

Factorials & Palindromes

4/5 Class 4 (March 21)

Ocean themed slides...

Ocean animals?

Seals



Turtles



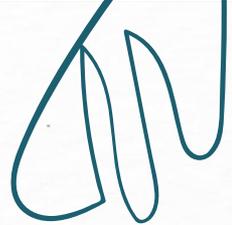
Dolphins

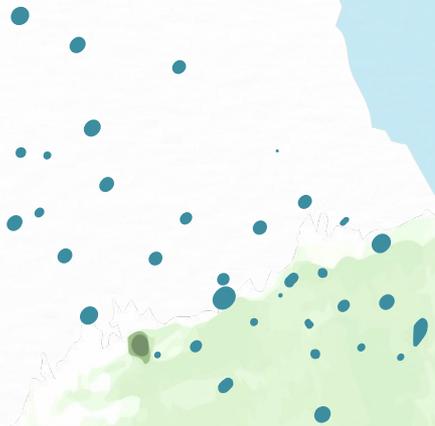




Challenge Problem

In a room, there is a person who know 1 word, a person who knows 2 words, a person who knows 3 words, all the way to 1,000 words. Assume that all these people know different words. How many words do the 1,000 people in the room know collectively?





Exclamation points!

- The cake is so tall it touches the ceiling!
- Tomorrow I'm playing my first soccer game!
- I won first place in the art competition!





How would you read these numbers?

0!

6!

9!



How would you read these numbers?

0!

Zero factorial

6!

Six factorial

9!

Nine factorial





! = factorial

Factorials

9!

6!

0!

-2!





How could we use this?

\$3

You start with \$3

\$3 x 2

You mom agrees to double that amount

\$3 x 2 x 1

Your dad agrees to multiply that amount by one

Your turn!

**You have 4! coins. Your friend has 3! Coins.
How many coins do you have in total?**



Dividing factorials! The fun part!

Say you have $9!$ candies and you want to divide them into $8!$ groups. What is the fastest way you could do this? (Hint: I can do this in 2 seconds and so can you)



Another question!

You work at the aquarium. There are plenty of animals that you take care of but _____ are your favorite to work with! They require 6! pounds of fish and 2! pounds of shrimp. How many pounds of seafood do you need?





Awesome Words

Your turn!

I am a two-digit number and I am less than 20. I am also a palindrome. What number am I?





mom
dad
radar
eve
reviver
rotator
race car
evil olive
taco cat

Palindromes

Are the same read forward or backwards

121, 13431, 2876782, 9090909



Bob, Bobalina, and Waldo

Waldo: My teacher gave me a really hard assignment!

Bob: What is it?

Waldo: She asked me to find all the two digit palindromes.

Bobalina: That's not too hard.

Waldo: Why don't you do it for me?



Last question!

I am a three-digit number and I am a palindrome. I am less than 500. I am greater than 200. All my digits are odd. The sum of my digits equals 7. What number am I?



What was your favorite animal?



Challenge question

A car's odometer shows 15951 miles, a palindromic number. What is the minimum number of miles you would need to travel to form the next palindrome?

