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

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.

15 points

The answer is correct but...

Label 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.

10 points

Correct answer but not enough work shown to support the answer/or

Incorrect answer, but work is shown, labeled and explained. *Ex: Computation error, incorrect labels, incorrect operation, etc.*

5 points

Correct answer, but little work is shown and no explanation is given to show how students arrived to their answer/or

Incorrect answer or no answer, limited work to suggest students read the problem and attempted to solve it.

Monster Math Achievement Scale
*(Total score for 2 problems)*

<table>
<thead>
<tr>
<th>Level</th>
<th>Points</th>
</tr>
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<tbody>
<tr>
<td>Einstein</td>
<td>40</td>
</tr>
<tr>
<td>Wizard</td>
<td>30-35</td>
</tr>
<tr>
<td>Champ</td>
<td>20-25</td>
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<tr>
<td>Star</td>
<td>10-15</td>
</tr>
<tr>
<td>Participation</td>
<td>5</td>
</tr>
</tbody>
</table>
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

Number of pets doesn’t equal 8 or number of legs doesn’t equal 24

**15 points**
The answer is correct but...
- Labels are missing in the work shown
- Step(s) in the process not shown

A correct answer on the answer line but not enough work shown to support the answer, would also earn 10 points.

**10 points**
Incorrect answer, but work is shown, labeled and explained. Ex: computation error, wrong labels, incorrect operation, etc.

**5 points**
Incorrect answer or no answer, limited work suggesting student(s) read problem & attempted to solve.

A correct answer on the answer line with little/no work would also earn 5 points.
The Transportation Department needs to block off a section of State Street with orange cones. The cones are to be placed in a rectangular pattern that puts 1 foot between each cone. Each cone is 6 inches wide. If the area to be blocked off is 11 feet long and 5 feet wide, how many cones will they need?

**Answer:** They will need to use 20 cones.

20 Xs=20 cones

5 ft. x

1 ft space in between each cone

Each cone 6” wide

**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.

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**Answer:** They will need to use 20 cones.

**15 points**

The answer is correct but label 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.

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**Answer:** They will need to use 24 cones.

Cones and spaces don’t equal 11’ x 5’

**10 points**

Incorrect answer, but work is shown, labeled and explained. Ex: computation error, wrong labels, incorrect operation, etc.

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**A correct answer on the answer line but not enough work shown to support the answer, would also earn 10 points.**

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**A correct answer on the answer line but little/no work shown to support the answer, would also earn 5 points.**

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