**Math Test: Strategies for Adding and Subtracting to 1000**

We will be having a math test: Friday, January 11th. We will be practicing in class everyday as well! For studying, try 15 minutes a night, with just 1 or 2 strategies!

**Students need to be able to:**

Demonstrate an understanding of addition and subtraction of numbers with answers to 1000 (limited to 1-, 2- and 3-digit numerals), concretely, pictorially and symbolically, by

using personal strategies for adding and subtracting with and without the support of manipulatives. These strategies include:

* using doubles

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* making 10
* using the commutative property **(fact families)**
* using the property of zero (**when adding or subtracting by zero, number stays the same**)
* thinking addition for subtraction for basic addition facts and related subtraction facts to 18. ( 14-9 = ? what plus 9 will give me 14)
* creating and solving problems in context that involve addition and subtraction of numbers.
* Estimate the answer (we practiced this by rounding the numbers in the equation and then solving)

 **Describe and apply mental mathematics strategies for subtracting two 2-digit numerals, such as:**

* number line subtraction
* breaking down the numbers

**On the test, students will be expected to do a few examples of each strategy (the curriculum states that students should know several strategies). Then for the rest of the test, students will be able to choose whatever strategy they want, so what they find the easiest! STUDENTS HAVE TO SHOW THEIR WORK (not just the answer!**

**Expanded Form (used for adding)**

What it means:

This is when you break down each number to show its actual value (what place value it is in, how much does that mean) and then add the same place values together first (the tens with the tens, etc).

**Example:**

**164 + 203**

**100 + 60 + 4 +200+ 0 +3**

 **300 +60 + 7 = 367**

**Stacking (used for adding)**

**Stacking is very similar to expanded form, but takes less space. We break the number up into place value like drawing lines (like a place value chart). Start with the largest place value first and show what your adding in brackets (helps students keep track). When you’re done adding all the place values (hundreds, tens, ones), we add it together. Circle your answer!**

**Example:**

 **h t o**

 **1 5 6**

**+ 2 6 5**

 **3 0 0 (100 + 200)**

 **1 1 0 (50 + 60)**

 **1 1 (6+5)**

 **4 2 1**

**Breaking Down Strategy (this strategy works for both adding and subtracting)**

1. The first number stays the same!
2. The second number is broken down into tens (example: 36 would be 10, 10, 10, 6)
3. Add or subtract the number, one at a time! You can break down the ones to make it easier for you (example 6 could become: 4 and 2, or 5 and 1, etc)

Examples:

**125 + 46 =**

125 + 10 + 10 +10+10+6=

 135, 145, 155, 165 + 6

 165+5+1

 170 +1 = 171

**234 – 56 =**

234 - 10 – 10 – 10 – 10 – 10 – 6 =

 224, 214, 204, 194, 184 – 6=

 184 – 4- 2 =

 180 – 2 = 178

**Subtracting using the Number Line**

1. **Write down the equation.**
2. **Start at the lowest number.**
3. **What can you add to the lowest number to get to the highest number?**
4. **Add up all the numbers that you circled (the ones you added to the lowest number to get to the highest)**
5. **That is your answer! Go back and write it next to your equation!**

**Example:**

**85 – 48 = 37**

 **+2 +10 +10 +10 +5 (think 10 +10 + 10 is 30 +5 is 35 +2 is 37!)**

**48 50 60 70 80 85**

**Doubles:**

Students should know their doubles by heart: 1+1=2, 2+2=4 and so on.

**Near Doubles”**

Most students know their double facts inside and out (1+1=2, 2+2=4 and so on). They can use what they know to help them with harder questions.

**Example:** 3+5=

 We can use the double fact 3 +3 to help. 3+ 5 is 2 more than 3+3.

 So we can do 3+3 is 6, plus two more is 8!

 4+5 =

 4+4 + 1 = 9.

**Related Facts or Fact Families**

Students need to recognize that if you know 3+2= 5, you know 2+3 = 5. They can then reverse the equation. 5-2= 3 or 5-3=2. There are always four equations in a fact family, 2 addition and 2 subtraction.

**Fact Family:**

3 + 4 =7

4 +3 = 7

7 - 3 = 4

7 - 4= 3

Estimate by Rounding

Students use front end rounding to estimate the answer, then they find the exact answer.

Example:

 **Estimate Exact**

 47 50 47

+ 56 +60 +56

 110 90 (40 +50)

 13(7 +6)

 103

(I used stacking for this example, students could use expanded form as well)