

Monster Math

Teacher Resource Packet

Grades 2 - 6



A Jordan School District Special Program
Sponsored by the Gifted & Talented Department



What is Monster Math?

Monster Math is an integrated program combining skills in reading, thinking, communicating, computing, conceptualizing, and problem solving. Students work in groups to solve complex story problems. An emphasis is placed on explaining and documenting the reasoning and approaches to how the problem was solved.



Monster Math Problem Solving Steps and Strategies

Study: Take time to study the problem

- Read the problem and state in your own words what you need to find out
 - “I need to find out _____.”
 - “The main question I need to answer is _____.”
- Determine a label that is appropriate for the answer
 - trips _____ feet _____ pieces of candy _____
- Lightly cross out any unneeded data and/or circle important information
- List hidden sub--problems
 - Convert minutes to hours
- Determine a rough estimate of the answer
 - More than 5 trips, less than 10 feet, about 25 pieces of candy
 - Use the estimation later to check the reasoning of the answer

Explore: Spend time testing strategies

- Draw a picture of the problem
- Try it with objects
- Act it out
- Work it backwards
- Chart the data (make a chart, graph, etc.)
- Check for patterns
- Try it with smaller numbers
- Guess and check

Record: Record and label all steps

- Label numbers, drawings, graph, charts
- Perform the operations and explain
- Put the answer on the answer line with an appropriate label
- Be sure that all steps shown, lead to this answer (this is the part judges will see in the contest)

Check: Look back for completion

- Read the problem again
- Check again for hidden sub--problems
- Does the answer fit the question(s)?
- Does the answer make sense?
- Is all work labeled?
- Are all steps included?

Explain thinking and reasoning throughout to be sure your work makes sense.

Monster Math Performance Rubric

20 Points

- Correct answer, written on the answer line **with** label(s)
AND
- **ALL** steps in the explanation are shown, labeled, and follow logically to the solution

15 Points

- Correct answer, but label(s) **or** answer is missing on the answer line, **or** labels are missing in the work shown, **or** a step in the process is not shown
OR
- Incorrect answer, work is shown, labeled, and explained, but contains a **minor** mathematical error

10 Points

- Correct answer, limited work is shown, missing labels, and not explained
OR
- Incorrect answer, work is shown, labeled, and explained, but contains **multiple or major** mathematical errors

5 Points

- Incorrect answer or no answer, limited work is shown, missing labels, and not explained

Monster Math Achievement Scale (Total score for 2 problems)

<u>Level</u>	<u>Points</u>
Einstein	40
Wizard	30-35
Champ	20-25
Star	10-15
Participation	5



Second Grade Monster Math Problem Sample Responses/Points Earned

Billy has some pet birds and dogs. He has 8 pets altogether. If Billy's pets have a total of 24 legs, how many of his pets are birds? How many are dogs?

Answer: Billy has 4 dogs and 4 birds

4 dogs = 16 legs $4+4+4+4=16$

4 birds = 8 legs $2+2+2+2=8$

16 dog legs + 8 bird legs = 24 legs

20 points

The answer is correct, written on the answer line and labeled. All steps in the explanation are shown, labeled and follow logically to the solution.

Answer: Billy has 4 dogs and 4 birds



15 points

The answer is correct but...
- Labels are missing in the work shown
- A step in the process is not shown

*An **incorrect** answer where work is shown, labeled, and explained, but contains a minor mathematical error would also earn 15 points.*

Answer: Billy has 4 dogs and 4 birds

10 points

*An **incorrect** answer where work is shown, labeled, and explained but contains multiple or major mathematical errors would also earn 10 points.*

Correct answer, limited work is shown, missing labels, and not explained.



5 points

Incorrect answer or no answer, limited work is shown, missing labels, and not explained.

**This is a brief example for quick reference. The comprehensive criteria for scoring will vary with and be tailored to each Monster Math problem.*