Tiered Assignment

Description

This tiered assignment is for a sixth grade math classroom studying expressions, mental math and equations, properties of math, and how to use the properties. It is designed to assess students of all learning levels, determine what they understand about the topic, and accordingly group them to further develop their understanding.

KUDo's: 6th Grade Math

1. Students will know:
    a. Definition of: numerical expression, variable, algebraic expression, evaluate, equation, solution, commutative property, associative property, distributive property, identity property of addition, identity property of multiplication, compensation
2. Students will understand that:
    a. There are mathematical terms to describe numbers and equations.
    b. Mental math "cheats" and trial and error can be used to help solve equations.
    c. The properties of addition and multiplication can help compute mentally.
    d. The properties and mental math strategies of compensation and breaking down equations into easily divisible parts will help students write, simplify, and evaluate expressions.
3. Students will be able to:
    a. Identify, write, and evaluate expressions involving whole numbers.
    b. Solve equations using mental math.
    c. Recognize the different properties of addition and multiplication.
    d. Solve problems using both mental math and properties to find sums, differences, products, and quotients.

Scenario

The way I have my classroom planned out is that on a daily basis there is note taking and viewing of examples on the board and then everyone takes a turn in doing their own example on the board. This allows me to see who understands the topic and then if we don't understand it I will be able to correct errors and reteach what we don't understand right on the stop before they get to their homework. We have gone over three lessons in our chapter and I have a very good idea of where my students are at right now based my formal assessments of my students' daily work, that they do and turn into me for a grade which is problems from the book. I also see how my students are doing through my informal assessment which is their daily board work. Since we have a couple more chapters before the test (summative assessment), I want to wait to move on and take today to review the chapter we have already gone over. I have made three different worksheets at different readiness and challenge/complexity levels. This class period will give students the opportunity to reinforce what they have already learned or give me the chance to reteach a lesson to any student or group that may be struggling. It will also allow any students

who understand everything they have been taught to be stretched and challenged even more. I can decide what students get which worksheet from my formative assessments.

Tiered Assignment Design Template

1. Goals

__X__ Same Goal for all: Identify, write, and evaluate expressions involving whole numbers using both mental math and properties to find sums, differences, products, and quotients.

____Different goals for different students*

A. _____

B. _____

2. Materials/Resources Tasks

___Same materials/resources……same task

___Same materials/resources……different tasks*

_X__Different materials/resources……same task*

___Different materials/resources……different tasks*

Notes:

Worksheet A- for some

Shorter steps, step-by-step problems, smaller numbers and operations, fewer story problems (13 problems all together)

Worksheet B- for most

Less detailed directions, more complex numbers and operations to perform, broader story problems (13 problems all together)

Worksheet C- for some

Less detailed directions, complicated story problems, complex numbers and operations (13 problems all together)

As the worksheets go from A-C they are worth more points because the problems get more complicated.

3. Products

_X__Same product for all students

___Different products matched by needs or learning preferences*

___Choice of products representing different interests, learning preferences

Notes:

All students will complete a worksheet using the knowledge and information they have gained in class through lectures, board work, and homework.

4. Work Arrangement

_X__Individual work

___Partner work by likeness

___Small group work by likeness

*indicates a differentiation strategy

Ch.2- Operation Sense (A)

Name_____ Date_____ Score_____/28____

Order of Operations

1. Find the value of each expression using order of operations. (2pts each)

a. $36 \div 3^2 \times 2$

b. $4(12 + 3) / 4 + 5$

2. Insert Parentheses to make statement true. (1pt each)

a. $22 - 4 \div 2 = 9$

b. $5 \times 5 + 5 - 5 = 45$

3. Rica and her grandmother took all her friends (12 friends) to a café for a birthday treat. Before Rica's grandmother paid the bill, Rica worked out the total cost of the food and drinks. Altogether, the birthday group bought 8 smoothies ($2.50), 5 fresh juice drinks ($1.25), and 12 cupcakes ($1.15). What was the total of the bill? (2pts)

4. One afternoon, Alvin was shoveling snow to clear the neighborhood driveways. For the first hour he worked, he earned $8.00. After that he earned $5.00 per 30 minutes. The afternoon's work took 4 ½ hours to complete. How much did he earn? (2pts)

Variable and Expressions

Evaluate the following expressions by substituting the values below. (2pts each)

A = 4, B = 6 and C = 11:

5. 2C + 3A – B
6. AB + BC

7. (B + C) – (A+B)
8. (A + B) ÷(B-A)

Solving Equations using Mental Math

Use mental math to solve the following equations and show how you checked your answer. (2pts each)

9. 56/x = 2
10. 13 + x = 40
11. Q + 7 = 19
12. 15c = 90

13. Freda is saving money for a school trip. So far, she has saved *d* dollars. When she has saved another $20 she will have reached her target of $100. Use this information to write an equation combining *d*, 20 and 100. (2pts)

Ch.2- Operation Sense (B)

Name_____ Date_____ Score_____/40_____

Order of Operations

Simplify these expressions: (4pts each)

1. $\frac{41+15}{2^3} \times 4 + 2^2$

2. $\frac{3\text{^}3-(16-11)}{3-(-8)}$

3. 50 – [3× (15-5)] ÷ 2 + 4

4. $\frac{2[3(13-2)]-6}{(9-7)(14\div 2)-3} \div \frac{30}{2}$

Evaluating Algebraic Expressions

Evaluate the following expressions by substituting the values below. (3pts each)

A=12, B=10 and C=25

5. $B^2 + 3C – 84/A$
6. $2(2C - A) + (A – B)^3$
7. $(4B + A)/ (C + 1)$

Algebraic Equations

Use mental math to solve the following equations (1pt) and show how you checked (1pt) your answer.

8. $m/8 = 13$
9. $4p^2 = 36$
10. $9d + 4 = 40$

Problem Solving (3pts each)

11. The Smiths have 3 children. The product of their ages is 200, and the two youngest are twins. What is the age of their oldest child?

12. A group of 20 members and 5 nonmembers visited a museum. The admission cost was $6 for members and $10 for nonmembers. The group decided to divide the total cost evenly between all 25 people. How much did each person pay?

13. At the end of the day, you have $19 in your wallet. You remember spending $14 on dinner, collecting $23 a friend owed you, and spending $11 on a T-Shirt. How much money did you have at the beginning of the day?

Ch.2- Operation Sense (C)

Name_____ Date_____ Score_____/49_____

Order of Operations

Simplify these expressions (4pts each).

1. $4^3 + (36 - 28) \times 12 + (-3)$
2. $\frac{\sqrt{49}+(16-25)^2 \times (15-18)^3}{5^2}$
3. $\frac{2}{7} \times 2800 - [\,(1.3)^2 + (1.3)^2]$
4. $\frac{47.8+13.6-15.5}{0.02^3}$

Evaluating Algebraic Expressions

Evaluate the expressions (3pts each).

5. 3k(2k +1) if k=(-4)
6. $A = \frac{(a+b)}{2} \times h$ if, a=7, b=16 and h=5
7. $\frac{4r^2-t}{2t^3}$ if, r=3 and t=4

Algebraic Equations

Solve the following equations. Show all steps including the check step (3pts each).

8. $4(3x + 5) = 2x$
9. $5x - 2 = \frac{1}{2}$

10. $15x + 6 = 6x - 12$

Solve

Solve the following problems (5pts each).

11. A pair of scales had some marbles on each pan. The marbles are all the same weight. To start with there are five marbles on one side. When 28 marbles are transferred from one side to the other, the scales balance perfectly. How many marbles are there on each side to start with?

12. A man is twice as old as his son. Nine years ago the sum of their ages was 66 years. How old are they now?

13. Supposed there are 25 years between generations. Every person has 2 parents, 4 grandparents, 8 great grandparents, and so on. How many people will have contributed to the gene pool in the 500 years before you were born?