

Symmetry in Numbers

Leader



Recognize numerical palindromes and use other whole numbers in an algorithm to produce additional palindromes.



You will need:

- Paper
- Pencil
- Hundred chart
- Crayons



Do this:

- Questions, illustrations, and instructions for an algorithm to use are on the Student's Page.



Student _____



Do this:

- The following questions and tasks will enable you to recognize a type of number called a palindrome and to work with any number in a way to make it into a palindrome.



In what way are these words, phrases, and numbers alike? In other words, can you recognize the common trait that makes them special?

MOM 99 1991
 DAD 101 67899876
 WOW 4004
 RADAR
 TOO HOT TO HOOT
 NO LEMONS NO MELON
 ABLE WAS I ERE I SAW ELBA

The illustrations listed above are all called PALINDROMES.

- Write your own definition, as follows:
 A palindrome is an arrangement of letters or numbers in which

- On a “hundred chart,” color (or encircle) the numbers that are palindromes.



1. How many palindromes are in the numbers from 1 to 100? _____
2. What pattern do they form? _____

- Choose any number that is not a palindrome. Follow this algorithm (sequential steps) until you get to a palindrome:

Add your selected number to its own reverse number. See if the sum is a palindrome. If it is, say, “OHHO.” If it is not, use the *sum* as your new number and repeat the same algorithm to try to get a palindrome. (It might take several steps.)

- Whenever you get a new palindrome from this procedure say, “AHHA!”

Examples:

- a. Choose 25.
 $25 + 52 = 77$ OHHO!
- b. Choose 49.
 $49 + 94 = 143$
 $143 + 341 = 484$ AHHA!



WHAT I FOUND