# **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 t	Read the problem and state in your own words what you need to find out				
	0	"I need to find	out		"	
	0	"The main ques	stion I need to answer is	s	<u>.</u> "	
•	Determine a label that is appropriate for the answer					
	0	trips	feet	pieces of candy		
•	Lightly	cross out any un	needed data and/or cire	cle important information		
•	List hidden subproblems					
	0	Convert minute	s to hours			

- Determine a rough estimate of the answer
  - o More than 5 trips, less than 10 feet, about 25 pieces of candy
  - o 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, graphs, 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)
- 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
- 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>	<b>Points</b>
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?

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Answer: Billy has 4 dogs and 4 birds

16 dog legs + 8 bird legs = 24 legs

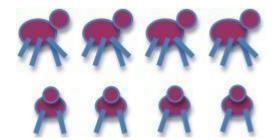
20 points

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.

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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.

8 + **7** 4 **A** 

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.