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ELED 4760

Grade/age Level: 4th Grade

Subject: Mathematics

Utah Core Course Objective: Demonstrate that multiplication and division are inverse operations (e.g., 3x4=12; thus, 12÷4=3 and 12÷3=4).

Content Objective: Students will demonstrate their understanding that multiplication and division are inverse operations with 90% accuracy.

Language objective:

- In their tables of 4-5, students will compare multiplication and division and discuss and review how they are inverse operations of each other. (Listening, Speaking)

- Students will play a game and write down examples of multiplication and division inverse operation problems and read them to their group with 90% accuracy. (Reading, Writing)

- Students will individually solve 10 inverse operation problems given on the board e.g. 3X4=12 answer. 12÷3=4 or 12÷4=3 (Reading, Writing)

Instructional features:

Materials: Decks of cards 3 per deck, Inverse operations worksheet 3 per worksheet, PowerPoint to show instructions of game.

Activities and Procedures

- Students will brainstorm individually for 30 seconds about what inverse operations are and how it is relevant to multiplication and division.
- Students will discuss what they brainstormed with their table what "inverse operations" means and how it is relevant to multiplication and division.
    - Each student will have their responsibility (Recorder, Reporter, Time Keeper, Team Leader)
- The reporter will report back to the class about what his group discussed.
- Students will get into groups of 3 and play game.
    - Player 3 will come and pick up the cards and paper.
    - Players 1 and 2 will pick a card and put it on their forehead face out without looking at the card
    - Player 3 will multiply the two card together e.g. 3 and 10 = 30.

- Player 1 and 2 will have to figure out what card they have based on the answer and their challengers card.
    - Player 3 is multiplying, while player 1 and 2 are doing the inverse of dividing.
- Students will make a graphic organizer by write down the multiplication problems in one column and their inverse (division problems) in the other column.
- After 5 times, Player 3 is now player 2, player 2 is now 1, and player 1 is now 3. They keep trading like this until time is up.

- After game is over, students will look over their paper making sure that the multiplication and division problems are inverses of each other.
    - Player 2 will put the cards away and bring them to me.
    - Player 1 will put the papers in the math bin.
- Students will individually solve the 10 problems on the board about inverses of multiplication and division.
- As a class, we will go over the answers and clarify any questions.

Adaptations for ELL students at each state of language acquisition ("Language Acquisition Stages")

Stages 1 and 2 Pre-Production/Early Production	• Have word wall for vocabulary • Speak at a comprehensible rate, enunciating words • Use gestures and model • Give extra instructions in simpler terms if necessary
Stage 3 Speech Emergent	• Same as above
Stages 4 and 5 Intermediate/Fluent	• Same as above

Specific ELL instructional strategies utilized: (provide justification why these strategies are appropriate)

- Metacognitive Strategy: Student will use organizational planning. They will think about what they want to discuss with their group and then put it in an order.
- Cognitive Strategy: Students will use graphic organizers to put multiplication and division in groups by inverses.
- Social/Affective Strategies: Students will work together during game to complete graphic organizers. They will be able to communicate by asking and answering questions each other might have. As a class we will also work together to clarify.
- Harrell/Jordan
    - #2 Visual Scaffolding-Providing language Support through visual images

        - A PowerPoint will be shown so the students understand how to play the game.
    - #14 Manipulative Strategies- Using Objects to connect concept
        - The students will play the card game so they can manipulate the cards to come up with inverse operations.

Grouping

- Individually:
    - Students will brainstorm what inverse operations are.
        - This will give the students a chance to think for themselves and put their thoughts together without being rushed.
    - Students will solve the 10 problems written on the board.
        - This allows students to think for themselves to see what they know.
- Homogenous grouping:
    - Students will get into groups of three to play the game.
        - This lets students of the same ability level play so they are not getting frustrated.
- Heterogeneous grouping:
    - Students will get into their tables to discuss what they came up with during their individual brainstorming exercise.
        - This gives the students an opportunity to feed off of each other and work together even though they are different ability levels.

Assessment:

- Formative:
    - Teacher will walk around and observe students demonstrating themselves using manipulatives (the cards).
    - Teacher will also look at Inverse operations sheet to see if the group is filling it in correctly.
- Summative:
    - The students will solve the problems on the board.
        - They will then go over answers as a class
        - Students will correct any wrong answers in red pencil so teacher can see if they understand the concepts.

	5	3	1
Stages 1 and 2 Pre-Production/Early Production	Student participates in all activities, speaking to his group in Spanish and throwing in English when possible. Student also completes	Student participates in most activities, speaking in Spanish and throwing in English as much as possible. Completes math	Student participates very little, speaking only in Spanish. Does not complete math problems or does with less than 75%