



## FLINTSTONE'S WRITING PROJECT

The following group project is to be worked on by no more than four students. You may use any materials you think may be useful in solving the problems but you may not ask anyone for help other than the people you have chosen to work with. This means you may not ask a tutor or any person other than those in your immediate group for help.

You are to type a response to the problem presented backing up your conclusions with mathematical reasoning, formulas, and solutions. Your grade will depend on how well you communicate your response as well as the accuracy of the conclusions. This project will be scored using the rubric on the last page of this document.

Please sign and date here to indicate that you have read and agree to abide by the above mentioned stipulations.

\_\_\_\_\_  
Student Name #1

\_\_\_\_\_  
Date

\_\_\_\_\_  
Student Name #2

\_\_\_\_\_  
Date

\_\_\_\_\_  
Student Name #3

\_\_\_\_\_  
Date

\_\_\_\_\_  
Student Name #4

\_\_\_\_\_  
Date

***YABBA-DABBA-DO!***

*Trey Cox and Scott Adamson ©2001*

# THE FLINTSTONES

**FRED FLINTSTONE  
342 GRAVEL PIT TERRACE  
BEDROCK, PREHISTORIA 12345**

**ARIZONA MATHEMATICS PARTNERSHIP  
C/O PROJECT TEACHERS  
2626 EAST PECOS ROAD  
CHANDLER, AZ 85225**

**DEAR STATISTICS ADVISORS,**

**I'VE BEEN WORKING AT MR. SLATE'S 'SLATE, ROCK, AND GRAVEL COMPANY' FOR OVER 30 YEARS NOW, BUT HAVEN'T BEEN ABLE TO PUT AWAY MUCH DOUGH. I HAVE STARTED MOONLIGHTING TO MAKE EXTRA CLAMS SO I CAN RETIRE AND EVEN BUY BEDROCK'S QUARTZSIDE BOWLING ALLEY. WHAT COULD BE BETTER THAN SPENDING MY TIME RUNNING A BOWLING ALLEY SO MY BUDDY BARNEY AND I CAN PLAY FOR FREE! YABBA-DABBA-DO!**



**I JUST GOT A JOB AS A FRUIT TESTER WITH THE GEODE ORANGE JUICE COMPANY. YOU KNOW I WOULD MUCH RATHER BE TASTE-TESTING BRONTO-BURGERS, BUT THIS WILL HAVE TO DO. THE GEODE ORANGE JUICE COMPANY BUYS ORANGES FROM DIFFERENT LOCATIONS AND THE AGATE ORANGE FARM HAS OFFERED TO SELL ITS ORANGES AT A VERY LOW PRICE. MY JOB IS TO DETERMINE IF THE ORANGES ARE SWEET ENOUGH FOR GEODE'S ORANGE JUICE. I HAVE LEARNED THAT A SAMPLE SIZE OF 1000 ORANGES WOULD BE OKAY. I HAVE VISITED ONE OF THE ORANGE FARMS THAT CONSISTS OF 25, 000 TREES AND THE TYPICAL TREE HAS ABOUT 1000 ORANGES. I TOLD THE AGATE PEOPLE TO PICK ORANGES FROM ONE TREE THAT I SELECTED RANDOMLY AND I THEN TESTED THE ORANGES AS I HAD BEEN TRAINED. A LITTLE MORE THAN 1000 ORANGES WERE IN THE SAMPLE AND THEY WERE PERFECT FOR JUICE. THE GEODE ORANGE JUICE COMPANY THEN BOUGHT ALL OF AGATE'S ORANGES BASED ON MY RECOMMENDATION. IMAGINE MY SURPRISE WHEN I FOUND OUT THAT THE JUICE PRODUCED BY THE COMPANY WAS FOUND TO BE TOO TART AND COULD NOT EVEN BE GIVEN AWAY TO DINO OR HOPPY, MUCH LESS SOLD FOR A PROFIT.**

**NOW MY DREAMS OF OWNING MY OWN BOWLING ALLEY ARE IN TROUBLE! I COULDN'T REACH THE GREAT GAZOO BECAUSE HE WAS BACK ON HIS HOME PLANET OF ZILTOX SO I REALLY NEED YOUR EXPERT MATHEMATICAL ADVICE. I HAVE BEEN BLAMED BY GEODE'S FOR THE TART JUICE; HOWEVER, I AM SURE THAT A SAMPLE SIZE OF 1000 ORANGES IS MORE THAN ENOUGH FOR A REPRESENTATIVE SAMPLE. IN FACT, I CONTACTED A WORLD-RENOWNED POLLING AGENCY, THE GIDDYUP**

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# THE FLINTSTONES

**ORGANIZATION, AND THEY REASSURED ME THAT A SAMPLE OF 1000 WOULD BE BIG ENOUGH IF THE SAMPLE WAS CHOSEN CORRECTLY. CAN YOU TELL ME IF I GAVE THE WRONG INSTRUCTIONS FOR SAMPLING? IF SO, PLEASE EXPLAIN TO ME WHAT WAS WRONG AND HOW I SHOULD HAVE DONE IT. BE SPECIFIC AND USE A DIAGRAM WHILE EXPLAINING BECAUSE I DON'T WANT TO MESS UP AGAIN!**

**BY THE WAY, IN ORDER TO GET THE JOB AT THE GEODE ORANGE JUICE COMPANY I HAD TO HAVE A PHYSICAL. I WAS AFRAID THAT THEY WOULD TELL ME TO LAY OFF THE DO-DO EGGS AND BRONTOSAURUS STEAKS, BUT YOU'LL NEVER BELIEVE WHAT HAPPENED! THE DOCTOR, DR. BLOODSTONE, INFORMED ME THAT HE NEEDED TO DRAW SOME BLOOD SO HE TOOK SAMPLES FROM MY FINGERS, NOSE, EARS, TOES, KNEES, HIPS, LIPS, CHEEKS, AND ELBOWS. I WAS GETTING A LITTLE BIT CONCERNED AND LIGHT-HEADED SO I ASKED WHY HE NEEDED SO MUCH BLOOD. I TRUST AND RESPECT DOCTOR BLOODSTONE BECAUSE HE HAPPENS TO BE THE EXALTED GRAND PHOOBAH OF THE LOYAL ORDER OF WATER BUFFALOES. HE EXPLAINED THAT HE SIMPLY WANTED A REPRESENTATIVE SAMPLE AND WOULD NOT BE SATISFIED WITH ANYTHING LESS THAN A SAMPLE OF 1000. WAS WHAT HE DID REALLY NECESSARY TO GET A REPRESENTATIVE SAMPLE? WHY OR WHY NOT?**

**IF YOU CAN HELP ME UNDERSTAND, I WILL HOPEFULLY BE ABLE TO MAKE THINGS RIGHT WITH THE GEODE ORANGE JUICE COMPANY SO I CAN STILL RETIRE SOON AND BUY THAT BOWLING ALLEY! PLEASE GET BACK TO ME BY \_\_\_\_\_.**  
**OH, BY THE WAY, DON'T TELL WILMA BECAUSE MY PLAN TO RETIRE IS A SURPRISE.**

**YABBA-DABBA-DO!**

"Twinkle Toes" Flintstone

P.S. A note from your enterprising and resourceful consultant: Make sure to address each of the following questions in your reply/explanation to Fred in addition to any other information you feel is important:

1. How can a randomly selected small sample of a population represent the behavior of the population?
2. What is the proper way to go about collecting a random sample in this situation?
3. Why is it important to get oranges from the exact trees that have been selected randomly?

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## **Writing Project Evaluation/Checklist**

Gateway checklist - these items must be present in order for the paper to be evaluated:

Yes	No	Expected Features
		1. Is the work all computer generated?
		2. Is there algebraic (symbolic), numerical (tabular), and graphical support included in the work?
		3. Is there a description of the solution(s)?
		4. Is the noise (i.e. grammatical, punctuation, spelling, etc. errors) level low enough to not cause communication problems?
		5. Is the project free of major errors?
		6. Is acknowledgment given where it is due, if appropriate?

Your final score will be calculated based on your performance on these features:

Very Good	Good	Poor	Features
			Clear and complete summary of the problem(s) to be solved <ul style="list-style-type: none"> <li>• Introductory paragraph lays the background for the problem situation and its solution</li> <li>• Shows why the question(s) to be addressed are important</li> </ul>
			Precise and well-organized explanation of how the answer was found including <ul style="list-style-type: none"> <li>• Assumptions (if appropriate)</li> <li>• definitions of mathematical terms</li> <li>• algebraic (symbolic) support</li> <li>• graphical support</li> <li>• numerical (tabular) support</li> </ul>

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Very Good	Good	Poor	Features
			The audience was kept in mind when making explanations/descriptions of the mathematical concepts and solutions.
			Solves each of the problem(s) that were originally asked and there are no obvious errors in the solution(s).
			Shows understanding of the mathematical concepts and their appropriate use.
			Complete use of graph mechanics including: <ul style="list-style-type: none"> <li>• labeled axes with units</li> <li>• labeled axis divisions</li> <li>• descriptive title</li> <li>• clear and descriptive legend</li> <li>• data points shown</li> </ul>
			Concluding paragraph summarizes the purpose of the project and the outcome. Briefly closes the letter by stating any limitations or suggestions for improvement.
			Style and readability demonstrates a quality of imagination and rigor that results in a distinctive project. The project shows a personal exploration and is creative/original.

Comments on quality of submitted work and how any problems might be resolved in future projects

Results of Assessment					
50	45	40	35	30	50 - All Very Good's 45 - At least 3 Very Good's and no Poor's 40 - At least 2 Very Good and no Poor's 35 - All Good's 30 - At least 3 Good's 0 - All Poor's

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