First Name: _____ **Last Name:** _____ **Grade:** _____

Teacher: _____ **Parent's email:** _____

Palindrome

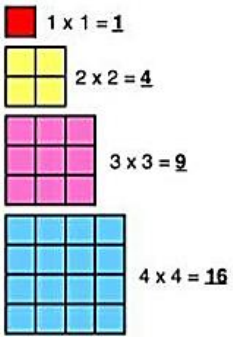
Welcome to the Math Challenge #10. A palindrome is a word, phrase, verse, sentence, or number that reads the same backward and forward. The words "wow" and "level" are palindromes. Perhaps your name is a palindrome (Anna, Eve, or Hannah). A palindromic number is a number that is the same when written backward and forward. Numbers 575 and 2002 are palindromic numbers. February 2, 2020 was a palindrome since it's written as 02/02/2020. Let's solve some palindrome problems.

Kinder & First Grade: solve <u>at least</u> 3 problems.
Second & Third Grade: solve <u>at least</u> 7 problems.
Fourth Grade and above: solve <u>at least</u> 12 problems.

		Answer
1.	I am a two-digit number and I am less than 20. I am also a palindrome. What number am I?	
2.	I am the largest two-digit number and I am a palindrome. What number am I?	
3.	Write two words that are palindromes. For examples, madam, noon, and dad.	
4.	I am an odd number and I am a palindrome. I am greater than eleven and less than fifty. What number am I?	
5.	How many 2-digit palindromes are there?	
6.	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?	
7.	I am a four-digit number. I have a one in my thousands place, and a five in my hundreds place. I am a palindrome. What number am I?	
8.	I am a palindrome. I am greater than the number of days in a year and less than the product of 19 and 20. What number am I?	
9.	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?	
10.	I'm a seven-digit number, and I am a palindrome. Five of my digits are zeros. I am the greatest number possible with those characteristics. What number am I?	

11.	I am a prime and a palindrome. I am larger than 15 and less than 130. What number am I?	

12.	Let's look at the number 5346. a. Find the first number greater than 5346 that is a palindrome. b. Find the closest number to 5346 that is a palindrome.	

13.	 A square number is the result of multiplying an integer by itself. For example, 4 x 4 = 16, so 16 is a square number. Name all square numbers between 100 to 1,000 that are also palindromes.	

14.	How many palindromes are there between 5000 and 5999?	

15.	Kiana was looking at her clock and noticed something interesting. The clock was showing 10:01 a.m. which is a palindrome. Her digital clock always displays all 4 digits (2 digits of hours and 2 digits of minutes). She also set her clock using non-military time format. How many times will the clock show a palindrome from 11:00 a.m. until she goes to bed at 10:00 p.m. at night?  ***Note:*** Regular **time** uses numbers 1 to 12 to identify each of the 24 hours in a day. In **military time**, the hours are numbered from 00 to 23. Under military time, 1 p.m. is 13, 3 p.m. is 15, and so on, Kiana is using regular time or non-military format.	

16.	Two-digit palindromes must have identical digits (11, 22, 33, …). You have 9 choices for the first digit, and the second digit is determined for each, so you have **9 palindromes between numbers 10-100**. How many palindromic numbers are there between 100-1000?	

17.	What is the largest palindrome made from the product of two 2-digit numbers?	

18.	Make all palindromes that fit this six-digit number: 8_ _3_ _.	

Solution is available on March 6, 2020 at www.mathinaction.org