

Fourth Generation CMT (Grades 3-5) Revised 9/24/06

Part II: Objectives 9 - 25

Directions to Objective 19B have been changed. Children may now shade the bars if they want to do so. See Pages 36-37. The important thing is to encourage them not to spend a lot of time shading the bars.

Multiple-choice numbers should usually be written in order from **smallest to largest** or **largest to smallest**. Unfortunately, this is not always the case in this document.

Questions should not always be separated from multiple choice answers. If a picture, graphic, graph, etc is part of the question, the question should sometimes be below the picture immediately followed by the multiple choice answers or the space for open-ended answers. Children may write in the testing booklet, even with multiple choice items. Do not write next to the bubbles. There will be no separate answer booklets for any grades. Strands and objectives will be tested with the same objectives clustered together and usually on the same day of testing. Multiple choice items will appear first on each day of testing, and open-ended items will be last on each day of testing. Strands that have both multiple choice items and open-ended items will not be clustered together and may not be tested on the same day. There will be only two Strand 25 (Solving extended) problems on all tests, grades 3 - 8. Both Strand 25 items will be last on the same day of testing (probably the last day).

Scale to letter or legal size when printing this document, depending on what size paper you use.

Otherwise the entire page will not print.

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PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
Created by Tina Della Bernarda for the Bristol Public Schools

STRAND 9: SOLVE WORD PROBLEMS (Objectives 9A, 9B, 9C)																																																															
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT																																																												
<p>9A: Solve simple story problems involving addition and subtraction facts using counters or other objects.</p> <p>Use counters, if needed, to solve the problems below.</p> <p>Nathan had \$11 and spent \$4 on hot dogs. How much money does he have left?</p> <p> <input type="radio"/> \$6 <input type="radio"/> \$7 *** <input type="radio"/> \$8 <input type="radio"/> \$9 </p>	<p>9A/9B: Solve simple story problems involving addition and subtraction. <i>No regrouping for subtraction problems</i> <i>Addition problems could be with or without regrouping.</i> <i>9A does not have extraneous information.</i> <i>9B has extraneous information</i></p> <p>Maxine had \$37 to spend. She bought a new basketball for \$12. How much money does she now have?</p> <p> <input type="radio"/> \$17 <input type="radio"/> \$25 *** <input type="radio"/> \$29 <input type="radio"/> \$49 </p>	<p>9A/9B: Solve one-step story problems using whole numbers and money amounts with and without extraneous information. Addition and subtraction uses 2- and 3-digit whole numbers. Multiplication uses 1- and 2-digit whole numbers.</p> <p>Michael had \$6.25. He spent \$2.98 on a pad of paper. How much money does he still have?</p> <p> <input type="radio"/> \$3.27 *** <input type="radio"/> \$4.73 <input type="radio"/> \$8.13 <input type="radio"/> \$9.23 </p>	<p>9A: Solve one-step problems involving whole numbers and money amounts with or without extraneous information (all four operations). <i>[Some grid-in answers and some multiple choice answers]</i></p> <p>Nicole brought 3 tennis balls and 2 soccer balls to school. She found out that the tennis balls weighed a total of 180 grams. How much did 1 tennis ball weigh?</p> <p> <input type="radio"/> 60 grams *** <input type="radio"/> 90 grams <input type="radio"/> 183 grams <input type="radio"/> 360 grams </p>																																																												
<p>There are 6 children in second grade and 9 children in third grade who wear glasses. How many children wear glasses in all?</p> <p> <input type="radio"/> 3 <input type="radio"/> 5 <input type="radio"/> 14 <input type="radio"/> 15 *** </p>	<p>Suzy had 28 yellow markers and 17 green markers. How many markers did Suzy have?</p> <p> <input type="radio"/> 12 <input type="radio"/> 32 <input type="radio"/> 35 <input type="radio"/> 45 *** </p>	<p>There are 82 teachers, 596 fourth grader students and 259 fifth grader students going on a field trip. How many students are going on the field trip?</p> <p> <input type="radio"/> 745 <input type="radio"/> 845 <input type="radio"/> 855 *** <input type="radio"/> 863 </p> <p>Count Dracula had 8 boxes of blood. Each box had 10 bottles of blood. How many bottles did he have?</p> <p> <input type="radio"/> 2 <input type="radio"/> 8 <input type="radio"/> 18 <input type="radio"/> 80 *** </p>	<p>Sandrine bought a box of pencils for \$24.98, and a new mouse for her computer for 45.39. How much money did she spend on both items?</p> <div style="text-align: center; margin-top: 20px;"> <p>\$</p> <table border="1" style="border-collapse: collapse; text-align: center; width: 100px;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px; text-align: center;">●</td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> <tr> <td>Ⓐ</td><td>Ⓑ</td><td></td><td>Ⓓ</td><td>Ⓔ</td> </tr> <tr> <td>Ⓘ</td><td>Ⓢ</td><td></td><td>Ⓣ</td><td>Ⓝ</td> </tr> <tr> <td>Ⓚ</td><td>Ⓛ</td><td></td><td>Ⓟ</td><td>Ⓞ</td> </tr> <tr> <td>Ⓜ</td><td>Ⓠ</td><td></td><td>Ⓡ</td><td>Ⓟ</td> </tr> <tr> <td>Ⓝ</td><td>Ⓡ</td><td></td><td>Ⓢ</td><td>Ⓠ</td> </tr> <tr> <td>Ⓞ</td><td>Ⓢ</td><td></td><td>Ⓣ</td><td>Ⓡ</td> </tr> <tr> <td>Ⓟ</td><td>Ⓣ</td><td></td><td>Ⓤ</td><td>Ⓢ</td> </tr> <tr> <td>Ⓠ</td><td>Ⓤ</td><td></td><td>Ⓡ</td><td>Ⓣ</td> </tr> <tr> <td>Ⓡ</td><td>Ⓡ</td><td></td><td>Ⓢ</td><td>Ⓤ</td> </tr> <tr> <td>Ⓢ</td><td>Ⓢ</td><td></td><td>Ⓣ</td><td>Ⓡ</td> </tr> <tr> <td>Ⓣ</td><td>Ⓣ</td><td></td><td>Ⓤ</td><td>Ⓢ</td> </tr> </table> </div>			●			Ⓐ	Ⓑ		Ⓓ	Ⓔ	Ⓘ	Ⓢ		Ⓣ	Ⓝ	Ⓚ	Ⓛ		Ⓟ	Ⓞ	Ⓜ	Ⓠ		Ⓡ	Ⓟ	Ⓝ	Ⓡ		Ⓢ	Ⓠ	Ⓞ	Ⓢ		Ⓣ	Ⓡ	Ⓟ	Ⓣ		Ⓤ	Ⓢ	Ⓠ	Ⓤ		Ⓡ	Ⓣ	Ⓡ	Ⓡ		Ⓢ	Ⓤ	Ⓢ	Ⓢ		Ⓣ	Ⓡ	Ⓣ	Ⓣ		Ⓤ	Ⓢ
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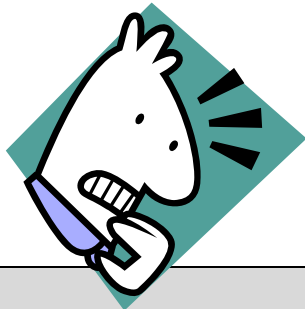
2 nd Graders	Grade 3 CMT 9A/9B: Continued	Grade 4 CMT 9A/B: Continued	Grade 5 CMT 9A: Continued (One-Step Problems)								
	<p>Leroy collected 42 cans for the can drive. Jean collected 38 cans and 18 bottles for the can drive. Sheena collected 26 bottles and 14 cans for the can drive. How many cans did the children collect?</p> <p> <input type="radio"/> 52 <input type="radio"/> 80 <input type="radio"/> 91 <input type="radio"/> 94 *** </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> 42 cans 38 cans <u>+14 cans</u> 94 cans </div>	<p>Mrs. Smith has been a teacher for 39 years. Miss Jones has been a teacher for 6 years. Mr. Anderson has been a teacher for 28 years. How many years have Mrs. Smith and Mr. Anderson been teachers in all?</p> <p> <input type="radio"/> 57 <input type="radio"/> 67 *** <input type="radio"/> 71 <input type="radio"/> 82 </p>	<p>Madison bought 36 cans of chili. The cans were packed in boxes that had 12 cans in each box. How many boxes did she buy?</p> <p> <input type="radio"/> 3 *** <input type="radio"/> 4 <input type="radio"/> 5 <input type="radio"/> 6 </p> <hr/> <p>The chart below gives the price per hour to rent a boat at Bill's Boat Rentals. Use the chart to answer the questions.</p> <table style="margin-left: auto; margin-right: auto; border-collapse: collapse;"> <thead> <tr> <th style="border-right: 1px solid black; padding: 5px;">Type of Boat</th> <th style="padding: 5px;">Price per Hour</th> </tr> </thead> <tbody> <tr> <td style="border-right: 1px solid black; padding: 5px;">Canoe</td> <td style="padding: 5px;">\$4.85</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">Rowboat</td> <td style="padding: 5px;">\$5.95</td> </tr> <tr> <td style="border-right: 1px solid black; padding: 5px;">Sailboat</td> <td style="padding: 5px;">\$9.95</td> </tr> </tbody> </table> <p>Suzanne rented a sailboat for 10 hours. How much did she pay? Fill in the grid with the correct answer.</p> <p style="text-align: center;"><u>Answer: \$99.50</u></p> <hr/> <p>Harry rented a canoe for one hour. Sally rented a rowboat for an hour. How much did it cost to rent both boats? Fill in the grid to show the correct answer.</p> <p style="text-align: center;"><u>Answer: \$10.80</u></p>	Type of Boat	Price per Hour	Canoe	\$4.85	Rowboat	\$5.95	Sailboat	\$9.95
Type of Boat	Price per Hour										
Canoe	\$4.85										
Rowboat	\$5.95										
Sailboat	\$9.95										
	<p>The zoo had 25 monkeys, 16 tigers, 8 snakes, and 39 lions. How many more lions than tigers are at the zoo?</p> <p> <input type="radio"/> 18 <input type="radio"/> 23 *** <input type="radio"/> 41 <input type="radio"/> 45 </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> 39 lions <u>-16 tigers</u> 23 more lions </div>	<p>Annie baked 498 brownies. She needed 600 brownies and 150 cupcakes for the school picnic. How many more brownies does Annie need to bake?</p> <p> <input type="radio"/> 102 <input type="radio"/> 112 <input type="radio"/> 291 <input type="radio"/> 298 *** </p>									

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STRAND 10: NUMERICAL ESTIMATION STRATEGIES (Objectives 10A, 10B)			
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
	<p>10A: Identify the best expression to find an estimate.</p> <p>Charlene needs to subtract 625 from 834. Which of the following would be best for Charlene to use to estimate the difference?</p> <p><input type="radio"/> 800 – 600 ***</p> <p><input type="radio"/> 900 – 600</p> <p><input type="radio"/> 800 – 700</p> <p><input type="radio"/> 900 – 700</p>	<p>10A: Identify the best expression to find an estimate.</p> <p>Mari needs to multiply 810 by 792. Which of the following would be best for Mari to use to estimate the product?</p> <p><input type="radio"/> 900 × 800</p> <p><input type="radio"/> 900 × 700</p> <p><input type="radio"/> 800 × 800 ***</p> <p><input type="radio"/> 800 × 700</p>	<p>10A: Identify the best expression to find an estimate.</p> <p>Jeremiah found out that there are 28,964 bullfrogs in Berlin and 52,367 bullfrogs in Bristol. Which of the following would be best for Jeremiah to use to estimate the number of bullfrogs in both cities?</p> <p><input type="radio"/> 20,000 + 50,000</p> <p><input type="radio"/> 20,000 + 60,000</p> <p><input type="radio"/> 30,000 + 50,000 ***</p> <p><input type="radio"/> 30,000 + 60,000</p>
	<p>Betsy bought a new book for \$3.95 and gave the clerk \$5. Which of the following would be best for Betsy to use to estimate her change?</p> <p><input type="radio"/> \$5 - \$4 ***</p> <p><input type="radio"/> \$4 - \$5</p> <p><input type="radio"/> \$3 - \$5</p> <p><input type="radio"/> \$5 - \$3</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p style="text-align: center;">\$5 - \$3.95 \$5 - \$4</p> </div>	<p>Dan needs to divide 489 by 21. Which of the following would be best for Dan to use to estimate the quotient?</p> <p><input type="radio"/> 400 ÷ 20</p> <p><input type="radio"/> 400 ÷ 30</p> <p><input type="radio"/> 500 ÷ 20 ***</p> <p><input type="radio"/> 500 ÷ 30</p>	<p>Jada discovered that in the year 2000 in New Britain, 12,220 people voted for Al Gore and 4376 voted for George Bush. Which of the following would be best for Jada to use to estimate the difference in votes?</p> <p><input type="radio"/> 13,000 – 5,000</p> <p><input type="radio"/> 13,000 – 4,000</p> <p><input type="radio"/> 12,000 – 5,000</p> <p><input type="radio"/> 12,000 – 4,000 ***</p>
	<p>Dale bought a portable phone for \$39.95. She also spent \$58.20 on a new set of oil paints. Which of the following would be best for Dale to use to estimate the total amount of money that was spent?</p> <p><input type="radio"/> \$40 + \$50</p> <p><input type="radio"/> \$30 + \$50</p> <p><input type="radio"/> \$40 + \$60 ***</p> <p><input type="radio"/> \$30 + \$60</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p style="text-align: center;">\$39 + \$58 --> \$40 + \$60</p> </div>	<p>Brenda needs to subtract $5\frac{2}{3}$ from $9\frac{1}{8}$. Which of the following would be best for Brenda to use to estimate the difference?</p> <p><input type="radio"/> 9 – 5</p> <p><input type="radio"/> 8 – 5</p> <p><input type="radio"/> 9 – 6 ***</p> <p><input type="radio"/> 8 – 6</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p style="text-align: center;">I seriously doubt that fractions would be on the Grade 4 CMT in this objective. Good Grade 5 question, though</p> </div>	<p>Laurie used $2\frac{1}{3}$ yards of red cloth and $6\frac{7}{8}$ yards of blue cloth to make a banner. Which of the following would be best for Laurie to use to estimate the total amount of cloth used?</p> <p><input type="radio"/> 2 + 6</p> <p><input type="radio"/> 3 + 6</p> <p><input type="radio"/> 3 + 7</p> <p><input type="radio"/> 2 + 7 ***</p>
		<p>Frank needs to add 28.8 to 5.3. Which of the following would be best for Frank to use to estimate the sum?</p> <p><input type="radio"/> 29 + 6</p> <p><input type="radio"/> 28 + 6</p> <p><input type="radio"/> 29 + 5 ***</p> <p><input type="radio"/> 28 + 5</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p style="text-align: center;">I don't think decimals would be on the Grade 4 CMT in this objective.</p> </div>	<p>Nathaniel needs to subtract 7.29 from 51.12. Which of the following would be best for Nathaniel to use to estimate the difference?</p> <p><input type="radio"/> 51 – 7 ***</p> <p><input type="radio"/> 51 – 8</p> <p><input type="radio"/> 50 – 7</p> <p><input type="radio"/> 50 – 8</p>

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			<p>10B: Identify whether and why a particular strategy will result in an overestimate or an underestimate.</p> <p><i>Include all 4 operations, whole numbers (3-and 4-digit numbers, maybe 5-digit numbers??) decimals, fractions, and mixed numbers.</i></p> <p>To estimate the sum of 4186 and 8259, Alana added $4000 + 8008$. Will Alana's estimate be more or less than the actual sum?</p> <ul style="list-style-type: none"> <input type="radio"/> more, because she rounded both numbers up <input type="radio"/> more, because she rounded both numbers down <input type="radio"/> less, because she rounded both numbers up <input type="radio"/> less, because she rounded both numbers down *** <hr/> <p>Jon found out that there were 8,764 people living in Portland, Connecticut. There were also 5,862 people living in Terryville. He estimated the difference between the two cities by subtracting 6000 from 9000. Would his estimate be more or less than the actual answer?</p> <ul style="list-style-type: none"> <input type="radio"/> less, because he rounded both numbers up <input type="radio"/> more, because he rounded both numbers up*** <input type="radio"/> less, because he rounded both numbers down <input type="radio"/> more, because he rounded both numbers down



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Strand 11: If a problem is so easy that the “real” answer can be found more quickly than finding an estimate, it is fine for the child to mentally calculate the answer and then fill in the bubble of the correct choice. Problems that are so easy that they do not require estimation should not be on the CMT.

STRAND 11: ESTIMATING SOLUTIONS TO PROBLEMS (Objectives 11A, 11B)

2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
	<p>11A: Identify a reasonable estimate to a problem.</p> <p>PROBLEMS INVOLVING SIMPLE ROUNDING:</p> <p>Mel drove his jeep 59 miles across the desert. Clint rode his horse 32 miles across the same desert. About how many more miles did Mel travel than Clint did?</p> <p> <input type="radio"/> 30 *** <input type="radio"/> 40 <input type="radio"/> 50 <input type="radio"/> 60 </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> $\begin{array}{r} 59 \rightarrow 60 \\ -32 \rightarrow 30 \\ \hline 30 \end{array}$ </div>	<p>11A. Identify a reasonable estimate to a problem, including change from \$1, \$5, \$10.</p> <p>PROBLEMS INVOLVING SIMPLE ROUNDING</p> <p>Cathy picked 485 strawberries, and Gail picked 329 strawberries. Which is a reasonable estimate for the number of strawberries picked?</p> <p> <input type="radio"/> 500 <input type="radio"/> 600 <input type="radio"/> 700 <input type="radio"/> 800 *** </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> $\begin{array}{r} 485 \rightarrow 500 \\ +329 \rightarrow 300 \\ \hline 814 \rightarrow 800 \end{array}$ </div>	<p>11A. Identify a reasonable estimate to a problem.</p> <p>PROBLEMS INVOLVING SIMPLE ROUNDING</p> <p>Timothy bought a mountain bike for \$387.95. He gave the clerk \$400.00. About how much change did he get back?</p> <p> <input type="radio"/> \$10 *** <input type="radio"/> \$20 <input type="radio"/> \$30 <input type="radio"/> \$40 </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> $\begin{array}{r} \\$400 \\ - 390 \\ \hline \\$ 10 \end{array}$ </div> <hr/> <p>George left 25 chocolate chip cookies on the seat of his car. His pet pig, Homer, ate $22\frac{3}{4}$ of the cookies. About how many cookies were left?</p> <p> <input type="radio"/> 1 <input type="radio"/> 2 *** <input type="radio"/> 3 <input type="radio"/> 4 </p> <hr/> <p>(Don't forget decimals.)</p>
	<p>Mrs. Field baked 275 cookies on Monday and 521 cookies on Tuesday. About how many cookies did she bake altogether?</p> <p> <input type="radio"/> Less than 700 <input type="radio"/> About 750 <input type="radio"/> About 800 *** <input type="radio"/> More than 850 </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> $\begin{array}{r} 521 \rightarrow 500 \\ +275 \rightarrow 300 \\ \hline 800 \end{array}$ </div>	<p>Gary bought new sunglasses for \$3.95. He paid for them with a \$5 bill. About how much change should he receive?</p> <p> <input type="radio"/> \$1.00 *** <input type="radio"/> \$2.00 <input type="radio"/> \$3.00 <input type="radio"/> \$4.00 </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> $\begin{array}{r} \\$5.00 \rightarrow \\$5 \\ -3.95 \rightarrow 4 \\ \hline \\$1.05 \rightarrow \\$1 \end{array}$ </div>	

For more examples and strategies to use with Strand 11, email me (tinabernarda@comcast.net) for a Strand 11 Packet I created. This is not a new packet. Some people have already received this packet. It was revised for the last time in February 2005.

Another Strand 11 packet is also available (as of November, 2005) dealing with strategies.

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2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT												
	<p align="center">Objective 11A (Continued) “In the Ballpark” Problems</p> <p>Mr. Brady painted his house between 4 and 8 hours every day for 10 days. About how many hours could he have spent painting his house?</p> <p>O 25 O 60 *** O 85 O 100</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> <p>Between 4 and 8 is 6. About 6 hours/day for 10 days = 60 hr</p> </div> <hr/> <p>Alice washed between 9 and 12 windows every hour for 4 hours. About how many windows could she have washed?</p> <p>O 25 windows O 30 windows O 40 windows *** O 55 windows</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; padding: 5px;">Smallest Number of Windows</td> <td style="text-align: center; padding: 5px;">Largest Number of Windows</td> </tr> <tr> <td style="text-align: center; padding: 5px;"> $\begin{array}{r} 9 \\ 9 \\ 9 \\ 9 \\ \hline 36 \end{array}$ </td> <td style="text-align: center; padding: 5px;"> $\begin{array}{r} 12 \\ 12 \\ 12 \\ 12 \\ \hline 48 \end{array}$ </td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 5px;">So answer is a number between 36 and 48</td> </tr> </table> </td> <td style="width: 50%;"></td> </tr> </table> </div>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; padding: 5px;">Smallest Number of Windows</td> <td style="text-align: center; padding: 5px;">Largest Number of Windows</td> </tr> <tr> <td style="text-align: center; padding: 5px;"> $\begin{array}{r} 9 \\ 9 \\ 9 \\ 9 \\ \hline 36 \end{array}$ </td> <td style="text-align: center; padding: 5px;"> $\begin{array}{r} 12 \\ 12 \\ 12 \\ 12 \\ \hline 48 \end{array}$ </td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 5px;">So answer is a number between 36 and 48</td> </tr> </table>	Smallest Number of Windows	Largest Number of Windows	$\begin{array}{r} 9 \\ 9 \\ 9 \\ 9 \\ \hline 36 \end{array}$	$\begin{array}{r} 12 \\ 12 \\ 12 \\ 12 \\ \hline 48 \end{array}$	So answer is a number between 36 and 48			<p align="center">Objective 11A (Continued) “In the Ballpark” Problems</p> <p>Problems may stay within limits of 2 digits times a factor of 2, 3, 4, or 5 – but there is no guarantee of that because the problems do not have to be solved through multiplication.</p> <p>Tom sold between 7 and 15 sodas every hour for 9 hours. About how many sodas could Tom have sold?</p> <p>O 50 O 100 *** O 150 O 200</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> <p>Least sold = $7 \times 9 = 63$ Most sold = $15 \times 9 = 135$ Answer is any number between 63 and 135</p> </div>	<p align="center">Objective 11A (Continued) “In the Ballpark” Problems</p> <p>Aidan purchased 10 baseballs ranging in price from \$15 to \$20. Which could be the amount of money he spent on the baseballs altogether?</p> <p>O \$140 O \$190 *** O \$230 O \$250</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> <p>Least amount = $10 \times \\$15 = \\150 Greatest amt = $10 \times \\$20 = \\200 Answer is any number in between \$150 and \$200.</p> </div> <hr/> <p>Many people have moved to the city of Mathopolis. Between 10,000 and 14,000 people have moved here in each of the last 3 years. Which could be the number of people who have moved to Mathopolis in the last 3 years?</p> <p>O 25,000 O 35,000 *** O 50,000 O 60,000</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto;"> <p>Half way between 10,000 and 14,000 is 12,000. $12,000 \times 3 = 36,000$ Answer is the multiple choice closest to 36,000.</p> </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: auto; margin-right: auto; margin-top: 10px;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> $\begin{array}{r} 10,000 \\ \times \quad 3 \\ \hline 30,000 \end{array}$ </td> <td style="width: 50%; padding: 5px;"> $\begin{array}{r} 14,000 \\ \times \quad 3 \\ \hline 42,000 \end{array}$ </td> </tr> <tr> <td colspan="2" style="text-align: center; padding: 5px;">Answer is any number between 30,000 and 42,000.</td> </tr> </table> </div>	$\begin{array}{r} 10,000 \\ \times \quad 3 \\ \hline 30,000 \end{array}$	$\begin{array}{r} 14,000 \\ \times \quad 3 \\ \hline 42,000 \end{array}$	Answer is any number between 30,000 and 42,000.	
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PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
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ROUNDING is probably the LEAST useful form of Estimation for “little more/little less” problems.			
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
	Obj. 11A (Continued) A LITTLE MORE/A LITTLE LESS	Obj. 11A (Continued) A LITTLE MORE/A LITTLE LESS	Obj. 11A (Continued) A LITTLE MORE/A LITTLE LESS
	<p>There were 28 red cars and 19 green cars in the parking lot. About how many cars were there altogether?</p> <p> <input type="radio"/> A little less than 20 – not reasonable with 28 red cars <input type="radio"/> A little more than 30 – not reasonable with 28 plus 19 <input type="radio"/> A little more than 40 <input type="radio"/> A little less than 50 *** </p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> 28 → a little less than 30 19 → a little less than 20 Answer is “a little less than 50” </div> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 20px;"> Better choices: a little less than 40 a little more than 40 a little less than 50 ** a little more than 50 </div>	<p>John bought 29 baseballs on Monday. On Tuesday, he bought 38 more baseballs. About how many baseballs did he buy on both days?</p> <p> <input type="radio"/> a little less than 50 <input type="radio"/> a little more than 60 <input type="radio"/> a little less than 70 *** <input type="radio"/> a little more than 80 </p> <div style="border: 1px solid black; padding: 5px;"> Front-end estimation with adjustment can be useful: Tens column = 20 + 30 = 50 Ones column = 9 + 8 = a little less than 20 Final estimate = 50 + a little less than 20 → a little less than 70 Or adjust only one number: 29 → 30 38 → 38 Estimated total is 68 (less than 70) </div>	<p>Holly ate $18\frac{2}{3}$ hamburgers. Molly ate $12\frac{7}{8}$ hamburgers. About how many hamburgers did the girls eat?</p> <p> <input type="radio"/> A little less than 20 <input type="radio"/> A little more than 20 <input type="radio"/> A little less than 30 <input type="radio"/> A little more than 30 *** </p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> 18 + 12 = 30 Plus almost 2 more hamburgers from the fractions = MORE THAN 30 </div> <p>Jason flew 5234 miles in one month. Marcy flew 2987 miles during the same month. About how many miles did they both fly in all?</p> <p> <input type="radio"/> a little less than 7000 miles <input type="radio"/> a little more than 7000 miles <input type="radio"/> a little less than 8000 miles <input type="radio"/> a little more than 8000 miles *** </p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> Front End Estimation with Adjustment: 5000 + 2000 = 7000 200 + 900 = more than another 1000 7000 + 1000* = more than 8000 </div>
	<p>Mrs. Block drove 49 miles last week. She drove 23 miles this week. About how many miles did she drive in all?</p> <p> <input type="radio"/> a little less than 60 <input type="radio"/> a little more than 60 <input type="radio"/> a little less than 70 <input type="radio"/> a little more than 70 *** </p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> 49 → 50 23 → 23 Answer is about 73: more than 70 </div>		


PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
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2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
	<p>Obj. 11A: A little more/A little less (Continued)</p> <p>John bought 48 baseballs on Monday. On Tuesday, he bought 29 baseballs. About how many more baseballs did he buy on Monday than on Tuesday?</p> <p> <input type="radio"/> a little less than 20 *** <input type="radio"/> a little more than 20 <input type="radio"/> a little less than 30 <input type="radio"/> a little more than 30 </p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Keep 48; Round 29 → 30 48 - 30 = 18, a little less than 20 </div>	<p>Obj. 11A: A little more/A little less (Continued)</p> <p>Lynette measured her two dolls. The first doll was 78 centimeters tall. The second doll was 19 centimeter shorter than the first doll. About how tall is the second doll?</p> <p> <input type="radio"/> a little more than 70 cm <input type="radio"/> a little more than 60 cm <input type="radio"/> a little less than 70 cm <input type="radio"/> a little less than 60 cm *** </p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> 78 - 20 = 58 (less than 60) </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> 78 is a little less than → 80 19 is a little less than → 20 59 is a little less than → 60 </div>	<p>Obj. 11A: A little more/ A little less (Continued)</p> <p>Nancy had \$729 saved in the bank. She took \$315 out of the bank to buy a new mountain bike. About how much money is left in the bank?</p> <p> <input type="radio"/> a little less than \$400 <input checked="" type="radio"/> a little more than \$400 <input type="radio"/> a little less than \$500 <input type="radio"/> a little less than \$500 </p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> 729 → 730 315 → 300 Answer is about \$430 - a little more than \$400 </div> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> 729 stays as 729 315 → 300 729 - 300 = 429, which is a little more than 400 </div>
	<p>George had 57 hats. Martha had 29 hats. About how many fewer hats did Martha have than George did?</p> <p> <input type="radio"/> a little less than 30 *** <input type="radio"/> a little more than 30 <input type="radio"/> a little less than 40 <input type="radio"/> a little more than 40 </p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> 57 - 28 → 57 - 30 = 27 (a little less than 30) </div>	<p>Lew bought a ruler for \$2.85. He gave the clerk \$5. About how much change did he get from the clerk?</p> <p> <input type="radio"/> a little less than \$2 <input type="radio"/> a little more than \$2 *** <input type="radio"/> a little less than \$3 <input type="radio"/> a little more than \$3 </p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> \$5 - \$2 = \$3 You still have \$.85 left to subtract: \$3 - .85 = a LOT less than \$3, which is the same as "a little more than \$2" </div>	<p>A swan weighed 22.75 kilograms. A stork weighed 9.91 kilograms. About how many more kilograms did the swan weigh than the stork?</p> <p> <input type="radio"/> a little more than 10 *** <input type="radio"/> a little less than 10 <input type="radio"/> a little more than 20 <input type="radio"/> a little less than 20 </p>
		<p>Thom gave the clerk a \$10 bill to pay for his candy bars that cost \$6.15. About how much change should Thom receive?</p> <p> <input type="radio"/> a little less than \$4 <input type="radio"/> a little less than \$3 <input type="radio"/> a little more than \$4 <input type="radio"/> a little more than \$3 </p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> \$10 - 6 = \$4 \$4 - 15¢ = LESS THAN \$4 </div>	

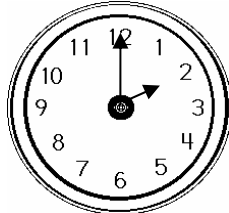
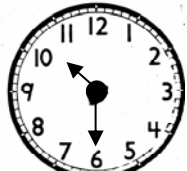
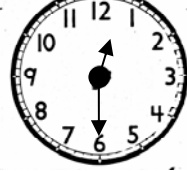
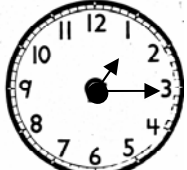
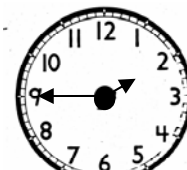
PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
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2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
	<p style="text-align: center;">Objective 11A (Continued) "Range" Questions</p> <p>Alex spent \$38 on new clothes for school. He also spent \$29 on school supplies. About how much money did he spend in all?</p> <p> <input type="radio"/> Less than \$70 *** <input type="radio"/> Between \$70 and \$80 <input type="radio"/> Between \$80 and \$90 <input type="radio"/> More than \$90 </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 100px;"> $38 + 30 = 68$ (less than 70) </div>	<p style="text-align: center;">Objective 11A (Continued) "Range" Questions</p> <p>Mrs. Kerry bought a new skirt for \$89. She also bought a new pair of shoes for \$48. About how much money did she spend on her new clothes?</p> <p> <input type="radio"/> less than \$100 <input type="radio"/> between \$110 and \$120 <input type="radio"/> between \$130 and \$140 *** <input type="radio"/> more than \$150 </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 100px;"> $89 \rightarrow$ less than 90 $48 \rightarrow$ less than 50 Answer is close to but less than 140 </div>	<p style="text-align: center;">Objective 11A (Continued) "Range" Questions</p> <p>James bought a truckload of peaches for \$387.95. He gave the clerk \$400.00. About how much change should he receive?</p> <p> <input type="radio"/> Less than \$10 <input type="radio"/> Between \$10 and \$20 *** <input type="radio"/> Between \$20 and \$30 <input type="radio"/> More than \$30 </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 100px;"> $\begin{array}{r} \\$400 \\ - 388 \\ \hline \\$ 12 \end{array}$ </div>
	<p>Paco had 48 pieces of bread. He fed 29 of the pieces to the ducks. About how many pieces of bread were left?</p> <p> <input type="radio"/> less than 10 <input type="radio"/> About 20 *** <input type="radio"/> About 30 <input type="radio"/> More than 40 </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 100px;"> $48 \rightarrow 48$ $29 \rightarrow 30$ Answer is about 18 </div>	<p>Mr. Hunter bought 892 black markers. He also bought 790 red markers. About how many markers did he buy altogether?</p> <p> <input type="radio"/> Less than 1500 <input type="radio"/> Between 1500 and 1600 <input type="radio"/> Between 1600 and 1700 *** <input type="radio"/> More than 1700 </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 100px;"> $\begin{array}{r} 892 \\ +790 \\ \hline 1500 + \text{almost } 200 = \text{almost (less than) } 1700 \end{array}$ </div>	<p>There were 293 red sports cars sold last year in Connecticut. There were also 519 red SUVs sold. About how many red cars were sold in all?</p> <p> <input type="radio"/> Less than 600 <input type="radio"/> Between 600 and 700 <input type="radio"/> Between 700 and 800 <input type="radio"/> More than 800 </p> <div style="display: flex; justify-content: space-around; margin-left: 100px;"> <div style="border: 1px solid black; padding: 5px;"> $\begin{array}{r} 293 \rightarrow 300 \\ 519 \rightarrow 519 \\ \hline 819 \\ \text{(more than 800)} \end{array}$ </div> <div style="border: 1px solid black; padding: 5px;"> $\begin{array}{r} 293 \\ +519 \\ \hline 700 + \text{more than } 100 = \\ \text{more than } 800 \end{array}$ </div> </div>

PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
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STRAND 14: TIME AND MONEY (Objectives 14A, 14B)			
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
<p>Obj. 14B: Determine the value of a set of coins < \$1.00 (pennies, nickels, dimes).</p> <p>What is the value of the coins?</p>  <p> <input type="radio"/> 8¢ <input type="radio"/> 25¢ <input type="radio"/> 38¢ *** <input type="radio"/> 53¢ </p>			

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2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
<p>Obj. 14A: Tell time to the nearest hour and half-hour using analog and digital clocks.</p>  <p>Jerry ate lunch at the time shown on the clock. What time is that?</p> <p> <input type="radio"/> 2:00 *** <input type="radio"/> 1:45 <input type="radio"/> 2:30 <input type="radio"/> 12:10 </p> <p>Also: show four analog clocks for the multiple choice answers. See the Grade 3 Column for an example.</p>	<p>Obj. 14A: Tell time to the nearest hour, half-hour and quarter hour, using analog and digital clocks.</p> <p>The movie starts at quarter past seven. What clock shows that time?</p> <p> <input type="radio"/> 7:15 *** <input type="radio"/> 7:30 half-past 7 <input type="radio"/> 7:45 quarter to 8 <input type="radio"/> 6:45 quarter to 7 </p> <hr/> <p>Joseph looked at the clock at home. The clock showed 12:30. At what clock was he looking?</p> <p> <input type="radio"/>  <input type="radio"/>  *** </p> <p> <input type="radio"/>  <input type="radio"/>  </p> <hr/> <p style="text-align: center;">8:30</p> <p>Matthew needs to be at soccer practice at the time shown in the clock. What time is that?</p> <p> <input type="radio"/> a quarter after 8 (8:15) <input type="radio"/> a quarter to 8 (7:45) <input type="radio"/> a quarter to 9 (8:45) <input type="radio"/> half-past 8 *** </p>		

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2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
	<p>14B: Solve problems involving time.</p> <p>82. Mrs. Robinson cleaned her house from 7:30 to 10:00. How long did she clean her house?</p> <p><input type="radio"/> 1 hour, 45 minutes</p> <p><input type="radio"/> 2 hours, 30 minutes ***</p> <p><input type="radio"/> 1 hour, 30 minutes</p> <p><input type="radio"/> 2 hours, 15 minutes</p>	<p>14A: Solve problems involving time...</p> <p>97. Sue cooked a big pot of chicken noodle soup from 8:15 until 10:30. How long did the pot of soup cook?</p> <p><input type="radio"/> 2 hours</p> <p><input type="radio"/> 2 hours and 15 minutes ***</p> <p><input type="radio"/> 2 hours and 30 minutes</p> <p><input type="radio"/> 2 hours and 45 minutes</p>	
	<p>14B: Solve problems involving elapsed time (15 minute increments).</p> <p>83. Alexis started reading her e-mail at nine thirty. She finished half an hour later. What time was it when she finished?</p> <p><input type="radio"/> nine o'clock</p> <p><input type="radio"/> ten o'clock ***</p> <p><input type="radio"/> ten thirty</p> <p><input type="radio"/> quarter to eleven</p> <hr/> <p>84. Christopher left his house at 8 o'clock. It took him 1 hour and 30 minutes to drive to work. At what time did he arrive at work?</p> <p><input type="radio"/> 9:00</p> <p><input type="radio"/> 8:45</p> <p><input type="radio"/> 8:30</p> <p><input type="radio"/> 9:30 ***</p>	<p>14A: Solve problems involving elapsed time (minutes and hours).</p> <p>Jacob flew from New York to Denver. He left at 12:15. He landed 4 hours and 35 minutes later. At what time did he land?</p> <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p><input type="radio"/> 4:35 $12:15 + 4 \text{ hr} = 4:15$</p> <p><input type="radio"/> 4:50 *** $4:15 + 35 \text{ min} = 4:50$</p> <p><input type="radio"/> 5:15</p> <p><input type="radio"/> 5:50</p> </div>	<p>14A: Solve problems involving elapsed time (am and pm)</p> <p>119. Riley started mowing the lawn at 9:20 a.m. and finished at 10:35 a.m. How long did it take her to mow the lawn?</p> <p><input type="radio"/> 1 hour and 20 minutes</p> <p><input type="radio"/> 1 hour and 40 minutes</p> <p><input type="radio"/> $1\frac{1}{2}$ hours</p> <p><input type="radio"/> $1\frac{1}{4}$ hours ***</p> <hr/> <p>120. Bryce finished changing the oil in his car at 12:50 p.m. He had started $1\frac{1}{2}$ hour sooner. At what time did he start changing the oil?</p> <p><input type="radio"/> 11:05 A.M.</p> <p><input type="radio"/> 11:20 A.M. ***</p> <p><input type="radio"/> 12:00 P.M.</p> <p><input type="radio"/> 12:30 P.M.</p> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-top: 10px;"> <p>This is a guess of what this type of problem would like on the 4th Gen. CMT.</p> </div>

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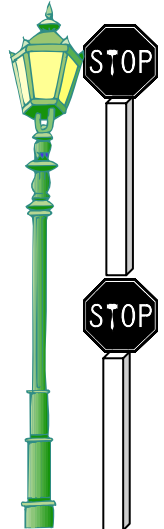
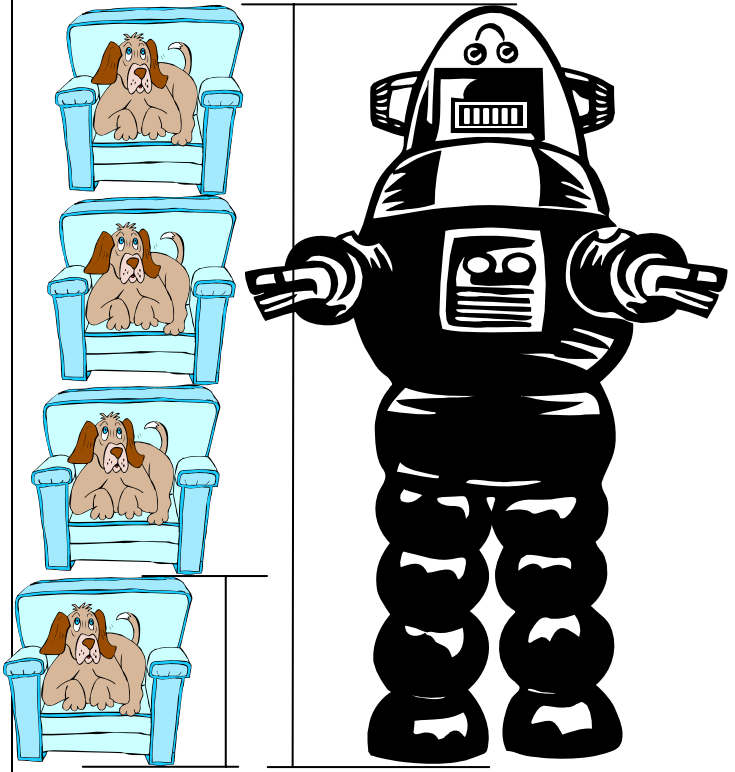
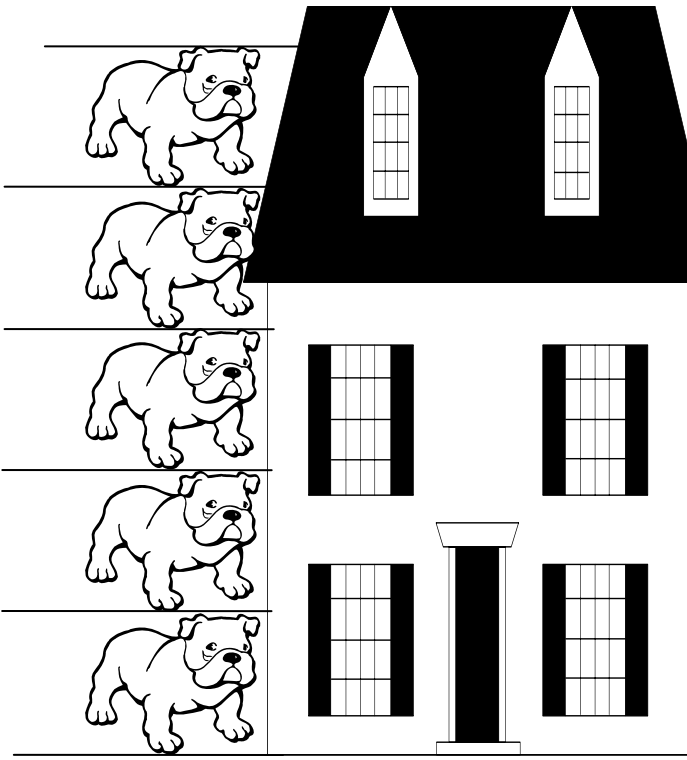
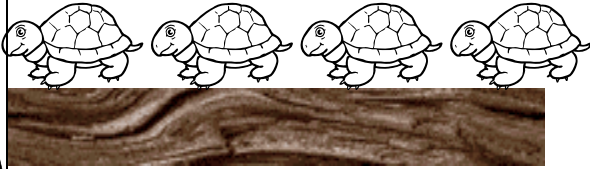
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 4 CMT																																																																																																		
	<p>14B: Solve problems involving calendars.</p> <p>Use the calendar to answer the questions.</p> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="7">NOVEMBER</th> </tr> <tr> <th>Sun</th> <th>Mon</th> <th>Tues</th> <th>Wed</th> <th>Thu</th> <th>Fri</th> <th>Sat</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> <td>12</td> </tr> <tr> <td>13</td> <td>14</td> <td>15</td> <td>16</td> <td>17</td> <td>18</td> <td>19</td> </tr> <tr> <td>20</td> <td>21</td> <td>22</td> <td>23</td> <td>24</td> <td>25</td> <td>26</td> </tr> <tr> <td>27</td> <td>28</td> <td>29</td> <td>30</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Thanksgiving is on the fourth Thursday of the month. What date is that?</p> <p> <input type="radio"/> November 17 <input type="radio"/> November 24 *** <input type="radio"/> November 10 <input type="radio"/> November 3 </p> <hr/> <p>Veteran’s Day is on November 11. On which day of the week is Veteran’s Day?</p> <p> <input type="radio"/> Saturday <input type="radio"/> Tuesday <input type="radio"/> Friday *** <input type="radio"/> Sunday </p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px; width: fit-content;"> <p>A November calendar would be shown with this question. Use calendar above for now.</p> </div>	NOVEMBER							Sun	Mon	Tues	Wed	Thu	Fri	Sat			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				<p>14A: (Continued) Solve problems involving calendars</p> <p><i>Could there be patterning questions? PROBABLY NOT.</i></p> <p><i>Example: Tom went to the dentist on the 1st, 9th, and 17th of November (See calendar in Grade 3 Column). According to the pattern of dates, when will Tom next go to the dentist?</i></p> <p> <input type="radio"/> November 23 <input type="radio"/> November 24 <input type="radio"/> November 25 *** <input type="radio"/> November 26 </p> <hr/> <table border="1" style="margin: 10px auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th colspan="7">SEPTEMBER</th> </tr> <tr> <th>Sun</th> <th>Mon</th> <th>Tues</th> <th>Wed</th> <th>Thu</th> <th>Fri</th> <th>Sat</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> <td>12</td> </tr> <tr> <td>13</td> <td>14</td> <td>15</td> <td>16</td> <td>17</td> <td>18</td> <td>19</td> </tr> <tr> <td>20</td> <td>21</td> <td>22</td> <td>23</td> <td>24</td> <td>25</td> <td>26</td> </tr> <tr> <td>27</td> <td>28</td> <td>29</td> <td>30</td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>Mark’s birthday is the 3rd Wednesday of the month shown on the calendar above. What is the date of his birthday?</p> <p> <input type="radio"/> September 14 <input type="radio"/> September 16 *** <input type="radio"/> September 23 <input type="radio"/> September 30 </p>	SEPTEMBER							Sun	Mon	Tues	Wed	Thu	Fri	Sat			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				
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PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
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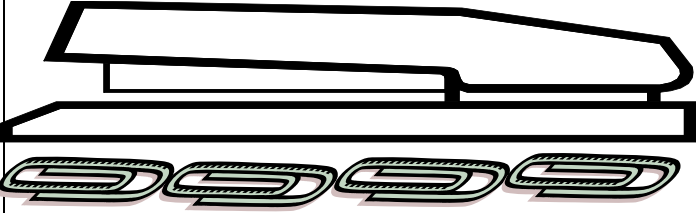
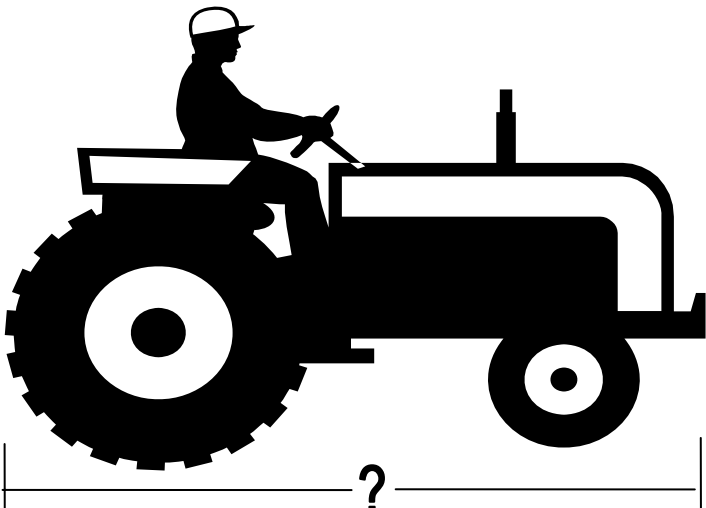
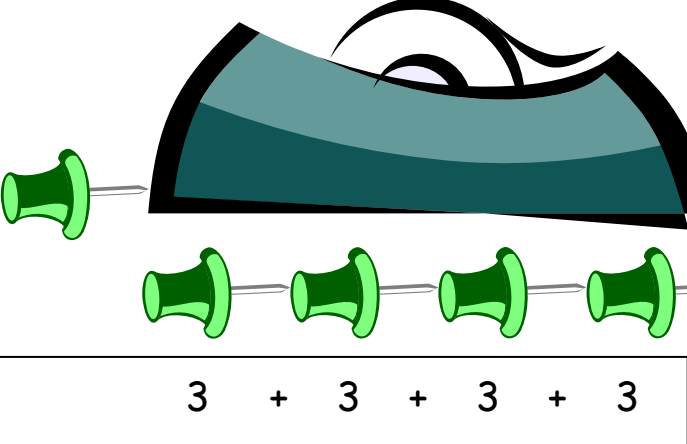
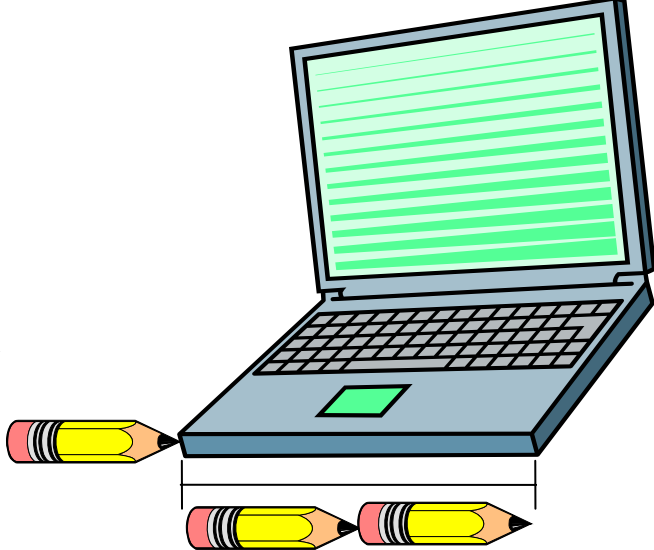
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
		<p>Obj. 14B: Solve problems involving the conversion of measures of time.</p> <p><i>Please note: These problems are all guesswork as to what will appear on the 4th Gen. CMT.</i></p> <p>Holly spent 1 hour answering her e-mail. How many minutes is that?</p> <p> <input type="radio"/> 30 minutes <input type="radio"/> 45 minutes <input type="radio"/> 60 minutes *** <input type="radio"/> 75 minutes </p> <hr/> <p>Ben stared for 120 seconds without blinking. How long did he stare?</p> <p> <input type="radio"/> $\frac{1}{2}$ minute <input type="radio"/> 1 minute <input type="radio"/> $1\frac{1}{2}$ minutes <input type="radio"/> 2 minutes *** </p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> Vice versa question would have students convert $2\frac{1}{4}$ hours into minutes, for example. </div>	<p>Obj. 14B: Solve problems involving the conversion of measures of time (minutes, hours, days).</p> <p>It took Marcus 240 minutes to drive to Fenway Park in Boston. How many hours is that?</p> <p> <input type="radio"/> 2 <input type="radio"/> 4 *** <input type="radio"/> 6 <input type="radio"/> 8 </p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> 1 hr = 60 min 2 hr = 120 min 3 hr = 180 min 4 hr = 240 min </div> <hr/> <p>Carly would like to be able to hold her breath under water for 3 minutes. How many seconds would that be?</p> <p> <input type="radio"/> 60 seconds <input type="radio"/> 100 seconds <input type="radio"/> 150 seconds <input type="radio"/> 180 seconds *** </p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> 1 min = 60 sec 2 min = 120 sec 3 min = 180 sec </div>
			<div style="border: 1px solid black; padding: 5px;"> Would fractions be on the Grade 5 CMT? I think so. Example: How many minutes = $1\frac{1}{4}$ hours? 45 min <u>75 min</u> 90 min 105 min </div>

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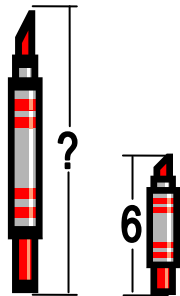
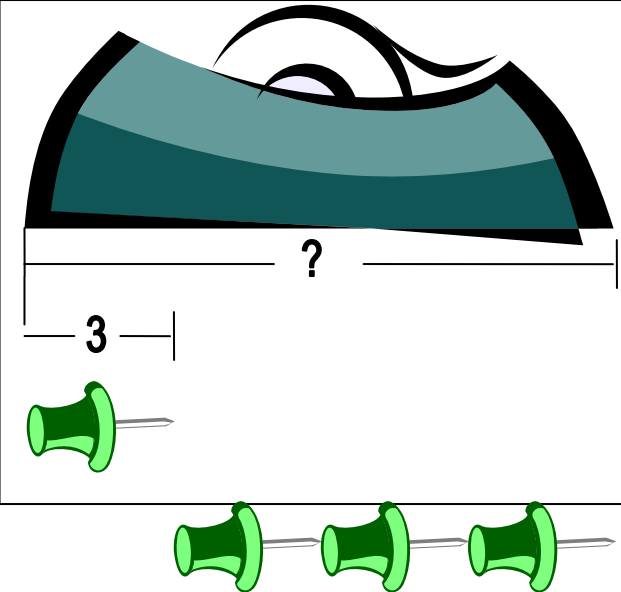
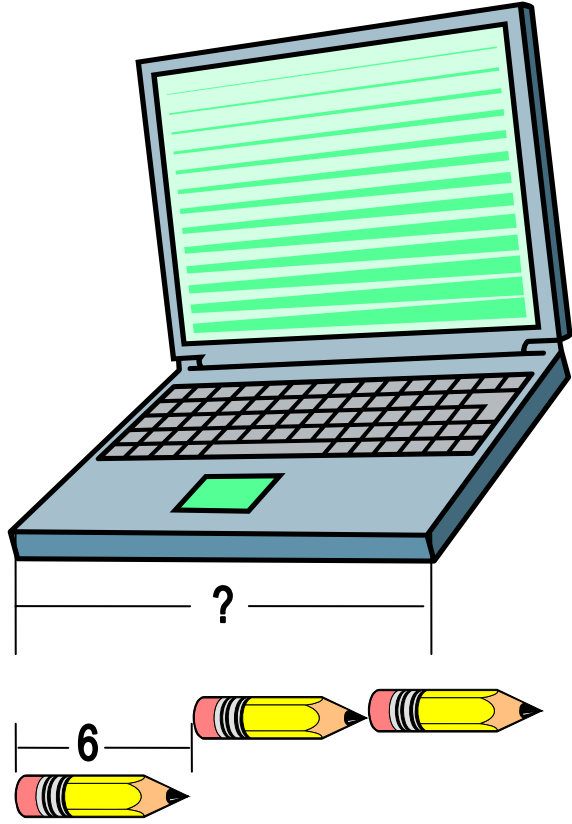
STRAND 15: APPROXIMATING MEASURES [Length and Area] Objective 15A

2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
<p>15A: Estimate lengths, using non-standard units [by comparing].</p> <p>About how many stop signs would be as tall as the light pole?</p>  <p> <input type="radio"/> 2 *** <input type="radio"/> 3 <input type="radio"/> 4 <input type="radio"/> 5 </p>	<p>15A: Estimate lengths ...by comparing.</p> <p>About how many chairs would be the same height as the robot?</p>  <p> <input type="radio"/> 1 <input type="radio"/> 4 *** <input type="radio"/> 7 <input type="radio"/> 10 </p>	<p>15A: Estimate lengths...by comparing.</p> <p>The dollhouse is about how many times as tall as the dog?</p>  <p> <input type="radio"/> 2 <input type="radio"/> 5 *** <input type="radio"/> 8 <input type="radio"/> 12 </p> <div style="border: 1px solid black; padding: 5px; width: fit-content;"> Measurements won't always come out exact. This is estimation of measurement. </div>	<p>15A: Estimate lengths.</p> <p>The log is about how many times as long as the turtle?</p>  <p> <input type="radio"/> 2 <input type="radio"/> 4 *** (4 is actually a little too long but is a good estimated answer) <input type="radio"/> 7 <input type="radio"/> 9 </p>

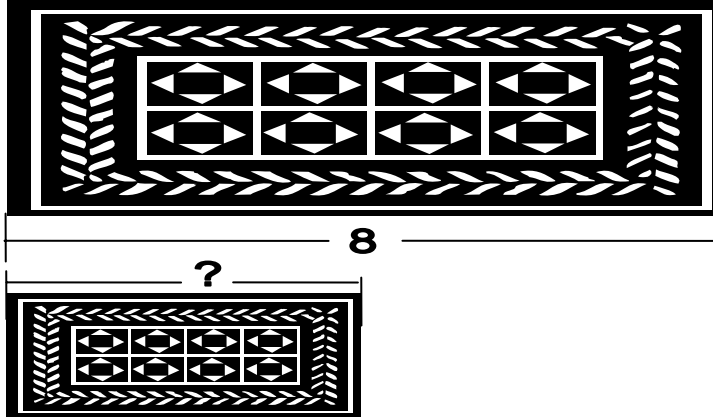
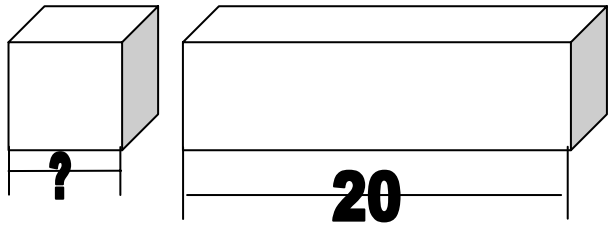
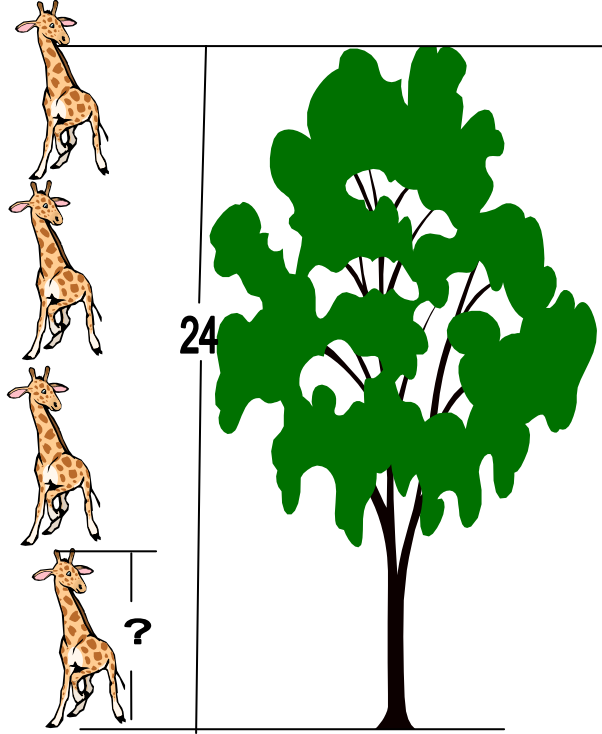
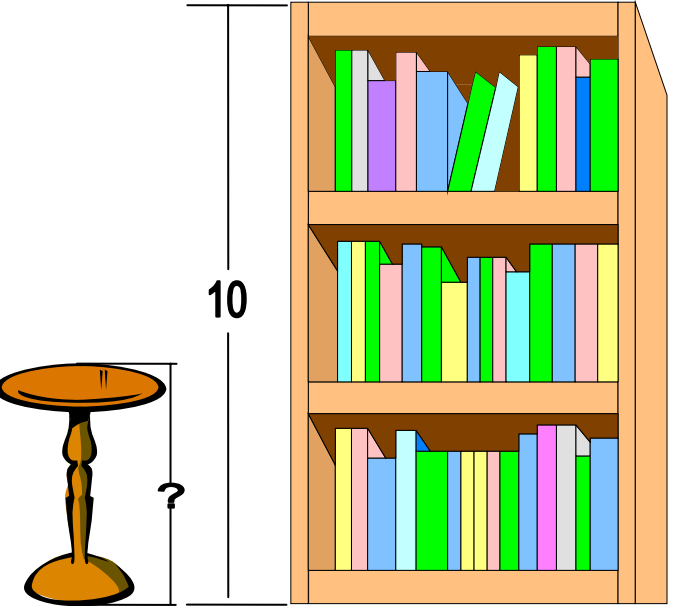
PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
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2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
<p>Obj. 15A: Length – Range of Answers</p> <p>About how many paper clips long is the stapler?</p>  <ul style="list-style-type: none"> <input type="radio"/> Fewer than 3 <input type="radio"/> Between 3 and 6 *** <input type="radio"/> Between 7 and 10 <input type="radio"/> More than 10 	<p>Obj. 15A: Length – Range of Answers</p> <p>The shorter tractor is 5 feet long.</p>  <p>About how many feet long is the larger tractor?</p> <ul style="list-style-type: none"> <input type="radio"/> Less than 15 <input type="radio"/> Between 16 and 22 *** <input type="radio"/> Between 23 and 31 <input type="radio"/> More than 31 	<p>Obj. 15A: Length – Range of Answers</p> <p>The small tack is 3 centimeters long. ABOUT how long is the tape dispenser?</p>  <ul style="list-style-type: none"> <input type="radio"/> Less than 8 cm. <input type="radio"/> Between 8 and 11 cm <input type="radio"/> Between 11 and 15 cm *** <input type="radio"/> More than 15 cm 	<p>Obj. 15A: Length – Range of Answers</p> <p>If the pencil is 7 inches long, ABOUT how wide is the computer notebook?</p>  <ul style="list-style-type: none"> <input type="radio"/> Less than 5 inches <input type="radio"/> Between 5 and 10 inches <input type="radio"/> Between 10 and 15 inches *** <input type="radio"/> More than 15 inches
<p>2ND grade children should be allowed to use actual paper clips when determining the correct answer.</p> <p>The same question could be done using Unifix cubes, inch worms (NOT LIVE ONES!), color tiles, pattern blocks, or whatever nonstandard measuring material you have available.</p>			

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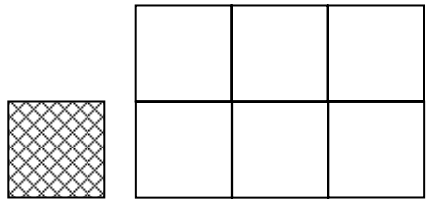
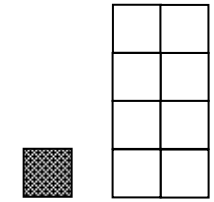

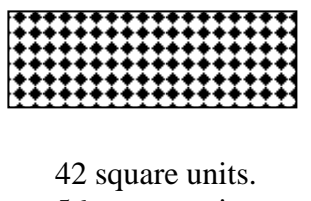
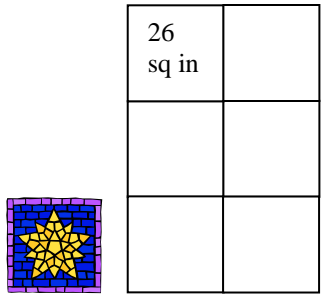
End of Second Grade	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
	<p>Obj. 15A: Continued – Shorter length given</p> <p>Sarah had 2 markers. She measured the shorter marker and found out it was 6 inches long. About how tall is the taller marker?</p> <p> <input type="radio"/> 5 in <input type="radio"/> 8 in <input type="radio"/> 12 in *** <input type="radio"/> 16 in </p> 	<p>Obj. 15A: Continued – Shorter length given.</p> <p>The small tack is 3 units long.</p>  <p>About how many units long is the tape dispenser?</p> <p> <input type="radio"/> 6 <input type="radio"/> 12 *** <input type="radio"/> 18 <input type="radio"/> 24 </p>	<p>Obj. 15A: Continued – Shorter length given.</p> <p>If the pencil is 6 inches long, about how wide is the computer notebook?</p>  <p> <input type="radio"/> 10 inches <input type="radio"/> 15 inches *** <input type="radio"/> 20 inches <input type="radio"/> 25 inches </p>

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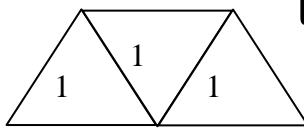
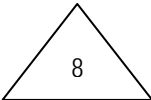
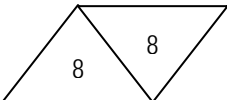
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
	<p>Obj. 15A: Continued – Longer length given</p> <p>If the longer rug is 8 feet long, About how long is the shorter rug?</p>  <p> <input type="radio"/> 2 feet <input type="radio"/> 4 feet *** <input type="radio"/> 6 feet <input type="radio"/> 8 feet </p> <p>If the large box is 20 inches wide, about how many inches wide is the small box?</p> 	<p>Obj. 15A: Continued – Longer length given</p> <p>If the tree is 24 feet tall, about how tall is the baby giraffe?</p>  <p> <input type="radio"/> 3' <input type="radio"/> 6' *** <input type="radio"/> 10' <input type="radio"/> 14" </p> <div style="border: 1px solid black; padding: 5px;"> <p>Find half of 24 ft on the tree. That's 12 feet. The giraffe is ABOUT half of the 12 foot mark. So the giraffe is about 6 ft – it's the best choice available.</p> </div>	<p>Obj. 15A: Continued – Longer length given</p> <p>If the bookcase is 10 feet tall, about how tall is the table?</p>  <p> <input type="radio"/> 2 feet <input type="radio"/> 4 feet <input type="radio"/> 6 feet <input type="radio"/> 8 feet *** </p> <div style="border: 1px solid black; padding: 5px;"> <p>Suggestion: Locate 5 feet on the bookcase as another point of reference. Now we know that the answer is between 5 and 10 feet.</p> </div>

- 2
 6 ***
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 14

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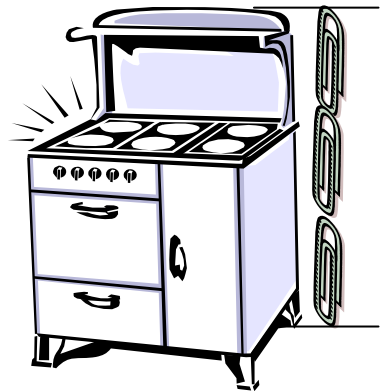
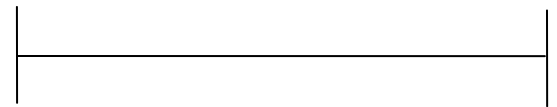
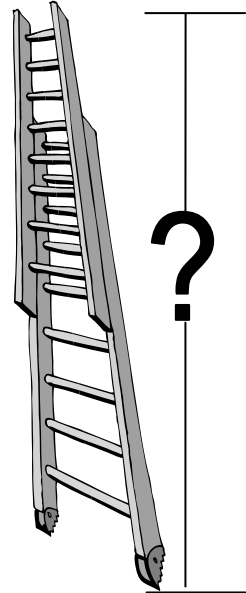
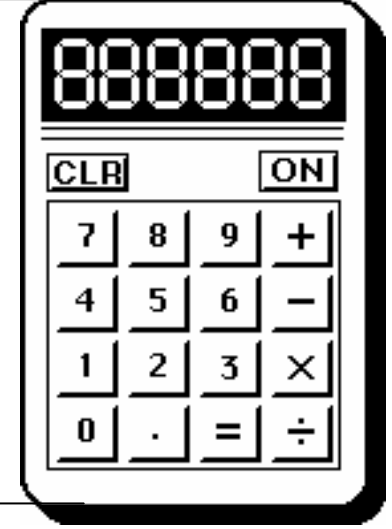
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT								
	<p>15A: Estimate ... areas by comparing.</p> <p><i>Types of Problems:</i></p> <ul style="list-style-type: none"> Find out how many small squares are needed to fill a large square. Find out how many small squares are needed to fill a large rectangle. Find out how many small rectangles are needed to fill a large square. The small square could be placed on the outside of the larger shape, on either the right or the left of the larger shape. The shapes can be referred to as shapes. The problem can be put into a situation in which the shapes are referred to as real objects (postcards, pictures, mirrors, tiles, etc.). <p>About how many small tiles does it take to cover the large wall?</p> <p> <input type="radio"/> 2 *** <input type="radio"/> 6 <input type="radio"/> 10 <input type="radio"/> 14 </p> 	<p>15A: Estimate ... areas by comparing.</p> <p>About how many shaded shapes would fill the large shape?</p> <p> <input type="radio"/> 4 <input type="radio"/> 6 <input type="radio"/> 8 *** <input type="radio"/> 10 </p>  <p><i>Later in the year (after March), have the shaded square be worth 2 square units, 5 square units, 10 square units. Now what would be the area of the large rectangle? Use same problems, but word them like the Grade 5 questions.</i></p> <p>About how many mirrors would cover the front of the door?</p> <p> <input type="radio"/> 2 <input type="radio"/> 6 *** <input type="radio"/> 10 <input type="radio"/> 14 </p> 	<p>15A: Estimate ... areas by comparing.</p> <p>If the shaded area is 14 square units, the larger figure would be about</p> <p> <input type="radio"/> 42 square units. <input type="radio"/> 56 square units. <input type="radio"/> 70 square units. *** <input type="radio"/> 84 square units. </p>  <table border="1"> <tr><td>14</td></tr> <tr><td>28</td></tr> <tr><td>42</td></tr> <tr><td>56</td></tr> <tr><td>70</td></tr> </table> <p>If the small block is 26 square inches, about how large is the larger block?</p> <p><i>OR:</i> If the area of the small block is 26 square inches, about how large is the area of the larger block?</p> <p> <input type="radio"/> 104 sq in <input type="radio"/> 130 sq in <input type="radio"/> 156 sq in *** <input type="radio"/> 182 sq in </p>  <table border="1"> <tr><td>26</td></tr> <tr><td><u> 6</u></td></tr> <tr><td>156</td></tr> </table>	14	28	42	56	70	26	<u> 6</u>	156
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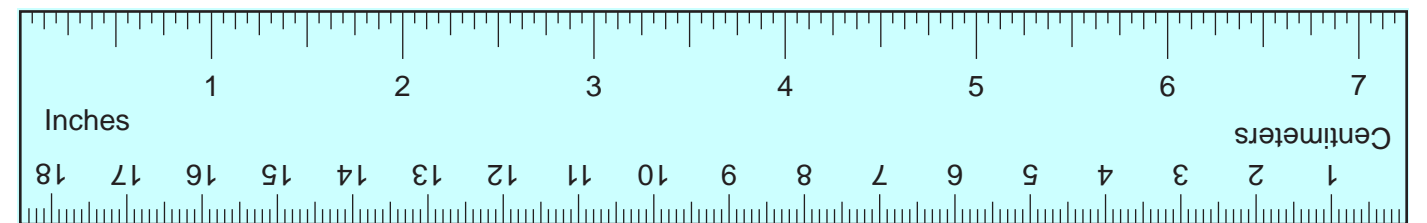
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2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
		<p>Obj. 15A: Estimate areas</p> <p>After March, start estimating area with pattern blocks and tangrams.</p> <p>Pattern Blocks can use the green triangle as the unit. Call it 1 triangle unit, if you wish.</p> <p>Figure out the areas of the red trapezoid, the yellow hexagon, and the blue rhombus when the green triangle equals</p> <ul style="list-style-type: none"> ▪ 1 unit ▪ 2 units ▪ 5 units ▪ 10 units <div style="display: flex; align-items: center;">  <div style="margin-left: 10px;"> <p>trapezoid = 3 units of area if triangle = 1 unit of area</p> </div> </div>	<p>Obj. 15A: Estimate areas</p> <p>Also estimate area with pattern blocks and tangrams.</p> <p>Tangrams can use the small triangle as the unit. Call it 1 triangle unit to start, then go to larger numbers</p> <ul style="list-style-type: none"> ▪ 10 units ▪ 25 units ▪ 18 units ▪ 33 units, etc. <p>Later, make another Tangram piece have an area of 1 unit, then larger units</p> <div style="display: flex; align-items: center;">   <div style="margin-left: 20px; border: 1px solid black; padding: 5px;"> <p>If triangle has an area of 8 units, then parallelogram has an area of 16 units</p> </div> </div>

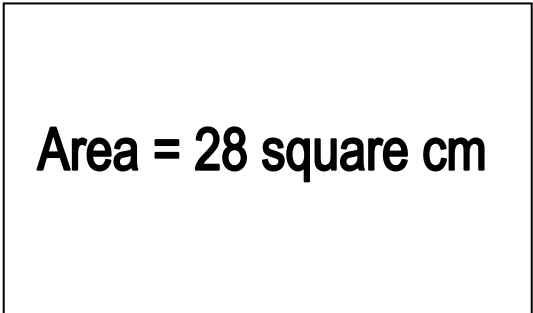
Strand 15 – All Grades: Do not always have shapes, heights, lengths, widths be exact fits. See the “giraffe” problem on Page 20 of this document for one example.

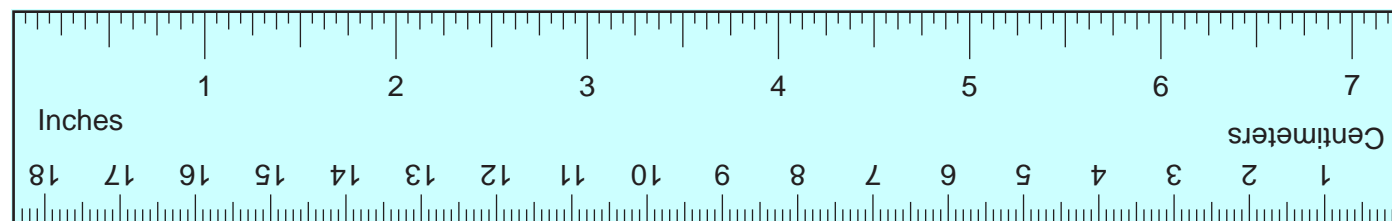
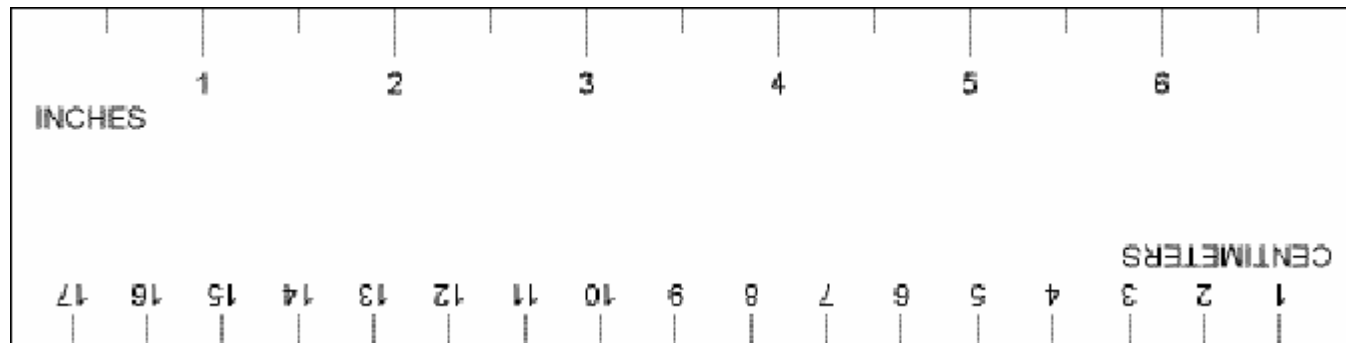
STRAND 16: CUSTOMARY AND METRIC MEASURES (Objectives 16A, 16B, 16C, 16D)

2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
<p>16A: Measure lengths using non-standard units.</p> <p>Use your paper clips to solve this problem. How many paper clips high is the stove?</p>  <div style="border: 1px solid black; padding: 5px;"> <p>Write the number of paper clips here.</p> <p style="font-size: 2em; text-align: center;">3</p> </div>	<p>16A: Measure lengths to the nearest inch or centimeter.</p> <p>Use your ruler to measure the length of the line segment to the nearest centimeter.</p>  <p> <input type="radio"/> 4 cm <input type="radio"/> 7 cm <input type="radio"/> 10 cm *** <input type="radio"/> 13 cm </p>	<p>16A: Measure lengths to the nearest inch, half-inch, or centimeter.</p> <p>Measure the height of the ladder to the nearest centimeter. Write your answer in the box.</p>  <div style="border: 1px solid black; padding: 5px;"> <p>Answer 12 cm.</p> </div>	<p>16A: Measure lengths to the nearest quarter inch or half centimeter.</p> <p>Use your ruler to measure the height of the calculator to the nearest quarter inch.</p> <div style="border: 1px solid black; padding: 5px;"> <p>You must measure the height yourself – copy machines distort shapes.</p> <p>Also, the answer depends on the scale used to print the document</p> </div>  <p> <input type="radio"/> $1\frac{1}{4}$ inches <input type="radio"/> $1\frac{1}{2}$ inches <input type="radio"/> $1\frac{3}{4}$ inches *** <input type="radio"/> 2 inches </p>
<p>The same question could be done using Unifix cubes, inchworms, color tiles, or whatever nonstandard measuring material you have available.</p>			



PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
 Created by Tina Della Bernarda for the Bristol Public Schools

2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
	<p>16B: Draw lengths to the nearest inch or centimeter.</p> <p>Use your ruler to draw a line segment in the space below that is 3 inches long.</p>	<p>16B: Draw lengths to the nearest inch, half-inch or centimeter.</p> <p>Use your ruler to draw a line segment that is $4\frac{1}{2}$ inches long. Use the space below.</p>	<p>16B. Measure and determine perimeters and areas.</p> <p><i>The following question could ask for the perimeter as easily as the area of the figure.</i></p> <p><i>A perimeter question could use a shape with more than, less than, or exactly 4 sides.</i></p>
	<p>Draw a 4-centimeter long line segment with your ruler in the space below.</p>		<p>Use your ruler to measure the length of each side of the shape in centimeters. Label the length of each side. Write the area of the shape in square centimeters.</p> <div style="text-align: center;"> <p>7 centimeters</p>  <p>4 cm 4 cm</p> <p>7 centimeters</p> </div>



4th Generation CMT Rulers

Begin measuring at the very edge of the rulers. There is no zero shown on these rulers.

Ruler for Grades 3-4: Top, wider ruler; manila or white in color

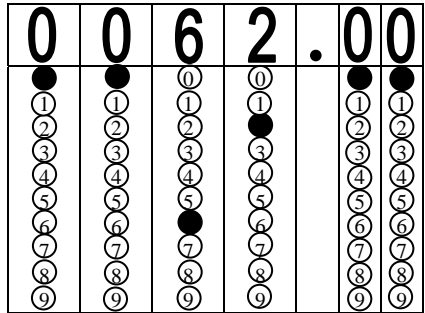
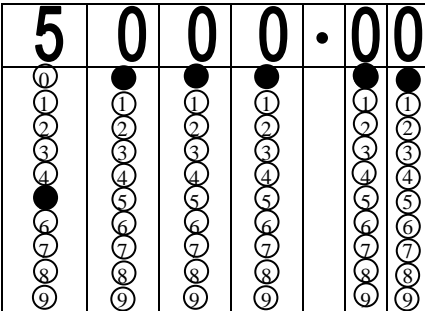
Ruler for Grades 5 – 8: The ruler will be light turquoise blue in color.

These rulers are NOT true to size.

PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
Created by Tina Della Bernarda for the Bristol Public Schools

2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
<p>16B: Identify appropriate customary or metric units (inch, foot, meter, or centimeter) for a given situation.</p> <p>Which unit would be best to measure the length of your shoe?</p> <p><input type="radio"/> inches ***</p> <p><input type="radio"/> feet</p> <p><input type="radio"/> yards</p> <p><input type="radio"/> miles</p>	<p>16C: Identify appropriate customary or metric units of measure for a given situation (inches, feet, centimeters, meters).</p> <p>About how long is your thumb?</p> <p><input type="radio"/> 2 feet</p> <p><input type="radio"/> 2miles</p> <p><input type="radio"/> 2 inches ***</p> <p><input type="radio"/> 2 pounds</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 100px;"> <p>Discuss with students why the other 3 choices are wrong and what would be 2 feet long, 2 miles, etc.</p> </div>	<p>16C: Identify appropriate customary or metric units of measure for a given situation.</p> <p>Which is the best unit to use when measuring the length of a truck?</p> <p><input type="radio"/> feet ***</p> <p><input type="radio"/> inches</p> <p><input type="radio"/> centimeters</p> <p><input type="radio"/> miles</p>	<p>16C: Identify appropriate customary or metric units of measure (length, capacity, mass) for a given situation.</p> <p>The height of a door is best measured in</p> <p><input type="radio"/> inches</p> <p><input type="radio"/> centimeters</p> <p><input type="radio"/> kilometers</p> <p><input type="radio"/> feet ***</p>
<p>Which of these would be about 3 centimeters long?</p> <p><input type="radio"/> A horse</p> <p><input type="radio"/> A person’s leg</p> <p><input type="radio"/> A flashlight</p> <p><input type="radio"/> A nose ***</p>	<p>100. What is a reasonable length for a telephone?</p> <p><input type="radio"/> 25 liters</p> <p><input type="radio"/> 25 meters</p> <p><input type="radio"/> 25 kilometers</p> <p><input type="radio"/> 25 centimeters ***</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 100px;"> <p>Discuss with students why the other 3 choices are wrong.</p> </div>	<p>Which is the best unit to use to measure the length of a fence?</p> <p><input type="radio"/> centimeters</p> <p><input type="radio"/> liters</p> <p><input type="radio"/> meters ***</p> <p><input type="radio"/> kilometers</p>	<p>Which object would be about 6 feet tall?</p> <p><input type="radio"/> A stick of gum</p> <p><input type="radio"/> A refrigerator ***</p> <p><input type="radio"/> A kitten</p> <p><input type="radio"/> A skyscraper</p>
	<p>Which object would be about 8 inches long?</p> <p><input type="radio"/> a truck</p> <p><input type="radio"/> a wall</p> <p><input type="radio"/> a pen ***</p> <p><input type="radio"/> a car</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin-left: 100px;"> <p>Discuss with students why the other 3 choices are wrong.</p> </div>	<p>The length of a lake is best measured in</p> <p><input type="radio"/> inches</p> <p><input type="radio"/> feet</p> <p><input type="radio"/> yards</p> <p><input type="radio"/> miles ***</p>	<p>Which is a reasonable amount of water in a fish tank?</p> <p><input type="radio"/> 50 liters ***</p> <p><input type="radio"/> 50 meters</p> <p><input type="radio"/> 50 ounces</p> <p><input type="radio"/> 50 grams</p>


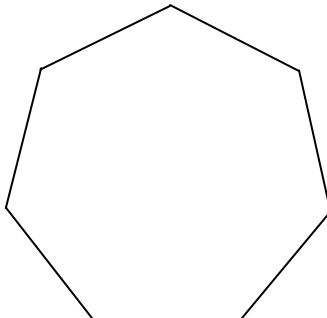


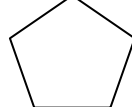
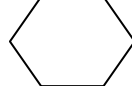
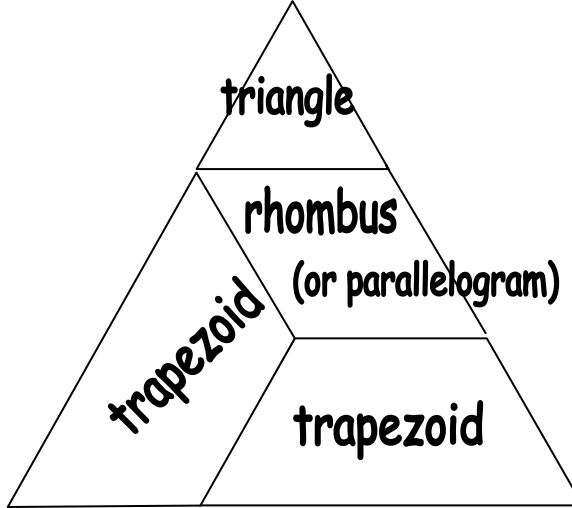

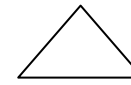
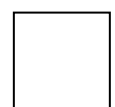
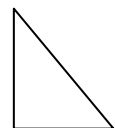

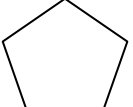
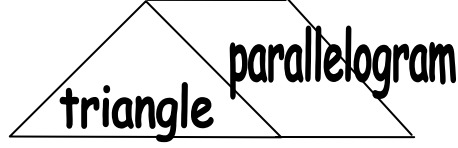

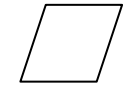


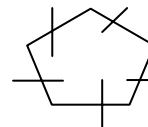
PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
 Created by Tina Della Bernarda for the Bristol Public Schools

STRAND 16: CUSTOMARY AND METRIC MEASURES (Objectives 16A , 16B, 16C, 16D)			
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
			<p>Obj. 16d: Solve problems involving conversions of measures of length.</p> <p>Marissa is 5 feet 2 inches tall. How many inches is that?</p> 
			<p>Sebastian lives 5 kilometers from school. How many meters is that?</p> 

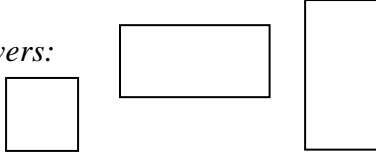
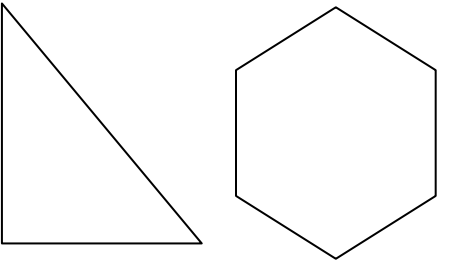
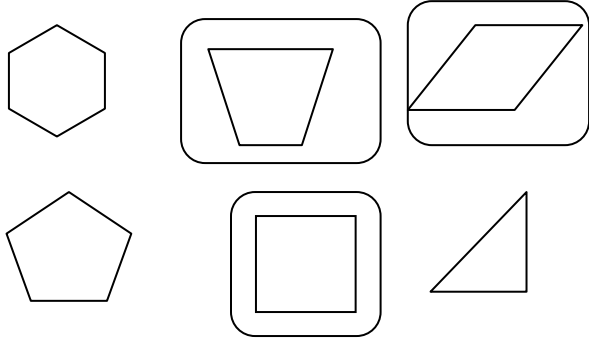
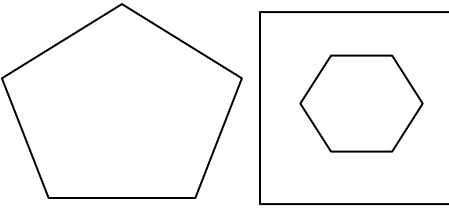

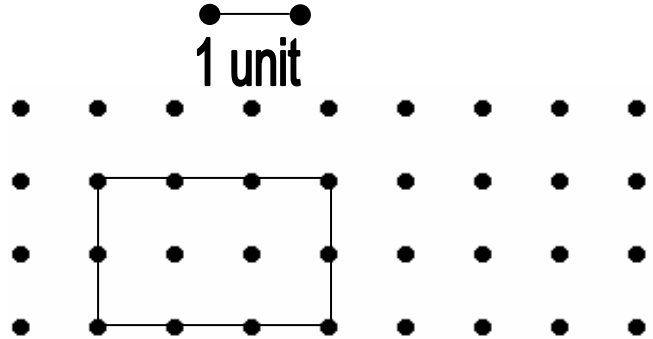
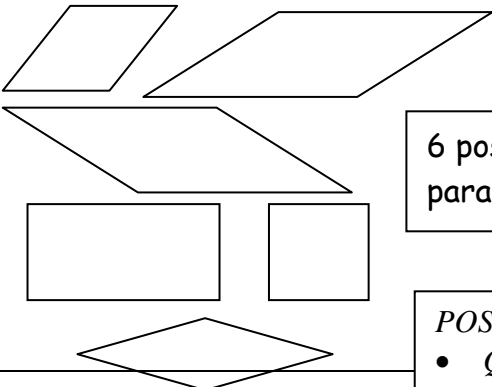
PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
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2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
			<p style="text-align: center;">Obj. 16D: Continued</p> <p>Terry won the Boston Marathon by 8653 meters. How many kilometers is that?</p> <p> <input type="radio"/> 865.3 kilometers <input type="radio"/> 86.53 kilometers <input type="radio"/> 8.653 kilometers *** <input type="radio"/> 0.8653 kilometers </p> <hr/> <p>Dot used 72 inches of ribbon to make blue ribbons. How many feet is that?</p> <p> <input type="radio"/> 5 feet <input type="radio"/> 6 feet *** <input type="radio"/> 7 feet <input type="radio"/> 8 feet </p>
		<i>14B: Solve problems involving conversions of measures of time. [See Page 16 of this document]</i>	<i>14B: Solve problems involving conversions of measures of time (minutes, hours, and days). [See Page 16 of this document.]</i>

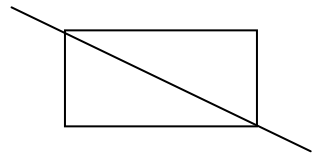
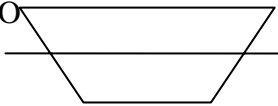
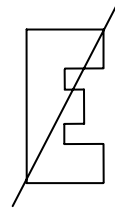
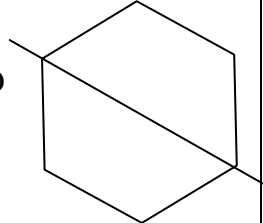
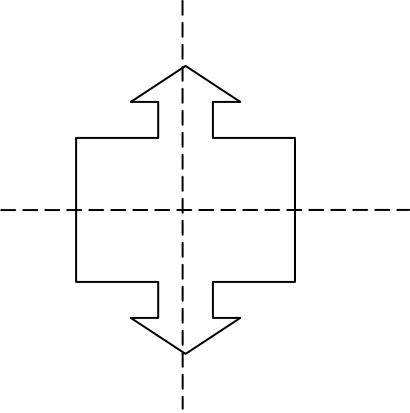
PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
 Created by Tina Della Bernarda for the Bristol Public Schools

STRAND 17: GEOMETRIC SHAPES AND PROPERTIES (Objectives 17A, 17B)			
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
<p>17A: Identify simple geometric figures (circle, square, triangle, rectangle).</p>  <p>The globe looks most like which shape?</p> <p><input type="radio"/> A circle ***</p> <p><input type="radio"/> A triangle</p> <p><input type="radio"/> A rectangle</p> <p><input type="radio"/> A square</p>	<p>17A: Identify and recognize 2-dimensional geometric shapes and figures, including the number of angles and sides of polygons.</p> <p>This shape has 7 sides. How many angles does it have?</p> <p><input type="radio"/> 3</p> <p><input type="radio"/> 5</p> <p><input type="radio"/> 7 ***</p> <p><input type="radio"/> 9</p>  <div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p>Also ask: How many sides?</p> </div>	<p>17A: Identify 2-dimensional geometric shapes, including the number of angles and sides of polygons.</p> <p>Which shape below is a quadrilateral?</p> <p><input type="radio"/>  triangle</p> <p><input type="radio"/>  rectangle ***</p> <p><input type="radio"/>  pentagon</p> <p><input type="radio"/>  hexagon</p>	<p>17A: Identify, describe, and/or classify geometric shapes and figures.</p>  <p>What shapes were used to make this figure?</p> <p><input type="radio"/> 2 hexagons, 1 rhombus, and 1 triangle</p> <p><input type="radio"/> 2 rhombuses, 1 trapezoid, and 1 triangle</p> <p><input type="radio"/> 2 parallelograms, 1 trapezoid, and 1 triangle</p> <p><input type="radio"/> 2 trapezoids, 1 rhombus, and 1 triangle***</p>
<p>Which shape is a square?</p> <p><input type="radio"/> </p> <p><input type="radio"/> </p> <p><input type="radio"/>  ***</p> <p><input type="radio"/> </p>	<p></p> <p>What is the name of the figure?</p> <p><input type="radio"/> parallelogram</p> <p><input type="radio"/> rectangle</p> <p><input type="radio"/> polygon</p> <p><input type="radio"/> line segment ***</p>	<p></p> <p>What is the name of the shape?</p> <p><input type="radio"/> pentagon ***</p> <p><input type="radio"/> quadrilateral</p> <p><input type="radio"/> regular octagon</p> <p><input type="radio"/> equilateral triangle</p>	<p></p> <p>What shape is formed by these two figures?</p> <p><input type="radio"/> parallelogram</p> <p><input type="radio"/> trapezoid ***</p> <p><input type="radio"/> rhombus</p> <p><input type="radio"/> triangle</p>
	<p>Which shape is a parallelogram?</p> <p><input type="radio"/> </p> <p><input type="radio"/>  ***</p> <p><input type="radio"/> </p> <p><input type="radio"/> </p>	<p>How many sides does the shape have?</p>  <p><input type="radio"/> 2 <input type="radio"/> 8</p> <p><input type="radio"/> 5 *** <input type="radio"/> 12</p>	

PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
 Created by Tina Della Bernarda for the Bristol Public Schools

2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
<p>17A: (Continued): Draw simple geometric figures (circle, square, triangle, rectangle)</p> <p>Draw a rectangle in the space below.</p> <p>3 possible answers:</p> 	<p>17B: Draw 2-dimensional geometric shapes and figures.</p> <p>In the space provided, draw a polygon with 4 angles. Write the name of the shape.</p> <p><i>Question could also ask children to draw a polygon with a certain number of sides.</i></p>	<p>17B: Identify, describe and draw 2-dimensional geometric shapes and figures.</p> <p>Draw a pentagon. Then explain why the figure you drew is a pentagon..</p> <p><i>Many other shapes could be used for this problem. See Vocab. list in CMT Handbook.</i></p>	<p>17B: Draw, describe and/or classify geometric shapes and figures.</p> <p>Draw a hexagon inside the quadrilateral.</p> 
<p>PLEASE NOTE: CMT GRADE 4 AND GRADE 5 - Explanation for a Parallelogram: A rectangle, square or rhombus would be accepted as a parallelogram provided the explanation described the critical attributes of a parallelogram specifically and not exclusively of a rectangle, square, or rhombus.</p>	<p>Draw a six-sided polygon. Or: Draw a shape with exactly six sides. Or Draw a six-sided shape.</p> <p><i>Please note: any hexagon would be acceptable, not just a regular hexagon that has 6 equal sides and 6 equal angles.</i></p>	<p>Draw a ring around the shapes that are quadrilaterals.</p>  <p>hexagon <u>trapezoid</u> <u>parallelogram</u> pentagon <u>square</u> triangle</p>	 <p>Circle the shapes that are parallelograms. Then write a sentence that explains how you know they are parallelograms.</p>
	<p>Draw a triangle inside the rectangle.</p> 		
	<p>On the grid, draw a rectangle that is 2 units long on one side and 3 units long on the other side.</p> 	<p>Draw a parallelogram. Then explain why the figure you drew is a parallelogram.</p>  <p>6 possible parallelograms</p>	<p>POSSIBLE EXPLANATIONS for PARALLELOGRAM:</p> <ul style="list-style-type: none"> • <i>Quadrilateral with opposite sides parallel.</i> • <i>4 sided polygon with all sides parallel</i> • <i>OPPOSITE SIDES EQUAL? I don't know if that is acceptable, but you can't have opposite sides equal without being parallel, too, can you?</i>

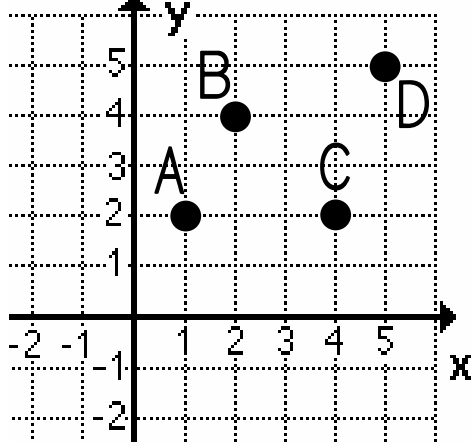
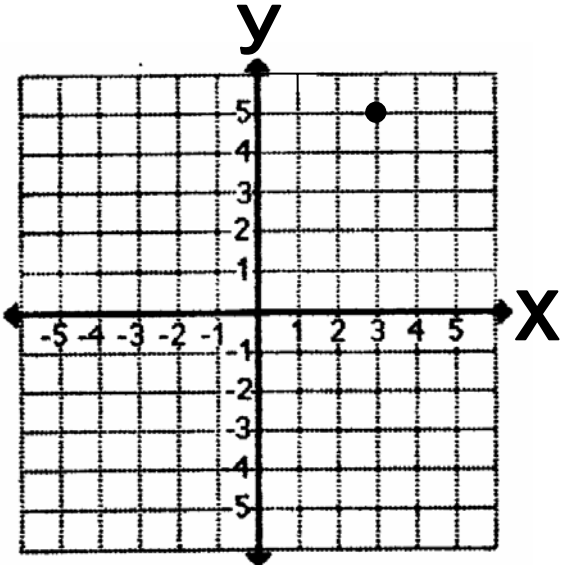
PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
 Created by Tina Della Bernarda for the Bristol Public Schools

STRAND 18: SPATIAL RELATIONSHIPS (Objectives 18A, 18B, 18C, 18D)			
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
			<p>18A: Identify lines of symmetry.</p> <p>Which figure shows a line of symmetry drawn correctly?</p> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div style="text-align: center;"> <input type="radio"/>  </div> <div style="text-align: center;"> <input type="radio"/>  </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-start; margin-top: 10px;"> <div style="text-align: center;"> <input type="radio"/>  </div> <div style="text-align: center;"> <input type="radio"/>  </div> </div> <hr/> <p>18B: Draw lines of symmetry.</p> <p>Draw exactly 2 lines of symmetry on this figure.</p> <div style="text-align: center;">  </div>

PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
 Created by Tina Della Bernarda for the Bristol Public Schools

2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
			<p>18C: Identify congruent figures. <i>Transformational geometry (flips, slides, turns) becomes important.</i></p> <div> </div> <p>Which of the following shapes appears to be congruent to the figure above?</p> <div> <input type="radio"/> </div> <div> <input type="radio"/> </div> <div> <input type="radio"/> </div> <div> <input type="radio"/> </div> <p>***</p>

PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
 Created by Tina Della Bernarda for the Bristol Public Schools

2 nd Graders	Grade 3 CMT	Grade4 CMT	Grade 5 CMT
		<div style="border: 1px solid black; padding: 10px;"> <p style="text-align: center;">GRADE 5 CMT</p> <p>Maybe only one quadrant would be shown in Grade 5 for Obj. 18D. In the 3rd Generation, though, parts of 4 quadrants were sometimes shown.</p> <p>The numbers on the axes might not be given in some examples.</p> </div>	<div> <p>18D. Locate points on grids. This example is more identifying than locating.</p> <p>What dot is located at (2,4)?</p>  <ul style="list-style-type: none"> <input type="radio"/> A (1,2) <input type="radio"/> B (2,4) *** <input type="radio"/> C (4,2) <input type="radio"/> D (5,5) </div> <hr/> <p>Draw a dot on the grid at point (3,5).</p> 

Probably only one quadrant will be shown.

PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
 Created by Tina Della Bernarda for the Bristol Public Schools

STRAND 19: TABLES, GRAPHS, AND CHARTS (Objectives 19A, 19B)

2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT																																								
<p>19A: Identify correct information from tables, graphs, and charts.</p> <p>The graph shows how many books were bought by some children at the book fair.</p> <p>Use the graph to answer the following question.</p> <table border="1" style="width:100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th>Students</th> <th>Number of Books</th> </tr> </thead> <tbody> <tr> <td>Alex</td> <td>p p p p</td> </tr> <tr> <td>Beth</td> <td>p p p p p p p p</td> </tr> <tr> <td>Cassie</td> <td>p p p p p</td> </tr> <tr> <td>Devon</td> <td>p p p p p p</td> </tr> </tbody> </table> <p style="text-align: center;">Each p = 1 book</p> <p>Which child bought the fewest books?</p> <p> <input type="radio"/> Alex *** <input type="radio"/> Beth <input type="radio"/> Cassie <input type="radio"/> Devon </p> <p>Who bought the most books? How many did one particular child buy? How many books were bought in all?</p>	Students	Number of Books	Alex	p p p p	Beth	p p p p p p p p	Cassie	p p p p p	Devon	p p p p p p	<p>19A: Identify correct information from bar tables, pictographs, and charts.</p> <p>Nicholas made a graph to show the number of children from each state who went to summer camp with him.</p> <p>Use the graph to answer the question.</p> <div style="text-align: center;"> <h3>Children at Summer Camp</h3> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <caption>Children at Summer Camp Data</caption> <thead> <tr> <th>Home State</th> <th>Number of Campers</th> </tr> </thead> <tbody> <tr> <td>Ohio</td> <td>30</td> </tr> <tr> <td>Iowa</td> <td>25</td> </tr> <tr> <td>Utah</td> <td>60</td> </tr> <tr> <td>Texas</td> <td>50</td> </tr> </tbody> </table> <p style="text-align: center;">Home States</p> </div> <p>Which state had the greatest number of campers?</p> <p> <input type="radio"/> Ohio <input type="radio"/> Iowa <input type="radio"/> Utah *** <input type="radio"/> Texas </p>	Home State	Number of Campers	Ohio	30	Iowa	25	Utah	60	Texas	50	<p>19A: Identify correct information from tables, bar graphs, pictographs and charts.</p> <p>Use the graph below to answer the questions.</p> <div style="text-align: center;"> <h3>FAVORITE SEASON</h3> <table border="1" style="margin: 10px auto; border-collapse: collapse;"> <tbody> <tr> <td>Summer</td> <td><input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/></td> </tr> <tr> <td>Fall</td> <td><input checked="" type="checkbox"/> <input checked="" type="checkbox"/></td> </tr> <tr> <td>Winter</td> <td><input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/></td> </tr> <tr> <td>Spring</td> <td><input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/></td> </tr> </tbody> </table> <p style="text-align: center;">Let <input checked="" type="checkbox"/> = 2 votes.</p> </div> <p>119. Which two months had 24 votes altogether?</p> <p> <input type="radio"/> Fall and Spring (4 + 10) <input type="radio"/> Summer and Winter (14 + 8) <input type="radio"/> Winter and Fall (8 + 4) <input type="radio"/> Summer and Spring *** </p> <p>120. How many votes did summer and winter receive?</p> <p> <input type="radio"/> 12 <input type="radio"/> 14 <input type="radio"/> 22 *** <input type="radio"/> 36 </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>Which season received twice as many votes as fall? (Answer: winter)</p> </div>	Summer	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Fall	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Winter	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Spring	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<p>19A: Identify correct information from tables, bar graphs, pictographs and charts.</p> <p>This table tells the amount of money collected so far to help build a shelter for homeless teens.</p> <table border="1" style="width:100%; border-collapse: collapse; margin: 10px 0;"> <thead> <tr> <th>Activity</th> <th>Money Raised</th> </tr> </thead> <tbody> <tr> <td>Talent Show</td> <td>\$675</td> </tr> <tr> <td>Flower Sales</td> <td>\$538</td> </tr> <tr> <td>Car Washes</td> <td>\$550</td> </tr> <tr> <td>Bake Sales</td> <td>\$635</td> </tr> <tr> <td>Collect bottles for Recycling</td> <td>\$585</td> </tr> </tbody> </table> <p>How many activities raised more than \$580?</p> <p> <input type="radio"/> 2 <input type="radio"/> 3 *** <input type="radio"/> 4 <input type="radio"/> 5 </p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p>Over \$580</p> <ul style="list-style-type: none"> 675 Talent Show 635 Bake Sales 585 Recycled Bottles <p>\$580 or Under</p> <ul style="list-style-type: none"> \$550 Car Washes \$538 Flower Sales </div>	Activity	Money Raised	Talent Show	\$675	Flower Sales	\$538	Car Washes	\$550	Bake Sales	\$635	Collect bottles for Recycling	\$585
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Objective 19B. Create bar graphs and pictographs ...

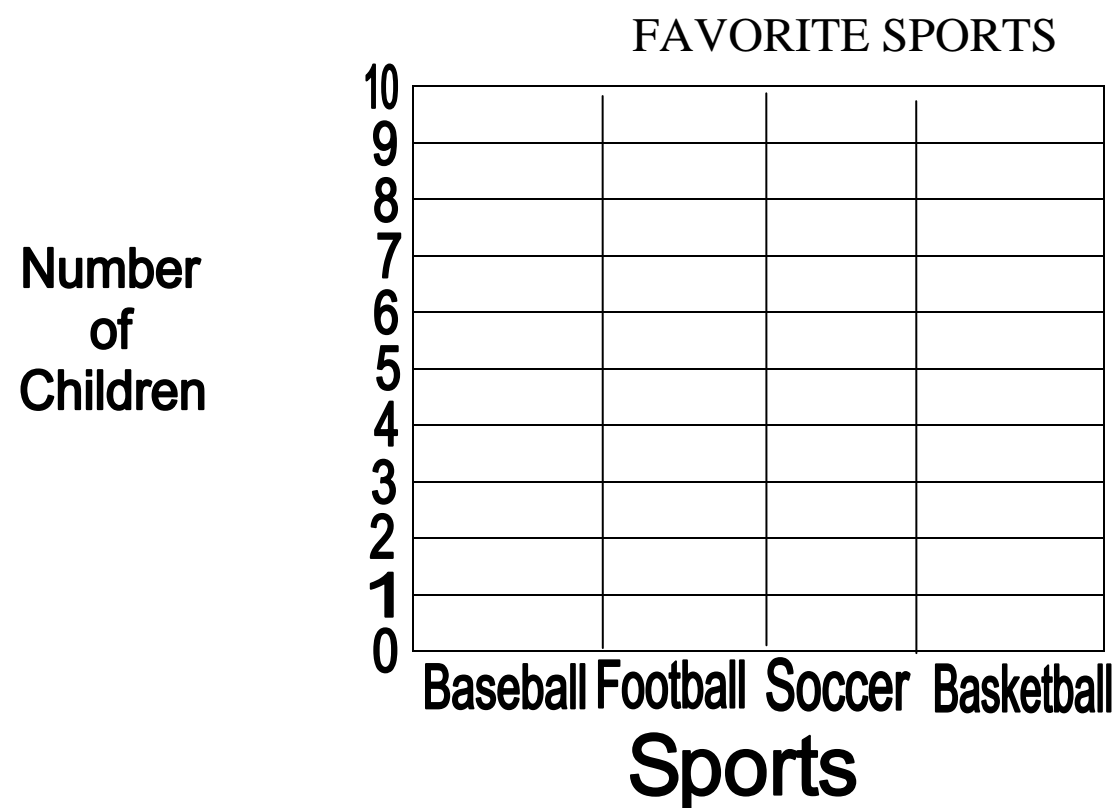
2nd Graders Objective 19B: Create simple bar graphs ... from data in tables and charts.

The table below shows the favorite sports of some second graders.

Sport	Number of Children
Baseball	2
Football	5
Soccer	9
Basketball	3

This bar graph is most likely much too small for your second graders. It was made small in order to save paper in this document, which is too long as it is!

Complete the **bar graph** to show the same information.

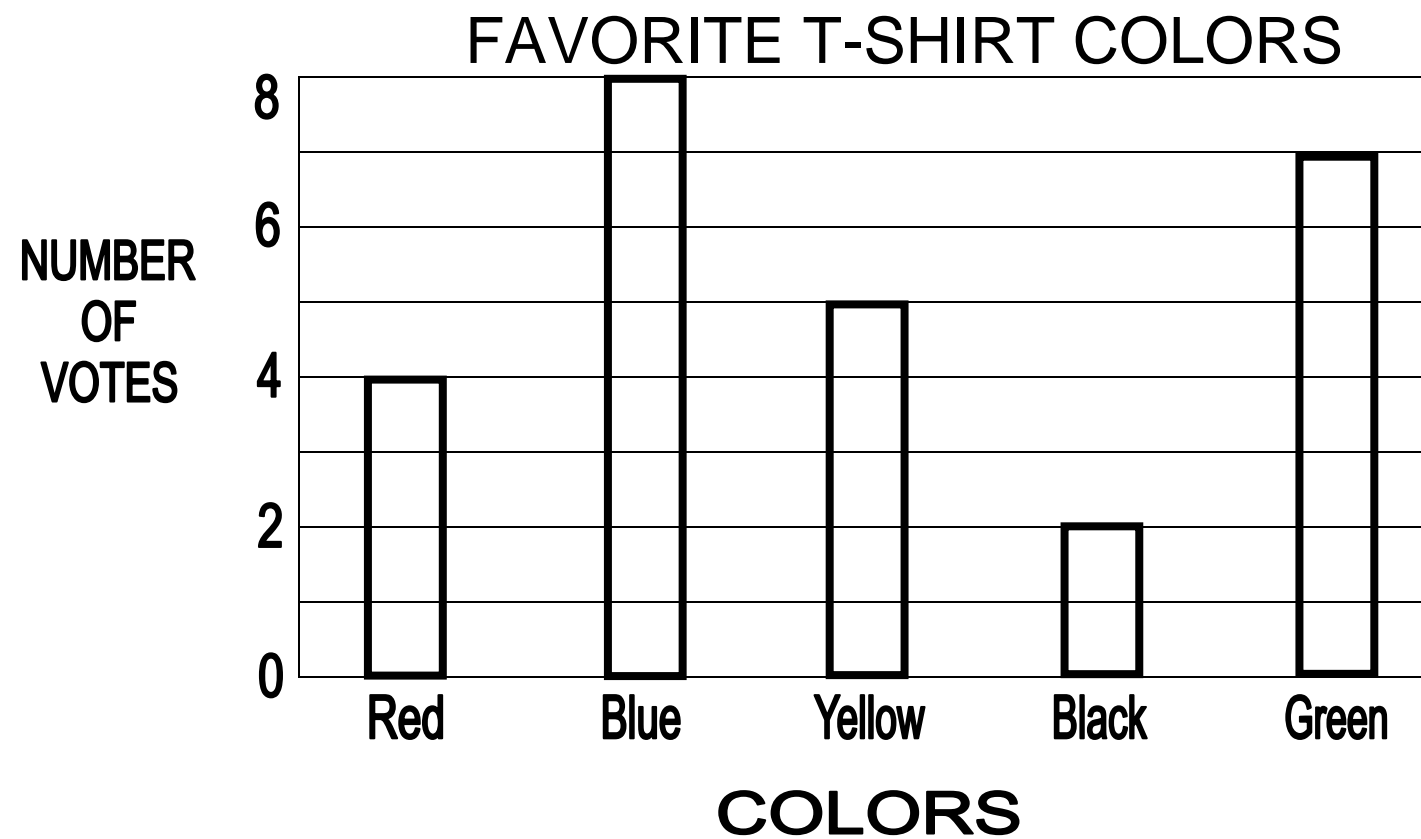


Grade 3 CMT - Objective 19B: Create bar graphs ... from data in tables and charts.

Students in Mr. Gordon's class voted on their favorite color for a T-shirt. Complete the BAR graph using the following information..

Color of T-Shirt	Number of Votes
Red	4
Blue	8
Yellow	5
Black	2
Green	7

I wonder if some children will begin to confuse bar graphs with pictographs. If a child creates the wrong graph but has the correct data shown, he/she will not receive full credit for that graph.



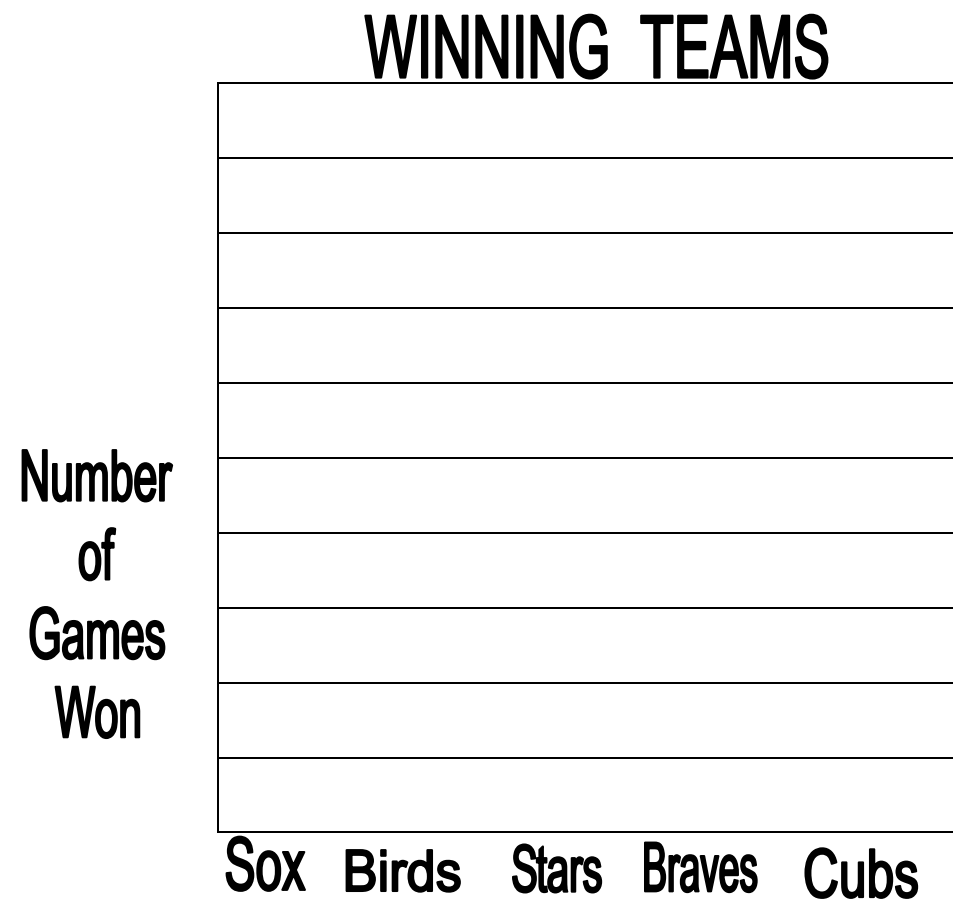
PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
 Created by Tina Della Bernarda for the Bristol Public Schools

Grade 4 CMT - Objective 19B: Create bar graphs ... from data in tables and charts.

The chart below shows how many games each team won. Use the information to complete the **bar graph**.

WINNING TEAMS	
TEAM	NUMBER OF GAMES WON
Sox	15
Birds	40
Stars	10
Braves	35
Cubs	50

Label the vertical scale in some examples and the horizontal scale in other examples but not both scales. Have children label one of the scales.



Grade 5 CMT - Objective 19B: Create bar graphs ... from data in tables and charts.

The table shows the number of books read by the fifth graders from September through January. Complete the **bar graph** to show the same information.

FIFTH GRADE READERS	
CLASS	NUMBER OF BOOKS
Miss Blue	175
Mrs. Pink	50
Ms Brown	150
Mr. Green	200
Mr. Red	100

**Number
of
Books**



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2nd Graders – Objective 19B: Create simple ... pictographs from data in tables and charts.

The chart shows how many children have brothers or sisters.

Children in Our Families	
Family Members	Number of Children
Brothers Only	5
Sisters Only	3
Brothers and Sisters	7
No Brothers or Sisters	3

Complete the **pictograph** to show the same information.

Children in Our Families	
Family Members	Number of Children
Brothers Only	
Sisters Only	
Brothers and Sisters	
No Brothers or Sisters	

One ○ = 1 child

Grade 3 CMT: Objective 19B. Create ... pictographs from data in tables and charts.

Create a **pictograph** using the following data.

WHAT IS YOUR FAVORITE SPORT TO PLAY?	
Ice Hockey	2
Soccer	9
Football	6
Basketball	8

WHAT IS YOUR FAVORITE SPORT TO PLAY?	
Ice hockey	
Soccer	
Football	
Basketball	

Let each □ = 2 votes

PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
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Grade 4 CMT: Objective 19B. Create ... pictographs from data in tables and charts.

Theresa owns a TV store. The table below shows how many TV sets she sold in the last four months of the year.

THERESA'S TV SALES	
MONTH	NUMBER OF TV SETS
September	15
October	10
November	20
December	35

Let = 10 TV sets

Complete the **pictograph** using the same information.

THERESA'S TV SALES	
September	
October	
November	
December	

Let represent 10 TV sets.

Grade 5 CMT – Objective 19B: Create ... pictographs from data in tables and charts.

The chart shows where the students in Griswold School have television sets in their homes.

WHERE ARE THE TV SETS?

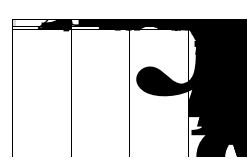
ROOM	NUMBER OF TV SETS
Living Room	200
Bedroom	50
Family Room	225
Kitchen	400

= 50 TV Sets

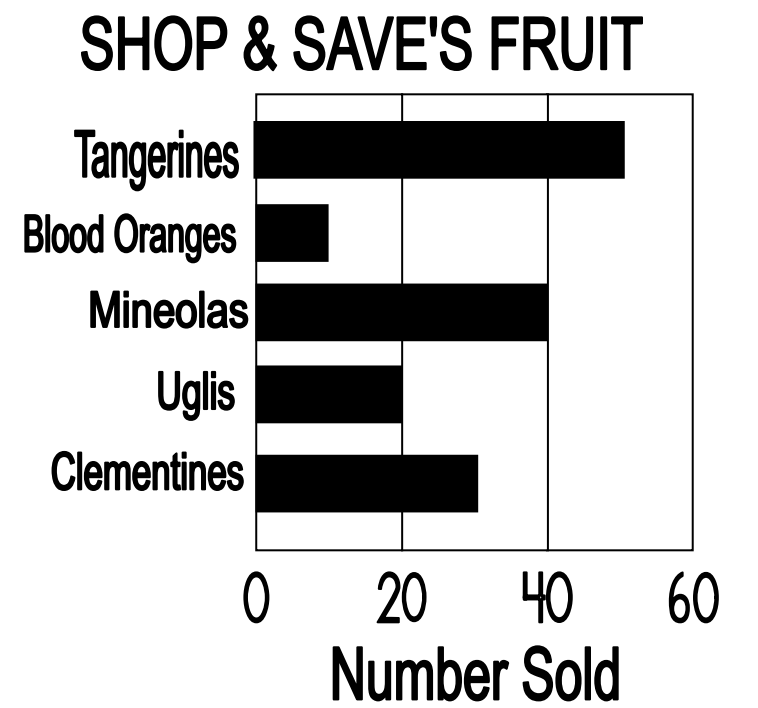
Complete the **pictograph** to show the same information.

Where are the TV Sets?	

Let represent 50 TV Sets



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2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
			<p>Obj 20A: Draw and justify reasonable conclusions from data in tables, bar graphs, pictographs, circle graphs and charts.</p> <p>Dan made a graph to show the favorite recess activities of fifth graders. Use the graph to answer the question.</p> <p>Which of the following statements is true about the graph?</p> <ul style="list-style-type: none"> <input type="radio"/> About the same number of children like to play jump rope and soccer. <input type="radio"/> More children like to play kickball than soccer. <input type="radio"/> Half the most children like to play soccer. *** <input type="radio"/> One fourth of the children like to play kickball.

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2nd Grade

GRADE 3 CMT

GRADE 4 CMT

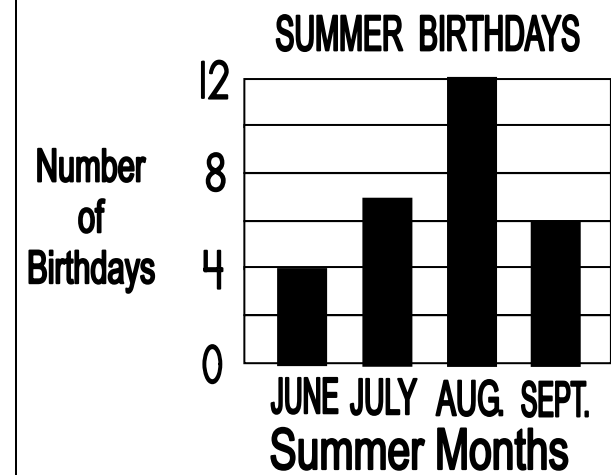
GRADE 5 CMT

20B: State a conclusion and explain why a claim is or is not reasonable, based on the data.

The table below shows the amount of money saved by four teenagers.

NAME	MONEY SAVED
Shelby	\$695
Leslie	\$362
Adrian	\$415
Eduardo	\$840

Paul claims that Shelby saved **about** twice as much money as Adrian. Based on the table, is Paul's statement accurate? Use the data in the table to explain why or why not.



The graph shows the number of children in Mr. Russo's class who have birthdays in the summer. Jean claims that there are **about** as many August birthdays as June and July birthdays combined. Based on the graph, is Jean's statement accurate? Use the data in the graph to explain why or why not.

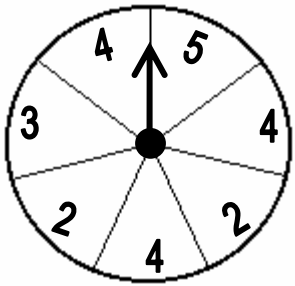
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STRAND 21: PROBABILITY (Objectives 21A, 21B)			
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT

21A: Identify correct solutions to problems involving elementary notions of probability.

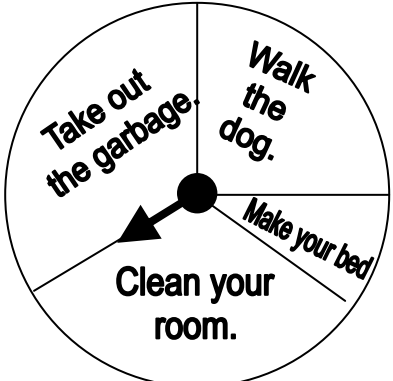
Ashley spun the spinner once. If Ashley spins the spinner another time, on which number is the arrow **most** likely to land?

2
 3
 4 ***
 5



Letters and shapes on spinners, too

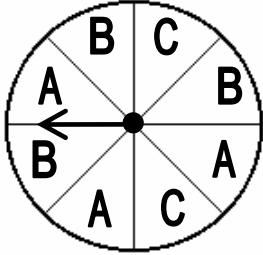
Joshua has jobs he must do at home. If Joshua spins the arrow, on which job is the arrow **least** likely to land?



Walk the dog.
 Take out the garbage.
 Clean your room.
 Make your bed. ***

21A: Identify correct solutions to problems involving elementary notions of probability.

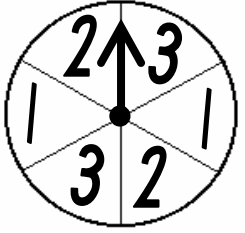
Andy, Bill, and Cathy are playing a game with the spinner below. If the arrow lands on A, Andy gets a point. If the arrow lands on B, Bill get a point, If the arrow lands on C, Cathy gets a point. Is this game fair?



Yes, because all three players get a point for the first letter of their name.
 Yes, because no one gets a point for Letter D.
 No, because Cathy has only 2 areas of the spinner in which to get points. ***
 No, because Cathy's name is longer than Andy's or Bill's names.

21A: Identify correct solutions to problems involving elementary notions of probability and fairness.

The spinner below is part of a game. Kelly always multiplies the number she lands on by 4. Tristan always adds 4 to the number on which he lands. Is this game fair?



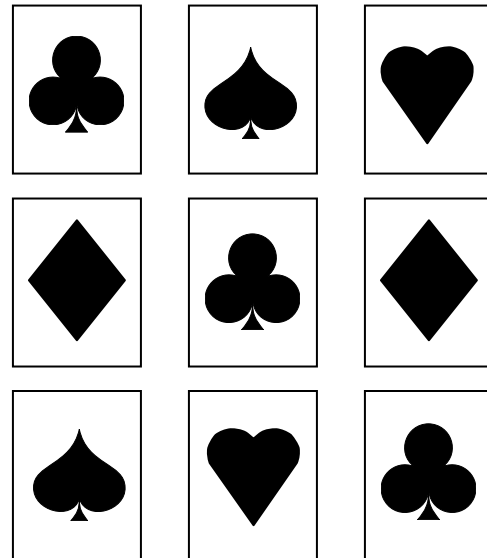
Yes, because both players have an equal chance to get a 3.
 Yes, because both players do not get points for landing on a 3.
 No, because Kelly can get more points than Tristan. ***
 No, because Tristan can get more points than Kelly.

PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
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2ND Graders -

GRADE 3 CMT
 Obj. 21A: Continued

Without looking, Rayquan picked one of the following cards. Which card is he **most** likely to have picked?



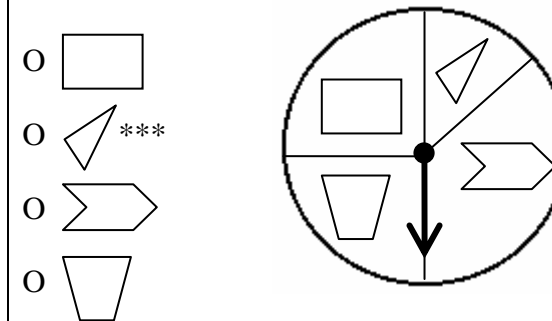
- ***

Charlene had 25 red marbles, 35 white marbles, and 20 yellow marbles in a bag. If she reaches in the bag **without looking**, what color is she **least** likely to pick?

- She is least likely to pick a yellow marble ***.
 She is least likely to pick a white marble.
 She is least likely to pick a red marble.
 She is equally likely to pick a red, white, or yellow marble.

GRADE 4 CMT
 Obj. 21A: Continued

If Ariana spins the spinner one more time, on which shape is the arrow **least** likely to land?



- ***

Marisol had 6 blue, 8 red, 8 green, and 7 yellow bingo chips in her pocket. If she pulls one bingo chip out of her pocket without looking, which statement below will be true?

- She is least likely to pick blue. ***
 She is least likely to pick yellow.
 She is most likely to pick red.
 She is equally likely to pick red and yellow.

ANOTHER POSSIBLE QUESTION for Grades 4 and 5: What is the probability of Marisol picking a blue chip?

- 6 out of 15
 8 out of 16
 8 out of 21
 6 out of 29 ***

GRADE 5 CMT
 Obj. 21A: Continued

This table shows the number and types of stickers Alexa has collected.

Alexa's Stickers	
Type of Sticker	Number
Animals	2
Flowers	3
Rainbows	3
Sports	4

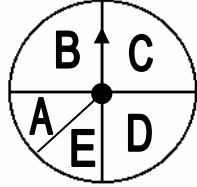
If Alexa picks one sticker **without looking**, what is the probability she will pick a sports sticker?

- $\frac{1}{2}$
 $\frac{1}{3}$ ***
 $\frac{1}{4}$
 $\frac{1}{5}$







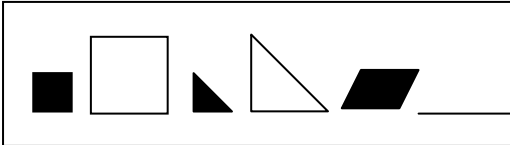








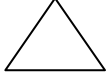
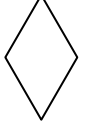
If Alexa picks one sticker **without looking**, what is the probability that she will pick a rainbow sticker?

- 1 out of 2
 1 out of 3
 1 out of 4 ***
 1 out of 6

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






























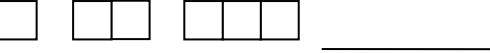

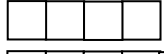
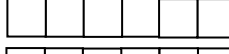
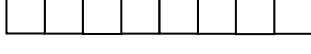
	<p style="text-align: center;">GRADE 3 CMT</p> <p>Need more “versa” questions for Grades 3 - 5.</p> <p>Vice : One spinner in question Versa: 4 spinners are the multiple choice answers</p>	<p style="text-align: center;">GRADE 4 CMT</p>	<p>21B: Solve problems involving elementary notions of probability and fairness, including justifying solutions.</p> <p style="text-align: center;">GRADE 5 CMT</p> <p>If the arrow is spun 80 times, how many times could the arrow be expected to land at each letter?</p> <div style="display: flex; align-items: center; justify-content: center;"><div style="margin-left: 20px;"><p>A = ____ times</p><p>B = ____ times</p><p>C = ____ times</p><p>D = ____ times</p><p>E = ____ times</p></div></div> <p>(A = 10, B = 20, C = 20, D = 20, E = 10)</p>
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Need more complicated patterns for Strand 22

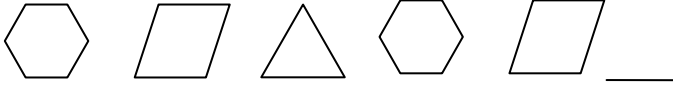
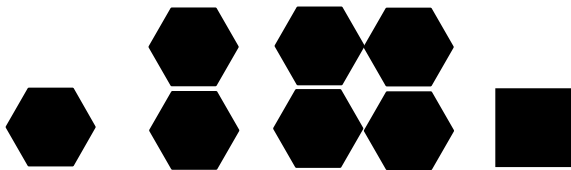
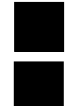
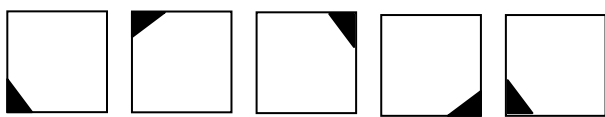
STRAND 22: PATTERNS (Objectives 22A, 22B)			
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
<p>22A. Extend or complete patterns involving whole numbers and attributes and identify or state rules for given patterns.</p> <p>What is the next shape in the pattern?</p>  <input type="radio"/>   <input type="radio"/>  <input type="radio"/>  <input type="radio"/>  ***	<p>22A. Extend or complete patterns, or identify rules using numbers and attributes. <i>[including growing patterns with numbers and shapes]</i></p> <p>What is the missing shape in the pattern?</p>  <input type="radio"/>  <input type="radio"/>  <input type="radio"/>  ***	<p>22A: Identify the missing terms in a pattern or identify rules for a given pattern using whole numbers and attributes. <i>[include growing patterns with numbers and shapes]</i></p> <p>What is the next number in the pattern?</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">262, 268, 274, 280, 286, ___</div> <input type="radio"/> 288 <input type="radio"/> 290 <input type="radio"/> 292 *** <input type="radio"/> 294	<p>22A: Identify the missing terms in a pattern or identify rules for a given pattern using numbers and attributes. <i>[include growing patterns with numbers and shapes]</i></p> <p>These numbers follow a pattern.</p> <div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">70, 63, ___, 49, 42, 35</div> <p>Which number is missing from the pattern?</p> <input type="radio"/> 52 <input type="radio"/> 56 *** <input type="radio"/> 59 <input type="radio"/> 61
<p>What is the next number in the pattern?</p> <p style="text-align: center;">5, 7, 9, 11, 13, ___</p> <input type="radio"/> 18 <input type="radio"/> 15 *** <input type="radio"/> 14 <input type="radio"/> 21	<p>What two numbers are missing in the following pattern?</p> <p style="text-align: center;">2, 10, 18, ___, ___, 42, 50</p> <input type="radio"/> 26, 34 *** <input type="radio"/> 22, 26 <input type="radio"/> 20, 22 <input type="radio"/> 28, 38	<p>What is the next shape in the pattern?</p>  <input type="radio"/>  *** <input type="radio"/>  <input type="radio"/>  <input type="radio"/> 	<p>Which shape will be the 23rd shape in the pattern?</p> <input type="radio"/>  <input type="radio"/>  ***

This could easily become an open-ended question. Eliminate the multiple choices, have children draw the 23rd shape, and then have them explain how they determined the 23rd shape.

Need more complicated patterns for Strand 22

STRAND 22: PATTERNS (Objectives 22A, 22B)																																				
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT																																	
<p style="text-align: center;">Obj. 22 (Continued)</p> <p>These shapes follow a pattern. Draw the next shape in the pattern.</p> <div style="text-align: center;">  </div> <p>Answer: </p>	<p style="text-align: center;">Obj. 22A (Continued) Matrixes – Shapes and Numbers</p> <p>What number is missing in the box below?</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <input type="radio"/> 11 <input type="radio"/> 12 <input type="radio"/> 13 <input type="radio"/> 14 *** </div> <table border="1" style="border-collapse: collapse; text-align: center;"> <tr><td>1</td><td>5</td><td>9</td></tr> <tr><td>4</td><td>8</td><td>12</td></tr> <tr><td>7</td><td>11</td><td>15</td></tr> <tr><td>10</td><td></td><td>18</td></tr> </table> </div>	1	5	9	4	8	12	7	11	15	10		18	<p style="text-align: center;">Obj. 22A (Continued) Matrixes – Shapes and Numbers</p> <p>The shapes in the chart follow a pattern.</p> <table border="1" style="border-collapse: collapse; text-align: center; width: 80px; margin: auto;"> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> </table> <p>What shape is missing from the pattern?</p> <div style="margin-left: 20px;"> <input type="radio"/>  <input type="radio"/>  <input type="radio"/>  *** <input type="radio"/>  </div>										<p style="text-align: center;">Obj. 22A (Continued)</p> <p><i>Please Note: It is pure speculation on my part as to whether the Grade 5 CMT would have matrixes and function boxes.</i></p> <p>What number is missing in the box below?</p> <table border="1" style="border-collapse: collapse; text-align: center; margin: auto;"> <tr><td>3</td><td>5</td><td>7</td></tr> <tr><td>6</td><td>9</td><td>12</td></tr> <tr><td>9</td><td></td><td>17</td></tr> <tr><td>12</td><td>17</td><td>22</td></tr> </table> <div style="margin-left: 20px;"> <input type="radio"/> 12 <input type="radio"/> 13 *** <input type="radio"/> 14 <input type="radio"/> 15 </div>	3	5	7	6	9	12	9		17	12	17	22
1	5	9																																		
4	8	12																																		
7	11	15																																		
10		18																																		
																																				
																																				
																																				
3	5	7																																		
6	9	12																																		
9		17																																		
12	17	22																																		
<p>These numbers follow a pattern. Write the number that comes next in the pattern.</p> <p style="text-align: center; font-size: 1.2em;">2, 7, 12, 17, 22, _____</p> <p>ANSWER: 27</p>	<p>What number is missing in the table?</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <input type="radio"/> 14 <input type="radio"/> 15 <input type="radio"/> 16 *** <input type="radio"/> 17 </div> <table border="1" style="border-collapse: collapse; text-align: center;"> <thead> <tr><th>IN</th><th>OUT</th></tr> </thead> <tbody> <tr><td>2</td><td>8</td></tr> <tr><td>4</td><td>10</td></tr> <tr><td>7</td><td>13</td></tr> <tr><td>10</td><td></td></tr> </tbody> </table> </div>	IN	OUT	2	8	4	10	7	13	10		<p>What shape is missing from the pattern?</p> <div style="margin-left: 20px;"> <input type="radio"/>  <input type="radio"/>  <input type="radio"/>  *** <input type="radio"/>  </div>	<p>What rule was followed in the function box below?</p> <p>OR: What rule was followed in the table below?</p> <table border="1" style="border-collapse: collapse; text-align: center; margin: auto;"> <thead> <tr><th>Input</th><th>Output</th></tr> </thead> <tbody> <tr><td>2</td><td>18</td></tr> <tr><td>4</td><td>36</td></tr> <tr><td>7</td><td>63</td></tr> <tr><td>10</td><td>90</td></tr> <tr><td>11</td><td>99</td></tr> </tbody> </table> <div style="margin-left: 20px;"> <input type="radio"/> Add 16 <input type="radio"/> Add 32 <input type="radio"/> Multiply by 9 *** <input type="radio"/> Multiply by 10 </div>	Input	Output	2	18	4	36	7	63	10	90	11	99											
IN	OUT																																			
2	8																																			
4	10																																			
7	13																																			
10																																				
Input	Output																																			
2	18																																			
4	36																																			
7	63																																			
10	90																																			
11	99																																			
<p>It would be good to practice some simple growing patterns with shapes:</p> <p>Which picture is next in the pattern?</p> <div style="text-align: center; margin-bottom: 10px;">  </div> <div style="margin-left: 20px;"> <input type="radio"/>  <input type="radio"/>  *** <input type="radio"/>  <input type="radio"/>  </div>	<p>What rule was followed in the function box below? (What rule was followed in the table below?)</p> <table border="1" style="border-collapse: collapse; text-align: center; margin: auto;"> <thead> <tr><th>START</th><th>END</th></tr> </thead> <tbody> <tr><td>5</td><td>2</td></tr> <tr><td>7</td><td>4</td></tr> <tr><td>10</td><td>7</td></tr> <tr><td>12</td><td>9</td></tr> </tbody> </table> <div style="margin-left: 20px;"> <input type="radio"/> Add 2 <input type="radio"/> Subtract 3 *** <input type="radio"/> Multiply by 2 <input type="radio"/> Divide by 5 </div>	START	END	5	2	7	4	10	7	12	9	<p>The table shows some “inputs” and some “outputs.”</p> <table border="1" style="border-collapse: collapse; text-align: center; margin: auto;"> <thead> <tr><th>BEGINNING</th><th>END</th></tr> </thead> <tbody> <tr><td>0</td><td>10</td></tr> <tr><td>1</td><td>11</td></tr> <tr><td>3</td><td>13</td></tr> <tr><td>5</td><td>15</td></tr> <tr><td></td><td>18</td></tr> </tbody> </table> <p>Which number is missing from the table?</p> <div style="margin-left: 20px;"> <input type="radio"/> 6 <input type="radio"/> 7 <input type="radio"/> 8 *** <input type="radio"/> 9 </div>	BEGINNING	END	0	10	1	11	3	13	5	15		18	<div style="border: 1px solid black; padding: 5px; margin-left: 20px; width: fit-content;"> It is not known if the CMT would use the terms “input” and “output.” </div>											
START	END																																			
5	2																																			
7	4																																			
10	7																																			
12	9																																			
BEGINNING	END																																			
0	10																																			
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3	13																																			
5	15																																			
	18																																			

Need more complicated patterns for Strand 22

STRAND 22: PATTERNS (Objectives 22A, 22B)			
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
	<p>22B. Extend or complete patterns and state rules using numbers or attributes</p> <p>What is the next shape in the pattern? Draw the shape in your answer booklet. Then write a sentence that explains why you drew that shape.</p>  <p><i>POSSIBLE EXPLANATION: The missing shape is a triangle because this pattern keeps repeating hexagon, parallelogram, and triangle. So after the last parallelogram comes a triangle.</i></p>	<p>22B: Extend or complete patterns and state rules for given patterns using whole numbers and attributes.</p> <p>What comes next in the pattern? Draw what comes next in your answer booklet. Then explain how you decided on what to draw.</p>  <p><i>POSSIBLE EXPLANATION: The missing shapes in the pattern are</i></p>  <p><i>This pattern keeps doubling shapes. First, there was one hexagon, then a hexagon on top of a hexagon, finally two hexagons on top of two hexagons. Then the pattern started repeating with a square instead of a hexagon. After one square would come two squares, one on top of the other.</i></p>	<p>22B: Extend or complete patterns and state rules for given patterns using whole numbers and attributes.</p> <p>What is the next shape in the pattern? Draw the next shape. Then explain why that shape is next in this pattern.</p>  <p><i>POSSIBLE EXPLANATION: The missing shape is a square with a right triangle in the upper left-hand corner. This is a rotating pattern. There is always one square that has a right triangle inside the square. The triangle is traveling around the square in a clockwise direction. It began in the lower left-hand corner, and then the triangle was placed in the upper left-hand corner, upper right-hand corner and finally in the lower right-hand corner. Then the pattern started again, and the second shape in the pattern comes next.</i></p>
	<p>What is the next number in this pattern? Write the number that is missing in the pattern. Then write a sentence to explain why you chose that number.</p> <p style="text-align: center;">26, 22, 18, 14, ____</p> <p><i>POSSIBLE EXPLANATION: The missing number is 10 because this pattern</i></p> <ul style="list-style-type: none"> • subtracts 4 from each number • counts by 4 backwards • there is a difference of 4 between each number, etc. 	<p>What number is missing in the pattern? Write the number and explain why you chose that number.</p> <p style="text-align: center;">1247, 1347, 1447, 1547, ____</p> <p><i>POSSIBLE EXPLANATION: The missing number is 1647. This pattern is counting by hundreds</i></p>	<p>What is the next number in the pattern? Write the number, and explain why that number is next.</p> <p style="text-align: center;">462, 468, 474, 480, 486, ____</p> <p><i>POSSIBLE EXPLANATION: The missing number is 492. You add 6 to each number in the pattern.</i></p>

STRAND 23: ALGEBRAIC CONCEPTS (Objective 23A)

2nd Graders

Grade 3 CMT

Grade 4 CMT

Grade 5 CMT

23A: Solve simple one-step algebraic problems.

These Ratio Problems are vice versa problems

If ☁ = ☀☀☀, then ☁☁ are equal to how many suns?

- ☀☀☀
- ☀☀☀☀
- ☀☀☀☀☀
- ☀☀☀☀☀☀ ***

If 😊😊😊😊 = 🚗, then
 😊😊😊😊😊😊😊😊😊😊😊😊😊😊 = how many jeeps?

- 🚗 🚗
- 🚗 🚗 🚗 ***
- 🚗 🚗 🚗 🚗
- 🚗 🚗 🚗 🚗 🚗

Geometric shapes are a good source of ratio practice:

If 1 triangle has 3 sides, then 8 triangles have how many sides?

23A: Solve simple one-step algebraic equations.

Ratio problems on the Grade 5 CMT. Grades 4 and 5 could both have problems involving symbols, numbers, shapes, etc.

Evan can type at a rate of about 30 words per minute. About how many words can he type in an hour and a half?

- 900
- 1800
- 2700 ***
- 3600

This problem is a variation of one found in the Goals 2000 Model Math Curriculum of Connecticut. It may not follow a CMT format, but it is a great ratio problem.

If 6 □ = 8 △, then 12 □ are equal to how many triangles?

- 12
- 16 ***
- 20
- 24

This problem may be too abstract for the Grade 5 CMT. Maybe there should be more symbols used.

PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
 Created by Tina Della Bernarda for the Bristol Public Schools

STRAND 23: ALGEBRAIC CONCEPTS (Objective 23A)			
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
		<p>Obj. 23A: Continued <i>Missing Addends: 2- and 3-digit numbers</i></p> <p>What is the value of \square in the equation below?</p> $\square + 12 = 50$ <p> <input type="radio"/> 12 <input type="radio"/> 26 <input type="radio"/> 38 *** <input type="radio"/> 44 </p> <hr/> <p><i>Other examples (2- and 3-digit numbers) of missing addends:</i> $125 - \square = 94$ $\square - 82 = 129$ $52 + \square = 90$ $\square = 28 + 77$ $\square = 426 - 97$</p> <hr/> <p><i>Family of Facts Problems:</i></p> <p>Which fact is part of the same family of facts as $44 + 55 = \square$?</p> <p>Which equation (fact) belongs to the same family of facts as the underlined fact?</p> $\underline{\square + 46 = 81}$ <p> <input type="radio"/> $46 + 81 = \square$ <input type="radio"/> $\square - 46 = 81$ <input type="radio"/> $81 - \square = 46$ *** <input type="radio"/> $46 - 81 = \square$ </p>	<p>Obj. 23A: Continued <i>Missing Addends: 2-, 3- and 4-digit numbers</i></p> <p>What is the value of \square in this equation? OR: What is the value of x in this equation?</p> $57 = \square - 40$ <p> <input type="radio"/> 16 <input type="radio"/> 17 <input type="radio"/> 71 <input type="radio"/> 97 *** </p> <hr/> <p>What is the value of n in this equation?</p> $n + 185 = 426$ <p> <input type="radio"/> 241 *** <input type="radio"/> 361 <input type="radio"/> 501 <input type="radio"/> 611 </p> <hr/> <p><i>“Family of Facts” Problems:</i></p> <p>Which fact belongs with the following equation?</p> <p>Which fact belongs with $251 - \square = 198$?</p> <p> <input type="radio"/> $\square - 251 = 198$ <input type="radio"/> $\square + 198 = 251$ *** <input type="radio"/> $198 - \square = 251$ <input type="radio"/> $251 + \square = 198$ </p>

STRAND 23: ALGEBRAIC CONCEPTS (Objective 23A)

2nd Graders

Grade 3 CMT

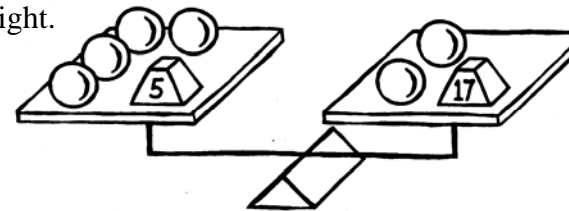
Grade 4 CMT


Grade 5 CMT

Obj. 23A: Continued

Balancing Equations:

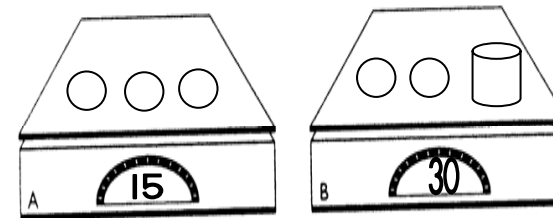
The sides are balanced. The same objects have the same weight. One side of the scale has a 5-pound weight. The other side of the scale has a 17-pound weight.



How many pounds does one  weigh?

- 2
- 4
- 6 ***
- 8

Use the picture below to answer the question.
 (Hint: the same shapes are all equal in weight.)



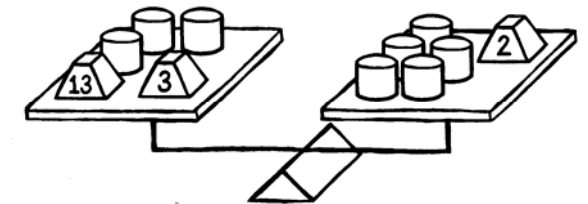
What is the weight of the cylinder? 


- 5
- 10
- 15
- 20 ***

Obj. 23A: Continued

Balancing Equations:

The sides are balanced. The same objects have the same weight. One side of the scale has a 13-pound weight and a 3-pound weight. The other side of the scale has a 2-pound weight.

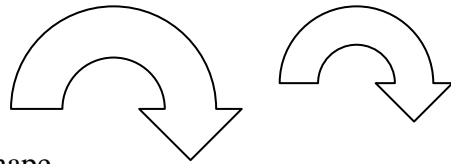
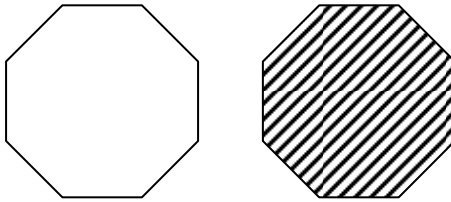
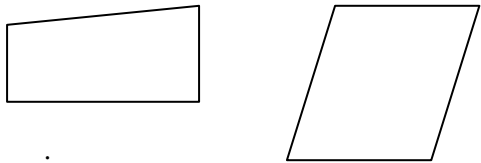
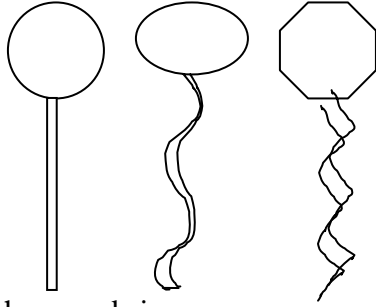



How many pounds does one cylinder  weigh?

- 7 ***
- 9
- 11
- 13

Good resource: Groundworks Algebra series (Grades 1 – 5) by Wright Group/Creative Publications or other algebra publications for elementary school written by Carole Greenes and Carol Findell.

PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
Created by Tina Della Bernarda for the Bristol Public Schools

STRAND 24: CLASSIFICATION AND LOGICAL REASONING (Objectives 24A, 24B)			
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
<p>24A: Identify objects that are the same or different by one attribute.</p> <p>How are the arrows the same?</p> <div style="text-align: center;">  </div> <p> <input type="radio"/> shape <input type="radio"/> color <input type="radio"/> size <input type="radio"/> shape and color *** </p> <hr/> <p>Christina drew the two shapes.</p> <div style="text-align: center;">  </div> <p>How are the shapes different?</p> <p> <input type="radio"/> color *** <input type="radio"/> size <input type="radio"/> size and color <input type="radio"/> shape and color </p>	<p>24A: Identify objects that are the same or different by one attribute.</p> <p>Samantha was practicing for the Connecticut Mastery Test. She drew the two shapes below on her paper. How are the two shapes different?</p> <div style="text-align: center;">  </div> <p> <input type="radio"/> size <input type="radio"/> shape and size *** <input type="radio"/> color and size <input type="radio"/> color </p> <hr/> <p>How are these 3 candies the same?</p> <div style="text-align: center;">  </div> <p> <input type="radio"/> shape and size <input type="radio"/> color and shape <input type="radio"/> size and color *** <input type="radio"/> shape </p>	<p>24A: Solve logic, counting, and classification problems involving the organization of data.</p> <p>Counting Problems: Combinations/Permutations</p> <p>Joe wants to make an ice cream sundae. He has 3 flavors of ice cream – vanilla, chocolate, and strawberry. He has 2 types of sauce – fudge and peanut butter. How many different sundaes can he make? He may use only one flavor of ice cream with one sauce. Show all the different sundaes he can make.</p> <hr/> <p>Jillian wants to buy a candy bar that costs 65¢.</p> <ul style="list-style-type: none"> ➤ She must use exact change for the candy machine. ➤ Make a list or create a table showing all the ways it is possible to have 65¢. ➤ Do not use pennies. ➤ Include at least one quarter each time. <hr/> <p>What is the missing number?</p> <ul style="list-style-type: none"> ➤ It is between 6x20 and 2x70. ➤ It is even. ➤ Its tens digit is one more than its ones digit. <p> <input type="radio"/> 118 <input type="radio"/> 128 <input type="radio"/> 132 *** <input type="radio"/> 155 </p>	<p>24A: Solve logic, counting, and classification problems involving the organization of data.</p> <p>Counting Problems: Combinations/Permutations</p> <p>Tristan is thinking of buying a new vehicle. He has narrowed his choices to 3 types – vans, trucks, or jeeps. He also has 3 choices for colors – red, black, or green. How many different vehicles could he choose? List all the different types and colors of vehicles. Each vehicle may be only one type and one color.</p> <div style="text-align: center;">  </div> <hr/> <p>What is the missing number?</p> <ol style="list-style-type: none"> 1. It is a four-digit number. 2. The product of the hundreds digit and the tens digit is 6. 3. The product of the thousands digit and the ones digit is 14. 4. The product of the tens digit and the ones digit is 21. <p> <input type="radio"/> 7232 <input type="radio"/> 2237 *** <input type="radio"/> 2327 <input type="radio"/> 7162 </p>

PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
 Created by Tina Della Bernarda for the Bristol Public Schools

STRAND 24: CLASSIFICATION AND LOGICAL REASONING (Objectives 24A, 24B)			
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
		<p>Obj. 24A: Continued</p> <p>Read the clues. Use the digits 0 – 9 to find the missing one-digit number.</p> <p style="text-align: center;">0 1 2 3 4 5 6 7 8 9</p> <p>The missing number is:</p> <ol style="list-style-type: none"> 1. less than the number of sides on a pentagon. 2. an even number. 3. greater than the number of sides on a triangle. <p>What is the missing number?</p> <p><input type="radio"/> 2</p> <p><input type="radio"/> 4 ***</p> <p><input type="radio"/> 6</p> <p><input type="radio"/> 8</p>	

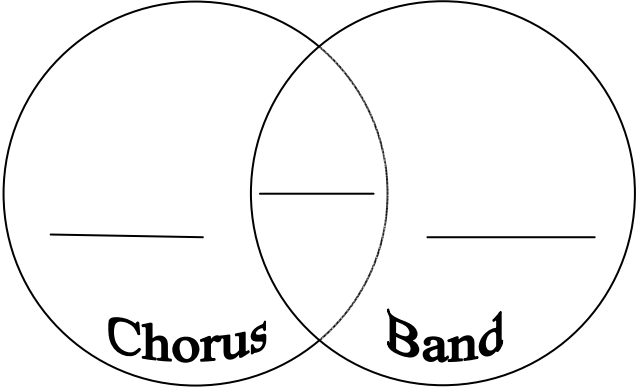
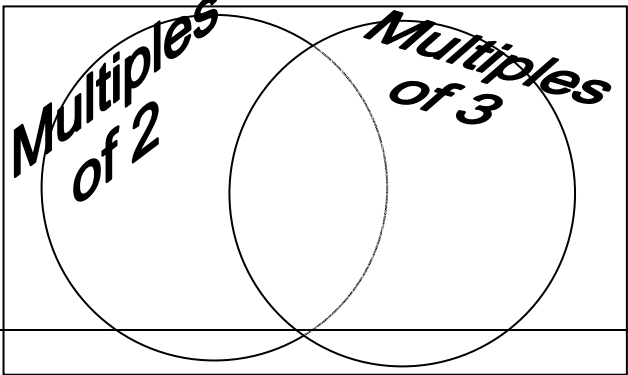
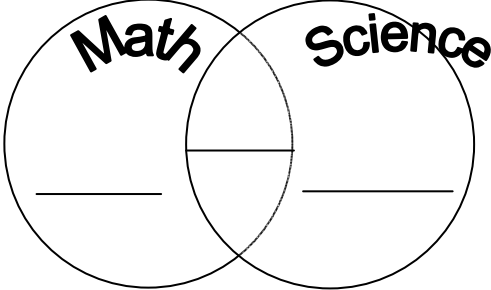
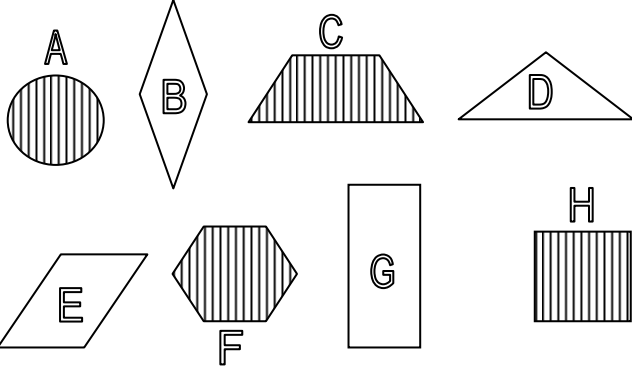
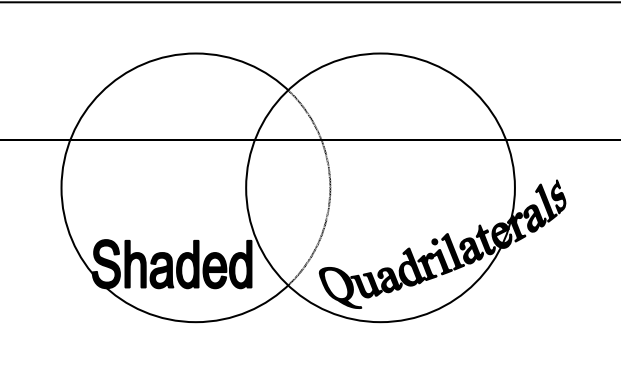
PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
Created by Tina Della Bernarda for the Bristol Public Schools

2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT																
<p>24B: Sort objects into two groups by a common attribute.</p> <p>Sort all 4 of these shapes into 2 groups so that the shapes in each group have something in common. Show how you grouped the shapes by writing the letter from each shape in the boxes labeled Group 1 and Group 2 below. Then write a sentence that tells how you decided to group the shapes.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">A</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">B</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">C</div> </div> <div style="text-align: center; margin: 10px 0;"> <div style="border: 1px solid black; width: 100px; height: 40px; margin: 0 auto;">D</div> </div> <table border="1" style="width:100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width:50%;">Group 1</th> <th style="width:50%;">Group 2</th> </tr> <tr> <td style="height: 30px;"></td> <td style="height: 30px;"></td> </tr> </table> <hr/> <hr/> <hr/> <hr/>	Group 1	Group 2			<p>24B: Sort objects into two groups by a common object.</p> <p>Sort all 5 of these shapes into 2 groups so that the shapes in each group have something in common. Show how you grouped the shapes by writing the letter from each shape in the boxes labeled Group 1 and Group 2 below. Then write a sentence that tells how you decided to group the shapes.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center; margin: 5px;">A </div> <div style="text-align: center; margin: 5px;">B </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin: 10px 0;"> <div style="text-align: center; margin: 5px;">D </div> <div style="text-align: center; margin: 5px;">C </div> </div> <div style="text-align: center; margin: 10px 0;"> <div style="text-align: center; margin: 5px;">E </div> </div> <table border="1" style="width:100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width:50%;">Group 1</th> <th style="width:50%;">Group 2</th> </tr> <tr> <td style="height: 30px;"></td> <td style="height: 30px;"></td> </tr> </table> <p><i>More lines will be given on the CMT.</i></p> <hr/>	Group 1	Group 2			<p>24B: Sort, classify, and draw logical conclusions from data, including Venn diagrams and transitive reasoning questions.</p> <p>Sort all 5 of these shapes into 2 groups so that the shapes in each group have something in common. Show how you grouped the shapes by writing the letter from each shape in the boxes labeled Group 1 and Group 2 below. Then write a sentence that tells how you decided to group the shapes.</p> <div style="border: 1px solid black; padding: 10px; margin: 10px 0;"> </div> <table border="1" style="width:100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width:50%;">Group 1</th> <th style="width:50%;">Group 2</th> </tr> <tr> <td style="height: 30px;"></td> <td style="height: 30px;"></td> </tr> </table> <hr/> <hr/> <hr/>	Group 1	Group 2			<p>24B: Sort, classify, and draw logical conclusions from data involving Venn diagrams and transitive reasoning questions.</p> <p>Sort all 6 of these shapes into 2 groups so that the shapes in each group have something in common. Show how you grouped the shapes by writing the letter from each shape in the boxes labeled Group 1 and Group 2 below. Then write a sentence that tells how you decided to group the shapes.</p> <div style="display: flex; justify-content: space-around; align-items: center; margin: 10px 0;"> <div style="text-align: center; margin: 5px;">A </div> <div style="text-align: center; margin: 5px;">B </div> <div style="text-align: center; margin: 5px;">C </div> </div> <div style="display: flex; justify-content: space-around; align-items: center; margin: 10px 0;"> <div style="text-align: center; margin: 5px;">D </div> <div style="text-align: center; margin: 5px;">E </div> <div style="text-align: center; margin: 5px;">F </div> </div> <table border="1" style="width:100%; border-collapse: collapse; margin-bottom: 10px;"> <tr> <th style="width:50%;">Group 1</th> <th style="width:50%;">Group 2</th> </tr> <tr> <td style="height: 30px;"></td> <td style="height: 30px;"></td> </tr> </table> <hr/> <hr/> <hr/>	Group 1	Group 2		
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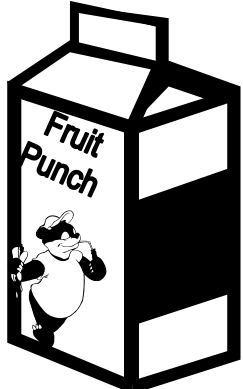
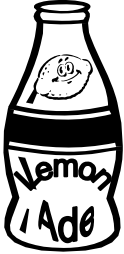
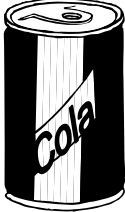
2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
	<p align="center">Obj. 24</p> <p>TRANSITIVE REASONING QUESTIONS – BOTH MULTIPLE CHOICE AND OPEN ENDED</p>	<p align="center">Obj. 24B: Continued</p> <p>TRANSITIVE REASONING QUESTIONS – Multiple Choice and Open-Ended:</p> <p>136. Gabriella planted three flowers in a row: a lily, a rose, and a tulip. The rose was in front of the tulip. The tulip was in front of the lily. Which flower was first in the row?</p> <p> <input type="radio"/> lily <input type="radio"/> rose *** <input type="radio"/> tulip <input type="radio"/> daisy </p> <hr/> <p>Al, Bob, Carl, and Dave drove to the UConn game in their own cars.</p> <ul style="list-style-type: none"> • Al arrived after Bob. • Dave arrived before Carl. • Carl arrived before Bob. <p>Who arrived first?</p> <p> <input type="radio"/> Al <input type="radio"/> Bob <input type="radio"/> Carl <input type="radio"/> Dave </p> <hr/> <p>Patti read her book for 3 days.</p> <ul style="list-style-type: none"> • She read longer on Monday than on Friday. • She read less time on Friday than on Wed. • She read the least amount of time on Friday. <p>On the lines below, write the three days of the week in order from the day Patti read the shortest amount of time to the day she read the longest amount of time.</p> <p align="center">_____</p> <p>Explain how you figured out how long she read on Monday compared to the other days.</p>	<p align="center">Obj. 24B: Continued</p> <p>TRANSITIVE REASONING QUESTIONS – Multiple Choice and Open-Ended:</p> <p>Allan, Ben, Carla, and Dixie had a dart contest.</p> <ul style="list-style-type: none"> • Ben scored more points than Dixie. • Ben scored fewer points than Allan. • Carla scored more points than Allan. <p>Who scored the most points?</p> <p> <input type="radio"/> Allan <input type="radio"/> Ben <input type="radio"/> Carla <input type="radio"/> Dixie </p> <hr/> <p>Elvis, Frank, Greg, and Hank had money in their wallets.</p> <ul style="list-style-type: none"> ➤ Greg had \$25 more than Frank. ➤ Hank had \$15 more than Elvis. ➤ Elvis had \$25. ➤ Frank had \$10 more than Hank. <p>Who had \$75 in his wallet?</p> <p> <input type="radio"/> Elvis <input type="radio"/> Frank <input type="radio"/> Greg *** <input type="radio"/> Hank </p> <hr/> <p>Justin, Brent, Carlos and Luis walk to school.</p> <ul style="list-style-type: none"> • Brent lives closer to the school than Luis. • Carlos lives farther from the school than Luis. • Justin lives closer to the school than Brent. <p>On the lines below, write the names of the boys in order of their distance from school.</p> <p align="center">_____ School</p> <p>Explain how you figured out who was the farthest from the school. (Or – where one of the boys belonged in the order)</p>

PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
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2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT
		<p style="text-align: center;">Grade 4 CMT Obj. 24B: Continued</p> <p>In a class of 50 students, 20 take Chorus, 25 take Band, and 4 take both Chorus and Band. How many students in the class do not take either Chorus or Band?</p>  <p style="text-align: center;">How many students in the class do not take either Chorus or Band? _____ (Answer: 9)</p> <hr/> <p>Write each number in the correct place inside or outside the Venn diagram.</p> <p style="text-align: center;">2 3 6 10 12 15 18</p> 	<p style="text-align: center;">Grade 5 CMT Obj. 24B: Continued</p> <p>In the fifth grades, 48 students like math the most, 75 students like science the most, and 28 students like both math and science equally well. Fill in the Venn diagram with the correct numbers to show</p> <ul style="list-style-type: none"> ➤ how many students like only math and ➤ how many students like only science.  <p style="text-align: center;">Answer: Math = 20 students; Science = 47</p> <hr/> <p>Write the letter for each shape in the correct place inside or outside the Venn Diagram.</p>  

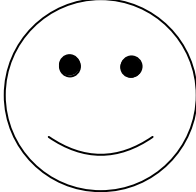


PART 2: SAMPLE ITEMS 4th Generation CMT (Grades 2 – 5) Objectives 9 – 25
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STRAND 25: MATHEMATICAL APPLICATIONS (Objective 25A)

2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT																																																																
<p>25A: Solve extended numerical and statistical problems.</p> <p>Sandy is buying donuts. These are the donuts she wants to buy.</p> <table border="1"> <thead> <tr> <th colspan="2">Donuts</th> </tr> <tr> <th>Type</th> <th>Cost of One Donut</th> </tr> </thead> <tbody> <tr> <td>Chocolate</td> <td>\$1</td> </tr> <tr> <td>Jelly</td> <td>\$2</td> </tr> <tr> <td>Strawberry</td> <td>\$3</td> </tr> <tr> <td>Cotton Candy</td> <td>\$4</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Sandy wants to spend exactly \$12. She can buy more than one of each type of donut. Make a list in the space below of which donuts Sandy could buy. Show your work. 	Donuts		Type	Cost of One Donut	Chocolate	\$1	Jelly	\$2	Strawberry	\$3	Cotton Candy	\$4	<p>25A: Solve extended numerical and statistical problems.</p> <p>Jessica wants to order a meal in a restaurant. The menu for the restaurant is as follows:</p> <table border="1"> <thead> <tr> <th colspan="2">Edward's Excellent Eatery</th> </tr> </thead> <tbody> <tr> <td colspan="2">ENTREES</td> </tr> <tr> <td>Liver & Onions</td> <td>\$ 6.00</td> </tr> <tr> <td>Roast Duck</td> <td>9.00</td> </tr> <tr> <td>Chicken</td> <td>7.00</td> </tr> <tr> <td>Top Sirloin</td> <td>8.00</td> </tr> <tr> <td colspan="2">DRINKS</td> </tr> <tr> <td>Small Soda</td> <td>\$ 1.00</td> </tr> <tr> <td>Large Soda</td> <td>2.00</td> </tr> <tr> <td>Iced Tea</td> <td>2.00</td> </tr> <tr> <td>Milk</td> <td>1.00</td> </tr> <tr> <td colspan="2">DESSERTS</td> </tr> <tr> <td>Jell-O</td> <td>\$ 1.00</td> </tr> <tr> <td>Chocolate Cake</td> <td>3.00</td> </tr> <tr> <td>Pie</td> <td>2.00</td> </tr> <tr> <td>Pie & Ice Cream</td> <td>4.00</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Jessica must order only one entree, at least two drinks, and no more than 3 desserts. She can spend no more than \$20.00 for her meal. <p>Use the space provided to show 3 different meals Jessica could order for herself.</p> <ul style="list-style-type: none"> Show which items she could order for each meal. Show the total cost of each meal, and show how you got your answers. 	Edward's Excellent Eatery		ENTREES		Liver & Onions	\$ 6.00	Roast Duck	9.00	Chicken	7.00	Top Sirloin	8.00	DRINKS		Small Soda	\$ 1.00	Large Soda	2.00	Iced Tea	2.00	Milk	1.00	DESSERTS		Jell-O	\$ 1.00	Chocolate Cake	3.00	Pie	2.00	Pie & Ice Cream	4.00	<p>25A: Solve extended numerical and statistical problems.</p> <p>Fill in the boxes with the numbers below.</p> <ul style="list-style-type: none"> Each number may be used only once. All four numbers must be used. The sum of the numbers in the boxes must be greater than 160. Explain your mathematical thinking. <div style="text-align: center;"> <table border="1"> <tr> <td colspan="4">6, 7, 8, 9</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>+</td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="4"><hr/></td> </tr> </table> </div>	6, 7, 8, 9												+				<hr/>				<p>25A: Solve extended numerical, statistical, and spatial problems.</p> <p>José is in charge of buying drinks for the party. He was given \$20 to spend. He wants all three kinds of drinks shown below.</p> <div style="display: flex; justify-content: space-around;"> <div>  <p>\$1.29/half-gallon \$1.89/gallon</p> </div> <div>  <p>\$0.98/16 ounces \$1.10/20 ounces</p> </div> <div>  <p>\$1.45/6-pack \$2.25/12-pack</p> </div> </div> <p>José wants to buy the larger size whenever possible because it is cheaper. He also wants to spend as close to \$20.00 as possible without going over \$20. Show the number, type, and size of all the drinks José could buy.</p>
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2 nd Graders	Grade 3 CMT	Grade 4 CMT	Grade 5 CMT																																													
<p align="center">Obj. 25A: Continued</p> <p>Rod is buying square tiles. These are the tiles for sale.</p> <table border="1"> <thead> <tr> <th>Color</th> <th>Number of Tiles</th> <th>Price of Each Tile</th> </tr> </thead> <tbody> <tr> <td>Red</td> <td>5</td> <td>1¢</td> </tr> <tr> <td>White</td> <td>3</td> <td>2¢</td> </tr> <tr> <td>Blue</td> <td>4</td> <td>5¢</td> </tr> </tbody> </table> <p>➤ He wants to buy 5 tiles. ➤ He wants to have at least 1 of each color. ➤ He must spend a total of 12¢ or more. ➤ Fill in the chart below to find out how much the 5 tiles cost.</p> <table border="1"> <thead> <tr> <th>Color</th> <th>Number of Tiles Bought</th> <th>Cost of the Tiles</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td>TOTAL</td> <td> </td> <td> </td> </tr> </tbody> </table>	Color	Number of Tiles	Price of Each Tile	Red	5	1¢	White	3	2¢	Blue	4	5¢	Color	Number of Tiles Bought	Cost of the Tiles										TOTAL			<p align="center">Obj. 25A: Continued</p> <p>140. Andrew needs to put his toys away. These are the toys and how many of each toy that he needs to put away.</p> <table border="1"> <thead> <tr> <th>TYPES OF TOYS</th> <th>HOW MANY OF EACH TYPE OF TOY</th> </tr> </thead> <tbody> <tr> <td>Board Games</td> <td>10</td> </tr> <tr> <td>Electronic Games</td> <td>15</td> </tr> <tr> <td>Models (Boats, Cars, etc.)</td> <td>17</td> </tr> <tr> <td>Action Figures</td> <td>6</td> </tr> <tr> <td>Balls (Baseball, Football, Soccer)</td> <td>7</td> </tr> </tbody> </table> <p>Andrew has 4 shelves to hold all his toys. Each shelf can hold no more than 14 toys. In the space provided in your Answer Booklet, show which types of toys will go on each shelf. Tell how many of each type of toy will fit on each shelf. Show the total number of toys on each shelf. Also, show how you got your answer.</p>	TYPES OF TOYS	HOW MANY OF EACH TYPE OF TOY	Board Games	10	Electronic Games	15	Models (Boats, Cars, etc.)	17	Action Figures	6	Balls (Baseball, Football, Soccer)	7	<p align="center">Obj. 25A: Continued</p> <p>Mrs. Johnson has 7 children. The chart below shows how much milk her children drink each day.</p> <table border="1"> <tbody> <tr> <td>Three Teenagers</td> <td>$1\frac{1}{2}$ gallons of milk per day ($\frac{1}{2}$ gallon for each teen)</td> </tr> <tr> <td>11-Year Old Twins</td> <td>1 gallon of milk per day ($\frac{1}{2}$ gallon each)</td> </tr> <tr> <td>5-Year Old Twins</td> <td>$\frac{1}{2}$ gallon of milk per day ($\frac{1}{4}$ gallon each)</td> </tr> </tbody> </table> <p>How many gallons of milk should Mrs. Johnson buy for 1 week? _____</p> <p>If milk costs \$5.00 per gallon, how much will the 1-week supply cost? _____</p> <p>Show or explain how you arrived at your answer in the space below.</p> <p>(Good set up: have a question and provide space for the answer. Then ask another question and provide space for the answer, etc)</p>	Three Teenagers	$1\frac{1}{2}$ gallons of milk per day ($\frac{1}{2}$ gallon for each teen)	11-Year Old Twins	1 gallon of milk per day ($\frac{1}{2}$ gallon each)	5-Year Old Twins	$\frac{1}{2}$ gallon of milk per day ($\frac{1}{4}$ gallon each)	<p align="center">Obj. 25A: Continued</p> <p>141. Jackson is painting a border on the wall. He is using the designs below.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  6 of these </div> <div style="text-align: center;">  5 of these </div> <div style="text-align: center;">  3 of these </div> </div> <ul style="list-style-type: none"> • He must use 12 of the designs. • He does not want 2 of the same designs next to each other. • He wants an even number of each shape used. • He must use at least 2 of each design. <p>Show one way Jackson could place his designs in a straight line across the wall.</p> <div style="border: 1px solid black; width: 100%; height: 20px; margin-top: 10px;"></div>
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