

How Long Should a Shoelace Be?

Lesson Information
<i>From the New Standards Project</i>
Subject:
Algebra
Topic:
Functions Logic Number Sense
Technology:
None
Level:
Moderate
Activity Structure:
Collaborative Problem Solving Pooled Data Analysis
Duration of Activity:
Whole Class Period

Overview:

Students are given a ‘real-world’ scenario where they need to figure out, from a table of data, what lengths of shoe laces to make and which lengths should go with which shoes.

Learning Objectives:

- To learn to justify your mathematics
- To learn to make valid mathematical choices, based on data
- To practice representing data in a table
- To practice representing data in a function

Materials:

- Pencil
- Paper
- Ruler (optional) for drawing table
- Worksheet

How Long Should a Shoelace Be?

Suppose you work for a shoelace company. You receive the following assignment from your boss.



Sports Laces

Assignment

We have decided to sell laces for sports shoes. We will sell different lengths for shoes with different numbers of eyelets. We will offer lengths for sports shoes that have 4 eyelets all the way up to 18 eyelets (no odd numbers, of course). No one has ever sold so many different lengths for sports shoes before. ***You have to figure out what lengths to make and which lengths go with which shoes, based on the number of eyelets.***

We collected some data from store customers last week. It is confusing because there haven't been very many lengths available. That means that sometimes the customers have had to use lengths that are too short or too long. That's not what we want! We want a unique length for each number of eyelets.

DATA FROM STORE CUSTOMERS WITH SPORTS SHOES

Customer I.D.	Lace Length (inches)	Eyelets (numbers)	Customer I.D.	Lace Length (inches)	Eyelets (numbers)
A	45	8	G	54	12
B	54	10	H	24	4
C	26	4	I	72	14
D	63	14	J	54	12
E	63	12	K	72	16
F	36	8	L	72	18

Write your decisions about lace length so that the advertising people making the sign can understand it. They want a table, so customers can look up the number of eyelets and find out the length of lace. They also want a rule, so customers who don't like tables can use the rule to figure out the lengths. Don't worry about making it pretty, they will do that, just make sure the mathematics is right. You better explain how your decisions make sense, so the advertising people will understand.

Thanks.
YOUR BOSS,