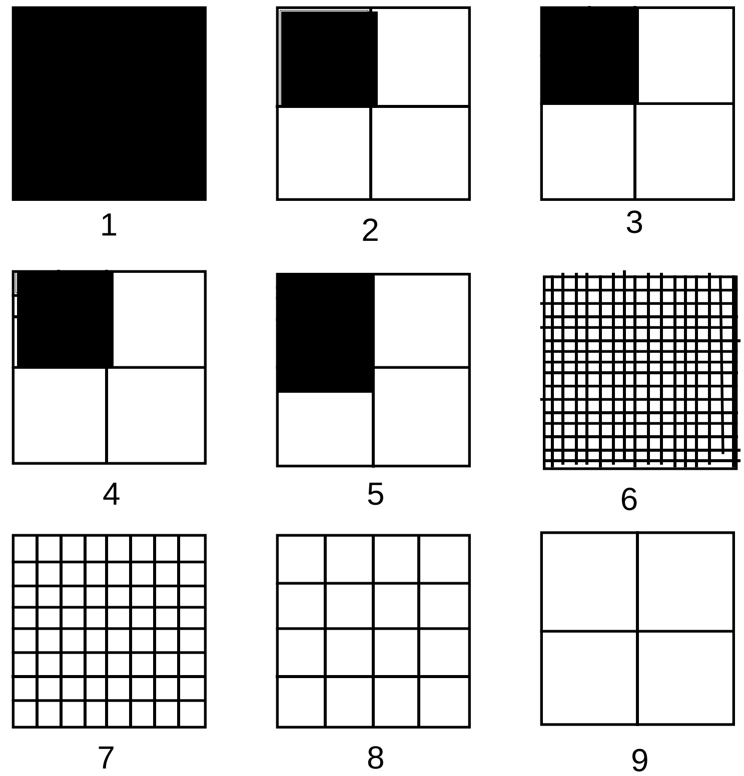
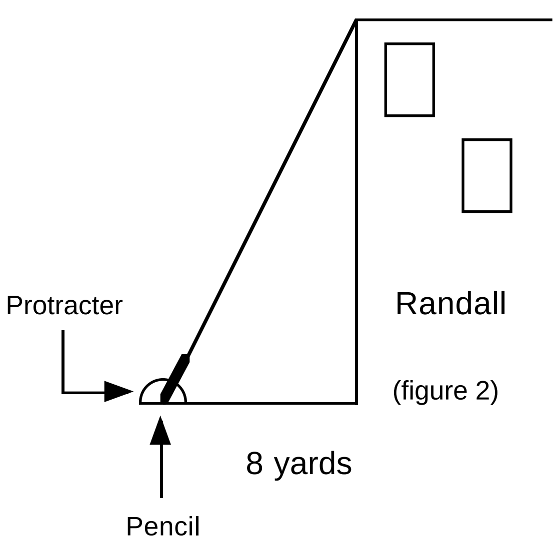
It Figures!

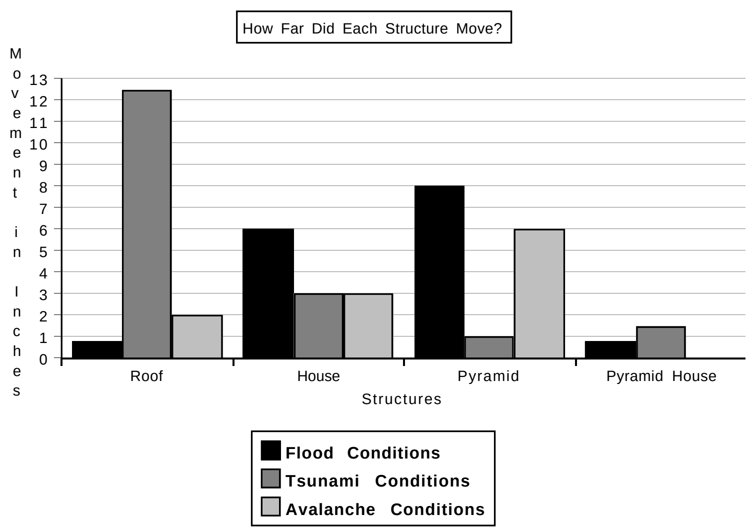
What letters are most commonly found in Alpha-bits cereal and in magazine articles?

Letter	Magazine Articles	Alpha-bits cereal
A	79	233
B	25	221
C	35	4
D	35	120
E	143	20
F	18	40
G	26	4
H	64	15
I	60	10
J	1	2
K	11	2
L	52	7
M	26	1
N	47	1
O	81	37
P	17	73
Q	0	99
R	64	93
S	56	1
T	82	6
U	30	2
V	10	2
W	22	3
X	3	25
Y	23	5
Z	0	10
Total	1010	1026



Mesuring the Angle





1
1 1
1 2x.5= 1 1
1 3x1= 3 3 1
1 4x1.5=6 4 1
1 5x2= 10 10 5 1
1 6x2.5=15 20 15 6 1
1 7x3= 21 35 35 21 7 1
1 8x3.5=28 56 70 56 28 8 1

It Figures!

How High Will a Bouncy Ball Bounce When Dropped From Different Heights?

by Mike Anderson and Andy Woodman, Country View Elementary School

Introduction

Our project is “How high will a one inch bouncy ball bounce when dropped from different heights?” Originally, Matt gave us the idea of how long it takes for a basketball to fall from a ten foot hoop. But we found out that the gym was not going to be open for a couple of weeks, so Mr. Gundlach suggested that we use a bouncy ball in our classroom. We then decided to do our project using a one inch bouncy ball, and to drop it to see how high it would bounce after being dropped from different heights. Andy’s original hypothesis was that the ball would bounce only six inches more for each foot higher that we dropped it. He thought this because he didn’t think the ball weighed enough to bounce very far back up. Mike thought it would always bounce about a foot less than how high you dropped it.

Procedure

To answer our question we:

1. got 3 yardsticks and a bouncy ball,

2. taped 2 yardsticks to a wall,

3. held the ball where we wanted to drop it from,

4. held a yardstick up to the wall where we thought it would bounce up to,

5. dropped the ball,

6. collected data and looked for patterns.

Our first step was to videotape the ball bouncing, and to use a yard stick behind it to measure how high the ball bounced. When we watched the ball bounce on T.V., it went so fast that the ball was in one place one second and soon after that it had moved so far you couldn’t even see it. So Paul told us that before dropping the ball we should place a yard stick horizontally above the ball near to where we thought it would go. It helped us a lot with measuring. We would probably still be working on it if it wasn’t for Paul. The materials we needed to use included three yard sticks, a one inch bouncy ball, and a data sheet. We also used a chair to hold the horizontal yard stick steady.

Results

See our table and graph.

We had not really planned to videotape until Mr. Gundlach told us that it might be easier to see how high the ball bounced if we videotaped the ball actually bouncing. We had some problems like losing the ball, trying to find our videotape, and not being able to see the ball bouncing on T.V.

Interpreting Results

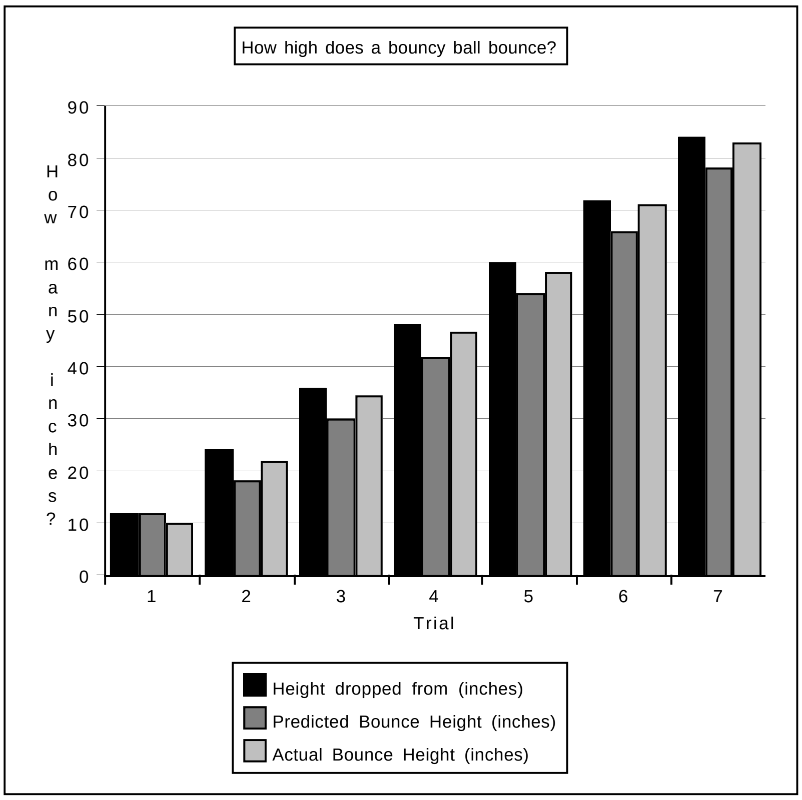
We discovered that every foot higher that the ball was dropped, it would bounce back up ten inches more. We also discovered that every time we bounced the ball that it might be losing some sort of a chip out of it. I think it did that because of the impact when it bounced. Maybe when it lost the chips it would change how it bounced.

New Directions

Mike: If I were to go futher with my project I would see if a bigger ball would affect the data. I would see if the data would change if I threw the ball down instead of dropping it, and see if the data would change if the ball was dropped on different surfaces like wood, carpet and cement.

Andy: If I had enough time, I would try putting the ball in water for about ten minutes to see what effect that would have on how high the ball would bounce.

How high will the ball bounce?		
Height dropped from (inches)	Predictions (inches)	Actual Height Bounced (inches)
12	12	10
24	18	22
36	30	34.5
48	42	46.5
60	54	58
72	66	71
84	78	83



Acknowledgments

The person who helped us the most would probably be Mr. Gundlach, because he suggested that we videotape our project and he let us use the tape, a bouncy ball and three yard sticks. Matt also helped by giving us the original idea of dropping a ball. Paul helped by suggesting that we not use the video and just use a ruler when measuring how high the ball bounced after being dropped.

It Figures!

How Much Does an Average Fourth and Fifth Grader's Backpack Weigh After a Week of School and Who's is Heavier?

by Elissa Notbohm, Lincoln Elementary School

Introduction

I'm Elissa and I'm in Dave Wirth's 4-5 class at Lincoln. I'm in fourth grade and my question is, "How much does an average fourth and fifth graders back-pack weigh after school for a week and who's is heavier?"

I got this question from brainstorming and thinking about how much homework we get and how much it weighs and I made it into a project.

So, for one week I weighed my back-pack and I asked my fifth grade friend in Sandy Waity's class to weigh hers.

The Procedure

My friend Kara and I weighed our back-packs on April 8, 9, 10, 11, and 14. (Tuesday-Friday and Monday).

On Tuesday the 8th, mine was 4 pounds, Kara's was 5 pounds.

On Wednesday, mine was 7 pounds, Kara's was 5.

On Thursday, mine was 6 pounds, Kara's was 5.

On Friday, mine was 7 pounds, Kara's was 6.

Then on Monday the 14th, mine was 6 pounds, Kara's was 5.

It Figures!

The Results

Then I averaged each of our weights by adding them and then dividing them by five because that's how many days we weighed our backpacks. My average was 6 1/2. Kara's was 5 1/2.

Interpreting Results

So for that week a fourth graders backpack was heavier than a fifth graders backpack by 1 pound.

New Directions

Some continuing questions that I have are, "How much, on average do fourth and fifth graders backpacks weigh after school for a month and who's is heavier?" "How much do fourth and fifth graders' backpacks weigh after each day of school (using a whole class) and who's is heaviest?" And, "What are the average contents (by books, papers, homework etc.) of fourth and fifth graders' backpacks after school?"

Acknowledgments

A special thanks to Kara Gleason.

Is It Really News?

by Brett Myrland, Country View Elementary School

Introduction

My "It Figures" project is an area problem. I picked it because I like area problems the best. My question was, "Is there more area of text or photographs on the front page of a newspaper?". My hypothesis was that there would be more area of text than photos because the text explains photos, and because there are more writers than photographers who work for the newspaper. Also they don't know what is going to happen in the future so the newspaper might not have time to take a picture of it.

Procedure

For my research I got four Wisconsin State Journals and one Janesville Gazette. I measured the front page of all of the newspapers. First I measured the area of the whole front page of each paper. Then I measured the area of the photos on each page and subtracted the photo area from the total area and that gave me the text area.

I used a plastic see-through grid to do my measuring. It was made from an overhead projector sheet and had 18 cm on one edge, and 22 cm on the other edge. The total area of the grid was 396 square centimeters.

I was able to put it right on the paper and count the grid squares that covered the area. That was a really fast thing that I could do to measure square centimeters!

Results

Sample	Area of Photographs	Area of Text
	(square cm)	(square cm)
State Journal #1	369	3516
State Journal #2	304	3248
Stae Journal #3	319.5	3233
State Journal #4	350	3202
Janesville Gazette #1	549	3003

Interpreting Results

In looking at my results there are some patterns that I noticed and here are some of them. Every sample had almost ten times more text than photo area. The amount of photos compared to text was the same in all of the Wisconsin State Journals, like they have a rule they follow. The Janesville Gazette had more photograph area than the Wisconsin State Journals.

It turns out my hypothesis was right! All of the papers had much more text than photos. The papers may have a rule that they use to decide how much text or photos to put on a page.

It's possible that the Janesville Gazette does not have as much news to cover since many people in Janesville read the Wisconsin State Journal. Maybe the Janesville Gazette uses more pictures because more customers will buy it because they like pictures.

New Directions

You could write to the Wisconsin State Journal and ask if they do have a rule that tells them how much photos and text to put on the front page.

Acknowledgments

I need to thank my parents and my teacher for all the support they gave me in this project.

Creating Fractals

by Caitlin LaFlash, Randall School

Introduction

Hi! My name is Caitlin. As you know, I'm working on a project with fractals. I think Mr. Wagler gave me the idea of working on fractals, but the idea grew by looking through old It Figures! journals and finding a lot of articles on fractals. In those articles, I noticed that they were just drawing the fractals and seeing how they looked. I wanted to do something more. Finally I thought of a problem: How do you mathematically create a fractal?

Two Steps to Fibonacci Numbers

I started looking through a book called Fractals in the Classroom. I was looking at two-step problems and I came across a really neat example: there is one pair of rabbits which are born at time 0. After one month that pair is mature, a month later the pair gives birth to a new pair of rabbits, and continues to do so as every month a new pair is born to the original pair. Moreover, each new pair of rabbits matures after one month and begins producing pairs of offspring every month after that ad infinitum. One assumes that the rabbits live forever. What is the number of pairs after n months? I started that problem. Here it is:

Weeks	Young	Adults	Total
0	1	0	1
1	0	1	1
2	1	1	2
3	1	2	3
4	2	3	5
5	3	5	8
6	5	8	13
7	8	13	21
8	13	21	34
9	21	34	55
10	34	55	89
11	55	89	144
12	89	144	233
13	144	233	377
14	233	377	610
15	377	610	987
16	610	987	1597
17	987	1597	2584
18	1597	2584	4181
19	2584	4181	6765

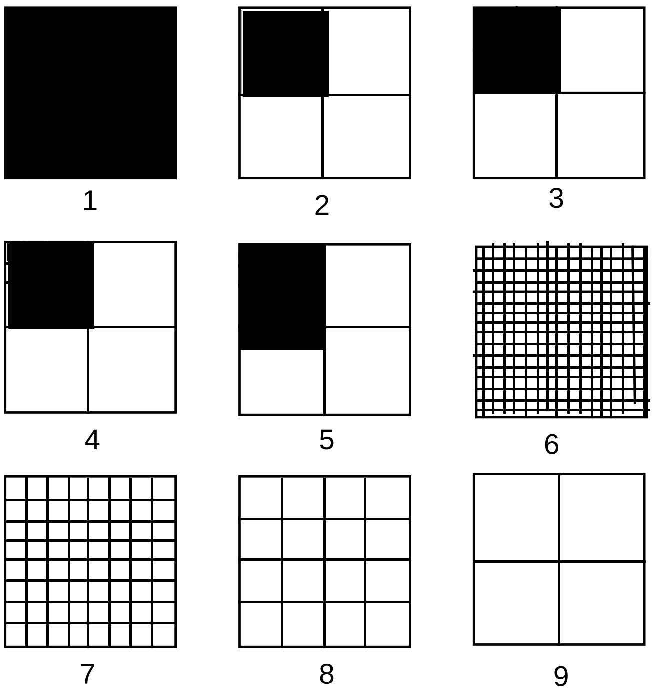
In this graph you can see in the "young," "adults," and "total" columns the numbers in the Fibonacci sequence. Did you understand this two-step problem? Here is how it works.

First you have to understand the question. Once you understand that, you can look at the chart and try to figure it out. Believe me, understanding the chart is not easy. Okay, it goes like this: At time zero there is one pair of young rabbits, and of course no adults. After another month, the young rabbits turn into adults. The total is still one. Now at month two the adult pair have babies and, since the original pair are still alive, the total is now 2. As you keep on going with this chart you will find a pattern. The pattern is—let's say we are working on line 9 in Figure 1—line 8's total goes down to line 9's adults and line 8's adults goes down to line 9's young.

Homemade Fractal

A couple of days ago, while I was doodling, I made up what I think is a very simple fractal. I think Figure 2 is a fractal because of self-similarity. All the squares, whatever their size, are similar in shape. Each shaded square in the first 5 boxes is also one-fourth the size of the shaded square in the previous box. The size of each shaded square is 1/4n where n = the number of times each smallest square is divided into four sections. The self-similarity, moving in either direction, large to small or small to large, is ordered by a factor of 4.

It Figures!



Conclusion

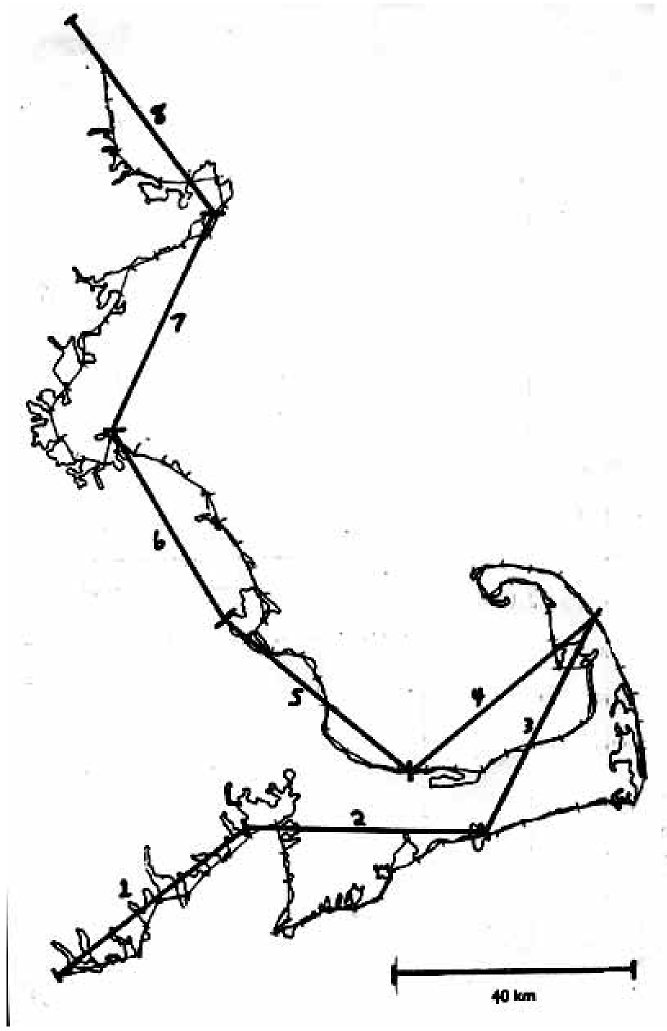
I didn't answer my question entirely, but I have a better understanding of fractals. And for those people reading this right now, try this project. It's very fun.

Bibliography

Fractals in the Classroom by Even Maletsky, Terry Perciante and Lee Yunker; Beyond Numeracy by John Pauls; and Chaos: Making a New Science by James Gleick.

Acknowledgments

I would like to thank Mr. Wagler, my parents Sue and Steve, Judy Tuohy, Tim K. Marks, and Thipp Kommavang.



Massachusetts Coastline

I found a packet on fractals which contained an activity that I read and worked on. This is what it is about: A high school physics teacher, Tim K. Marks, first introduced fractal geometry by having his students measure the shore line of Massachusetts. Some wanted to actually go and measure the whole shoreline, but eventually they would measure the fractal shoreline.

I used a compass for this activity. As Figure 3 shows, the thick line is the longest and it hardly goes in any nooks or crannies. But the thin line goes in those places. So the smaller the line segments, the closer it gets to the real coastline. I have made lots of these coastlines but I think that this is the one I want to show you. As you follow the skinny line around, you can see it goes a lot of places where the thick line can't go.

Marks also recommended some books. Two that I don't have are: The Physics Teacher and The Science of Fractal Images. He also recommended two I've been working with: Chaos: Making a New Science and Fractals in the Classroom.

Math Magician

by Charlotte Elder, Randall School

There once was a Math Magician. His name was Lazona, the Math Wizard.

He wrote tons and tons of math books and he published them all. This is how it goes: 1x1=1, 1x2=2, 1x3=3, and 1x4=4. Then he got to the harder multiplication problems and it goes like this: 7x7=49, 8x8=64, 9x9=81, and 10x10=100. He loved that one, his favorite multiplication problem, 10x10.

Lazona's been a Math Magician for 22 years. One of his favorite books he wrote was Multiplication Is the Name. This is how it goes: 6x7=42. "Multiplication Is the Name," you flip the numbers around like this: 7x6=42. Then Lazona says, "You get the same answer. Then you go like this, 3x2=6, but you can flip them around. If you have 5x5 you can't flip them around because they're the same numbers."

His other favorite book is called Math Fractions.

"This is how it goes. You make a drawing of a pizza, a pie, or you can just make a circle," said Lazona. "This is 1/2 of a pie and the next one is 1/4 of the pie," said Lazona. "And very last is 1/3 of the pie." said Lazona.

Lazona says to a friend, "I love multiplication and fractions," and Lazona says, "That is what I am all about." "About math," says Lazona, Math Wizard.

The next day Lazona woke up right away and he didn't know why because he was thinking he had something to do. He had to perform at a concert. Lazona said to himself, "I am bored, I don't have anything to do." So then an idea popped in his head. He said, "I am going to make a book today." So then he said, "I will make a book about addition, even though I have written tons of books about addition, but they are from seven and eight years ago." So he said that he was going to call it Addition and Addition. He named it that because he didn't have another name.

So he said it goes like this: 3+5=8 and 7+2=9 and 10+10=20 and 8+9=17 and 9+3=12. It just kept on going and going with addition problems. But then he said, "I will stop with addition problems and I will get that book published." So Lazona went and got the book published. When he came home he went to bed.

Soon as Lazona laid his head on the pillow the phone rang. Then Lazona answered it. It was Dorothy Raines and she said, "Lazona, Math Wizard, please come to my class on Friday the 10th!!"

The next day was Friday the 10th and he was supposed to go to Mrs. Raines' class today but Mrs. Raines didn't tell him what time to come, so he called Mrs. Raines at her home and asked her what time shall he come. Mrs. Raines said at 1:15 till 1:35 and Lazona said, "OK, Dorothy, I will be there."

So they both hung the phone up. It was 9:30, so he had plenty of time to get ready. He said, "I will go in the kitchen and fix me some eggs, grits, bacon, and biscuits." And Lazona said, "I will have some lemonade to go with my breakfast."

When he was done eating, it was a quarter to ten so he said he has to go to his appointment at 10:15 and he has to go to the drug store now. He got into his great big van and went to the drug store. He had to buy some breath mints and pick his medication up at the pharmacy that's in the drug store and he had to get himself a cold grape pop. He went up to the counter and got his stuff paid for. He looked at his watch. It was 11:57 and he said "Oh my god, I missed my appointment with the doctor! I have to call and ask them to reschedule my appointment because I won't be able to make it. Lazona said, "I have to get home because I only have two hours to go, then I have to go to Dorothy's class at Ridge Right School."

So when Lazona went home he said, “What I am going to wear? I think I am going to wear my black suit and my purple shine shoes, my purple and black tie, and my black leather jacket. He looked at his clock on his wall. It was 12:35. He said, “In one hour I have to go.” When he got there he showed them math tricks and he came home after that and went to bed.

How Many Fish Are in a Lake?

by Cody Newton, Country View Elementary School

Introduction

My question came from Mr. Gundlach, my teacher. He gave me a packet of ideas, and I chose a project called “Something Fishy.” It’s about making a simulation on figuring out a new way to estimate the number of fish in a lake. I chose my project because I understood it, knew what it meant, and thought it would be fun. I think my project is meaningful because it can find out a new way to find the number of fish in a lake and really help the DNR (Department of Natural Resources). At the beginning I didn’t have a solution, and I still can’t think of one.

Procedure

The materials that I used were: a box with a lid, a blindfold, lots of Unifix cubes, my notebook and a pencil.

These are the steps that you need to follow to do my project:

1. Set up a simulation lake with an unknown number of fish. In my lake, yellow Unifix cubes stood for untagged fish. At the beginning, all of the fish should be yellow.

2. Put the cubes in one of the boxes.

3. Take the blindfold and put it on. Then take some fish out of the box. By “some” fish, I just mean a handful.

4. These fish you “tag” by changing the color of the Unifix cubes to green. This is sort of like when the DNR tags fish by clipping their fin. Put the tagged fish back into the box.

5. Keep doing that eight times.

6. Each of the eight times you will record your data, like how many fish you catch tagged, and how many you catch untagged.

7. Look at your data and try to figure out how many yellow fish you started with.

Results

I didn’t finish my project but my results are:

Untagged fish caught	Tagged fish caught	Total fish caught	Fraction that were tagged
4	0	4	0/4
6	0	6	0/6
5	1	7	1/7
5	2	7	2/7
5	2	7	2/7
6	2	8	2/8
7	4	11	4/11
4	2	6	2/6
9	6	15	2/15

Interpreting Results

I have guessed with my information that there are 105 fish in my lake. This is how I calculated my guess:

1. I added the first three columns in my chart.

2. I determined that I caught a total of 70 fish. Of those, 51 were untagged, and 19 were tagged.

3. I figured that 51 is about 75% of 70. So that means I caught about 75% of the fish in the lake.

4. Then I figured that 70 is about 75% of 105.

After I collected my data and made my table, I was stuck for a long time. I encountered big problems figuring out how to estimate with our data. I didn't know it was going to be so hard. I'm not sure if my answer is correct.

New Directions

Mr. Gundlach told me to simulate other made up lakes and try them out. Another investigation that could be done is to follow the same directions, except make sure each sample is closer in size to the other samples. Maybe you can see if you can figure out a way to make a better lake simulation, or a better project.

Acknowledgments

I would like to thank my teacher, Mr. Gundlach who helped set up things. I'd also like to thank Brett Myrland, who helped do the project with me. I would also like to thank my mom for giving me encouragement, and for helping me decide on my project.

Understanding Trigonometry

by Colin Koffel, Randall School

Introduction

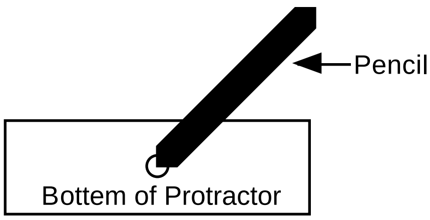
Hi, my name is Colin. My "It Figures!" project is trying to understand trigonometry by reading a trigonometry book by Larson/Hostether. I decided to do this as a project because I like hard math and I have always wanted to learn more about trigonometry.

Procedure

At first I started trying to figure out the heights of things, but my teacher, Mr. Wagler, suggested that I read about trigonometry instead of just doing it.

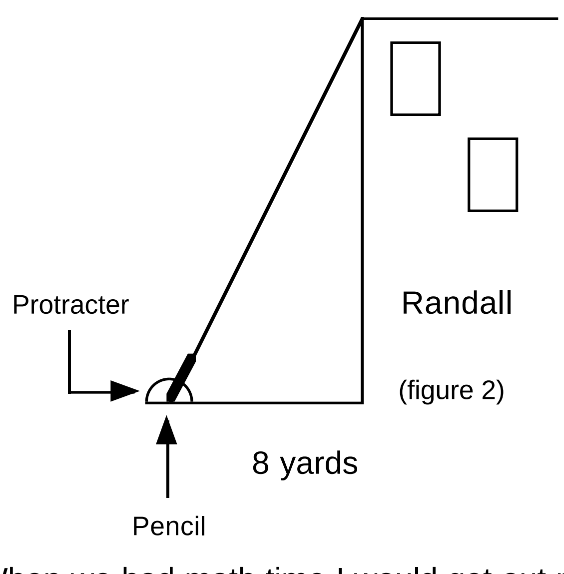
If you don't know what plane trigonometry is, I will tell you. Plane trigonometry is the math of a triangle. With trigonometry you can measure heights of things like buildings, flag poles, etc., so you don't have to use a tape measurer and climb up the building.

Let's say I wanted to find the height of my school, Randall. I would go back 8 yards (24 feet), take a protractor, and put its center on the end of the 8 yards. Then I would take a pencil and put the end in the bottom center bar of the protractor (see figure 1). Then I would move the other end of my pencil up and/or down so the top of my pencil pointed at the top of Randall (see figure 2). Then I would look at the angle on my protractor, which was 68°. Next I would look up the tangent of the angle 68°, which is 2.4751. Then I would multiply the tangent (2.4751) times the distance away from Randall (8 yards). Randall School is 59.4024 feet tall (19.8008 yards).



(figure 1)

Mesuring the Angle

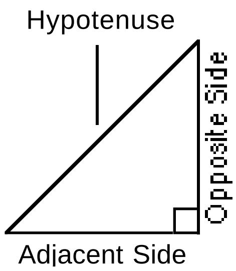


(figure 2)

When we had math time I would get out my "It Figures!" notebook, my trigonometry book, a dictionary, and my sketch diary. Then I started reading my trigonometry book. I started with the first chapter, which is called "Prerequisites for Trigonometry." In the first section, called the

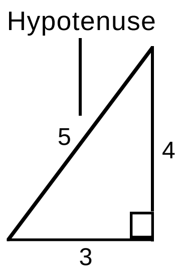
"Real Numbers System," I learned about real numbers and subsets of real numbers, like rational and irrational numbers, integers, etc. After I got past that section, Mr. Wagler suggested that I move on to chapter two, which is called "Trigonometry." Then Mr. Wagler told me to go directly to "Trigonometric Functions of an Acute Angle" (see figure 3).

Acute Angle Triangle
(figure 3)



He told me to study page 107, which taught me about the Pythagorean Theorem. The Pythagorean Theorem says that the hypotenuse squared equals one leg squared (adjacent side) plus the other leg squared (opposite side). The book uses a little different formula with the famous three, four, five (3,4,5) triangle (see figure 4). The formulas that they used for the 3,4,5 triangle is the hypotenuse = $\sqrt{3^2 + 4^2}$. That equals $\sqrt{25}$, which equals 5, so the hypotenuse equals 5!

3,4,5 Triangle
(figure 4)



New Directions

If I did this project again I would start off by reading a trigonometry book right away and try to get as far into it as I could. I think it would also be fun to focus just on the Pythagorean Theorem.

Conclusion

I hope that other kids who like hard math will dig down deep into trigonometry. I think trigonometry is fun, hard, and rewarding, especially when you understand something you didn't understand.

Acknowledgments

I would like to thank Mr. Wagler for giving me the idea and helping me through the tough parts of trigonometry, Thipp Kommavang for helping me write this article, my dad, John, for typing this article, and Ms. Hatle and Maya Kadakia for editing it.

Learning About Fish

by Eric Joseffson, Lincoln Elementary

Introduction

I like to fish so I wanted to do something on fish. I wanted to know more about fish. When I was little, I went fishing. I've fished all my life. I would like doing it. It would be fun for me. I have caught every one of the fish in my project except for the muskie and the pin fish.

Procedure

I am not done with my question, but I went to the library for books. I used a big piece of paper, a pencil, and colored pencils. I looked in a book on fish and found the exact length of five different fish. I drew the fish using the the scale model in the book. One fourth of an inch equals one inch. I got a big piece of paper and drew the fish. I wrote the length of each fish. I colored the fish the color they were in the book.

Results

I didn't know I was going to make a mobile, but my teacher suggested I do that. I'm not done with that part of the project yet. I had a hard time drawing my fish because I'm not a very good drawer and I wanted it to be good quality. It took longer than I thought to draw the fish. Once the fish were done, I liked the way most of them looked.

Interpreting Results

By doing the project, I learned I liked fish more than I thought I did. I found out I know more about fish than I did before. Most fish don't have teeth. All fish have different shapes from one another. Fish can have a whole range of colors.

Some fish have unusual characteristics. For example, a mudskipper can skip on land, the whale shark eats plankton, and a flying fish can leap out of the water.

New Directions

If I did the project over again I would draw each of the fish as big as they could possibly get. I would ask myself if I could catch every one of those fish except the pinfish.

Acknowledgments

My Dad encouarged me by going fishing with me. And Mr. Jeff helped me by giving me ideas. Sandra Cole helped me by helping me draw the fish.

Patterns in Pascal's Triangle

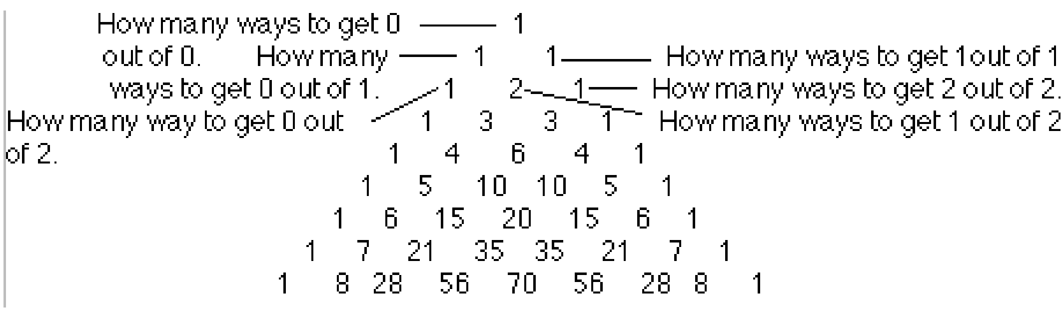
by Fang-Xin Li and Billy Her, Randall School

Our question is, "How many patterns are in Pascal's Triangle?" We got the question from Mr. Wagler when he told us that Pascal's Triangle could be a great "It Figures!" project. We learned more about Pascal's Triangle as we read about it in past <u>It Figures!</u> articles and in books like <u>Beyond Numeracy</u> and F<u>ractals</u> <u>for</u> <u>the</u> <u>Classroom</u>. We expected to find an infinite number of patterns because we thought the numbers are infinite so there should be an infinite number of patterns.

Every number in Pascal's Triangle is formed by adding the two numbers above it, except for the 1's on the side. This triangle was first discovered by the Chinese in 1303, published in a Chinese version, and known as the arithmetic triangle. In 1527 the Europeans discovered the arithmetic triangle.

Blaise Pascal, a great French mathematician and scientist, rediscovered the arithmetic triangle and named it after himself, and that was how it got its name. He made a lot of discoveries about the triangle. In fact, the first pattern we are going to show you is one of his discoveries. Blaise Pascal used this triangle to solve some problems about chances in gambling, by finding a special pattern that is about chance.

Now we are going to show you this pattern. You see in this pattern the first and only 1 on the first line tells how many ways can you take 0 items out of 0 items. On the second line the first 1 is how many ways to take 0 items out of 1 item, the second 1 is how many ways to take 1 item out of 1 item. On the third line, the first 1 is how many ways to take 0 items out of 2 items, the second number in the line which is 2 is how many ways to take 1 item out of 2 items, and the last 1 in the line is how many ways to take 2 items out of 2 items.

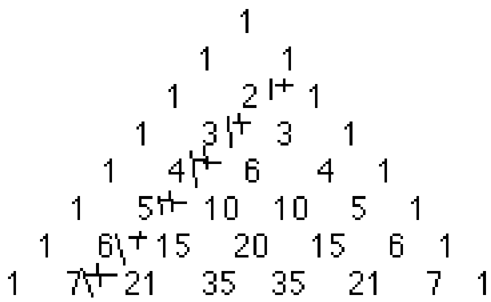


This was what Mr. Wagler told us to let us understand more about Pascal's Triangle. At the beginning, it was really hard for us to find patterns, and then later, when we understood more, we found a lot of patterns, and it got easier. We used a pencil to make a lot of Pascal's Triangles—when we found a pattern we put it on a triangle and wrote about the pattern we found. We used a ruler to make sure the numbers in the triangles were straight. We used a calculator to see if the numbers really make a pattern.

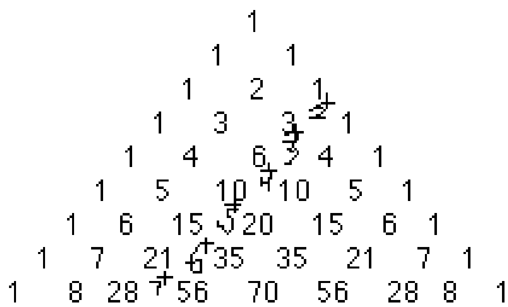
We found two adding patterns—well there are even more, but the others are related to the first

It Figures!

two we found, and we didn't try to find how the numbers fit together in the other adding patterns.

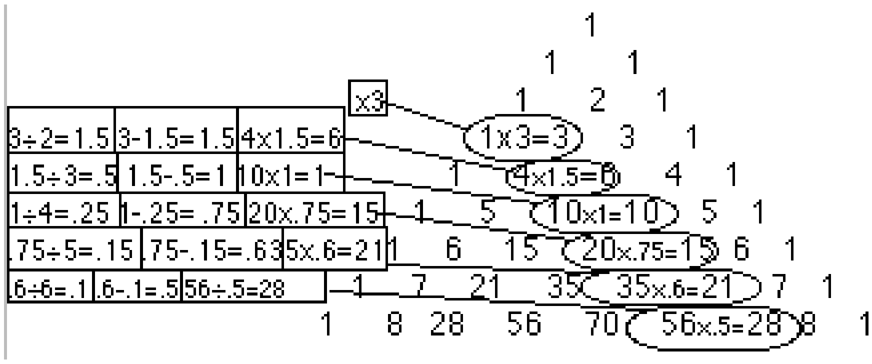


The above pattern is in the second diagonal line (both the second slanted right and the second slanted left) of the Pascal's Triangle, each time when you go to the next number in line the number is 1 more then the number before it in the diagonal line.

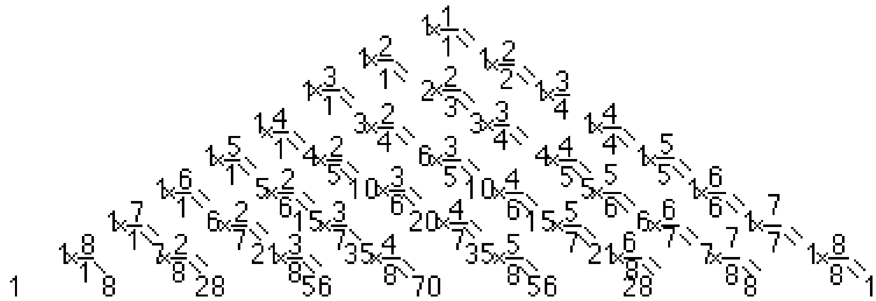


The above pattern is similar to the one above. But now we are working with the third diagonals (both the third slanted right and the third slanted left). Instead of adding 1 every time you start by adding 2 then 3 then 4, every time when you add you add 1 to the number you just added with and then you add it to the number you just got then you get the number next in line.

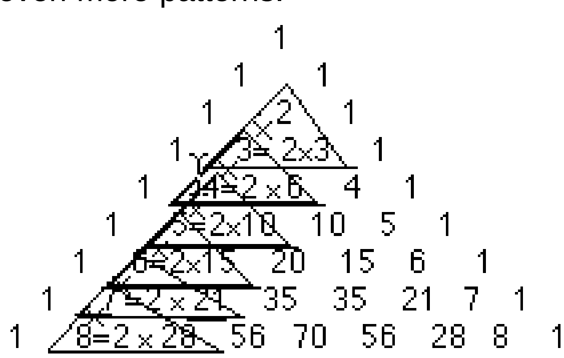
Some patterns are easy, some are hard, and some are really hard. The hardest pattern we found was so hard that it took both of us about two weeks to understand it. Now, we are going to show you the pattern. It's a four step pattern. At first we thought it was a simple one-step pattern,



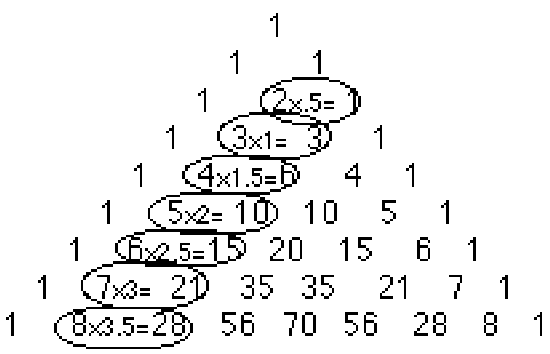
but we found that didn't work, and then we found that it was a hard four-step pattern. First you add, then you divide, then you subtract, and at last you multiply. Although we can do the calculations for figure 4, we still haven't found an easy enough way to explain this pattern.



Now we are going to show you these multiplication patterns. This pattern we think is one of our two best discoveries. It is made out of an infinite number of patterns, one from each diagonal line of the triangle. Between these patterns there are even more patterns.



In this pattern you multiply the two numbers next to each other in the diagonal line next to the line of 1’s. For example, in row 6 (with numbers 1, 5, 10, 10, 5, 1), if one takes 2nd number (5), multiplies it by the 2nd number in the previous row (4), and divides the product by 2, the answer is the 3rd number in row 6 (10). This patterns works for every row beginning with row 4.



This pattern you start with multiplying a number in the triangle by .5, and then you get the number on the right side of it. You have to add .5 every time you multiply and then you will always get the number on the right of it.

Our hypothesis was right because we found the pattern that contains an infinite number of patterns. Well there are more than an infinite number of patterns because we found a huge pattern which contains an infinite number of patterns in it—and we also found other patterns and that means there are more than infinity. So our hypothesis was in one way right and in another way it’s wrong.

If we had to do our project over again, we would know how to do it better and we would make the graphs bigger and wider so other people can see it better but we have to go with what we got.

We think we did really good on the Pascal’s Triangle and we would like to thank our teacher Mark Wagler for helping us understand the Pascal’s Triangle.

Civil War Casualties

by Greg Allison, Lincoln Elementary

Introduction

One day I was talking to my friend, Joey, about “Great Blue” projects. Then, last year I remembered that he did a really neat project. His question was, “If every casualty in World War II was a 2 litter soda bottle, how far would that go?” I started thinking about doing something like that, but without copying him. After a while, this is the question I came up with, “If every casualty in the Civil War was a football field, how far would that go?” The reason I picked the Civil War was because I have always been interested in the Civil War. The reason I picked the football field for each casualty was because I am really interested in football. The reason I picked this kind of really hard math project was because I love math. I also like mixing math with geography. That is why I did this project.

Procedure

I did a lot of things to answer my question, but first I had to meet with Mr. Jeff (our teacher). The conference was on February 25. The conference was about how to do the math, ie; converting football fields into mileage. Then we started to talk about how unreal my project seems if each casuality was a football field. I would impress people a lot more if the casualities were about average size for a human. Then, after a while, we decided to change the football fields into six foot humans, since we thought that was about the average height for a human.

First of all, I met with Joey. He was the one who did a project like this last year. He gave me some ideas like setting the casualties on interstate roads and rivers. Then, I looked in books for how many people died in the civil war. I found one book called The Civil War. It told all of the casualties of every battle. The one problem in the book was that the author didn't know how many people died in a few battles.

Another problem I encountered when I did this project is afterward, when I conferenced with Mr. Jeff, I found out that my results for "as the crow flys" was not accurate at all. I measured with an angle on some of the measurements, so it messed up my some results. Those were my main problems when I tried to answer my question.

I used many different materials when I did this project. When I started out, I used a world map. Then I started to conference with Mr. Jeff. After I had just started to translate the casualties into miles, I decided I couldn't use a world map because the key was too small and there weren't so many six foot casualties that they would stretch to the other side of the world. So I decided to use a U.S.A. map. After that, I got to work.

Results

First of all, I converted the 183,148 casualties for the Union and the 122,482 casualities for the Confederate into mileage by taking the number of casualties and multiplying them by 6 (pretending they were each 6 feet tall). Then I divided the sum, 1,098,888 for the Union and 734,892 for the Confederate by 5,280 because that is the number of feet in a mile. Then, I got how many miles it would go (208 miles for the Union and 140 miles for the Confederate). So I took that number, and I got a ruler. The ruler was used to measure the exact length on the key of the map.

These are the results for "as the crow flies" I got when I lined them up North, East, South and West, always starting from Madison, WI. Going straight North, all of the causalities in the Union lined up from head to toe would stretch to Lac du Flambeau, WI. Going straight West, the Union would stretch to Mason City, IA. Going straight South for the Union would stretch to Lincoln, ILL. Going straight East for the Union would stretch to Belding, MI.

This part is for the Confederate. Going straight North for the Confederate would stretch to Merril, WI. Going straight East for the Confederate would stretch to the middle of Lake Michigan. Going straight South for the Confederate would stretch to Lacon, IL. Going West for the Confederate would stretch to New Hampton, IA.

After I did this, I decided to see how far it would go if you stretched out the causalities on Interstate Highways and rivers. Here are my results for the Union. Going on Interstate 94 towards St. Paul, would go to Menominee, WI. If you went on Interstate 90 towards Chicago for the Union , would go to Michigan City, IN. If you started in Minneapolis and went on the Mississippi River for the Union, it would stretch to Prarie du Chien, WI.

If you went on Interstate 94 towards St. Paul for the Confederate, it would stretch to Osseo, WI. If you went on Interstate 90 twards Chicago for the Confederate, it would stretch to Michigan City, IN. If you started in Minneaplos and followed the Mississippi river for the Confederate, it would stretch to La Crosse, WI. These are all of my results when I did this project.

Interpreting Results

I did not have an original hypothesis, so I can't say if my original hypothesis was right, but I did find some surprises in my inquiry. Here they are. I had no idea if you lined up all of the causalities in the Union, it would stretch all the way to northern Wisconsin. (And that's not even all of the causalities for the Union!) I am also surprised with the Confederate causalities for stretching so far.

New Directions

If I could do this project all over again, I would start earlier because if I did that, I could see how far all of the causalities would stretch for one individual battle. Then I could get more data and that would be really interesting. I would also try to look in more Civil War books to compare the number of casualities and try to figure out an average.

Acknowledgments

I would like to thank all of the people that helped me on the way. Those people are Mr. Jeff, my teacher. I liked how he had conferences with me and helped me change a few things. I would also like to thank Joey Ghilardi. If he had not done what he did last year, I would not be doing this. Once again, thank-you.

Which Letters are Most Commonly Found in Alpha-Bits Cereal and in Magazine Articles?

by Becky Rost and Holly Fitzgerald, Country View Elementary School

Introduction

Our names are Holly and Becky. We were interested in fractals, so our first question was, "What do Fractals have to do with math, and how do you make them?". We were having trouble finding information, so we changed our question. Our new question is, "Which letters are most commonly found in magazine articles and in Alpha-Bits cereal?".

We found our idea in a packet that Mr. Gundlach gave us, but we changed it to the way we wanted it to be. We chose this project because we thought it sounded interesting and fun. Our project is meaningful because we wanted to see what letters are most commonly found in magazine articles and alphabet cereal. We think this could be important to the makers of Alpha-Bits cereal because if they use one letter too much, the machine will probably break down first. Also, if they want to have more of a variety in their cereal, they will know what letters to use more.

The magazine data could be useful to keyboard makers, because if one letter is used more than another they can put it in an easy to reach spot. If they want to make better keyboards, they would know where to put each letter.

We predicted that there would be the mostly A's, B's, and C's in Alpha-Bits Cereal. We thought so because, on the front of the box they came in, it showed a picture with A's, B's, and C's. Another reason is that A's, B's, and C's are very familiar to little kids, and little kids like Alpha-Bits cereal.

In the magazine articles, we thought that E's, S's, A's,and T's would be the most common letters because of all the short words that are common in the English language, such as "the", "that", "so", "see", and "there".

Procedure

1. Buy a box of Alpha-Bits cereal without marshmallows.

2. Sort the cereal into piles according to their letter.

3. Count the total in each pile.

4. Make a table and graph to show the results for the cereal.

5. Randomly choose three magazine articles and type them on a computer. Make a space after every letter so that they will be easier to cut out later on.

6. Print the articles out and then select the same amount of letters as there were in the cereal.

7. Make a table and a graph to show the results for the magazine articles.

It Figures!

What letters are most commonly found in Alpha-bits cereal and in magazine articles?		
Letter	Magazine Articles	Alpha-bits cereal
A	79	233
B	25	221
C	35	4
D	35	120
E	143	20
F	18	40
G	26	4
H	64	15
I	60	10
J	1	2
K	11	2
L	52	7
M	26	1
N	47	1
O	81	37
P	17	73
Q	0	99
R	64	93
S	56	1
T	82	6
U	30	2
V	10	2
W	22	3
X	3	25
Y	23	5
Z	0	10
Total	1010	1026

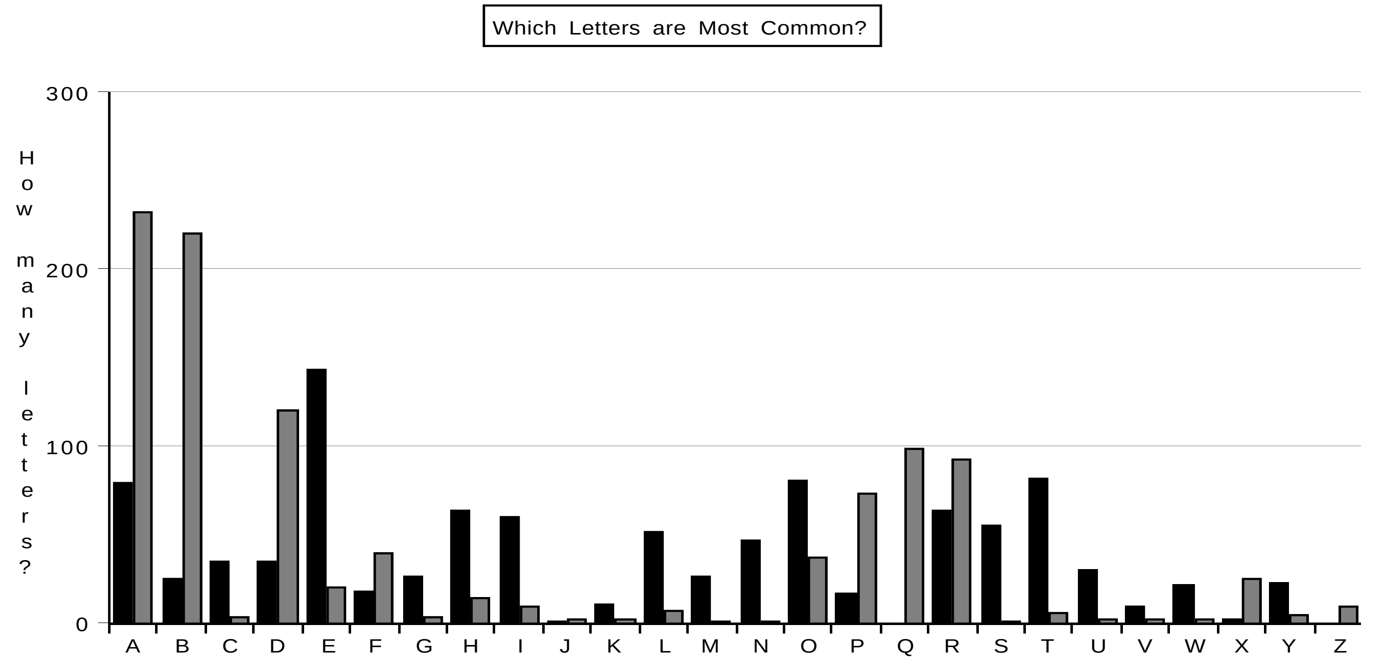
Results

Before we talked to Mr. Gundlach, we had no idea that we were going to do magazine articles with the alphabet cereal. We also didn't know that we were going to type up all the letters. We thought we were going to cut the letters right out of the magazine, but they were too small to handle. We had a few problems at first. It took a VERY long time to cut, count, and and sort. It took us way off schedule. Also, typing was a problem because we had to put spaces between the letters, and because we are not very good at typing. Luckily, during most of our Inquiry work time we had computers to use, but some of the time we didn't.

Interpreting Results

We noticed that J was one of the least commonly found letters for both Alpha-Bits cereal and magazine articles. We noticed that the rest of the data was different between the cereal and the magazine.

There were the most A's and B's in the Alpha-Bits cereal, and the most E's in the magazine article. Our hypothesis for Alpha-Bits cereal was



right. A's and B's were most commonly found. We were wrong about C because we thought it would be one of the most commonly found letters, but we discovered that it was one of the least. We think the cereal results turned out the way they did because A's and B's are familiar to most kids that would eat the cereal. We don't know why there were so many P's, D's, and Q's.

Our hypothesis for magazine articles was right. We predicted there would be the most E's, and we were right. One reason this might be is that we used an article that was about leeches. Also, as we said before, there are lots of short words that have E in them. There are also a lot of words with S's, T's and R's.

New Direction

If we did this project again we would buy Alpha-Bits cereal with marshmallows in it and see what letter is most commonly found in the marshmallows. Then we would compare our results to the cereal without marshmallows in it.

Acknowledgments

We would like to thank Mr. Gundlach, Mrs. Testolin, Kait and Kari Fitzgerald, and the classmates that helped us count, sort, and cut out all of the letters.

How Can I Use Variables to Create a Devil's Staircase Fractal in Logo Writer?

by Paul Allex, Country View Elementary School

Introduction

Tim, Chris, and I had the question, "How Can you make a Devil's Staircase using variables in Logo Writer?". Logo Writer is a computer programming language for kids. It uses a turtle to make lines and draw text. I did this project because I like computers and challenges. I think this project is meaningful because I learned more commands and strategies to use in Logo Writer. I expected the project to be hard and enjoyable and it was. This is a Devil's Staircase:

A Devil's Staircase is a fractal that has a certain pattern. I learned about it from Andreas Hager, from the 1996 Great Blue edition. The pattern starts out with a line that will be the base. The next step is to divide the base by three, so it helps to have a starting line that is divisible by three. Some lines that I would suggest are 243, 729 or 2187 (inches, turtle steps, or whatever units you are measuring in). Once the line is divided by three, it puts the thirds below the base line segment. It leaves the middle third out. At later levels it continues the same pattern for each individual line segment.

Procedure

First I tried different variables and experimented with them. A variable is a symbol that stands for a number. That number can be lowered or raised using the symbol as a shortcut. In Logo Writer, variables can shorten a procedure. Like writing "fd 2345" could turn into just "fd :a".

When I got the hang of variables, I started the Devil's Staircase. I tried to have one column and repeat it, but it went mad. The turtle would not face the correct way and it only went halfway across the top line. I stopped trying to use the repeat command. On my first try without using the repeat command, I had a mistake that I could not find. I gave up on that one and started a new Devil's Staircase procedure. I made it more organized so I could find my mistakes.

At 11:15 A.M. on the 13th of February, 1997, I answered my question. Tim had gotten it done before me (about two weeks), but he had a long procedure and no variables. I used variables and a shorter procedure. This is my final procedure:

```
to main
clear
hideturtle
z
line
z
a
z
b
z
c
z
b
z
d
z
b2
z
a
z
b
z
g
z
b2
z
d
z
b2
z
g
z
b2
z
c
z
b
z
g2
z
b2
z
g
z
b2
z
g2
z
b2
z
d
z
b2
z
g3
z
b2
z
g4
z
b2
z
g3
z
b2
z
end
```

```
to line
pu
setpos [-138 52]
pd
right 90
make "f 243
fd :f
end

to a
right 90
pu
fd 25
right 90
end

to b
make "f :f/3
pd
fd :f
pu
fd :f
pd
fd :f
end

to c
left 90
pu
fd 25
left 90
end

to d
pu
fd 81
end

to b2
pd
fd :f
pu
fd :f
pd
fd :f
end

to g
make "m 27
pu
fd :m
end

to g2
make "m :m/3
pu
fd :m
end

to g3
pu
fd 9
end

to g4
pu
fd 29
end

to hideturtle
ht
end

to z
wait 10
end
```

Results

I found that you can make a Devil's Staircase using variables in Logo Writer. I had not planned to try twice to make the Devil's Staircase, and I expected my procedure to be shorter. I had problems with saving my work on the computer.

Interpreting Results

My hypothesis was right. I thought that I could make the Devil's Staircase using variables, and I did. But you can never complete the Devil's Staircase, because you can keep dividing the lines by three to make it smaller. Eventually the computer cannot create smaller line segments that are as short as you need them to be. It won't show up on the screen.

New Directions

I wonder if someone can improve my procedure for the Devil's Staircase by making it simpler and shorter. It helps to use variables. Also, you could try to make another fractal instead of the Devil's Staircase.

Acknowledgments

I would like to thank Mr. Gundlach for encouraging us along the way and for picking this fun and challenging problem. I also thank Great Blue for giving us good ideas and for making this magazine for us to enter an article in.

Dice Rolling

by Stephanie Anderson, Country View Elementary School

Introduction

I worked with Nicole Helsell on this project. Our question is "Do small and big dice tend to roll different sizes of numbers?". Nicole and I got our question from our old "It Figures" project about ESP. We had been talking about ESP in class, and Mr. Gundlach said that we should guess what would come up on a couple of dice. ESP led us to a project about guessing what number will come up on a dice. I said that we could roll a big dice and small dice l00 times each and see if the size of the dice affects the number that comes up.

Nicole and I both had different opinions, so that's a sign that we have a good project. I think our project is meaningful because we wanted to find out the answer. My dad and Nicole said that the size of the dice doesn't really matter. Any number could come up. I predicted that usually small dice come up with small numbers (1, 2, or 3) more than half of the time, and that bigger dice come up more often with big numbers (4, 5, or 6). I wanted to find out if my dad and Nicole's hypothesis was right.

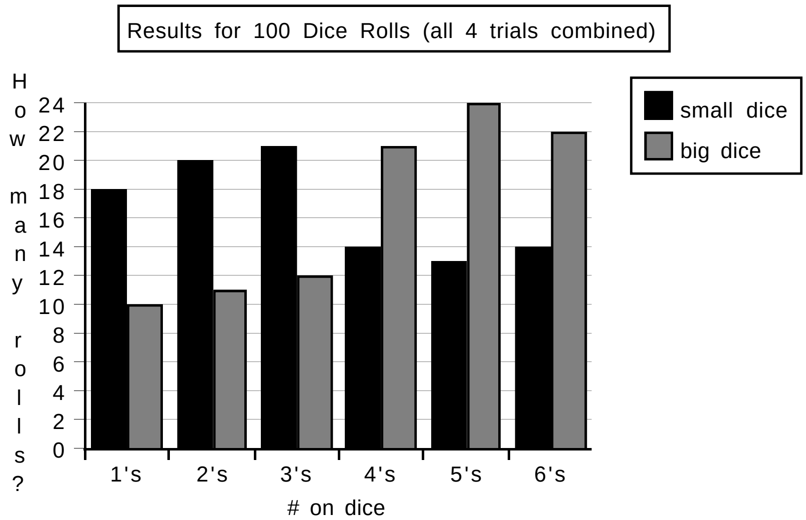
Procedure

To find out the answer to our question we made predictions and graphed them. Then I rolled the dice and made tables and graphs of the "actual" rolls. When I rolled the dice I used 12 dice (6 big and 6 little) each time. I rolled them 4 inches from the ground. For my set up, I rolled the 12 dice one at a time. It would be faster to roll them all at the same time, but I thought that the results might be different. I did 4 trials with 25 rolls for each trial. I made graphs and compared my predictions and actuals. I studied the data to find out whose hypothesis was right.

Results

			BIG DICE ROLLS			
	1's	2's	3's	4's	5's	6's
Trial 1	2	0	3	7	6	7
Trial 2	2	3	4	4	7	5
Trial 3	3	4	2	4	4	8
Trial 4	3	4	3	6	7	2
TOTAL	10	11	12	21	24	22
(out of 100)						

			SMALL DICE ROLLS			
	1's	2's	3's	4's	5's	6's
Trial 1	4	5	6	3	3	4
Trial 2	4	8	2	3	3	5
Trial 3	7	3	6	3	3	3
Trial 4	3	4	7	5	4	2
TOTAL	18	20	21	14	13	14
(out of 100)						



Every trial I rolled the dice for the actuals, my hypothesis was proven correct. Small dice rolled small numbers more than half of the 25 rolls for each trial. Large dice rolled large numbers more than half of the time. I found out that the number rolled does seem to depend on the size of the dice. The one big success that we had was getting done with this project. The one main problem was that we had was working together because if Nicole was at school we fought. The other problem was Nicole was barely at school when we worked on it.

Interpreting Results

A surprise we discovered was that my hypothesis was right. After my dad told me that he agreed with Nicole's hypothesis, I thought Nicole would be right. When we looked at our results, we were surprised that my hypothesis was correct. But my hypothesis may not be right if someone else does it because they may not get the same answer as us. I think that if you wanted to be sure my hypothesis is right you may want to do 5 trials instead of 4 trials.

New Directions

We think that you could go and have everyone in your class guess if the size of the dice does matter, and then you could do the same thing as we did.

It Figures!

Acknowledgments

We would like to thank Mr. Gundlach for giving us the idea for this project. We would also like to thank our classmates for helping us. We would also like to thank my dad, Paul Anderson, for helping me at home with our project.

How Many Gallons of Water Could Fit in Our Classroom?

by Tim Carpenter and Chris Delehanty, Country View Elementary School

Introduction

This year for "It Figures" our project is: "If we took everything out, how many gallons of water would be able to fit in our classroom?". We picked our question because we like math and we wanted to have a challenge. We took a survey of everyone in the class and most of their predictions ranged from 1,000 to 100,252 gallons. Tim guessed 31,000. Chris said 50,000. Chris also said the students' guesses would be pretty far off, but he didn't know in what direction. Also there were guesses of 850,000 and 650,000. We expected that the problem would use a lot of decimals, and that it would be hard to convert from square meters into gallons.

Glossary

(These are some terms that kids in our class said were confusing.)

cubic: 3-dimensional, for example one cubic foot is a 3 dimensional cube that has each side being one foot.

square: 2-dimensional, for example a square foot is 2-dimensional square that each side is the same length.

conversion chart: a chart that has ways to change from one unit to another, such as meters to feet, gallons to liters, etc.

Procedure

1. Get materials (30 meter or larger tape measure, a ladder, and conversion charts).

2. Measure length, height & width of the classroom. We did this in meters.

3. Convert meters into square meters. (Multiply length by width.)

4. Convert square meters into cubic meters. (Multiply your last answer by height.)

5. Convert cubic meters to cubic feet. (Multiply your last answer by 35.3145, because that is how many cubic feet there are in a cubic meter.)

6. Convert cubic feet into cubic inches. (Multiply your last answer by 1,728, because that's how many cubic inches are in a cubic foot.)

7. Convert cubic inches into gallons. (Divide your last answer by 231, because that's how many cubic inches are in a gallon.)

(We got the conversions for steps 5-7 from a conversion chart in a book called The Write Source. You could probably find them in an encyclopedia.)

Results

To start, we decided to measure the length and width of our classroom. They were 12.75 meters and 8.56 meters. Then we measured the distance from the floor to the ceiling. We thought that because our ceiling is slanted, the middle height would be the average. We got 3.05 meters as the average height.

Then we multiplied 3.05 by 8.56 and that was 26.108. The 26.108 was sq. meters and we had to change that to cubic meters. To do that we needed to multiply 26.108 by 12.75 and that was

372.999. The 372.999 was how many cubic meters were in the classroom. Then we rounded that to 373 because it was only .001 higher, and to make the problem easier.

Then we multiplied 373 by 35.3147 because that is how many cubic feet are in a cubic meter. The answer to that was 13172.3085 cubic feet in the classroom.

We next multiplied 1,728 because that's how many cubic inches are in a cubic foot. The answer was 22,761,748.864. Then we divided that by 231 because that's how many cubic inches are in a gallon and we got 98,535.708.

Then since we didn't use exact numbers we rounded to 98,536. So that's about how many gallons of water would fit in our classroom.

Interpreting Results

Like Chris predicted, most guesses of the answer were way off. The closest answers from our class were 100,252 and 80,000. It was suprising how far off people were. We think they were off because we didn't work on volume much in school so far.

New Direction

You could find the volume of your school or of your classroom walls. If you want you could do the same project that we did. If you do this, send an E-mail to either 3998@verona.k12.wi.us, 3999@verona.k12.wi.us, or gundlachl@verona.k12.wi.us and we can email back and forth our results. We could also do a survey of people in different grades or schools and see how much they know about volume.

Acknowledgments

We would like Mr. Gundlach, our teacher, for helping us along the way. We would also like to thank Mr. Miller, the custodian, for letting us borrow a ladder.

What Forces Can Toothpick Structures Stand Up To?

by Tony Schauf and Tom Eddington, Country View Elementary School

Introduction

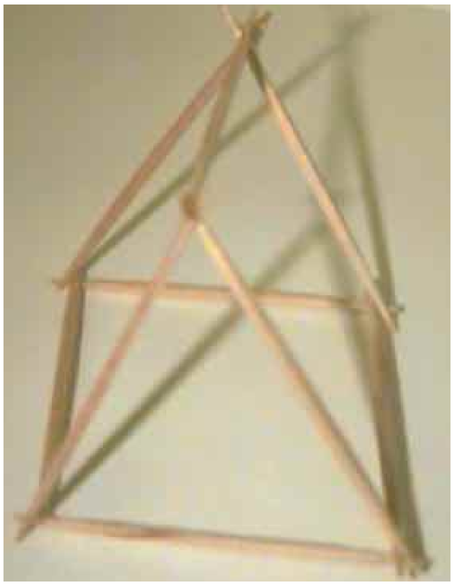
We got this question because Tom likes making toothpick structures, and so do I. Then we wondered what we could do with them. I said, “Why don't we do weather forces?” We ended up doing that. We simulated an avalanche, a flood, and a tsunami. A tsunami is a giant tidal wave caused by earthquakes. We wanted to see if the different geometric shapes of the structures helped them stand up to the forces differently. We thought that the pyramid would do the best because Paul from our class said that a triangle is the strongest shape. We wanted to see if that was true.

We think our project would be important to other kids who have similar projects. For example, when we visited Mr. Wagler's class we met a kid named Josh who was building bridges out of straws. This project might also be important to architects because they have to make models of buildings and test what they can stand up to in order to determine if it is safe for people.

Procedure

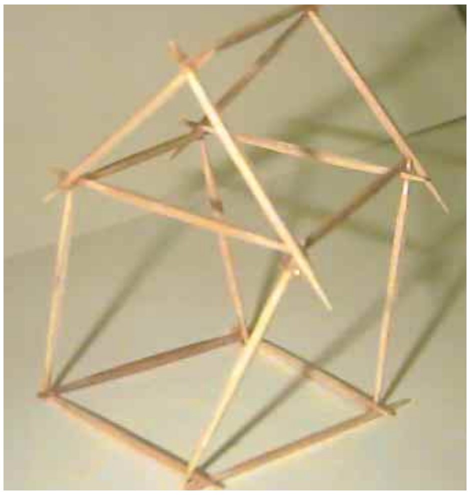
We made a pyramid shaped structure, a cube with the “roof” shape on it, a “roof” shaped structure, and the “roof” shape on its side with a pyramid on top of that.

This is the “roof” shape:



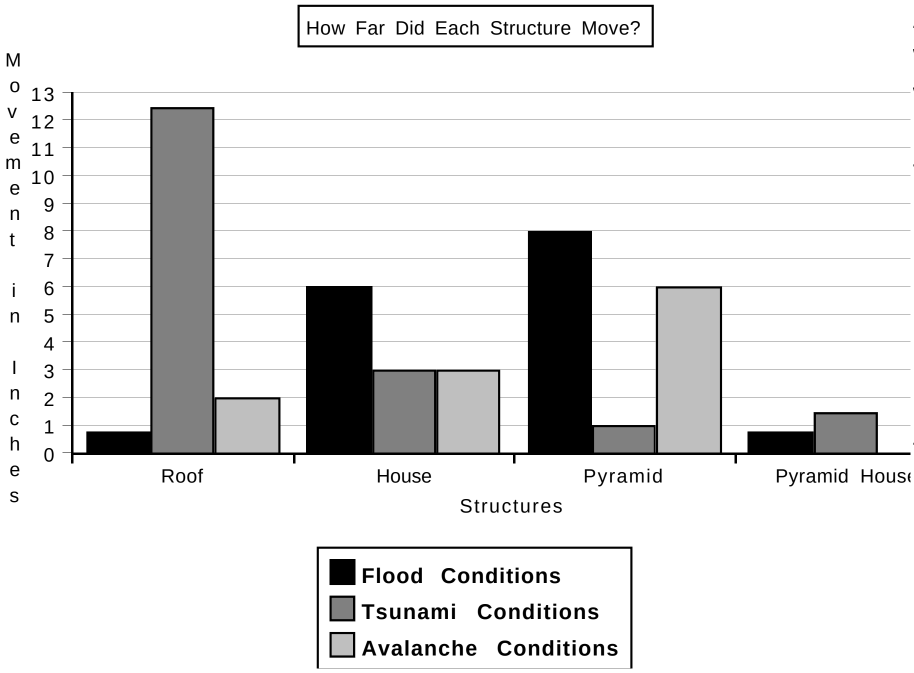
It Figures!

Here is the cube with the “roof” shape on it:



To make the structures, we connected the ends of the toothpicks with rubber cement.

The reason I don’t have all 4 of the structure pictures to show is that one of the pictures had a bug in it, so I had to trash it. Another picture was lost on the computer and we couldn’t find it.



Movement of Toothpick Structures Under Different Weather Forces			
	Flood Conditions	Tsunami Conditions	Avalanche Conditions
Roof	0.75	12.5	2
House	6	3	3
Pyramid	8	1	6
Pyramid House	0.75	1.5	0
	(All distances moved are in inches.)		

1. To simulate a flood, we plugged the drain of a sink and we put the structures on the plugged drain. We kept the water running for 1 minute. We recorded the distance the structure moved, and if it flipped over.

2. For a simulated tsunami, we went to the sink again and we dumped a total of 4 cups of water onto the structure. We recorded if it moved, or if it flipped over.

3. For our avalanche condition, we took 47 base-10 cubes and dropped them on the structures.

For materials, we used toothpicks and rubber cement to build the structures. We used base-10 blocks, a sink, cups and water to make the different weather tests.

Results

A problem that we encountered was that some of the structures were beginning to lean and break. A success we had was that we got all our needed information.

Interpreting Results

Our original hypothesis was right. We predicted that the pyramid would do the the best. We thought that it would do the best because it didn’t have any parallel beams. If it did have parallel beams, it would be able to shift and eventually break. But the pyramid didn’t have any parallel beams. It had three slanted beams, and at the bottom of each beam was a corner. At the top, the three beams were connected. Three bars connected the three slanted beams at the bottom. Tom and I thought that if there was a force at the top, the force would split up in three different directions to the bottom. The force would build up at the bottom, thus keeping the structure standing.

New Directions

To continue this project, you could make more types of structures and do the same tests, or make the same structures and do new tests, or both. We chose to study strength of the structures by recording their movement. Maybe you could see if the structure gets damaged by the weather force.

Acknowledgments

We would like to thank Mr. Gundlach for letting us do this project, the toothpick and rubber cement companies that provided us with our building supplies, and Paul Allex for encouraging us along the way.

School Store

by Shaun Bibo, Lincoln Elementary

This year our class, Room 74, is running our school store. I like working at the store because it is fun advertising the products. We sell erasers, pencils, toys and more.

The managers at the school store are Emma M., Elissa, Emma L., Elsa, Patrick, Michael, Jeff and I. To become a manager we had to write a one page essay on why we wanted to be managers and why we think we would be good. Managers order supplies, count inventory, count money, advertise, send bills to teachers and work at the store.

When we count inventory everyone chooses a product and counts the number we have. Then we type it on a sheet on the computer.

When we count money we have to make all the dollar bills face the same way after we count them. We separate the 20's, 10's, 5's, and 1's from each other. Then we count the quarters, dimes, nickels and pennies. When we get our grand total we subtract 10 dollars (because that is what we start with every day.) We take out 4 dollars, 4 dollars in quarters, $1.50 in dimes and 50 cents in nickels. We keep all the pennies. Our school store is open 8:20-8:40 A.M. and 2:40-3:05 P.M. Please Come!

Here is what some kids wrote about the school store in our newsletter:

School Store Opens, by Elissa

Room 74 is in charge of the school store this year. It's open Tuesday 8:20-8:45 and 2:50-3:15 in Mrs. Welles room which is in the LMC. Our lowest priced things are mini erasers which are $.05 and our highest priced things are fine-tip markers which are $1.50. All the money goes to thing like field trips and other supplies for the school store. I think the school store has gotten off to a good start. We made $71.05 the first week it was open. PLEASE COME TO THE SCHOOL STORE AND SUPPORT LINCOLN!

It Figures!

he School Store is Up and Running, by Emma

The school store is a store at Lincoln School that sells pencils, erasers, glue, scissors, folders, etc. The money we make will help buy something for the school. The kids in our classroom, Rm. 74, are the kids responsible for the school store this year. Other classes will also work there, but we are in charge of ordering and deciding what to order. Come to the school store NEXT TUESDAY from 8:20-8:45 am, and from 2:50-3:10 pm in room 147 in the LMC.

The School Store is Finally Open, by Elsa

The school store is a great success! We have already made $71.05 and all this money will go to our school and the extra money will go to new school supplies. The school store is a place where you can buy new school supplies and fun school supplies too, like gooey erasers and pop-a-crayons. All you need is quarters, nickels and dimes. The school store is open on Tuesdays from 8:20 to 8:45 and 2:50 to 3:10 in the LMC in Mrs. Welles room, 147. WE HOPE YOU WILL COME!!

School Store Managers, by Elissa Notbohm

My room , room 74 is in charge of the school store. We needed managers for the school store and our teacher, Mr. Wirth, said that if we wanted to be managers we had to write a one page essay about why we'd be a good school store managers and why we want to be one. I wrote the essay and turned it in along with 7 other students. Since only 8 students turned in essays, everyone who turned one in got to be managers. The managers jobs are doing inventory (counting supplies), ordering new supplies, counting the profit and working in the school store. So, I am a school store manager and we started our job doing inventory Monday, January, 13.