

5th Grade Monthly Extended Response Prompts Mathematics

All Extended Response items should be scored using the ISAT rubric. Be sure a copy of the student friendly rubric for grades 5 and 6 is available to all students when they are writing their responses as well as when they are evaluating prompts. Model the extended response format frequently so students become comfortable with the process. Talking about what they did and why they did it promotes retention of information. Frequent quality practice reduces the stress of Extended Response at ISAT time.

See your Pacing Guide for suggestions on how to work on the Extended Response items. Thank you.

Title	Skill Assessed	Time Frame
Cookies and Milk	Measurement conversion	September
Animal Shelter	Interpreting data	October
Buying Carpet*/ Flooring	Area	November
Tiles	Fractions	December
Stools and Chairs	Algebra	January
Pet Survey*	Interpreting a graph, fraction of a number	February
Museum	Guess and check/ division	March
Rules of Odd - Even Game	Probability	April
Party Seating*	Multi-step ,multiplication	May

* Specific Rubric to use for trimester assessment. Record on Reading Grid

Grade 5
Extended Response
September

Cookies and Milk

Brad invited 9 friends for cookies and milk. Each person drinks one cup of milk with each cookie. Each person eats 4 cookies.

How many gallons of milk will he need?

Note: 1 gallon = 16 cups

Show all your work. Explain in words **how** you found your answer. Tell **why** you took the steps you did to solve the problem.

Grade 5
Extended Response
October

ANIMAL SHELTER

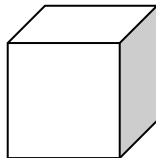
Abby, Beth, Collin and Darrell are collecting cans of dog food for different animal shelters. After they collect the cans, they must put the same number of cans in each box to deliver to the shelters.

How many cans should be in each box?

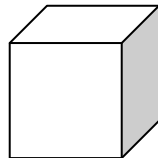
Show all your work. Explain in words **how** you found your answer. Tell **why** you took the steps you did to solve the problem.

Abby	Beth	Collin	Darrell
XXX	X	X	XXX
XXXX	XXXXXX	XX	XXX
XXXX	XXXXXX	XX	XXX
XXXX	XXXXXX	XX	XXX
XXXX	XXXXXX	XX	XXX
	XXXXXX	XX	

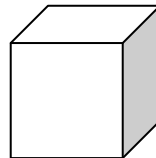
X = 1 can



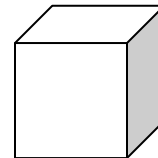
Box 1



Box 2



Box 3



Box 4

Grade 5
Extended Response
November (1)

Buying Carpet (1)

Mrs. Anderson needs to buy carpeting for her family room. Her family room is a perfect square, with a perimeter of 32 feet. Carpet is sold by the square foot. How many square feet are there in Mrs. Anderson's family room?

Show all your work. Explain in words **how** you found your answer. Tell **why** you took the steps you did to solve the problem.

Grade 5
Extended Response
November (2)

Buying Flooring (2)

Mr. Johnson needs to buy flooring for his kitchen. His kitchen is a perfect square, with a perimeter of 36 feet. Flooring is sold by the square foot. How many square feet are there in Mr. Johnson's kitchen?

Show all your work. Explain in words **how** you found your answer. Tell **why** you took the steps you did to solve the problem.

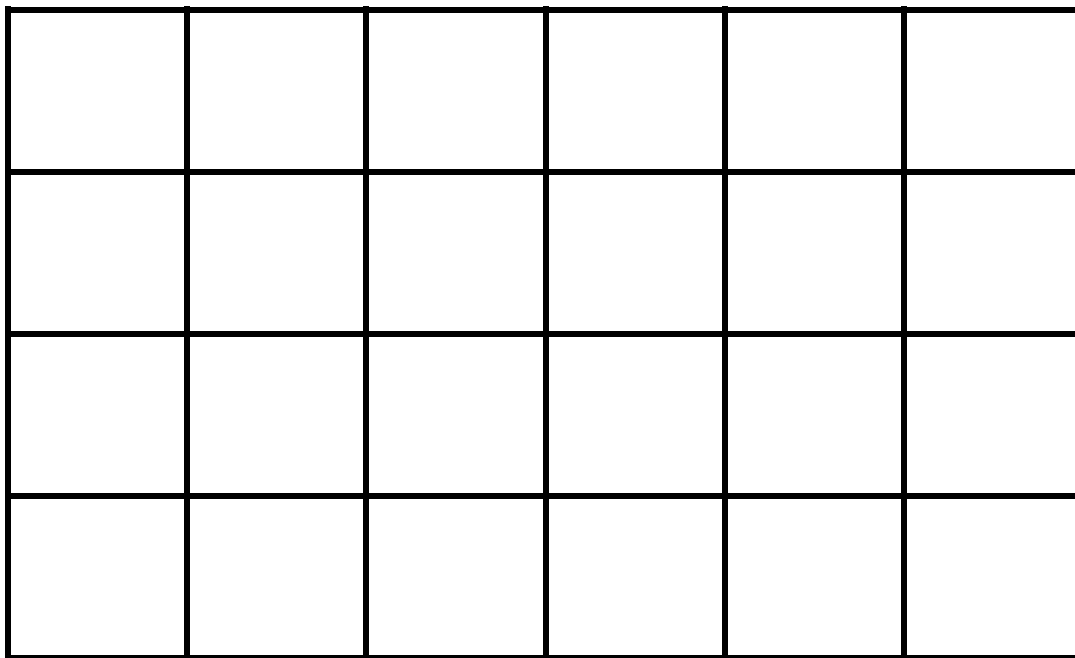
Grade 5
Extended Response
December

Tiles

Mr. Reynolds wants to put down special floor tile by the front door of his house. He wants to use four different colors of tile in his design. He also wants:

- 1/2 of the tiles to be blue,
- 1/4 of the tiles to be gray,
- 1/8 of the tiles to be red, and
- 1/8 of the tiles to be white.

Using the grid pattern below, design a floor for the entrance of Mr. Reynolds's house. Show your work by labeling each tile with the first letter of the color that should be placed there.



Show all your work. Explain in words **how** you found your answer. Tell **why** you took the steps you did to solve the problem.

Grade 5
Extended Response
January

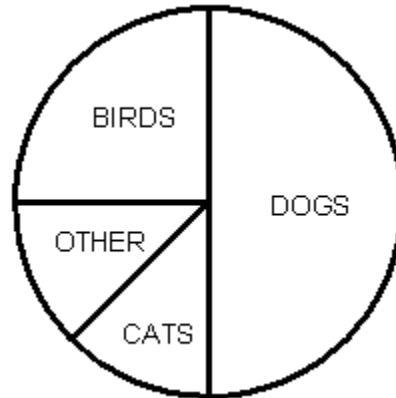
Stools and Chairs

In my carpenter shop, I make three-legged stools and four-legged chairs. I looked at my day's output and counted 55 legs and 16 seats. How many stools and how many chairs did I complete that day?

Show all your work. Explain in words **how** you found your answer. Tell **why** you took the steps you did to solve the problem.

Grade 5
Extended Response
February

Pet Survey



Twenty-four 5th graders were surveyed to find out what pets they had at home. Using the data from the pie graph above, determine the total number of students that have either a dog or a cat at home.

Show all your work. Explain in words **how** you found your answer. Tell **why** you took the steps you did to solve the problem.

Grade 5
Extended Response
March

Museum

The number of fifth-grade students going to the museum is greater than 30 but less than 50. Each student will have a partner on the bus. At the museum, each tour group will have exactly 6 students.

How many students are going to the museum?

Show all your work. Explain in words **how** you got your answer. Tell **why** you took the steps you did to solve the problem.

Grade 5
Extended Response
April

Rules of the "Odd - Even" Game

Your class will run the following game at the school fair:

- A player pays 10¢ and gets to roll two dice.
- The player's score is the product of the two numbers he/she rolls. (For example, if a player rolls a "3" and a "5", his/her score would be "15" because $3 \times 5 = 15$.)
- Every time a player wins, he/she gets 20¢.

Your teacher asks you to decide whether a player should have to roll an odd score or an even score to be a winner. Your class needs to make the most money possible for a new computer.

Would you make the winning score odd or even?

Show all your work. Explain in words **how** you got your answer. Tell **why** you took the steps you did to solve the problem.

Grade 5
Extended Response
May

Party Seating

There were 84 students at a party. Square tables and round tables were used for seating. Each square table had 8 seats and each round table had 10 seats.

How many square and round tables could have been used so that all 84 students had a seat and there were no empty seats?

Show all your work. Explain in words **how** you got your answer. Tell **why** you took the steps you did to solve the problem.

Answer Key

(And Specific Rubrics for Trimester Assessment)

Students should write out their answers to show computation, to show what they did to solve the problem and why they did it. Use the state scoring rubric to evaluate student work. It is a good idea to evaluate prompts with teammates so you can share ideas.

What follows is the numeric answer only.

September: accept either $2\frac{1}{2}$ gallons or 3 gallons if the student explains that they rounded to the nearest full gallon.

October: 19 cans per box

November: (1): 64 square feet*
(2) 81 square feet

December: 12 blue, 6 gray, 3 red, and 3 white

January: 7 chairs and 9 stools

February: 15 students*

March: Either 32 or 48 students

April: An odd score would win

May: 6 round and 3 square tables OR 2 round and 8 square tables*

* Specific Rubrics for trimester assessment

MATHEMATICS SCORING RUBRIC

The following rubric is used for the extended-response items for grade levels 3 through 8.

MATHEMATICS SCORING RUBRIC: A GUIDE TO SCORING EXTENDED-RESPONSE ITEMS

	MATHEMATICAL KNOWLEDGE:	STRATEGIC KNOWLEDGE:	EXPLANATION:
Score Level 4	<p>Knowledge of mathematical principles and concepts which result in a correct solution to a problem.</p> <ul style="list-style-type: none"> ◆ shows complete understanding of the problem's mathematical concepts and principles ◆ uses appropriate mathematical terminology and notations including labeling answer if appropriate ◆ executes algorithms and computations completely and correctly 	<p>Identification and use of important elements of the problem that represent and integrate concepts which yield the solution (e.g., models, diagrams, symbols, algorithms).</p> <ul style="list-style-type: none"> ◆ identifies all important elements of the problem and shows complete understanding of the relationships among elements ◆ shows complete evidence of an appropriate strategy that would correctly solve the problem 	<p>Written explanation of the rationales and steps of the solution process. A justification of each step is provided. Though important, the length of the response, grammar, and syntax are not the critical elements of this dimension.</p> <ul style="list-style-type: none"> ◆ gives a complete written explanation of the solution process; clearly explains <u>what</u> was done and <u>why</u> it was done ◆ may include a diagram with a complete explanation of all its elements
3	<ul style="list-style-type: none"> ◆ shows nearly complete understanding of the problem's mathematical concepts and principles ◆ uses mostly correct mathematical terminology and notations ◆ executes algorithms completely; computations are generally correct but may contain minor errors 	<ul style="list-style-type: none"> ◆ identifies most of the important elements of the problem and shows a general understanding of the relationships among them ◆ shows nearly complete evidence of an appropriate strategy for solving the problem 	<ul style="list-style-type: none"> ◆ gives a nearly complete written explanation of the solution process; clearly explains <u>what</u> was done and begins to address <u>why</u> it was done ◆ may include a diagram with most of its elements explained
2	<ul style="list-style-type: none"> ◆ shows some understanding of the problem's mathematical concepts and principles ◆ uses some correct mathematical terminology and notations ◆ may contain major algorithmic or computational errors 	<ul style="list-style-type: none"> ◆ identifies some important elements of the problem but shows only limited understanding of the relationships among them ◆ shows some evidence of a strategy for solving the problem 	<ul style="list-style-type: none"> ◆ gives some written explanation of the solution process; either explains <u>what</u> was done or addresses <u>why</u> it was done ◆ explanation is vague, difficult to interpret, or does not completely match the solution process ◆ may include a diagram with some of its elements explained
1	<ul style="list-style-type: none"> ◆ shows limited to no understanding of the problem's mathematical concepts and principles ◆ may misuse or fail to use mathematical terminology and notations ◆ attempts an answer 	<ul style="list-style-type: none"> ◆ fails to identify important elements or places too much emphasis on unrelated elements ◆ reflects an inappropriate strategy for solving the problem; strategy may be difficult to identify 	<ul style="list-style-type: none"> ◆ gives minimal written explanation of the solution process; may fail to explain <u>what</u> was done and <u>why</u> it was done ◆ explanation does not match presented solution process ◆ may include minimal discussion of the elements in a diagram; explanation of significant elements is unclear
0	<ul style="list-style-type: none"> ◆ no answer attempted 	<ul style="list-style-type: none"> ◆ no apparent strategy 	<ul style="list-style-type: none"> ◆ no written explanation of the solution process is provided

GRADES 5 AND 6 "STUDENT-FRIENDLY" MATHEMATICS SCORING RUBRIC

GRADES 5 AND 6 "STUDENT-FRIENDLY" MATHEMATICS SCORING RUBRIC

Score Level (How many points do you earn?)	MATHEMATICAL KNOWLEDGE: (Do you know it?)	STRATEGIC KNOWLEDGE: (How do you plan?)	EXPLANATION: (Can you explain it?)
4	<ul style="list-style-type: none"> ◆ I get the right answer, and I label it correctly. ◆ I use math words correctly to show I understand how math works. ◆ I compute with no mistakes. 	<ul style="list-style-type: none"> ◆ I find all the important parts of the problem, and I know how they go together. ◆ I show all the steps I use to solve the problem. ◆ I completely show pictures, diagrams, models or computation if I use them in my plan. 	<ul style="list-style-type: none"> ◆ I write <u>what</u> I did and <u>why</u> I did it. ◆ If I use a drawing, I can explain all of it in writing.
3	<ul style="list-style-type: none"> ◆ I use most math words correctly. ◆ I make small mistakes in computation. 	<ul style="list-style-type: none"> ◆ I find most of the important parts of the problem. ◆ I show most of the steps I use to solve the problem. 	<ul style="list-style-type: none"> ◆ I write mostly about <u>what</u> I did. ◆ I write a little about <u>why</u> I did it. ◆ If I use a drawing, I can explain most of it in writing.
2	<ul style="list-style-type: none"> ◆ I know how to do parts of the problem, but I make major errors in computation and get a wrong answer. ◆ I give a wrong answer or only part of the answer. 	<ul style="list-style-type: none"> ◆ I find some of the important parts of the problem. ◆ I show some of the steps, but my plan is not clear. 	<ul style="list-style-type: none"> ◆ I write some about <u>what</u> I did or <u>why</u> I did it but not both. ◆ If I use a drawing, I can explain some of it in writing.
1	<ul style="list-style-type: none"> ◆ I try to do the problem, but I don't understand it. 	<ul style="list-style-type: none"> ◆ I find almost no important parts of the problem. ◆ I show almost none of the steps I use to solve the problem. ◆ I show a plan that does not fit the problem. 	<ul style="list-style-type: none"> ◆ I write or draw something that doesn't go with my answer. ◆ I write an answer that is not clear.
0	<ul style="list-style-type: none"> ◆ I don't try to answer the problem. 	<ul style="list-style-type: none"> ◆ I don't show a plan. 	<ul style="list-style-type: none"> ◆ I don't explain anything in writing.

Math Scoring Rubric Help Prompt: Buying Carpeting		Grade: 5	
Scoring Level	Mathematical Knowledge:	Strategic Knowledge	Explanation
4	<p>Correct answer. Clearly labeled. Appropriate terminology.</p> <p>64 square feet</p>	<p>Clear and complete strategy shown.</p> <p>ex. Draws square and labels each side 8 sq. ft. and uses $a = b * h$</p>	<p>Clearly explains process used. Tells WHAT was done and WHY each step was done.</p> <p>Vocabulary could include: Area, base, height, square feet, multiplied</p>
3	<p>Minor math errors:</p> <p>Uses $a = b * h$ but multiplies incorrectly</p> <p>Not correctly labeled ex. 64 feet</p>	<p>Clear strategy - mostly complete</p> <p>Doesn't show all steps to find answer. ex. $8*8 = 64$ (doesn't show why they multiplied $8*8$)</p>	<p>Clearly explains process used. Tells what was done and begins to appropriately tell WHY.</p>
2	<p>Some understanding Major math errors</p> <p>ex. Labeling each side of the square 32 ft. and multiplying $32 * 32$ to find answer.</p>	<p>Clear strategy, but not necessarily effective or appropriate</p> <p>ex. Uses wrong measurement to label square Or Draws a rectangle</p>	<p>Some explanation of the process. Tells how or why but not both or only uses inappropriate why's (ex. I did this because I had to).</p>
1	<p>Limited understanding</p> <p>Draws a square and labels each side 32, then finds that perimeter.</p>	<p>Unclear or unrelated strategy, inappropriate</p>	<p>Minimal or unclear explanation of process. Does not match work shown.</p>
0	No answer attempted	No strategy attempted	No written explanation of the solution process attempted

Math Scoring Rubric Help Prompt: Pet Survey		Grade:5 TR3	
Scoring Level	Mathematical Knowledge:	Strategic Knowledge	Explanation
4	Correct answer. Clearly labeled 15 students	Clear and complete strategy process clearly seen	Clearly explains process used Tells WHAT was done and WHY each step was done. Look for vocabulary such as: divided, added, fraction vocabulary
3	Minor math error Ex.: Incorrectly labeled Answer of 14 or 16	Clear strategy– mostly complete All steps are not shown	Clearly explains process used Tells what was done and begins to appropriately tell WHY
2	Some understanding Major math errors Ex.: 12 dogs, 3 cats	Clear strategy, but not necessarily effective or appropriate Finds the incorrect number of each pet	Some explanation of the process Tells how or why but not both or only uses inappropriate whys Ex. I did this because I had to
1	Limited understanding	Unclear or unrelated strategy, inappropriate	Minimal or unclear explanation of process Does not match work shown
0	No answer attempted	No strategy attempted	No written explanation of the solution process attempted

Math Scoring Rubric Help Prompt: Party Seating			Grade: 5	
Scoring Level	Mathematical Knowledge:	Strategic Knowledge	Explanation	
4	<p>Correct answer. Clearly labeled. Appropriate terminology.</p> <p>6 round tables, 3 square tables Or 8 square tables, 2 round tables</p>	<p>Clear and complete strategy shown.</p> <p>Diagram or algorithms that would correctly solve the problem</p>	<p>Clearly explains process used. Tells WHAT was done and WHY each step was done.</p>	
3	<p>Minor math errors:</p> <p>Correct answer not clearly labeled ex. 6 round tables, 3 square tables Minor math error ex. 8 round tables, 1 square table (there are enough seats, but some will be empty)</p>	<p>Clear strategy - mostly complete Not all major components seen but what is seen is appropriate and effective: ex. 6 round = 60, 3 square = 24 Student did not show use of mathematical operations</p>	<p>Clearly explains process used. Tells what was done and begins to appropriately tell WHY.</p>	
2	<p>Some understanding, Major math errors</p> <p>ex. Not enough seating: - Correct # of seats, wrong # of tables - Incorrect # of seats, correct # of tables - Incorrect # of seats, incorrect # of tables</p>	<p>Clear strategy, but not necessarily effective or appropriate</p> <p>Clear strategy but not necessarily effective or appropriate ex. Drawing tables but not having appropriate # of seats</p>	<p>Some explanation of the process. Tells how or why but not both or only uses inappropriate why's (ex. I did this because I had to).</p>	
1	<p>Limited understanding</p> <p>Attempted to answer</p>	<p>Unclear or unrelated strategy, inappropriate</p> <p>ex. Draws picture of something unrelated to prompt</p>	<p>Minimal or unclear explanation of process. Does not match work shown.</p>	
0	<p>No answer attempted</p>	<p>No strategy attempted</p>	<p>No written explanation of the solution process attempted</p>	