3rd Grade Extended Response
Mathematics

All Extended Response items should be scored using the ISAT rubric. Be sure a copy of the student friendly rubric for grades 3 and 4 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. Beginning this format early reduces the stress 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
Sleds/ Sleds 2	Algebra	September
Legs	Algebra	October
Snacking at the Movies*	Multi-step problem involving money	November
Target	Guess and Check	December
Grocery Store	Multi-step problem involving money	January
Kitchen Table*	Area	February
Garden	Perimeter, measurement conversion	March
Tiles	Fractions	April
Ducks and Dogs*	Algebra	May

*Specific rubrics for trimester assessment. Record on the Reading grid

Grade 3
Extended Response
September

Sleds (1)

Big sleds must hold 3 children and small sleds must hold 2 children. If 17 children want to go sledding at the same time, how many of each type of sled is needed?

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 3
Extended Response
September

Sleds (2)

Big sleds must hold 4 children and small sleds must hold 3 children. If 22 children want to go sledding at the same time, how many of each type of sled is needed?

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 3
Extended Response
October

Legs

Luke learned that ants have 6 legs and spiders have 8 legs. He went to the forest preserve and saw an exhibit that had both ants and spiders. Luke counted a total of 36 legs in the exhibit. There were a total of 5 animals in the exhibit.
How many ants and how many spiders are there in the exhibit?

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 3
Extended Response
November

Snacking at the Movies

Brent went to the movies last week. He had $5.00 for snacks. He bought 2 items and the cashier gave him $2.25 as change. Which 2 items could he have bought?

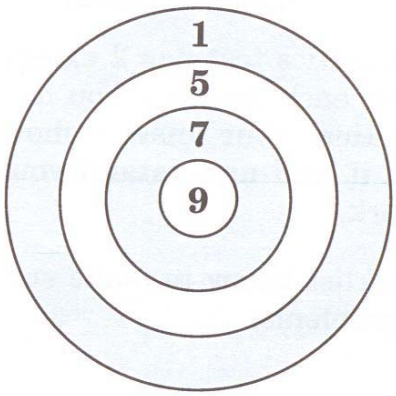
Candy $ .75	Pretzel $1.25
Hot dog $1.50	Drink $2.00

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 3
Extended Response
December

Target

How can you score 29 points if you throw 5 balls at the target?



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 3
Extended Response
January

Grocery Store

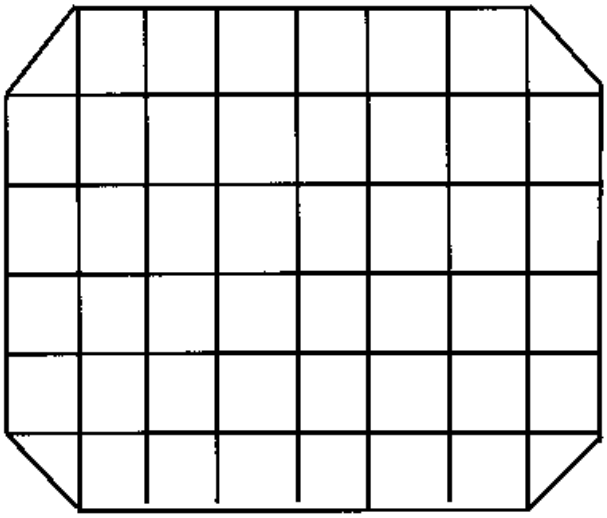
Brenda went to the grocery store for her Mom. She had $6.00 to buy the items she needed. She bought 2 items. The clerk gave her $1.75 change. What 2 item did she buy?

Milk $2.00	Bread $ 2.70
Butter $ 1.75	Juice $ 2.25

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 3
Extended Response
February

The Kitchen Table



Mrs. Johnson is tiling her kitchen table. She needs to know how many tiles to buy.
Find the area, in square units, of her table, which is shown above.

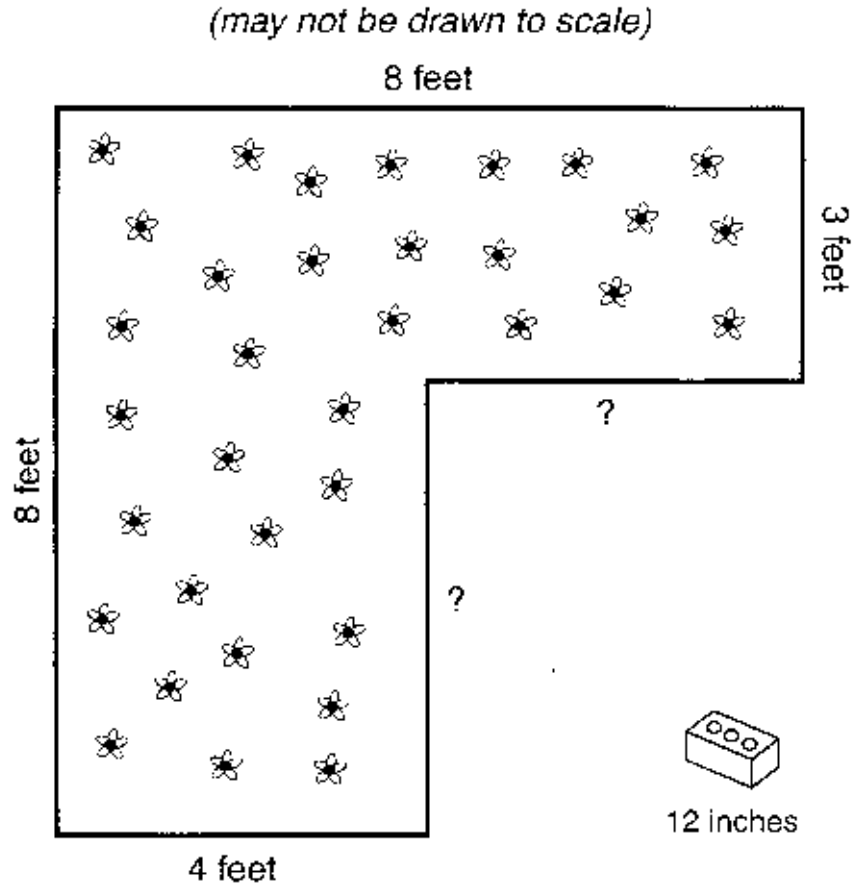
Show all your work. Explain in words **how** you found your answer. Tell **why** you took the steps you did to solve the problem.

Grade 3
Extended Response
March

Garden

The third grade class planted a flower garden in the schoolyard. They want to put bricks all around the garden. The bricks are 12 inches long. How many bricks will they need to buy? (Hint: Be sure to find the length of ALL the sides of the garden.)

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

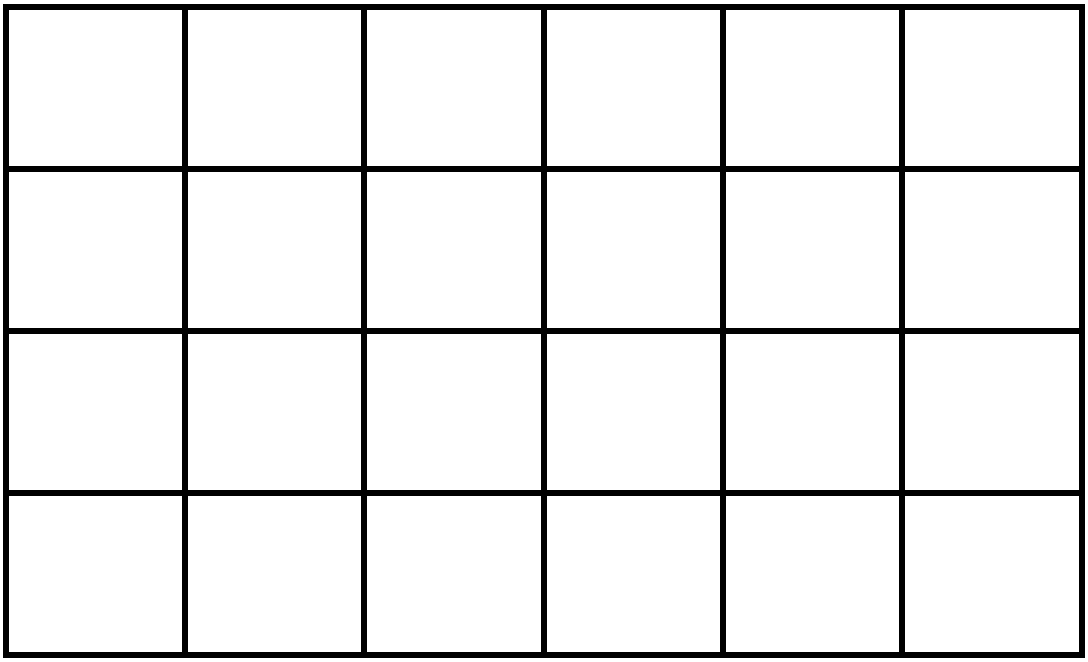


Grade 3
Extended Response
April

Tiles

Mrs. Martin wants to put down special floor tile by the front door of her house. She wants to use three different colors of tile in her design.
She also wants
1/2 of the tiles to be blue,
1/4 of the tiles to be gray, and
1/4 of the tiles to be red.

Using the grid pattern below, design a floor for the entrance of Mrs. Martin'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 3
Extended Response
May

Ducks and Dogs

While you are visiting a farm, you notice that there are only ducks and dogs in the farmyard. You wonder how many of each animal there are in the yard. When you ask Farmer Fred how many of each animal he has, he refuses to give you a direct answer. He makes it a puzzle and says there are 8 heads and 26 feet.

How many ducks and how many dogs are there in the farm yard?

Show all your work. Explain in words **how** you found 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: sleds (1)1 big and 7 small or 3 big and 4 small or 5 big and 1 small
sleds (2) 1 big and 6 small or 4 big and 2 small

October: 2 ants and 3 spiders

November: Candy and Drink OR Hotdog and Pretzel*

December: 9, 9, 5, 5, 1 **OR** 5, 5, 5, 5, 9

January: Milk and Juice

February: 46 square units*

March: 32 bricks

April: 12 blue, 6 green, 6 red

May: 3 ducks and 5 dogs*

*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

Score Level	MATHEMATICAL KNOWLEDGE: Knowledge of mathematical principles and concepts which result in a correct solution to a problem.	STRATEGIC KNOWLEDGE: Identification and use of important elements of the problem that represent and integrate concepts which yield the solution (e.g., models, diagrams, symbols, algorithms).	EXPLANATION: 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.
4	◆ 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	◆ 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	◆ gives a complete written explanation of the solution process; clearly explains what was done and why it was done ◆ may include a diagram with a complete explanation of all its elements
3	◆ 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	◆ 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	◆ gives a nearly complete written explanation of the solution process; clearly explains what was done and begins to address why it was done ◆ may include a diagram with most of its elements explained
2	◆ 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	◆ 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	◆ gives some written explanation of the solution process; either explains what was done or addresses why 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	◆ 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	◆ 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	◆ gives minimal written explanation of the solution process; may fail to explain what was done and why 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	◆ no answer attempted	◆ no apparent strategy	◆ no written explanation of the solution process is provided

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GRADES 3 AND 4 "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	◆ I get the right answer. ◆ I label my answer correctly. ◆ I use the right math words to show I understand how math works. (Example: I know when to add or subtract.) ◆ I work it out with no mistakes.	◆ I find all the important parts of the problem, and I know how they go together. ◆ I show a good plan about how I got my answer. ◆ I show all of the steps I use to solve the problem.	◆ I write what I did and why I did it. ◆ If I use a drawing, I can explain all of it in writing.
3	◆ I do the problem, but I make small mistakes.	◆ I find most of the important parts of the problem. ◆ I show most of the steps I use to solve the problem.	◆ I write mostly about what I did. ◆ I write a little about why I did it. ◆ If I use a drawing, I can explain most of it in writing.
2	◆ I understand a little, but I make a lot of big mistakes. ◆ I only give part of the answer.	◆ I find some of the important parts of the problem. ◆ I show some of the steps I use to solve the problem.	◆ I write some about what I did or why I did it but not both. ◆ If I use a drawing, I can explain some of it in writing.
1	◆ I try to do the problem, but I don't understand it.	◆ I find almost no important parts of the problem. ◆ I show almost none of the steps I use to solve the problem.	◆ I write or draw something that doesn't go with my answer. ◆ I write an answer that is not clear.
0	◆ I don't try to answer the problem.	◆ I don't show any steps.	◆ I don't explain anything in writing.

August 2005

Math Scoring Rubric Help

Prompt: Snacking at the Movies — Grade: 3

Scoring Level	Mathematical Knowledge:	Strategic Knowledge	Explanation
4	**Correct answer. Clearly labeled. Appropriate terminology.** Candy and Drink Or Hotdog and Pretzel	**Clear and complete strategy shown.** Addition and subtraction problems shown.	**Clearly explains process used. Tells WHAT was done <u>and</u> WHY <u>each</u> step was done.**
3	**Minor math errors:** Mistaken calculations to arrive at the wrong answer.	**Clear strategy - mostly complete** Addition or subtraction problem shown.	**Clearly explains process used. Tells what was done and <u>begins</u> to appropriately tell WHY.**
2	**Some understanding Major math errors** Added items to equal $2.25 or $5.00.	**Clear strategy, but not necessarily effective or appropriate** Error in computation	**Some explanation of the process. Tells how <u>or</u> why but not both or only uses inappropriate why's (ex. I did this because I had to).**
1	**Limited understanding** Showed an addition or subtraction problem and/or wrote a random item.	**Unclear or unrelated strategy, inappropriate** Items listed without computational support	**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: The Kitchen Table — Grade: 3 TR 3

Scoring Level	Mathematical Knowledge:	Strategic Knowledge	Explanation
4	**Correct answer. Clearly labeled. Appropriate terminology.** 46 square units	**Clear and complete strategy shown.** "I counted" or "I multiplied"	**Clearly explains process used. Tells WHAT was done and WHY each step was done.** Vocabulary must include 'square units'
3	**Minor math errors:** Answer within 44-48 range, with or without label (ex. 46 units)	**Clear strategy - mostly complete** Incorrect multiplication / counting (forgetting the corners or counting them as a whole)	**Clearly explains process used. Tells what was done and begins to appropriately tell WHY.**
2	**Some understanding Major math errors** Answer outside 44-48 range, but an attempt at finding area is evident.	**Clear strategy, but not necessarily effective or appropriate** Perimeter counted, but area not figured.	**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).**
1	**Limited understanding** Answer outside 44-48, no clear understanding of the problem.	**Unclear or unrelated strategy, inappropriate** Some attempt at computation made.	**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: Ducks and Dogs — Grade: 3

Scoring Level	Mathematical Knowledge:	Strategic Knowledge	Explanation
4	**Correct answer. Clearly labeled. Appropriate terminology.** 3 ducks and 5 dogs	**Clear and complete strategy shown.** Picture drawn with correct number of heads and feet with labels Or Guess and check with labels	**Clearly explains process used. Tells WHAT was done <u>and</u> WHY <u>each</u> step was done.**
3	**Minor math errors:** Wrong number of heads, correct feet. Or Correct number of heads, wrong number of feet.	**Clear strategy - mostly complete** Picture drawn but incorrect number of heads or feet Or Inaccurate guess and check	**Clearly explains process used. Tells what was done and <u>begins</u> to appropriately tell WHY.**
2	**Some understanding Major math errors** Incorrect number of heads and feet.	**Clear strategy, but not necessarily effective or appropriate** Picture drawn with incorrect number of heads and feet.	**Some explanation of the process. Tells how <u>or</u> why but not both or only uses inappropriate why's (ex. I did this because I had to).**
1	**Limited understanding** Answer attempted.	**Unclear or unrelated strategy, inappropriate** ex. 26 + 8 = 34	**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**