




## Not Norman, by Kelly Bennett

Enlarge the following page of text from the book:

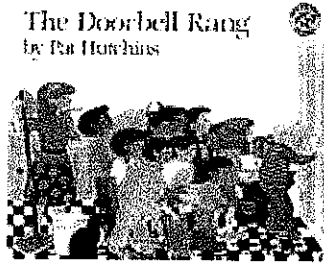
*On Saturday, I take Norman to the pet store, just like I said I would. I look at the cats and dogs and snakes and birds. I look at the hamsters and mice and lizards, too.*

Problem (adapted from a Marilyn Burns activity): If your folks let you buy one of each of the pets listed, how many legs and tails would that be?

Answer: 22 legs and 7 tails

Rubric			
Words	I wrote sentences.	I used labels.	I didn't use words.
Pictures	I drew a picture with lots of details.	I drew a simple picture.	I didn't draw a picture.
Numbers	I used numbers that match the story problem.	I have some numbers.	I didn't use numbers.
Solution	I got the right answer and can tell you how!	I had a good idea, but didn't get the right answer.	I just didn't understand.

Candy



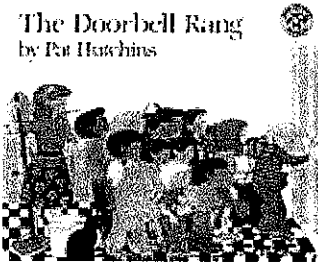
## Rubric for The Doorbell Rang

Child's Name \_\_\_\_\_

Score Earned \_\_\_\_\_

Rubric Score	Description of Expected Behavior
<b>4</b>	Evidence of three illustrations and three fraction labels <i>(Possible fractions include 1/12, 2/12, 3/12, 6/12, or 12/12; acceptable illustrations must correspond to the fractions)</i>
<b>3</b>	Evidence of a total of four or five illustrations and/or fraction labels not exceeding three of either
<b>2</b>	Evidence of a total of two or three illustrations and/or fraction labels
<b>1</b>	Evidence of one illustration or one fraction
<b>0</b>	No attempt made

The Doorbell Rang  
by Pat Hutchins



Name \_\_\_\_\_

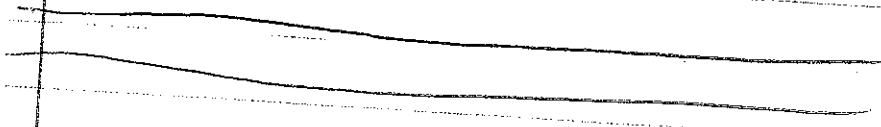
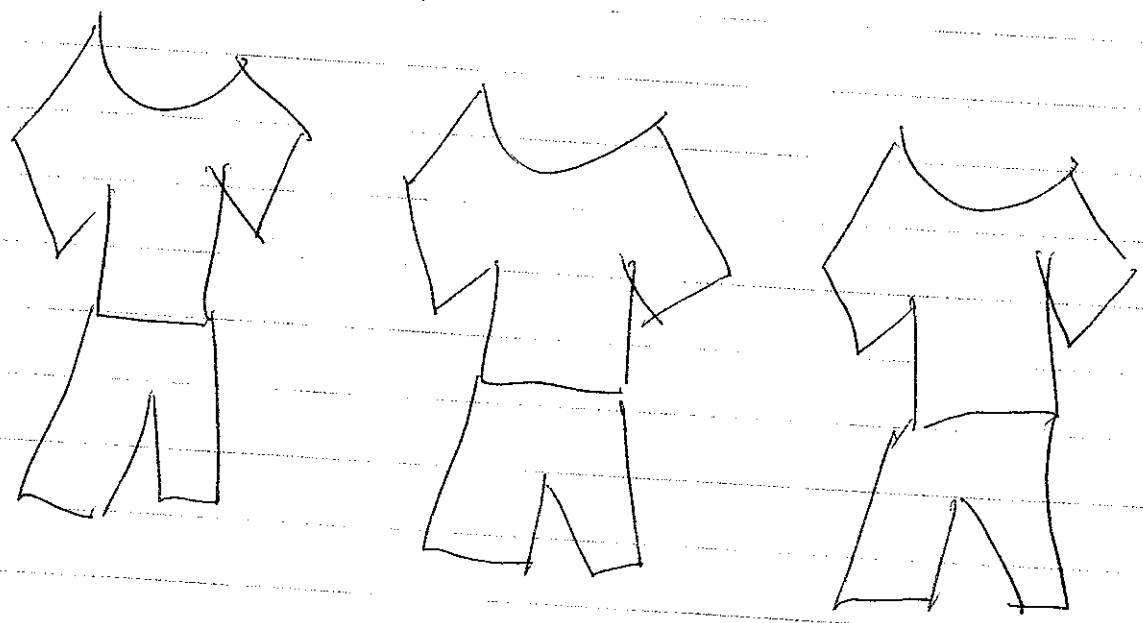
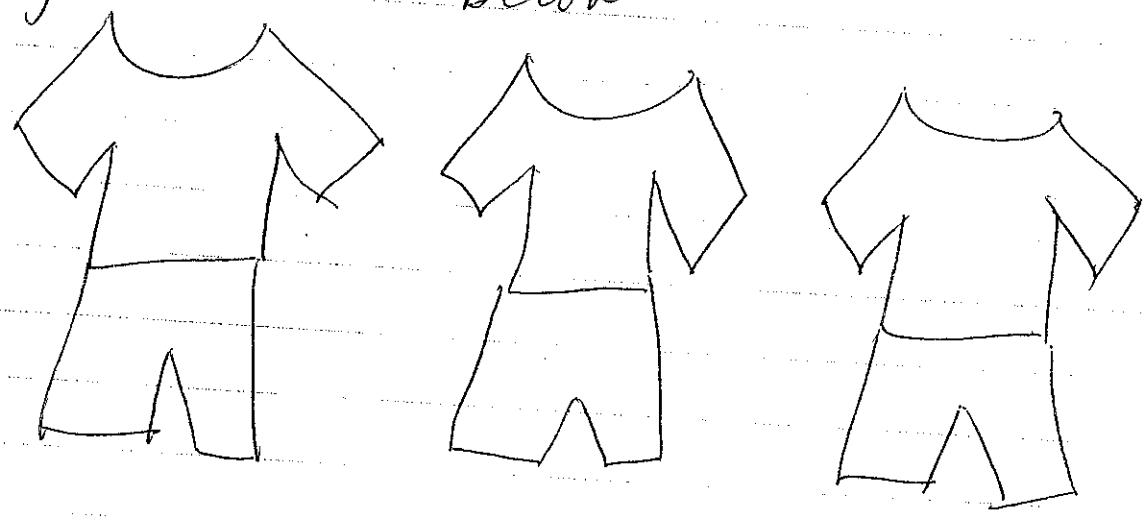
The Doorbell Rang, by Pat Hutchins

Think about the events in this story. Illustrate three ways the children shared the cookies. Write the fraction that describes your illustration.


**Brainwork:** On the back of this paper, show how the children might share a pizza. Would the fractions be the same or different? How do you know?


# Tops & Bottoms

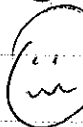
Using yellow red & blue crayons show the possibilities you can have these tops & bottoms. Explain your answer below.






Show your work	I did not show my work	I only showed part of my work	I used all the combinations
Solve the problem	I had trouble	I needed some help	I needed no help to solve.
Prove it	I had trouble explaining	I can tell some of the ways I solved it.	I can tell others how I solved it.

 = 3

 = 2

 = 1




Title: One Hundred Hungry Ants

Author: Elinor J. Pinczes

Subject: Math



Question: 



Pretend you are the "littlest ant" in the story.

How would you have told the hill of hungry ants to group themselves, so they could get to the picnic the fastest?



Explain why you think your way would be the fastest way for the ants to group themselves to go to the picnic.

You may use pictures, models, or symbols to show your answer.

by: Marsha Burns

Commotion in the Ocean  
By Giles Andreae and David Wojtowycz

Problem: Choose categories to sort the pictures of animals from the story. Write (or dictate) your labels on a graph and glue the pictures in your categories. Show your graph to the class. Read your labels and explain how you sorted the animals.


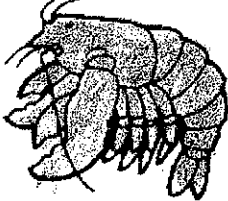
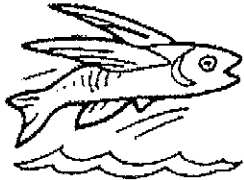

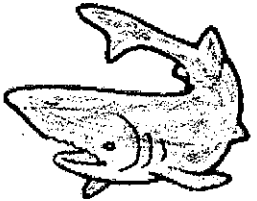
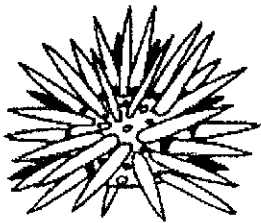
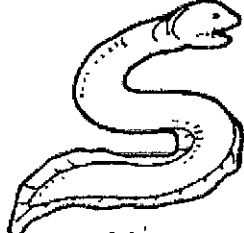

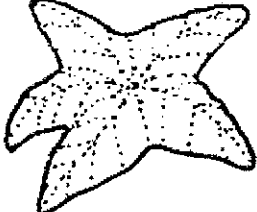
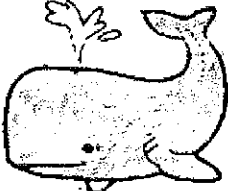

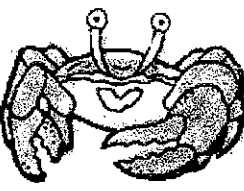


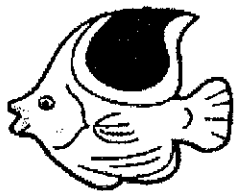
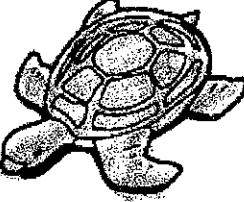


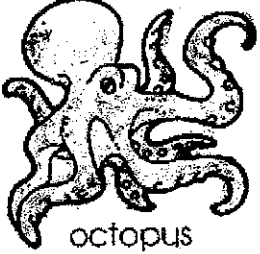
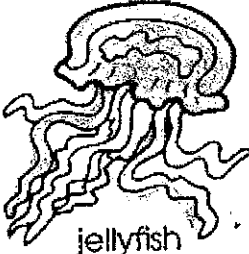
Assessment Rubric

	4	3	2	1
Conceptual Understanding	Shows deep understanding by solving problem appropriately	Shows adequate understanding by completing most of the activity	Shows some understanding by completing some of the activity	No attempt
Representation	Draws graph, writes (dictates) labels clearly, organizes animal pictures neatly	Completes at least two of the three steps	Completes one or two steps	No attempt
Oral Communication	Can explain and defend strategies used in completing activity	Can explain and defend at least 75% of strategies used in completing activity	Cannot explain or defend strategies clearly	No attempt

Use colored pictures *only* for easier activity

Appendix D

### Ocean Map Animal Cut-Outs

 seal	 lobster	 flying fish	 puffer fish
 shark	 sea urchin	 eel	 dolphin
 starfish	 whale	 swordfish	 crab
 stingray	 walrus	 angelfish	 sea turtle
 sea otter	 sea horse	 octopus	 jellyfish

Appendix E

3

2

1

0

Total

Not Norman

How many pets in all did the boy consider trading for Norman the goldfish? Use a number sentence in your answer. Be ready to explain your answer to me.

Julie Rice

# Math Rubric

Julie Rice



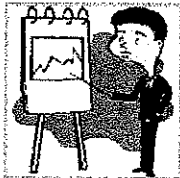
	3	2	1	0	Score
Problem Solving	I answered the problem completely.	I answered the problem but 1 piece was missing or incorrect.	I attempted to answer the problem but 2 or more pieces were missing or incomplete.	I was unable to answer the problem.	
Work Sample	I wrote a correct number sentence using words, pictures or both.	I wrote a number sentence but 1 piece was missing or incorrect.	I attempted to write a number sentence but 2 or more pieces were missing or incorrect.	I was unable to write a number sentence.	
Explanation of Answer	I explained my answer completely.	I explained my number sentence but 1 piece was missing or incorrect.	I attempted to explain my answer but was missing 2 or more pieces.	I was unable to explain my number sentence.	


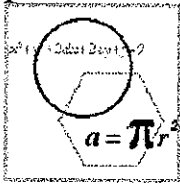
# Math Staff Development

## Process Standards

Problem Solving   Reasoning and Proof   Communication   Connections   Representation

All instructional programs should include the process standards: problem solving, reasoning and proof, communication, connections, and representation. These should be embedded within the Performance Expectations and Benchmarks. Students can use the process standards rubric to self evaluate their use of process standards in their work.

<p>Problem Solving</p> 	<ul style="list-style-type: none"> <li>• build new mathematical knowledge through problem solving;</li> <li>• solve problems that arise in mathematics and in other contexts;</li> <li>• apply and adapt a variety of appropriate strategies to solve problems;</li> <li>• monitor and reflect on the process of mathematical problem solving; (purpose, characteristics, compare with word problems)</li> </ul>
<p>Reasoning and Proof</p> 	<ul style="list-style-type: none"> <li>• recognize reasoning and proof as fundamental aspects of mathematics;</li> <li>• make and investigate mathematical conjectures;</li> <li>• develop and evaluate mathematical arguments and proof;</li> <li>• select and use various types of reasoning and methods of proof;</li> </ul>
<p>Communication</p> 	<ul style="list-style-type: none"> <li>• organize and consolidate their mathematical thinking through communication;</li> <li>• communicate their mathematical thinking coherently and clearly to peers, teachers, and others;</li> <li>• analyze and evaluate the mathematical thinking strategies of others;</li> <li>• use the language of mathematics to express mathematical ideas precisely;</li> </ul>
	<ul style="list-style-type: none"> <li>• recognize and use connections among</li> </ul>

<p style="text-align: center;"><b>Connections</b></p> 	<p>mathematical ideas;</p> <ul style="list-style-type: none"> <li>• understand how mathematical ideas interconnect and build on one another to produce a coherent whole;</li> <li>• recognize and apply mathematics in contexts outside of mathematics;</li> </ul>
<p style="text-align: center;"><b>Representation</b></p> 	<ul style="list-style-type: none"> <li>• create and use representations to organize, record, and communicate mathematical ideas;</li> <li>• select, apply, and translate among mathematical representations to solve problems;</li> <li>• use representations to model and interpret physical, social, and mathematical phenomena.</li> </ul>

Math Staff Development Home

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 [Instructional Model](#)   
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[Student Grouping](#)   
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**Performance Expectations**

**Math Home Page**

**Illuminations**

Your JeffcoNet Location is: Home | Online Education

updated 12/17/02

[Communication Powerpoint](#)  
[Number Talks](#)

# Process Standards Rubric

## I will meet the standard;

- I used pictures, numbers, or words to show my thinking. Representation
- I used math vocabulary to explain my thinking. Communication
- I wrote why I thought my strategies were useful in solving the problem. Reasoning and Proof
- I showed how the problem was like something else I already know about. Connections
- I used effective strategies to solve the problem. Problem Solving

## I will exceed the standard;

- I used pictures, numbers, and words in more than one way to show my thinking.
- I explained my strategies so well that there are no questions about how or why I used them.
- I wrote another way I thought of to solve the problem and explained why my way was best.
- I showed that I found out something new about math.

Each crab in the story has 6 legs and feet. If 5 crabs take 7 steps and 3 other crabs take 8 steps, how many footprints will they leave in the sand? Use what you've learned to find a solution.

~~$$[(5 \times 6) \times 7] + [(3 \times 6) \times 8]$$~~

284

	1	2	3	V
Grouping and symbols will lead to solution	order/grouping unrelated to solution	incorrect order or error replacement of punctuation	Correct grouping and use of punctuation	
accurate model	Does not match problem facts	matches facts but incorrect	correctly matches problem facts	
computation	little or no attempt at solution	<del>incorrect</del> incorrect computation	Correct computation	
explanation	no explanation	explanation given but does not use vocabulary	clear concise explanation using vocabulary	



	<b>3</b>	<b>2</b>	<b>1</b>
<b>Understanding</b>	<b>Student is able to use 2 or 3 of the following: numbers, words, pictures to represent their work.</b>	<b>Student is able to use 1 of the following: numbers, words, or pictures to represent their work.</b>	<b>Student made no attempt to represent their work.</b>
<b>Communication</b>	<b>Student is able to accurately describe to others how they solved the problem.</b>	<b>Student is able to partially describe to others how they solved the problem.</b>	<b>Student is unable to describe to others how they solved the problem.</b>
<b>Computation</b>	<b>Student used knowledge of doubles facts to correctly solve the problem.</b>	<b>Student solved the problem correctly, but arrived at the correct answer without using doubles facts.</b>	<b>Student did not solve the problem correctly.</b>

What conclusions can you draw as to the number of cookies on the plate at the beginning of the story, if Sam and Victoria each have 6 cookies?

Analysis  
 Based on 1<sup>st</sup> gr  
 Content Standard  
 (Computation & Estimation)  
 16.9 → doubles

	3	2	1
Understanding of the Academic Content Standard displayed in work	Problem is completely and correctly represented by model or words	Problem is represented but with one pattern of error	Representation includes many errors or the student shows minimal understanding
Reasoning/Procedures	Correct selection and usage of the arrays strategy	Correct selection but student work includes an error in usage of strategy	Incorrect selection and usage of procedure
Organization	Work is clearly organized and neat	Work shows some organization	Work is disorganized
Communication	Explanation clear, correct and detailed	Explanation clear and correct – but lacks details	Incomplete explanation

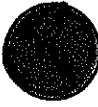


How could you determine how many cookies would be needed for each child to have two?



	4	3	2	1
<b>Mechanics</b>	accurately measures object 3 different ways	accurately measures object 2 different ways	accurately measures object 1 way	does not accurately measure object
<b>Demonstrates Knowledge</b>	shows complete understanding of the problem, mathematical ideas & processes	shows substantial understanding of problem, ideas & processes	shows some understanding of the problem or processes involved	shows no understanding of the problem or processes involved
<b>Appearance</b>	exceptionally well designed with details Creative picture/writing is neat (free from rips, easy to read)	work is neat, organized and easy to read	work is somewhat organized but may be hard to make out/read	blank illegible insufficient to score
<b>Behavior</b>	works hard on task follows rules & controls behavior asks for help or clarification if needed	usually controls own behavior according to class rules <del>very little</del> teacher prompting	Sometimes controls own behavior but may need some adult redirection	disruptive doesn't control own behavior doesn't follow class rules needs great amount of redirection

Tammie Highman

# Math Rubric

	 Green Light	 Yellow Light	 Red Light
Representation	Illustrates the problem using numbers, pictures, and words	Illustrates the problem using numbers, pictures, or words	Can't illustrate the problem
Computation	Uses correct numbers to solve the problem; process and answer are accurate	Uses correct numbers to solve the problem, but process or answer is inaccurate	Uses incorrect numbers to solve the problem; process and answer may or may not be accurate
Communication	Clearly and accurately explains the process	Somewhat explains the process	Unable to explain the process

Melissa Franklin

## Tops and Bottoms

By Janet Stevens

Kindergarten Question: Identify the different vegetables that Hare and Bear planted. After tasting each vegetable, tally everyone's favorite vegetable. Is it a top, middle, or bottom vegetable? After completion of the class tally, create your own graph and explain which is most popular, least popular, and if there are any results that are equal. (The student will make a representation of the class tally.)

	1	2	3
Representation	The student isn't able to create a graph or use a teacher-made graph.	The student uses a teacher made graph or creates a graph with the help of the teacher.	The student independently creates a graph
	The student is unable to label their graph.	The student labels their graph with assistance.	The student accurately labels their graph.
	The student is unable to record information accurately.	The student records most information accurately.	The student records all information accurately.
Reasoning and Communication	The student is unable to interpret the graph.	The student interprets the graph for understanding of more and less.	The student interprets the graph for understanding of more, less and equal.

Rubric: Construct a graph arranging the volume of the fish bowls from least to greatest. 1

Commotion in the Ocean by: Giles Andrea \* use 6 bowls of varying volume/student finds volume of each

or Not Norman

Aspects	4 Got it!	3 Almost has it!	2 Confused	1 Does not get it
<p><b>Understanding</b></p> <p><i>Type of graph</i></p>	<p>Graph choice fits data well. Easy to interpret data</p>	<p>Graph adequately fits the data. Does not distort data Interpretation of data difficult</p>	<p>Graph does not fit data well. Data is somewhat distorted.  Interpretation Difficult</p>	<p>Graph does not fit data.  Seriously distorted</p>
<p><b>Organization</b></p> <ul style="list-style-type: none"> <li>• Title</li> <li>• X Axis-labeled</li> <li>• Y Axis-labeled</li> </ul>	<p>Title clearly names graph.</p> <p>X-axis labeled describes the unit used (container 1)</p> <p>Y-axis labeled</p>	<p>Title names graph</p> <p>X-Y axis-labeled satisfactory</p>	<p>Title and X, Y axis labeled but not relevant to data collected.</p> <p><i>Or one element missing: No title but XY labeled...</i></p>	<p>No title X/Y axis not labeled</p>
<p><b>Computation</b></p> <ul style="list-style-type: none"> <li>• Accuracy of volume</li> <li>• Accuracy of plotting data</li> </ul>	<p>Volume of each container accurately recorded.</p> <p>All Data accurately inserted into graph</p>	<p>Volume of one container inaccurately recorded</p> <p>One data item inaccurately recorded</p>	<p>Volume of two containers inaccurately recorded</p> <p>Two data items inaccurately recorded</p>	<p>Volume of three or more containers inaccurately recorded</p> <p>Three or more data items inaccurately recorded.</p>
<p><b>Explanation</b></p> <p><i>Oral presentation of reasoning</i></p>	<p>Student clearly explains each step of data collections and recording</p>	<p>Student has some misunderstanding in the process used to collect or recording data</p>	<p>Student accurately collected data but recorded it incorrectly on graph</p>	<p>Student inaccurately collected and inaccurately recorded data on graph</p>

Suppose there are 150 ants marching to find food. How many ways could you arrange the ants to help them get to the picnic quickly?



Factors of 150-1,2,3,5,6,10,15,25,30,50,75,150

Possible Arrays- 1x150, 2x75, 3x50, 5x30, 6x25, 10x15

Assess the students' ability to represent the arrays.




**"One Hundred Hungry Ants"  
Representing Arrays Rubric**

<b>Level of Performance</b>	<b>Terrific! 3</b>	<b>Almost 2</b>	<b>Keep Working 1</b>
<b>Understanding of Skill</b>	<i>Student was able to create 5-6 of the possible arrays.</i>	<i>Student was able to create 3-4 of the possible arrays.</i>	<i>Student was able to create 1-2 of the possible arrays.</i>
<b>Representation</b>	<i>Student was able to draw, write, or use manipulatives to represent the arrays that they discovered correctly.</i>	<i>Student was able to draw, write or use manipulatives to represent the arrays that they discovered with little difficulty.</i>	<i>Student had difficulty with drawing, writing, or using manipulatives to represent the arrays they discovered.</i>
<b>Communication</b>	<i>Student was able to explain their findings.</i>	<i>Student had little difficulty explaining their findings.</i>	<i>Student had difficulty explaining their findings.</i>

Cindy Ellsworth  
Kindergarten

# **Rubric for Not Norman: a goldfish story by Kelly Bennett**

**Question: How many fins do five fish have?  
Illustrate and label your answer.**

			
<b>Representation</b>	<b>Drew picture with labels (numbers, etc.)</b>	<b>Drew picture, but no labels or visa versa</b>	<b>No picture or labels</b>
<b>Communication</b>	<b>Can explain how problem was solved, with details</b>	<b>Can explain how problem was solved, but missing important details</b>	<b>Cannot explain how to get the answer</b>
<b>Computation</b>	<b>Answer is correct</b>	<b>Attempted to answer, but answer is almost correct</b>	<b>No answer</b>



Rubric Made Using:  
RubiStar ( <http://rubistar.4teachers.org> )

## Math Problem Solving - *The Doorbell Rang*

Teacher Name: kamm

Student Name: \_\_\_\_\_

CATEGORY	1	2	3
<b>Understanding</b>	Misses main concepts & underlying problem.	Understands some concepts, but misses others.	Solid understanding of problem and procedures for solving it.
<b>Strategies, Reasoning &amp; Procedures</b>	Doesn't know common strategies for solving the problem. Reasoning is hard to follow. Incorrect answer.	A plan for solving the problem is clearly understood & procedures and strategies are in place. Reasoning is correct except for minor problems.	Clear evidence of plan to solve problem & all strategies & procedures are understood. Clear reasoning.
<b>Communications</b>	Explanation is sketchy or may show confusion	Explanation show some understanding. Some details may be missing.	Explanation is clear and all major steps are present.



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<http://rubistar.4teachers.org/index.php?screen=TermsOfUse>

RubiStar Rubric Made Using:  
RubiStar ( <http://rubistar.4teachers.org> )

## Math - Problem Solving : One Hundred Hungry Ants

Teacher Name: **Mrs. Bennett**

Student Name: \_\_\_\_\_




CATEGORY	4	3	2	1
<b>Mathematical Concepts</b>	Explanation shows complete understanding of the mathematical concepts used to solve the problem(s).	Explanation shows substantial understanding of the mathematical concepts used to solve the problem(s).	Explanation shows some understanding of the mathematical concepts needed to solve the problem(s).	Explanation shows very limited understanding of the underlying concepts needed to solve the problem(s) OR is not written.
<b>Diagrams and Sketches</b>	Diagrams and/or sketches are clear and greatly add to the reader's understanding of the procedure(s).	Diagrams and/or sketches are clear and easy to understand.	Diagrams and/or sketches are somewhat difficult to understand.	Diagrams and/or sketches are difficult to understand or are not used.
<b>Mathematical Errors</b>	90-100% of the steps and solutions have no mathematical errors.	Almost all (85-89%) of the steps and solutions have no mathematical errors.	Most (75-84%) of the steps and solutions have no mathematical errors.	More than 75% of the steps and solutions have mathematical errors.
<b>Working with Others</b>	Student was an engaged partner, listening to suggestions of others and working cooperatively throughout lesson.	Student was an engaged partner but had trouble listening to others and/or working cooperatively.	Student cooperated with others, but needed prompting to stay on-task.	Student did not work effectively with others.
<b>Neatness and Organization</b>	The work is presented in a neat, clear, organized fashion that is easy to read.	The work is presented in a neat and organized fashion that is usually easy to read.	The work is presented in an organized fashion but may be hard to read at times.	The work appears sloppy and unorganized. It is hard to know what information goes together.

Date Created: Jul 23, 2008 09:55 pm (CDT)

What would happen if 25 ants quickly turned to go with a hey and a hi dee ho instead of one little ant? Create a model to show how many lines and how many columns in this array.

# Not Norman

Survey the students in class about their pets.  
Make a graph showing the different kinds of pets.

			
<b>Survey</b>	<b>Has tally marks and labels for animals</b>	<b>Has either tally marks or labels for animals</b>	<b>No labels and tallies are unclear</b>
<b>Graph</b>	<b>Has labels for animals and numbers</b>	<b>Is marked but labels are unclear</b>	<b>No labels and markings are unclear</b>
<b>Conclusion</b>	<b>Gives reason for conclusion</b>	<b>Weak reason for conclusion</b>	<b>No conclusion</b>