integers	geometric shapes	order of operations	rotations
constant	geometry	organized list	sales tax
constructions	graphs	orientation	sample space
conversions	image	origin	scale factor
convex polygon	impossible event	outcome	scalene
coordinate plane /system	inch, foot, yard, mile	parallel lines	scaling up or down
coordinate(s)	inequality	parenthesis	scientific notation
corresponding angles	integers	percent	similar
corresponding sides	interior angle	percentage	simplest form/simplify
cross multiplication	intersecting	perfect squares	simulations
cube	inverse operations	perimeter	skew lines
cup, pint, quart, gallon	labels	perpendicular lines	slide
decimal	LCD- least common denominator	pi (the symbol) (π)	solutions
decimal key	LCM- least common multiple	place value (ten thousands, hundred thousands, millions)	speed (mph)
degree	length	plane	Spreadsheet
denominator	like terms	point	square feet
discount	line	positive integer	square inches
distance			square roots
distributive property			squares
dividend			standard notation
divisibility			statistics
			straight angle
			supplementary angles

Numbers & Operations	
Measurement	
Geometry	
Data & Probability	
Algebra	

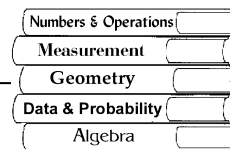
DRAFT
COMBINED MATHEMATICS VOCABULARY
Grade 6

surface area of cubes
 surface area of
 rectangular prisms
 survey
 tables
 term
 terminating decimals
 theoretical probability
 tips
 transformation

translation
 transversal
 tree diagram
 triangle inequalities
 triangle: equilateral,
 isosceles, right,
 scalene
 unit rate
 unit(s)
 values

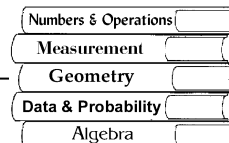
variable
 variable equations
 Venn diagram
 vertex
 vertical angles
 vertices
 view: front, side, top
 volume of cubes
 volume of rectangular
 prisms

width
 word problems
 x and y axis
 x and y coordinate
 X^Y key
 X² key



GRADE 6

MEAP
MATHEMATICS
SAMPLE
ASSESSMENT
ITEMS

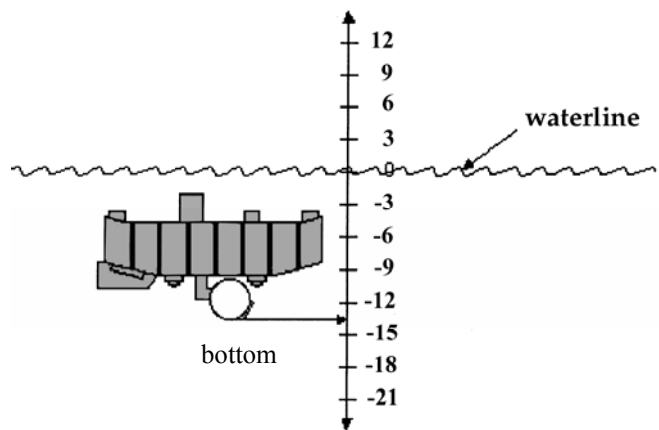


ASSESSMENT ITEMS

Grade 6

1. This weekend Leo plans to call his best friend in New York. He can call either Friday evening or Saturday afternoon. The cost is \$0.07 per minute Friday, or \$0.12 per minute Saturday. If he plans to keep the cost below \$2.55, about how much longer can he talk on Friday?
- a. 12 minutes
 - b. 15 minutes
 - c. 21 minutes
 - d. 36 minutes

2. This machine helps explorers investigate under water. Leah needs to move the machine 3 feet deeper. At what depth would the bottom of the machine be after the move?
- a. at -15
 - b. below -18
 - c. above -12
 - d. between -15 and -18

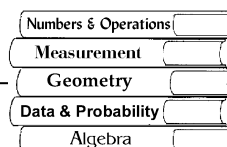


Numbers & Operations	
Measurement	
Geometry	
Data & Probability	
Algebra	

ASSESSMENT ITEMS

Grade 6

3. Carolyn sells Great Taste cookies for \$2.50 a box. The Park family bought 8 boxes. How many more boxes of cookies must she sell in order to collect \$160?
- a. 20
 - b. 56
 - c. 64
 - d. 72
4. A Michigan map has a scale of 1 inch = 20 miles. What distance would a gap of $3\frac{3}{4}$ inches on the map represent?
- a. 65 miles
 - b. 70 miles
 - c. 75 miles
 - d. 80 miles



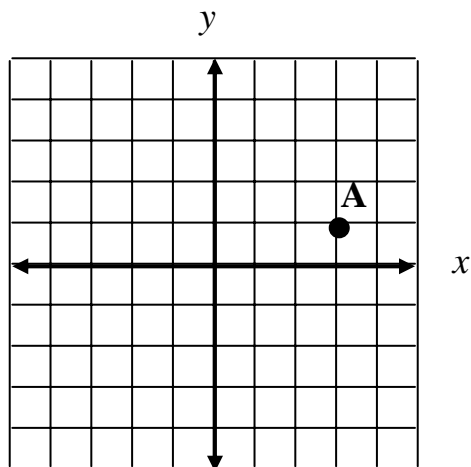
ASSESSMENT ITEMS

Grade 6

5. Ann swam 54 laps in 45 minutes. If she continues at this rate, how many laps would you expect her to complete in 1 hour?
- a. 36
 - b. 54
 - c. 72
 - d. 108

6. Starting at point A, John moves 4 units south, and then 2 units west, then moves in a northwest direction. Through which of the following coordinates would John pass? Point A is at (3, 1)

- a. (2, -2)
- b. (-4, -3)
- c. (5, 1)
- d. (-3, 1)

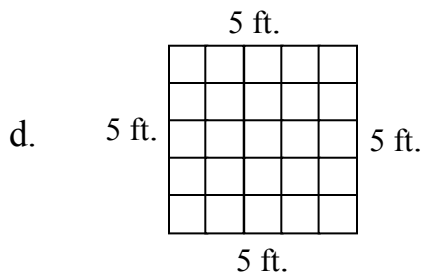
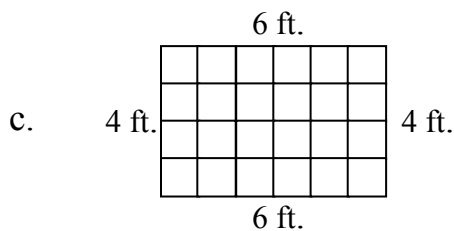
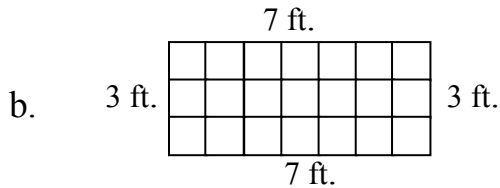
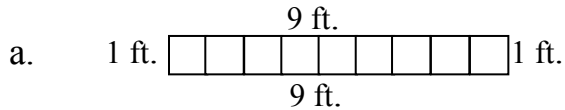


Numbers & Operations	
Measurement	
Geometry	
Data & Probability	
Algebra	

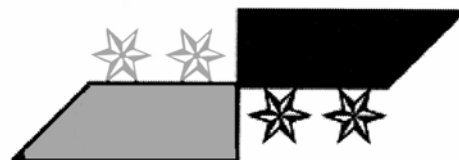
ASSESSMENT ITEMS

Grade 6

7. Billy's dad has 20 feet of fencing for the garden they are planning. They calculated they could have these size gardens. Which plan has the largest area?



8. In this logo, which transformation of the red (dark) part will produce the blue (light) part?
- A translation, then a reflection
 - A reflection, then a translation
 - A 180° clockwise rotation.
 - A 90° clockwise rotation.



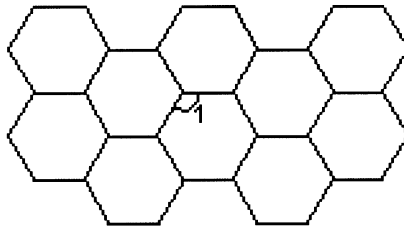
Numbers & Operations	<input type="checkbox"/>
Measurement	<input type="checkbox"/>
Geometry	<input type="checkbox"/>
Data & Probability	<input type="checkbox"/>
Algebra	<input type="checkbox"/>

ASSESSMENT ITEMS

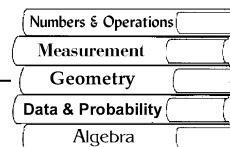
Grade 6

9. Honeycomb cells are usually contained within a pattern of regular hexagons, as shown below. What is the measure of $\angle 1$ in the figure?

- a. 100°
- b. 115°
- c. 120°
- d. 135°



10. Two fair coins are flipped. Player one gets a point if the coins match. Player two gets a point if the coins do not match. Which of the following statements is true?
- a. Player 2 can never win.
 - b. Player 1 is more likely to win.
 - c. Player 2 is more likely to win.
 - d. Player 1 and Player 2 are equally likely to win.

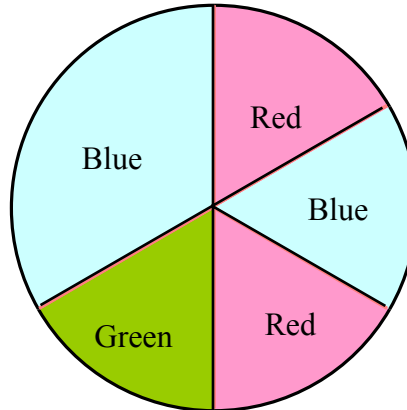


ASSESSMENT ITEMS

Grade 6

11. Using the spinner below, which event has a $\frac{1}{3}$ probability of occurring?

- a. red
- b. blue
- c. green
- d. red or green



12. Using the spinner above, what is the probability of spinning blue?

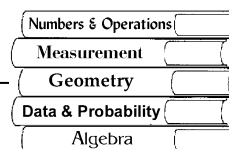
- a. $\frac{2}{5}$
- b. $\frac{2}{6}$
- c. $\frac{1}{2}$
- d. $\frac{1}{6}$

CONSTRUCTED RESPONSE ITEMS

Grade 6

13. Mrs. Kalabash made 5 gallons of fruit punch. How many one-cup servings is this. Explain your thinking.

14. Lin's dad always leaves a 15% tip when he eats at a restaurant. If the bill is \$36.00, what amount will he leave for a tip? Solve the problem using two strategies. Compare the two strategies. Which strategy is easier?

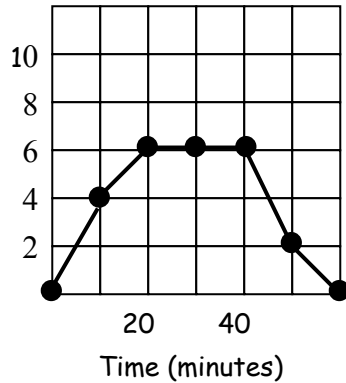


CONSTRUCTED RESPONSE ITEMS

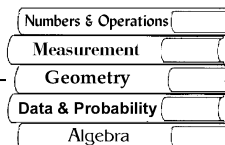
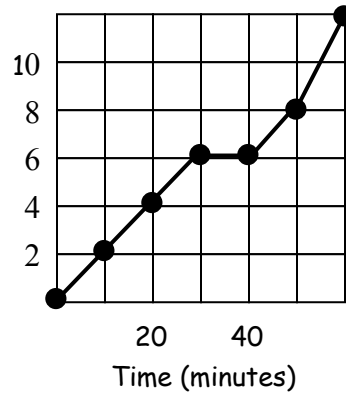
Grade 6

15. The two graphs represent two of Martin's walks to the park and back. The title of each vertical axis is missing. The unit of measure is city blocks. Explain how you can determine which graph should have the title "Distance Walked" and which should have the title "Distance from Home."

a.



b.



ANSWER KEY

Grade 6

ANSWER KEY FOR SAMPLE ITEMS

Item	GLCE	Answers
1	N.FL.06.14	B
2	N.FL.06.09	D
3	M.FL.06.10	B
4	N.ME.06.11	C
5	A.PA.06.01	C
6	A.RP.06.02	D
7	M.TE.06.03	D
8	G.TR.06.04	C
9	G.GS.06.01	C
10	D.PR.06.01	D
11	D.PR.06.02	B
12	D.PR.06.02	C

CONSTRUCTED RESPONSE SCORING:

Rubric for # 13

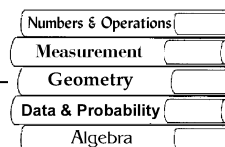
2 points	for correctly converting gallons to ounces or cups
2 points	for the solution strategy described using complete sentences and appropriate math terms such as multiply and product
1 point	for checking the work for accuracy and reasonableness

Rubric for # 14

2 points	for clearly showing two strategies for computing the tip. The solution is clearly stated.
2 points	for the clearly explaining the solution for both strategies
1 point	for explaining which strategy is easier

Rubric for # 14

1 point	for labeling each graph correctly with Graph A being “Distance from Home: and Graph B as “Distance Walked”
2 points	for giving a clear explanation of where and what the walker is doing at each point on the graph
2 points	for using math terminology, such as axis and points, and writing in complete sentences



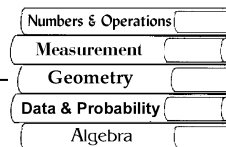
MATHEMATICS WEBSITES

Grade 6

As expectations in mathematics continue to change, the use of technology should have an integral part in enhancing the way students learn and understand algebraic concepts. The web offers a plethora of free materials that can be used to support these efforts. Listed below are some websites where teachers can find interactive math applets, Internet-based lesson plans, and technology projects that can be utilized to create effective standards-based mathematics lessons.

Informative Web Sites

ABC News	http://abcnews.go.com
Access Excellence	http://accessexcellence.org
CBS News	http://cbsnews.com
CNN	http://cnn.com
Fox News	http://foxnews.com
NASA	http://www.nasa.gov
NBC News	http://nbcnews.com
The New York Times on the Web	http://nytimes.com
Online Educators	http://www.online-isp.com/ole
PBS Online	http://pbs.org
Scientific American	http://sciam.com
The Weather Channel	http://www.weather.com
The White House	http://whitehouse.gov
The Why Files	http://whyfiles.org
AskEric – a personalized Internet-based service that provides educational information to teachers, students and parents. It draws its resources from ERIC (Educational Resources Information Center)	http://ericir.syr.edu
Big Chalk is an online resource for educators, students, and families. It provides online access to education-related information. It also has programs in place that allow parents to have a window into their children’s education.	http://bigchalk.com



MATHEMATICS WEBSITES

Grade 6

StudyWeb is a database of Web sites that have been chosen and reviewed by a staff of experts. It is designed to provide a safe environment.

<http://studyweb.com>

Teachers.Net is an online community of teachers that offers educational bulletin boards, chat rooms, and informational articles.

<http://teachers.net>

The AIMS Web Site — AIMS Education Foundation

<http://jmweber@aimsedu.org>

Found in Multimedia and Internet at Schools Magazine

Center for Technology and Teacher Education

<http://www.teacherlink.org/content/math/home.html>

Coolmath4kids

<http://www.coolmath4kids.com>

Count On

<http://www.counton.org/>

Educational Java Programs

<http://www.arcytech.org/java/java.shtml>

Eisenhower National Clearinghouse

<http://www.enc.org/>

Figure This

<http://www.figurethis.org/>

Fun Mathematics Lessons by Cynthia Lanius

<http://math.rice.edu/~lanius/Lessons/>
(Must be a capital “L” at the beginning of Lessons)

H.I.P. Pocket Change

<http://www.usmint.gov/kids/>

Illuminations (NCTM)

<http://www.illuminations.nctm.org>

Interactive Mathematics Miscellany and Puzzles

<http://www.cut-the-knot.com/>

Math Forum

<http://www.mathforum.org/>

A Math Dictionary for Kids by Jenny Eather

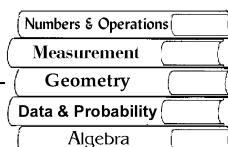
<http://www.amathsdictionaryforkids.com>

National Library of Virtual Manipulatives

<http://www.matti.usu.edu/nlvm/nav/vlibrary.html>

Pi Day

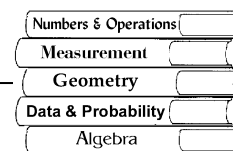
http://www.mam2000.mathforum.org/t2t/faq/faq_pi.html



MATHEMATICS WEBSITES

Grade 6

Project Interactive	http://www.shodor.org/interactivate/
National Space Science Data Center	http://www.nssdc.gsfc.nasa.gov
Powers of Ten	http://www.wordwizz.com/10exp0.htm
Powers of Ten	http://www.wordwizz.com/pwrsof10.htm
Hot Math	http://www.hotmath.com
The Math Forum	http://mathforum.org/library/drmath



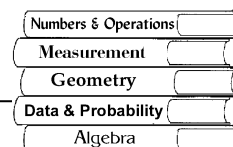
DRAFT

ASSESSABLE VOCABULARY

Grade 7

The mathematical words in the Assessable Vocabulary list are terms that all children should be able to understand, read, write and use independently by the end of the seventh grade. These words may appear in items on the MEAP assessment that covers the grade 7 GLCE's. (Tested in the fall of grade 8.)

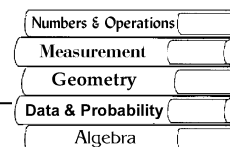
Number & Operation	cube root density equivalent fractions integers	irrational numbers negative proportion proportion equations $a/b=c/d$	rate rates of change ratio rational numbers scaling	speed square root unit rate velocity weighted average
Geometry	AAA similarity area bisector bisector of an angle congruent	corresponding angles corresponding sides equilateral triangle included angle parallel parallelogram	perpendicular bisector ratios of corresponding sides rectangle SAS similarity scale drawings	scale factor segment similar similar polygons square SSS similarity
Data & Probability	box and whisker plots circle graph cumulative frequency	data set histograms interquartile range	line of best fit median quartiles	relative frequency scatter plots stem and leaf plots
Algebra	additive identity additive inverse algebraic equation algebraic expression area associative property of addition associative property of multiplication	commutative property of addition commutative property of multiplication constant constant rate of change directly proportional distributive property equation expression	formula graph intercept inversely proportional linear equation linear relation multiplicative identity multiplicative inverse proportional proportional relation	ratio rise/run slope solution solve table x intercept $y = k/x$ $y = mx$ y intercept $y=mx+b$
Technology	box plot formula graphing histogram	internet line of best fit LIST mean	median mode scatter plot spreadsheet	table trace window y= zoom



DRAFT
INSTRUCTIONAL VOCABULARY
Grade 7

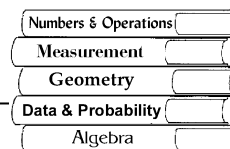
The mathematical words in the Instructional Vocabulary list are terms that students should have a variety of classroom experiences with during eighth grade, but they would NOT be expected to understand, read, write, and use these terms independently. These words would be considered too advanced for use on the MEAP assessment that covers the grade 8 GLCE's.

Number & Operation	derived quantities factor	greatest common factor multiple	prime roots	whole numbers
Geometry	circumference compass diameter	geometric construction image perimeter	protractor radius rotational symmetries slide	straight edge transformations units units squared
Data & Probability	1st quartile 3rd quartile box plot five number summary interquartile range	lower extreme lower quartile maximum measures of central tendency	median minimum outlier probability range	sample stem plot upper extreme upper quartile
Algebra	direct variation domain f(x)	factor function indirect variation	indirectly proportional ordered pairs range	relation term varying rates of change



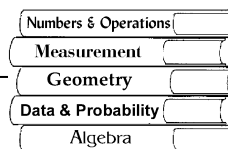
DRAFT
COMBINED MATHEMATICS VOCABULARY
Grade 7

1st quartile	equilateral triangle	multiplicative inverse	similar
3rd quartile	equivalent fractions	negative	similar polygons
AAA similarity	expression	ordered pairs	slide
additive identity	$f(x)$	outlier	slope
additive inverse	factor	parallel	solution
algebraic equation	five number summary	parallelogram	solve
algebraic expression	formula	perimeter	speed
area	function	perpendicular bisector	spreadsheet
associative property of addition	geometric construction	prime	square
associative property of multiplication	graph	probability	square root
bisector	graphing	proportion	SSS similarity
bisector of an angle	greatest common factor	proportion equations	stem and leaf plots
box and whisker plots	histogram	$a/b=c/d$	stem plot
box plot	histograms	proportional	straight edge
circle graph	image	proportional relation	table
circumference	included angle	protractor	term
commutative property of addition	indirect variation	quartiles	trace
commutative property of multiplication	indirectly proportional	radius	transformations
compass	integers	range	unit rate
congruent	intercept	rate	units
constant	internet	rates of change	units squared
constant rate of change	interquartile range	ratio	upper extreme
corresponding angles	inversely proportional	ratio	upper quartile
corresponding sides	irrational numbers	rational numbers	varying rates of change
cube root	line of best fit	ratios of corresponding sides	velocity
cumulative frequency	line of best fit	rectangle	weighted average
data set	linear relation	relation	whole numbers
density	LIST	relative frequency	window
derived quantities	lower extreme	rise/run	x intercept
diameter	lower quartile	roots	$y = k/x$
direct variation	maximum	rotational symmetries	$y = mx$
directly proportional	mean	sample	y intercept
distributive property	measures of central tendency	SAS similarity	$y =$
domain	median	scale drawings	$y = mx + b$
equation	minimum	scale factor	zoom
	mode	scaling	
	multiple	scatter plot	
	multiplicative identity	segment	



GRADE 7

MEAP
MATHEMATICS
SAMPLE
ASSESSMENT
ITEMS



ASSESSMENT ITEMS

Grade 7

1. Which of the following tables represent an inverse relationship?

a.

x	y
1	3
5	11
10	21
7	15

b.

x	y
0	0
5	10
3	6
8	16

c.

x	y
2	24
12	4
6	8
8	6

d.

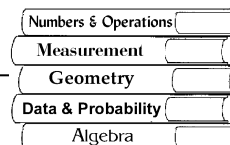
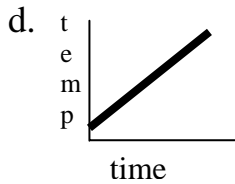
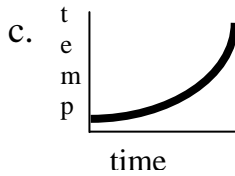
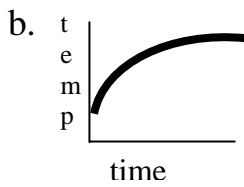
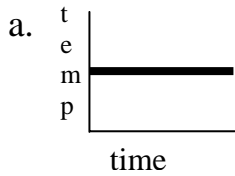
x	y
1	5
2	8
3	6
4	7

Numbers & Operations	
Measurement	
Geometry	
Data & Probability	
Algebra	

ASSESSMENT ITEMS

Grade 7

2. The temperature in Tillie's oven increased at a constant 20 degrees per minute. Which of the following graphs demonstrates this constant rate of change?

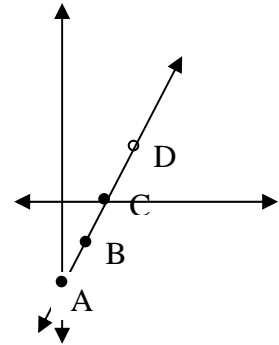


ASSESSMENT ITEMS

Grade 7

3. Mike rewrote $12 = 3x + 6$ as $0 = 3x - 6$.
Then he graphed $y = 3x - 6$ as shown.

The solution to the equation $0 = 3x - 6$ corresponds to point _____.



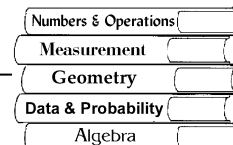
- a. A
- b. B
- c. C
- d. D

4. Rachel weighs 40 pounds and sat 3 feet from the center of a teeter-totter. Her family members took turns playing with her, seating them so they could balance the teeter-totter with her. Their weights and distances from the center of the teeter-totter were:

Weight of family member	30	60	120	240
Distance from center	4	2	1	0

The relationship of her family's pattern of (weight, distance) can be described as:

- a. distance varies directly with the weight (mass)
- b. distance varies inversely with the weight (mass)
- c. the relationship is constant
- d. the relationship is linear



ASSESSMENT ITEMS

Grade 7

5. Which one of the following relations is directly proportional?

a. The ratio of boys to girls is 5 to 3

Boys	5	10	15	20	25
Girls	3	6	9	12	15

b. The number of girls is always one more than twice the number of boys

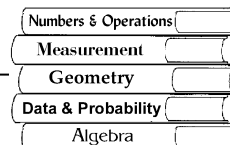
Boys	1	2	3	4	5
Girls	3	5	7	9	11

c. Tammie was always 1 mile ahead of Marylou

Marylou	0	1	2	3	4
Tammie	1	2	3	4	5

d. Together Jerry and Michelle had to deliver 20 newspapers

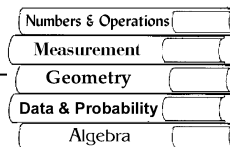
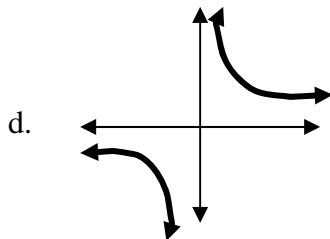
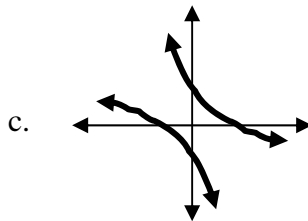
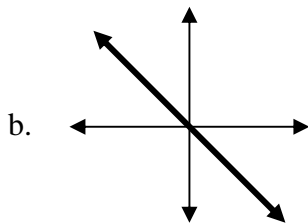
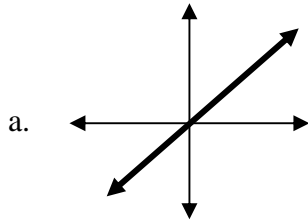
Jerry	0	5	10	15	20
Michelle	20	15	10	5	0



ASSESSMENT ITEMS

Grade 7

6. Which of the following is the best graph of $y = \frac{6}{x}$?



ASSESSMENT ITEMS

Grade 7

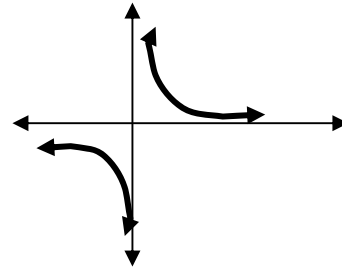
7. Which equation best describes the graph shown?

a. $y = 6x$

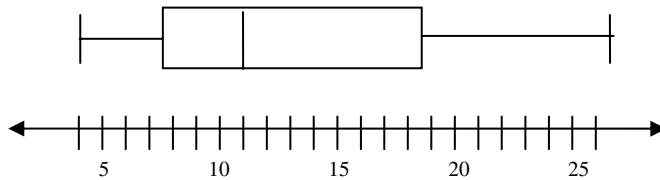
b. $y = \frac{x}{6}$

c. $y = 6$

d. $y = \frac{6}{x}$



8. Which data set matches this box plot?

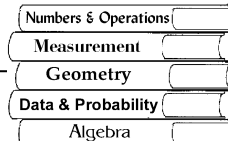


a. {4, 4, 9, 11, 11, 11, 17, 25, 26}

b. {4, 5, 6, 11, 24, 25, 26}

c. {4, 7, 8, 9, 11, 12, 16, 21, 26}

d. {4, 4, 8, 8, 12, 12, 16, 16, 20, 20, 26, 26}



ASSESSMENT ITEMS

Grade 7

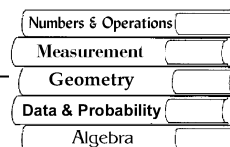
9. Find the interquartile range of the given data.

{1, 6, 7, 15, 30, 32, 38, 39, 40, 54}

- a. 11
- b. 27.5
- c. 32
- d. 38.5

10. Gabriel is interested in renting a car for his 3-day trip. He went to two car rental shops. Vroom Rental will charge him \$50 plus \$0.20 per mile. Beep 'n Go will charge him \$0.35 per mile. How many miles must he go to make Vroom Rental the better choice to rent a car?

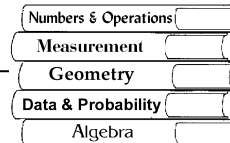
- a. 150 miles
- b. 200 miles
- c. 275 miles
- d. 350 miles



ASSESSMENT ITEMS

Grade 7

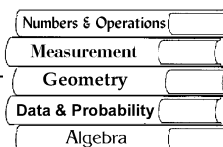
11. You can use the equation $F = \frac{9}{5}C + 32$ to find the temperature in degrees Fahrenheit for any temperature in degrees Celsius. Today it is the same temperature in Toronto and Detroit. Toronto is 35°C . What is the temperature in Detroit in degrees Fahrenheit?
- a. 63
 - b. 95
 - c. 51
 - d. 19
12. Nathan built his first model sailboat. Its sail was shaped like a right triangle and had side lengths of 3 inches, 4 inches, and 5 inches. He intends to build another model with a right triangular sail 6 inches, 8 inches, and 10 inches in length. How much material will he need to create the new sail compared to the material he needed for the sail on the first model?
- a. twice as much
 - b. three times more
 - c. four times more
 - d. five times more



ASSESSMENT ITEMS

Grade 7

13. Shelia drew a picture in art class that she wants to place in the school yearbook. The yearbook coordinator informed her that she needs to enlarge the picture in order to make it fit in its designated spot. The school copier can enlarge the drawing with a scale factor of 1.5. If the original picture is 2 inches by 3 inches, what will be the new dimensions of the drawing after it has been enlarged?
- a. 3 in. x 4 in.
 - b. 3 in. x 4.5 in.
 - c. 3.5 in. x 4.5 in.
 - d. 4 in. x 6 in.



CONSTRUCTED RESPONSE

Grade 7

14. Jason had a mean score of 40 on eight 45-point quizzes. He remembers seven of his scores: 35, 38, 40, 40, 42, 43, 45.

a. What was the eighth score?

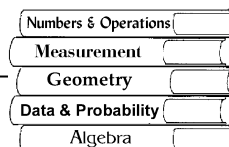
b. What is the five-number summary for this situation? Create and label a box plot to represent this information.

Numbers & Operations	<input type="checkbox"/>
Measurement	<input type="checkbox"/>
Geometry	<input type="checkbox"/>
Data & Probability	<input type="checkbox"/>
Algebra	<input type="checkbox"/>

CONSTRUCTED RESPONSE

Grade 7

15. The middle school math team set a goal to raise \$600 to donate to the Make a Wish Foundation. If only two people participate, each person would have to raise \$300. If 3 people participate, each would raise \$200 and so on.
- a. How much would each person have to raise if 12 people participate? Justify your answer.
- b. Show a graph of the relation between the number of people participating and the money each would have to raise.
- c. Explain how the number of people participating and the money each would have to raise are related.



ANSWER KEY

Grade 7

ANSWER KEY FOR SAMPLE ITEMS

Item #	GLCE	ANSWER
1	A.PA.07.09	C
2	A.OA.07.06	D
3	A.FO.07.08	C
4	A.PA.07.09	B
5	A.PA.07.05	A
6	A.OA.07.06	D
7	A.PA.07.10	D
8	D.RE.07.01	C
9	D.AN.07.04	C
10	A.PA.07.03	D
11	A.PA.07.04	B
12	G.TR.07.06	C
13	G.TR.07.06	C

CONSTRUCTED RESPONSE SCORING:

Rubric for # 14a

1 point | for the correct answer

1 point | for showing work

Rubric for # 14b

minimum – 35	third quartile – 42
first quartile – 38	maximum – 45
median – 40	

1 point | for correct five number summary

1 point | for correct labeling

1 point | for correct construction of box plot

1 point | for showing work

Rubric for # 15a

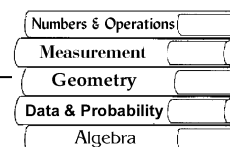
2 points | \$50 because $50 \times 12 = 600$

Rubric for # 15b

2 points | See below

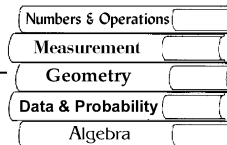
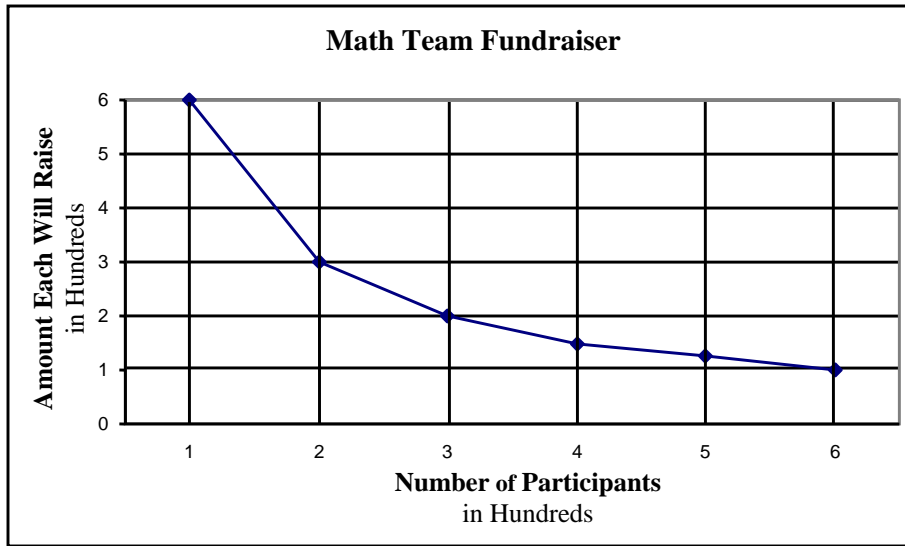
Rubric for # 15b

2 points | The number of people participating (x) and the amount each would have to raise (y) are inversely proportional so that $xy = \$600$.



ANSWER KEY

Grade 7

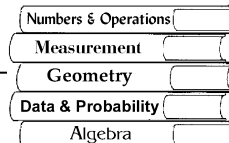


MATHEMATICS WEBSITES

Grade 7

As expectations in mathematics continue to change, the use of technology should have an integral part in enhancing the way students learn and understand algebraic concepts. The web offers a plethora of free materials that can be used to support these efforts. Listed below are some websites where teachers can find interactive math applets, Internet-based lesson plans, and technology projects that can be utilized to create effective standards-based mathematics lessons.

investigate rate of change graphically	http://standards.nctm.org/document/eexamples/chap6/6.2/part2.htm
explore time versus distance rate of change	http://standards.nctm.org/document/eexamples/chap5/5.2/index.htm
investigate slope and y-intercept of a line	http://www.exploremath.com/activities/Activity_page.cfm?ActivityID=16
investigate slope and y-intercept of a line	http://www.exploremath.com/activities/Activity_page.cfm?ActivityID=16
great teacher resource for slope as a rate of change	http://math.rice.edu/~lanius/Algebra/stress.html
investigating the effects of m and b in $y=mx+b$	http://standards.nctm.org/document/eexamples/chap7/7.5/index.htm
statistics and appropriate graphs including frequency, histograms, and scatter plots	http://www.bbc.co.uk/education/mathsf/shockwave/games/datapick.html



DRAFT

ASSESSABLE VOCABULARY

Grade 8

The mathematical words in the Assessable Vocabulary list are terms that all children should be able to understand, read, write, and use independently by the end of the eighth grade. These words may appear in items on the MEAP assessment that covers the grade 8 GLCE's.

Number & Operation	additive identity property of zero associative property of addition associative property of multiplication commutative property of addition	commutative property of multiplication consecutive cube root derived quantities distributive property exponential growth integers irrational number	means and extremes multiplicative identity (property of one) negative exponent prime property proportion Pythagorean theorem rational number	real number repeating decimal scaling scientific notation square root squaring terminating decimal truncate unit rate
Measurement	area circumference	perimeter radius	surface area volume	
Geometry	bisector circle complimentary angles corresponding angles cones congruent cube cylinder dilation	edge face horizontal stretch image isometric view net orthogonal view parabola perpendicular bisector	plane figure prism projective view pyramid quadrilateral reflection reflectional symmetry rotational symmetry scale factor	similarity slide solid figure sphere supplementary angles transformation translate vertex vertical stretch
Data & Probability	basic counting principal biased sample box plots coordinate graph counting tree cumulative frequency dependent event experimental probability extrapolations	five number summary frequency table histogram independent event interpolations intersection IQR (inter-quartile) range line graph line of best fit line plot lower quartile	mean measures of central tendency median mode organized list outcomes population probability proportion quartile random	range relative frequency repeated events sample sampling scatter plot stem-and-leaf plot theoretical probability trend union upper quartile Venn Diagram
Algebra	binomial coefficient constant continuous degree dependent variable direct variation domain equation expression exponential function function	function notation hyperbola independent variable indirect variation inverse function inversely proportional relationship linear linear function linear equalities linear inequalities monomial	non-continuous nonlinear function ordered pairs perimeter area polynomial relationship proportional quadratic function range rate of change root scale factor	sequence simultaneous linear equations slope square root function trinomial term vertical line test x-intercept y-intercept

Numbers & Operations	
Measurement	
Geometry	
Data & Probability	
Algebra	

DRAFT
ASSESSABLE VOCABULARY
Grade 8

Technology

box plot
formula
graphing
histogram

Internet
LIST
mean
median

mode
scatter plot
spread sheet
table

trace
window
Y=
zoom

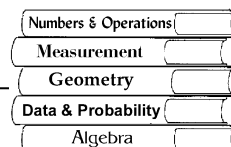
**General
Vocabulary**

analyze
compare
conjecture

convey
describe
devise

discuss
evaluate
explain

interpret
algorithm



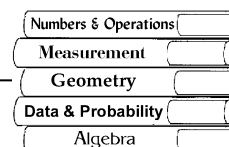
DRAFT

INSTRUCTIONAL VOCABULARY

Grade 8

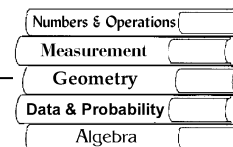
The mathematical words in the Instructional Vocabulary list are terms that students should have a variety of classroom experiences with during eighth grade, but they would NOT be expected to understand, read, write and use these terms independently. These words would be considered too advanced for use on the MEAP assessment that covers the grade 8 GLCE's.

Number & Operation	cardinal number complex number depreciation	factorial gross imaginary number	natural number net node	ordinal number percentage point principal significant digits
Geometry	arc asymptote axiom central angle chord	circumscribe concentric circles conic section direct proof indirect proof	inscribe locus proof secant sector	slant edge slant height tangent transversal vertex
Data & Probability	bimodal combination dependent event	deviation edge mutually exclusive event	network node normal distribution	permutation skewed distribution standard deviation vertex
Algebra	array bounds column constant term	determinant discriminant element elimination	identity matrix independent equations iteration mapping matrix	recursive sequence row scalar multiplication substitution unique solution



DRAFT
COMBINED MATHEMATICS VOCABULARY
Grade 8

additive identity	cumulative frequency	interpolations	permutation
property of zero	cylinder	interpret	perpendicular bisector
algorithm	degree	intersection	plane figure
analyze	dependent event	inverse function	polynomial relationship
arc	dependent variable	inversely proportional	population
area	depreciation	relationship	prime
array	derived quantities	IQR (inter-quartile)	principal
associative property of	describe	range	prism
addition	discriminant	irrational number	probability
associative property of	determinant	isometric view	projective view
multiplication	deviation	iteration	proof
asymptote	devise	line graph	property
axiom	dilation	line of best fit	proportion
basic counting principal	direct proof	line plot	proportional
biased sample	direct variation	linear	pyramid
bimodal	discuss	linear function	Pythagorean theorem
binomial	distributive property	linear equalities	quadratic function
bisector	domain	linear inequalities	quadrilateral
bounds	edge	LIST	quartile
box plot	element	locus	radius
cardinal number	elimination	lower quartile	random
central angle	equation	mapping	range
chord	evaluate	matrix	rate of change
circle	experimental probability	mean	rational number
circumference	explain	means and extremes	real number
circumscribe	exponential function	measures of central	recursive sequence
coefficient	exponential growth	tendency	reflection
column	expression	median	reflectional symmetry
combination	extrapolations	mode	relative frequency
commutative property	face	monomial	repeated events
of addition	factorial	multiplicative identity	repeating decimal
commutative property	five number summary	(property of one)	root
of multiplication	formula	mutually exclusive	rotational symmetry
compare	frequency table	event	row
complex number	function	natural number	sample
complimentary angles	function notation	negative exponent	sampling
concentric circles	graphing	net	scalar multiplication
cones	gross	network	scale factor
congruent	histogram	node	scaling
conic section	horizontal stretch	non-continuous	scatter plot
conjecture	hyperbola	nonlinear function	scientific notation
consecutive	identity matrix	normal distribution	secant
constant	image	ordered pairs	sector
constant term	imaginary number	ordinal number	sequence
continuous	independent equations	organized list	significant digits
convey	independent event	orthogonal view	similarity
coordinate graph	independent variable	outcomes	simultaneous linear
corresponding angles	indirect variation	parabola	equations
counting tree	indirect proof	percentage point	skewed distribution
cube	inscribe	perimeter	
cube root	integers	perimeter area	
	Internet		



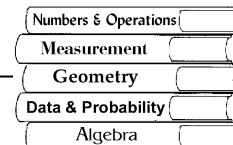
DRAFT
COMBINED MATHEMATICS VOCABULARY
Grade 8

slant edge
slant height
slide
slope
solid figure
sphere
spread sheet
square root
square root function
squaring
standard deviation

stem-and-leaf plot
substitution
supplementary angles
surface area
table
tangent
term
terminating decimal
theoretical probability
trace
transformation

translate
transversal
trend
trinomial
truncate
union
unique solution
unit rate
upper quartile
Venn Diagram
vertex

vertical line test
vertical stretch
volume
window
x-intercept
Y=
y-intercept
zoom



VOCABULARY ACTIVITY

Grade 8

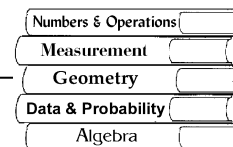
Materials: newsprint (1/group of 4-6, 12”x18”), markers (1/group)

Activity: Participants will use their vocabulary lists to sort vocabulary words into three groups (by strand – designated by facilitators). The titles on the three regions will be:

- (1) words we have been teaching
- (2) new vocabulary
- (3) words we are not familiar with from any strand list.

Groups will then share out interesting things they have noticed about the vocabulary from this activity, words can be from any strand.

The facilitator will list the words from section 3 on a large sheet of chart paper, as we have a discussion about these words.



GRADE 8

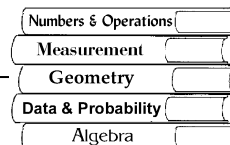
MEAP

MATHEMATICS

SAMPLE

ASSESSMENT

ITEMS

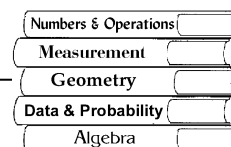


ASSESSMENT TASKS

Grade 8

1. A box, shaped like a cube, holds 216-inch cubes. How many inch cubes will fit on one edge of the box?
 - a. 6
 - b. 12
 - c. 18
 - d. 24

2. A fair coin is tossed, the result is recorded, and then it is tossed again. Which event is a dependent event?
 - a. Second toss is heads
 - b. Second toss is tails
 - c. Two heads occur in a row
 - d. First toss is heads

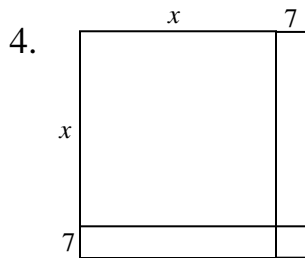


ASSESSMENT TASKS

Grade 8

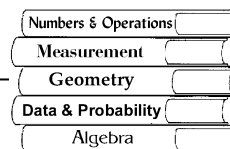
3. A box contains 4 blue stickers, 2 green stickers, and 3 red stickers. Melody chooses one sticker and then another. What is the probability that she chooses a green sticker, does *not* put it back, and then chooses a blue sticker?

- a. $\frac{2}{3}$
b. $\frac{8}{81}$
c. $\frac{1}{9}$
d. $\frac{13}{18}$



Nathan and Laura came up with two different correct ways to represent the area of the rectangle. Nathan wrote $(x + 7)(x + 7)$. Which expression did Laura give?

- a. $2x + 14$
b. $14x$
c. $x^2 + 49$
d. $x^2 + 14x + 49$

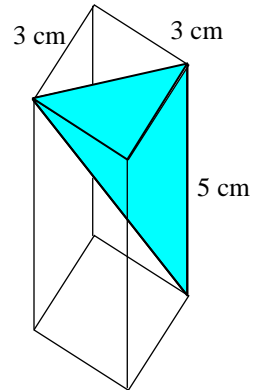


ASSESSMENT TASKS

Grade 8

5. Estimate the area of the triangle.

- a. 7.5 sq. cm
- b. 8 sq. cm
- c. 10.6 sq. cm
- d. 21.2 sq. cm

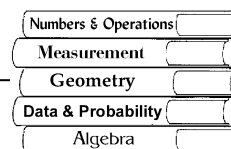


6. Miss Smith's fourth grade class is having a bake sell in order to raise \$150 for charity. They decide to sell brownies. If they sell each brownie for \$1.00, they will have to sell at least 150 brownies to reach their goal. If they sell each brownie for \$0.75, they'll have to sell at least 200 brownies. At \$0.50 each, they'll need to sell 300 brownies. The data is shown in the table below.

Price of one brownie	\$0.50	\$0.75	\$1.00	\$1.25
Number of brownies that need to be sold	300	200	150	120

What type of relationship exists between the number of brownies that need to be sold and the price of each brownie?

- a. exponential
- b. inverse
- c. linear
- d. quadratic



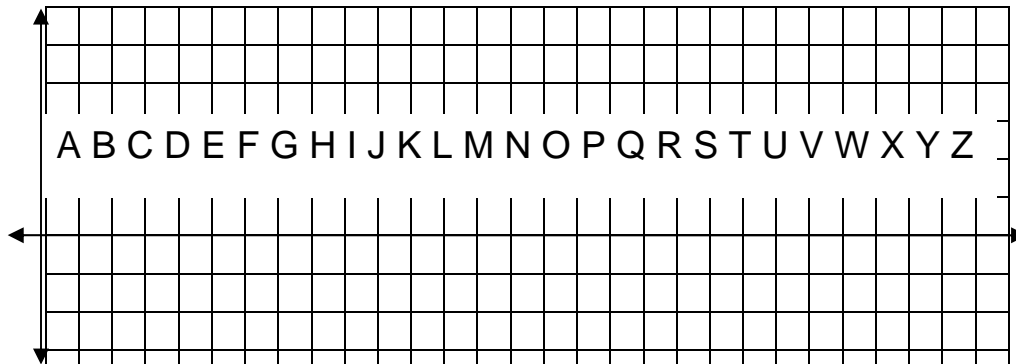
ASSESSMENT TASKS

Grade 8

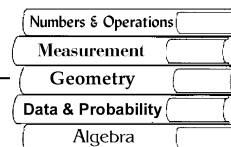
7. A store item worth \$12 was marked up 30%. Later it was put on sale for 25% off. What was its sale price?

- a. \$11.70
- b. \$12.05
- c. \$12.60
- d. \$14.00

8. How many letters represent functions?



- a. 2
- b. 5
- c. 7
- d. 11



ASSESSMENT TASKS

Grade 8

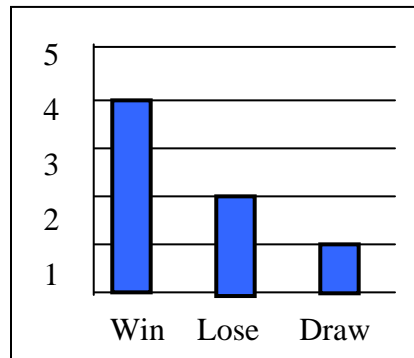
9. Antonio drew the bar graph on the right to show the results for his basketball team so far this season. Estimate the probability that **his team will win their next game**.


a. $\frac{1}{7}$

b. $\frac{1}{4}$

c. $\frac{1}{3}$

d. $\frac{4}{7}$



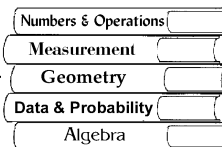
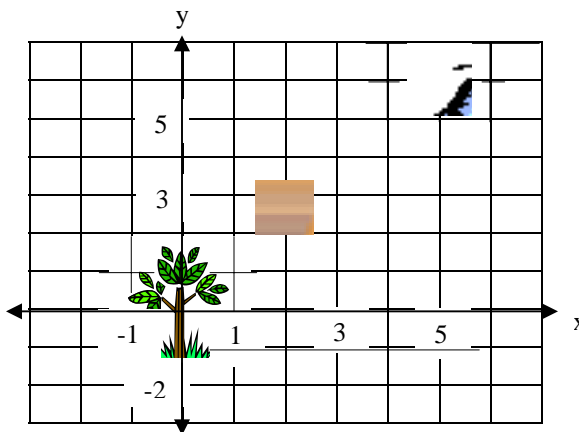
10. An ant finds food crumbs located in a yard at 2, 3. It wants to carry the food back to its home at 6, 5 to store away. What is the shortest distance it will have to travel to get to its home? 

a. 2.4 cm

b. 3 cm

c. 4.2 cm

d. 6 cm



ASSESSMENT TASKS

Grade 8

11. Captain Pizza has square delivery boxes that have 85-square-inch bases. Each pizza has a diameter that is a whole number of inches. What is the diameter of the largest pizza that will fit in a delivery box?
- a. 8 in.
 - b. 9 in.
 - c. 10 in.
 - d. 11 in.

Numbers & Operations	<input type="checkbox"/>
Measurement	<input type="checkbox"/>
Geometry	<input type="checkbox"/>
Data & Probability	<input type="checkbox"/>
Algebra	<input type="checkbox"/>

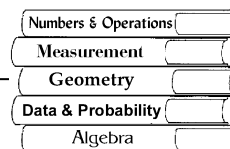
CONSTRUCTED RESPONSE

Grade 8

12. The Wong family signed up for a family membership at Total Videos. They were required to pay a \$15 membership fee and \$4 per movie rental. The Johnson's signed up at Videos Galore. They paid \$3 per movie rental and a \$20 membership fee. If each family spent \$50 renting movies during their first month's membership, which family was able to rent the most movies?

a. Use a table or a graph to support your answer.

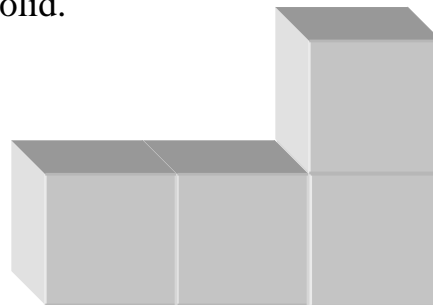
b. Solve for the solution algebraically.



CONSTRUCTED RESPONSE

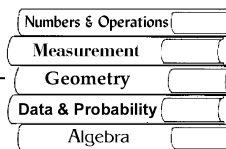
Grade 8

13. Draw two different nets for this three dimensional solid.



14. A race car travels on a track at 200 miles per hour.
What is the equivalent speed in feet per second?
Show all calculations.

1 mile = 5280 feet
1 hour = 60 minutes
1 minute = 60 seconds



ANSWER KEY

Grade 8

ANSWER KEY FOR SAMPLE ITEMS

Sample Item	G.L.C.E. coding	Answer
1	N.ME.08.01	A
2	D.PR.08.06	C
.3	D.PR.08.06	C
4	A.FO.08.07	D
5	G.GS.08.01	C
6	A.RP.08.01	B
7	N.MR.08.09	A
8	A.RP.08.04	A
9	D.PR.08.03	D
10	G.LO.08.02	C
11	G.SR.08.03	C

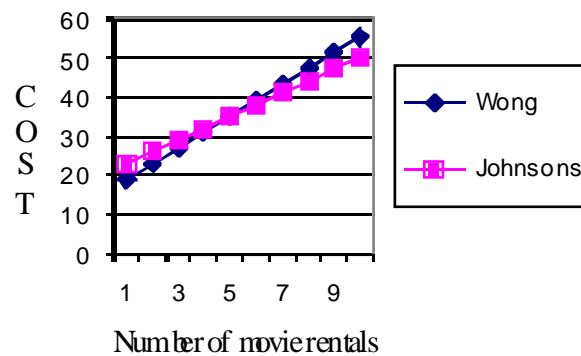
Constructed Response Scoring

Rubric for #12a

OR

1 point	for labeling columns in table correctly	1 point	labeling axes correctly
1 point	for demonstrating how each family's cost changes as the number of movie rentals increase	1 point	for each graph
1 point	for explaining, in words, how the table supports the answer	1 point	for explaining, in words how the graph supports the answer

# of movie rentals	Wong's Cost	Johnson's Cost
1	19	26
2	23	29
3	27	32
4	31	35
5	35	38
6	39	41
7	43	44
8	47	47
9	51	47
10		50



Numbers & Operations	<input type="checkbox"/>
Measurement	<input type="checkbox"/>
Geometry	<input type="checkbox"/>
Data & Probability	<input type="checkbox"/>
Algebra	<input type="checkbox"/>

ANSWER KEY

Grade 8

Rubric for #12b

1 point	for solving one equation correctly	$4x + 15 = 50; x = 8.75$
1 point	for solving other equation correctly	$3x + 20 = 50; x = 10$
1 point	for explaining, in words, what the calculations prove	

Rubric for #13

1 point for each net	for correct number of faces
1 point for each net	for a correct net

Rubric for #14

1 point	for correct answer	293.33 feet per second
1 point	for showing calculations	

Numbers & Operations	
Measurement	
Geometry	
Data & Probability	
Algebra	

MATHEMATICS WEBSITES

Grade 8

As expectations in mathematics continue to change, the use of technology should have an integral part in enhancing the way students learn and understand algebraic concepts. The web offers a plethora of free materials that can be used to support these efforts. Listed below are some websites where teachers can find interactive math applets, Internet-based lesson plans, and technology projects that can be utilized to create effective standards-based mathematics lessons.

Blue Web n'	http://www.kn.pacbell.com
Boston Schools	http://boston.k12.ma.us/teach/technology/select/
Education World	http://educationworld.com
Educational Java Programs	http://arcytech.org/java/
Illuminations	http://illuminations.nctm.org
National Library of Virtual Manipulatives	http://matti.usu.edu/nlvm2/nav/vlibrary.html
NEIR*TEC	http://www.neirtec.org/math/
Project Interactivate	http://www.shodor.org/interactivate/
The Math Forum	http://mathforum.org/algebra/k12.algebra.html

