Using Mathematical Reasoning to Solve and Explain Word Problems -Anchoring Activity

Lesson: Math , Grade(s) 5

This lesson focuses on using differentiated anchoring activities to enhance mathematics learning.The activities will reinforce using mathematical reasoning to solve problems. They should be used during/after Unit 4, "Division and Data" from the Math Trailblazers program.

Duration: 2 Weeks

Lesson

Objectives

Students will:

- solve word problems involving division
- practice skills related to division

Essential Questions

What strategies can be used to multiply and divide?

Warm-up Activity (Do Now)

Teacher/students will explore the NumbersBee website.Several levels are discussed. Students/teacher should go to level 20. Talk about the operations needed to solve the problems. Explain to students that the anchoring actitivites used for the next 2 weeks will reinforce division and solving and explaining word problems.

Instructional Strategies (including Differentiation)

- Grouping/Regrouping
- Technology Integration
- Using computer independently
- Writing to explain solutions

Student Activities

Background: Students should complete/do the following anchor activities during/after Unit 4: "Division and Data" in the Math Trailblazers Program. Before the activities are introduced, each one should be modeled for the students.

- Teacher will introduce each anchoring activity to small groups of students. These activities should be ongoing and can be used anytime during or after lesson 3 and/or lesson 5. The instructional technique is cubing. Students are in small groups based on Rit scores.(Numeric Reasoning)

Resources Needed:

- Computer (NumbersBee, Other math websites)
- Dpps (Y, I, K,M)
- DAB unit 4; p.46, #1-7
- Math 24 game
- Dividing food activity sheet

Sequence of actions:

Lesson

1. *One activity should be written on each cube face (6)*

Blue Group -skills from 181-200 *(DesCartes)Solves word problems with whole number division facts with dividend and divisor less than 11 involving money.*

- Dpp Y; Unit 4 (Solving problems to find mean)
- Dividing Food Worksheet; p.1)
- Solving word problems on Computer; www.mathplayground.com
- Skill/drill practice from Math Trailblazers ; Dpp I, K,
- NumbersBee.com (explore levels to solve number problems)
- Skill/drill practice from MTB; Dpp M

Red Group-skills from 201-210 (DesCartes) *Solves simple word problems invovling whole number division with remainder(e.g. 1-step, 1 divisor)*

- Dividing Food activity sheet; pp.1-2.
- Word problems from DAB; unit 4; p.46, # 2,4,6
- Math 24 game
- www.mathplayground.com; word problems
- NumbersBee
- Word problems (see link below)

http://www.harcourtschool.com/activity/elab2002/grade_4/005.html

Green Group-skills from 210-220 (DesCartes)*Solves complex word problems involving whole number divsison with remainder (e.g., 2-step, 2-digit divisor)*

- Problem of the day; http://ww.pike.k12.in.us/schools/ces/math_problem_of_the_day.htm
- Word problems; DAB, Unit 4; p.46; #1-7
- Math 24
- NumbersBee
- Word problems (see link below)

http://www.harcourtschool.com/activity/elab2002/grade_4/005.html

- Word problems (write on 2 sides(faces)use link above

2. Students will throw a color-coded cube to decide which anchor activity to complete. Cubes are coded by ability levels(Rit scores).

Assessment of Student Learning
Teacher will use:

Student Contract for Anchor Activity

Title of Activity:_____

Name of Student:_____

I will complete the following activities;

1. _____
2. _____

Lesson

3. _____

Check point due dates:_____

Final due date;_____

Student's signature:_____

Teacher's signature:_____

Student's grade/score_____

Closure/Summary

Teacher/students will reflect on the learning that took place from the various activities.

Students will share strategies for solving one problem to their groups. Teacher/students will discuss other strategies.

Teaching Tips

Solving word problems in all areas of mathematics should be ongoing . The websites mentioned are excellent sites to rotate all students through during the school year.

Numerix(NumbersBee) should be practiced all year.The icon is found on the desktop of computers in classrooms. It is a computerized game that reinforces problem-solving, math reasoning, practicing basic facts.

Standards Covered

MA.5.1 Numeric Reasoning
- MA.5.1.2 Operations
  - MA.5.1.2.18 Select and use appropriate methods and tools for computing (e.g., mental computation, estimation, calculators, paper and pencil) depending on the context and nature of the computation
  - MA.5.1.2.29 Apply more than one operation to solve a word problem
  - MA.5.1.2.30 Multiply and divide by large numbers (e.g., two digits by two digits) and show why the operation works
  - MA.5.1.2.33 Use and apply various meanings of multiplication and division (e.g., fair share, repeated addition/ subtraction, compare, rate)
  - MA.5.1.2.34 Develop and use strategies to estimate the results of operations on whole numbers

MA.5.2 Algebraic Reasoning
- MA.5.2.2 Representations
  - MA.5.2.2.6 Model problem situations with objects and use representations such as graphs, tables or equations to draw conclusion

MA.5.5 Problem Solving
- MA.5.5.1 All students monitor and reflect on the process of mathematical problem solving
- MA.5.5.1 All students will apply and adapt a variety of appropriate strategies to solve problems
- MA.5.5.1 All students will build new mathematical knowledge

Materials

For a closer look at the materials list below, log onto http://redclay.schoolnet.escholar.com

Resources:

1. Dividing Food worksheet

Additional Properties

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