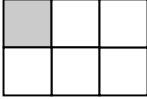


**Benchmark Assessment Test 2005**  
**Math Grade 3 Test 1**  
**Interpretive Guide**

**STRAND A**

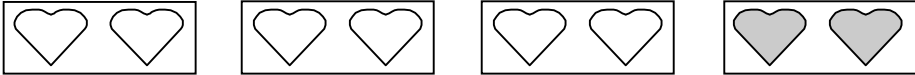
**MAA122**

Compare relative size and order of whole numbers and fractions

Students need assistance with:	Representing fractional parts								
Sample 1	Which fraction best describes the part of the rectangle that is shaded? 								
Common Error	Choosing $1/5$ rather than $1/6$								
Sample 2	<p style="text-align: center;"><b>TOWN POPULATIONS</b></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Antville</td> <td>6386</td> </tr> <tr> <td>Bugtown</td> <td>3882</td> </tr> <tr> <td>Critterville</td> <td>2969</td> </tr> <tr> <td>Spidertown</td> <td>8543</td> </tr> </table> <p>Which town has the <b>second largest</b> population?</p>	Antville	6386	Bugtown	3882	Critterville	2969	Spidertown	8543
Antville	6386								
Bugtown	3882								
Critterville	2969								
Spidertown	8543								
Common Error	Choosing Spidertown (largest) or Bugtown (second listed) rather than Antville								

**MAA124**

Identify equivalent forms of whole numbers, common fractions, and decimals in the context of money

Students need assistance with:	Using graphics to identify equivalent forms of common fractions
Sample	Jasmine had 8 candy hearts. She gave $2/8$ of her hearts to a friend. Which fraction is equal to $2/8$ ? 
Common Error	Choosing $8/2$ (inverse) rather than $1/4$

**MAA221**

Identify the place value of a given digit in whole numbers or identify the digit having a given place value

Students need assistance with:	Identifying place-value concepts through thousands
Sample	What digit in the number 123,456 has a place value of ten thousand?
Common Error	Identifying a digit in the wrong place

**MAA321**

Identify the appropriate operation for a stated effect, the effect of an operation, or the relationship between operations

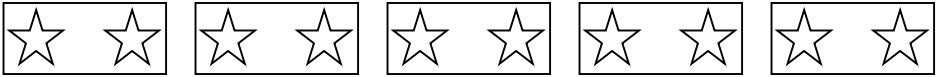
Students need assistance with:	Applying the inverse relationship between addition and subtraction
Sample	Which of the following expressions can be used to check the answer to $32 - 6 = 26$ ?
Common Error	Choosing $26 - 6$ rather than $26 + 6$


**MAA321** (continued)**MAA322**

Identify the appropriate operation, expression, or number sentence to solve a problem

**MAA323**

Solve real-world problems

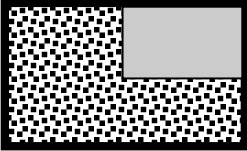
Students need assistance with:	Applying the meaning of division as a given whole being distributed into a number of equal groups.
Samples	<p>Angel has 10 stickers. She is giving them to 5 of her friends. Each friend will get the same amount.</p> <p><i>MAA321:</i> Which operation should be used in the box below to find the number of stickers each friend will get?</p> <p style="text-align: center;"><math>10 \square 5</math></p> <p style="text-align: center;">  </p> <p><i>MAA322:</i> Which expression should be used to find the number of stickers each friend will get?</p> <p><i>MAA323:</i> How many stickers will each friend get?</p>
Common Error	<p>Subtracting rather than dividing-</p> <p><i>MAA321:</i> choosing <math>-</math> rather than <math>\div</math></p> <p><i>MAA322:</i> choosing <math>10 - 5</math> rather than <math>10 \div 5</math> (+ and x chosen almost as frequently)</p> <p><i>MAA323:</i> choosing <math>5</math> rather than <math>2</math></p>

Students need assistance with:	Applying the meaning of multiplication as a given number of equal groups
Sample	<p>Angel is giving 2 stickers to each of her 5 friends.</p> <p><i>MAA321:</i> Which operation should be used in the box below to find the number of stickers altogether?</p> <p style="text-align: center;"><math>2 \square 5</math></p> <p style="text-align: center;">  </p> <p><i>MAA322:</i> Which expression should be used to find the number of stickers altogether?</p> <p><i>MAA323:</i> What is the number of stickers altogether?</p>
Common Error	<p>Adding rather than multiplying-</p> <p><i>MAA321:</i> choosing <math>+</math> rather than <math>\times</math></p> <p><i>MAA322:</i> choosing <math>2 + 5</math> rather than <math>2 \times 5</math></p> <p><i>MAA323:</i> choosing <math>7</math> rather than <math>10</math></p>

Students need assistance with:	Applying the meaning of subtraction when asked <i>how many more</i> or <i>how much more</i> to compare values
Sample	<p>Jasmine has 18 stars and Angel has 10 stars.</p> <p><i>MAA321:</i> Which operation could be used to find how many more stars Jasmine has than Angel?</p> <p><i>MAA322:</i> Which expression could be used to find how many more stars Jasmine has than Angel?</p> <p><i>MAA323:</i> How many more stars does Jasmine have than Angel?</p>
Common Error	<p>Adding rather than subtracting-</p> <p><i>MAA321:</i> choosing <math>+</math> rather than <math>-</math></p> <p><i>MAA322:</i> choosing <math>18 + 10</math> rather than <math>18 - 10</math></p> <p><i>MAA323:</i> choosing <math>28</math> rather than <math>8</math></p>

**MAA421**

Determine a reasonable estimate in a real-world problem situation

Students need assistance with:	Using a benchmark number that shows the value of a portion (with or without graphic) to estimate the value of the whole
Sample	<p><i>With graphic:</i> The rectangle below is filled with dots. The shaded part covers 98 dots. About how many dots are in the whole rectangle?</p>  <p><i>Without graphic:</i> Jack read 21 pages in one hour. About how many pages could he read in 5 hours?</p>
Common Error	<p><i>With graphic:</i> Choosing 100 dots (only rounding the given part) or not finding the number of equal parts (200 or 300) rather than 400 (round then repeat for number of equal parts)</p> <p><i>Without graphic:</i> Choosing 20 (only rounding the given part) or choosing 30 (adding then rounding) rather than 100 (round then repeat for number of equal parts)</p>

**MAA521**

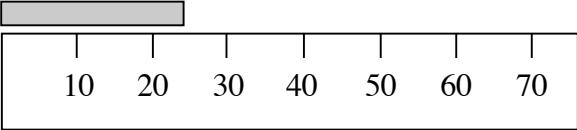
Recognize factors and multiples of whole numbers, and their characteristics

Students need assistance with:	Identifying characteristics of common multiples
Sample 1	Jasmine learned to count by 5s and noticed a pattern in the numbers. The numbers always end with what digit?
Common Error	Choosing '0' rather than '0 or 5'
Sample 2	Which of the following number of tokens would give 5 children an equal number with none left over?
Common Error	Choosing 6 (closest to the given number) rather than 15 (multiple)

## STRAND B

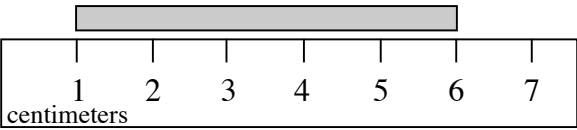
### MAB122

Solve real-world measurement problems and identify the measure of right angles

Students need assistance with:	Finding the measure of objects when the measurement falls between given increments on rulers, scales, thermometers, etc.
Sample 1	<p>How long is the grey bar?</p> 
Common Error	Choosing 20 or 30 units rather than 25

### MAB222

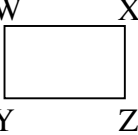
Identify appropriate tools or read measurements from tools

Students need assistance with:	Determining the length of an object when the start point on the measuring device is other than 0
Sample 1	<p>How long is the grey bar?</p> 
Common Error	Choosing 6 centimeters rather than 5

## STRAND C

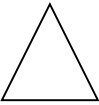

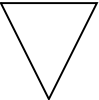
### MAC121

Identify geometric figures using appropriate geometric vocabulary

Students need assistance with:	Using geometric vocabulary (right angles, sides, bases, vertices, points, lines, or segments) to describe/identify regular/irregular polygons or circles
Sample	<p>Which part of the figure is line segment YZ?</p>  <p>A. angle B. point C. side D. vertex</p>
Common Error	Choosing any distractor (reflecting limited vocabulary) rather than “side”





### MAC221

Identify or classify figures and/or solve problems using the concepts of symmetry or congruency

Students need assistance with:	Identifying congruent figures when one of the figures has been flipped or turned
Sample	<p>Which figure appears to be congruent to this triangle?</p> 
Common Error	Choosing  rather than 


**MAC222**


Identify the results of a single flip (reflection), slide (translation), or turn (rotation) of a given figure

Students need assistance with:	Identifying a figure after a 180° turn
Sample	Which shows the happy face turned 180°? 
Common Error	Choosing  (unchanged) or  (after 90°) rather than 

**MAC321**

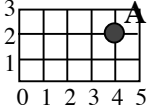
Use geometric figures and/or solve geometric problems by applying properties, formulas, and/or coordinate geometry

Students need assistance with:	Applying the concept of perimeter
Sample	How many feet of fencing will be needed to fence this yard? 
Common Error	Choosing 15 feet (area) or 8 feet (length + width) rather than 16 feet

Students need assistance with:	Applying the concept of area
Sample	How many square feet of sod will be needed to cover this yard? 
Common Error	Choosing 8 square feet (length + width) rather than 15 square feet

**MAC322**

Identify ordered pairs or the location of coordinates on a grid

Students need assistance with:	Identifying ordered pairs or their location on a grid
Sample 1 Sample 2	Which coordinates best describe the location of point A? Which point is located at of coordinates (4, 2)? 
Common Error	Sample 1 - Choosing (2, 4) rather than (4, 2) Sample 2 - Choosing the point located at (2, 4) rather than Point A




## STRAND D

### MAD221

Identify symbolic expressions translated from written phrases or identify written phrases translated from symbolic expressions

### MAD222

Represent situations and/or solve problems involving equations or inequalities

Students need assistance with:	Identifying simple inequalities to represent phrases
Sample	At a park, children must be more than 5 years old to play soccer. Which best represents how old any of the soccer players at the park must be?
Common Error	Choosing  < 5 years old or  = 5 years old rather than  > 5 years old

Students need assistance with:	Identifying the appropriate expression to represent a situation involving multiplication
Sample	Jack has 4 pencils. His friend has 2 times as many pencils as Jack. Which expression can be used to find how many pencils his friend has?
Common Error	Choosing $4 + 2$ rather than $4 \times 2$



Students need assistance with:	Identifying subtraction expressions as representing <i>how many more</i> or <i>how much more</i> to compare values
Sample	Jack has 18 pencils and Jill has 10 pencils. Which of the following expressions could be used to find how many more pencils Jack has than Jill?
Common Error	Choosing $18 + 10$ rather than $18 - 10$

Students need assistance with:	Identifying addition expressions as representing <i>how many in all</i> or <i>how much in all</i>
Sample	Jack has 18 pencils and Jill has 10 pencils. Which of the following expressions could be used to find how many pencils Jack and Jill have in all?
Common Error	Choosing $18 - 10$ rather than $18 + 10$

## STRAND E

### MAE121

Analyze, interpret, or compare data using tables, graphs, or charts; use the data to solve problems; and/or identify the most appropriate data display

Students need assistance with:	Interpreting pictographs by using the key and finding the value of a portion of a picture
Sample	How many books has Jason read? <div style="display: flex; align-items: center; border: 1px solid black; padding: 5px;"> <div style="border-right: 1px solid black; padding-right: 10px;">Jason</div>  </div> <div style="border: 1px solid black; padding: 5px; margin-left: 20px; text-align: center;"> <b>KEY</b>   = 4 books read         </div>
Common Error	Choosing $2\frac{1}{2}$ , 3, or 12 rather than 10

Students need assistance with:	Comparing data in bar graphs
Sample	How many more students chose red than green? ( <i>Bar graph shows red with 10 votes and green with 6 votes.</i> )
Common Error	Choosing 10 (how many) rather than 4 (how many <i>more</i> )

**MAE122**

Determine range, median, and/or mode

Students need assistance with:	Determining the range of a simple set of data
Sample	The ages of the children in a group are 7, 9, 8, 4, 8, 5, and 6. What is the <b>range</b> of their ages?
Common Error	Choosing any distractor (reflecting unfamiliarity) rather than 5

Students need assistance with:	Determining the median of a simple set of data
Sample	The ages of the children in a group are 7, 9, 8, 4, 8, 5, and 6. What is the <b>median</b> of their ages?
Common Error	Choosing 4 (middle number without ordering) or 8 (mode) rather than 7

Students need assistance with:	Determining the mode of a simple set of data
Sample	The ages of the children in a group are 7, 9, 8, 4, 8, 5, and 6. What is the <b>mode</b> of their ages?
Common Error	Choosing 9 (most in <i>value</i> ) rather than 8 (most in <i>frequency</i> )

**MAE221**

Identify possible outcomes or the number of outcomes from simple events

Students need assistance with:	Determining the number of possible combinations
Sample	Jane is going to buy either chocolate or yellow cake mix and either fudge, vanilla, or lemon frosting. <div style="display: flex; justify-content: center; align-items: center; gap: 20px;"> <div style="text-align: center;"> <p><u>Cake Mixes</u></p> <div style="display: flex; justify-content: center; gap: 10px;"> <div style="border: 1px solid black; padding: 2px 5px;">Chocolate</div> <span>or</span> <div style="border: 1px solid black; padding: 2px 5px;">Yellow</div> </div> </div> <div style="text-align: center;"> <p><u>Frostings</u></p> <div style="display: flex; justify-content: center; gap: 10px;"> <div style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">Fudge</div> <span>or</span> <div style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">Vanilla</div> <span>or</span> <div style="border: 1px solid black; border-radius: 50%; padding: 2px 5px;">Lemon</div> </div> </div> </div> <p>How many different cake and frosting combinations are possible?</p>
Common Error	Choosing 2 or 3 (quantities in each category) rather than 6

**MAE222**

Determine the probability or likelihood of a simple event occurring

Students need assistance with:	Determining an event that is least, most, or equally likely to occur when the situation involves numbers												
Sample	Which number is <b>least</b> likely to be chosen? Which number is <b>most</b> likely to be chosen? Which numbers are <b>equally</b> likely to be chosen? <table style="margin: 10px auto; border-collapse: collapse;"> <tr> <td style="border: 1px solid black; padding: 5px;">1</td> <td style="border: 1px solid black; padding: 5px;">3</td> <td style="border: 1px solid black; padding: 5px;">1</td> <td style="border: 1px solid black; padding: 5px;">4</td> <td style="border: 1px solid black; padding: 5px;">2</td> <td style="border: 1px solid black; padding: 5px;">4</td> </tr> <tr> <td style="border: 1px solid black; padding: 5px;">3</td> <td style="border: 1px solid black; padding: 5px;">2</td> <td style="border: 1px solid black; padding: 5px;">1</td> <td style="border: 1px solid black; padding: 5px;">3</td> <td style="border: 1px solid black; padding: 5px;">5</td> <td style="border: 1px solid black; padding: 5px;">3</td> </tr> </table>	1	3	1	4	2	4	3	2	1	3	5	3
1	3	1	4	2	4								
3	2	1	3	5	3								
Common Error	<i>Least</i> -Choosing 1 (least in <i>value</i> ) rather than 5 (least in <i>frequency</i> ) <i>Most</i> -Choosing 5 (most in <i>value</i> ) rather than 3 (most in <i>frequency</i> ) <i>Equally</i> -Choosing 1 and 3 (the two with the <i>greatest</i> frequency) rather than 2 and 4 (the two with <i>equal</i> frequency)												