Lesson Plan #7

4's and 6's and 8 as Factors

Performance Objective: Working independently, students will be able to solve at least 16 out of 20 multiplication problems correctly with 4, 6 and 8 being factors.

Resources or Materials Needed:

- Pencil
- White board
- PowerPoint of 4's, 6's and 8's chant
- Dry erase marker
- Chromebook

Time: 60 minutes

Step 1: Pre-Instructional Activities:

- As a class, students will be chanting to skip count by 4's, 6's and 8's using a PowerPoint that will be shown to the students
    - Teacher will model the chant for 4's to the melody of Dashing Through the Snow
    - Class will do the chant for 4's a couple times
    - Teacher will model the chant for 6's with the melody of Happy Birthday
    - Class will do the chant for 6's a few times
    - Teacher will model the chant for 8's with the melody of Row, Row, Row Your Boat
    - Class will do the chant for 8's a few times

Step 2: Content Presentation:

- As a class, we will be working on solving 4, 6 and 8 factors. To start, we will focus of strategies that will help us solve 4 facts.

- To begin, I will create a number line that skips by 2's and a number line below the 2's skipping by 4.
    - As a class, we will skip count by 2's using the number line and do the same with 4's
        - While skipping count by 2's, I will ask the students what the multiplication sentence will be for each skip. For example, the first skip, 2, would be 1 x 2 as it is the first group of 2's. Then as we move on, students will notice the multiplication facts go start counting up. For example, 1 x 2, 2 x 2, 3 x 2, 4 x 2, and so on. The same thing will be done for the 4's.
- After skipping count and writing down multiplications sentences for each "jump" in the skipping count activity, the teacher will ask some questions to help facilitate a discussion based on the relationship between the 2's and 4's. Questions that can be asked:
    - What do you notice about the 2's and 4's?
        - Student comments: "When you skip count by 2's two times, you get 4, that's when the 4's number line starts".
    - What do you see when I double my answer for 2's?
        - Student comments: "When you double your 2's, I see that those number relate to the 4's multiplication problems".
- Have students practice multiplying 2's by another factor and doubling it and then multiply that fact by 4 and compare answers. For instance, students multiply 2 x 8=16, double 16 to get 32 and then multiply 4 x 8 and you get 32.
- Now we will be moving onto the 6's. With the 6's, we do the same thing as we did with the 2's and the 4's but this time, we work with 3's and 6's.

    - Follow the same directions for 2's and 4's but use 3's and 6's
    - Questions will be the same
    - Practice: Students follow same practice as above with 2's and 4's
- Next, we will be working to solve 8's. The 8's are a special number because we can work with a couple different factors to help us better understand the relationship between the 8's and our 2's and 4's. First, to use our 2's to help solve our 8's we look at the Double, Double, Double strategy. Students will pick a factor to multiply by 8, for example, 8 will be used to multiply by 8, 8 x 8. What we do first is use that factor and multiply it by 2 (our first double) and get 16. Then we double 16 (second double) and get 32, then we double 32 (third and last double) and get 64. If we did this right, that means 8 x 8=64.
    - Students practice this with partners using their whiteboard while choosing different factors while the original example is on the board.
- As a class, we will begin looking at another strategy to help solve our 8's. To begin, I will create a number line that skips by 4's and a number line below the 4's skipping by 8.
    - As a class, we will skip count by 4's using the number line and do the same with 8's
        - While skipping count by 4's, I will ask the students what the multiplication sentence will be for each skip. For example, the first skip, 4, would be 1 x 4 as it is the first group of 4's. Then as we move on, students will notice the multiplication facts go start counting up. For example, 1 x 4, 2 x 4, 3 x 4, 4 x 4, and so on. The same thing will be done for the 8's.

- After skipping count and writing down multiplications sentences for each “jump” in the skipping count activity, the teacher will ask some questions to help facilitate a discussion based on the relationship between the 4’s and 8’s. Questions that can be asked:
    - What do you notice about the 4’s and 8’s?
        - Student comments: “When you skip count by 4’s two times, you get 8, that’s when the 8’s number line starts”.
    - What do you see when I double my answer for 4’s?
        - Student comments: “When you double your 4’s, I see that those number relate to the 8’s multiplication problems”.
- Have students practice multiplying 4’s by another factor and doubling it and then multiply that fact by 8 and compare answers. For instance, students multiply 4 x 8=32, double 32 to get 64 and then multiply 8 x 8 and you get 64.

Step 3: Learner Participation:

- Students will play a game called Do the D’s

Step 4: Assessment:

During this time, students will be instructed to do this quiz as an assessment and to try their best at picking the best answer for the equation. They will have 20 questions to work through to which they will need to have 16 out of the 20 correct.

Step 5: Follow-Through Activities:

- Students will have the opportunity to continue playing the Do the D’s game.

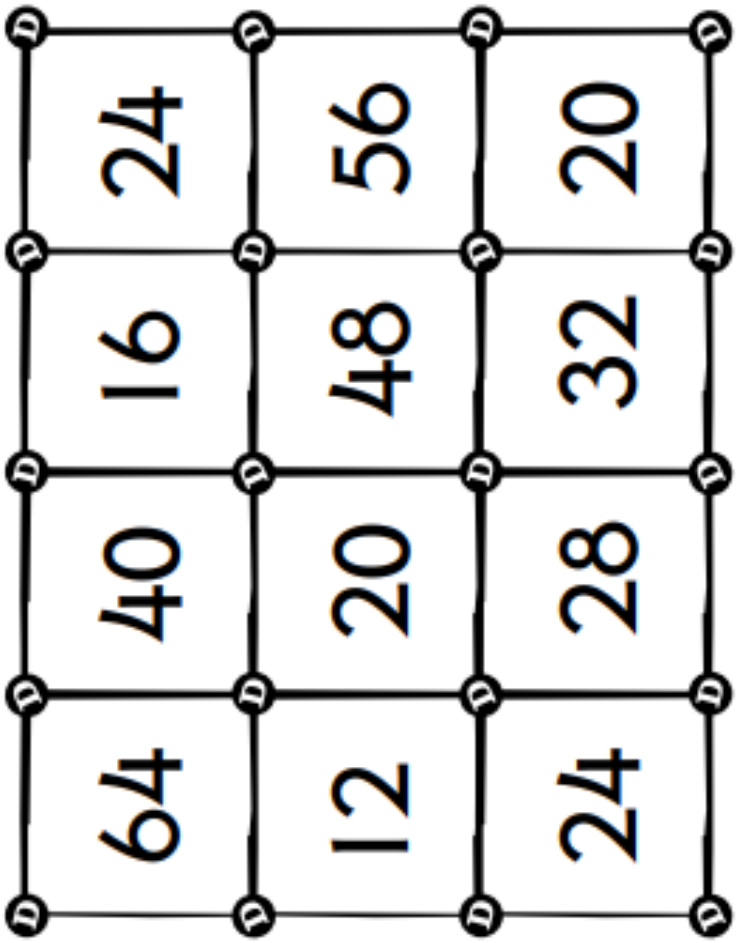
Lesson Plan Summary: In this lesson, the instructions is more teacher directed but students will be engaged with activities to help them understand the concept that is being taught. Students use whiteboards to solve problems based on the strategy that is being used. Students also access prior

knowledge to help them better understand current facts. Cognitivism is present in this lesson as students are constantly building upon what they know from repeated addition to skip counting. (Ertmer, P.A., & Newby, T.J., 2013).

Do the Ds Game

ORIGO EDUCATION

Do the Ds



Materials:

Each group of students will need

- *Do the Ds* game board
- 2 blank cubes, marked as follows:
  - Write "double double" or "DD" on three faces, write "double double double" or "DDD" on the remaining three faces on one cube
  - Write 3, 4, 5, 6, 7, 8 on the other cube.

Each player will need

- 4 transparent counters (a different color for each player)

Directions (2–4 players):

- The first player rolls the two cubes.
- The player follows the instruction, doubling the number, two or three times. Example: *Lily rolls "4" and "DDD". She thinks double 4 is 8, double 8 is 16, double 16 is 32. 4 multiplied by 8 is 32.*
- The player claims the answer on the game board by covering it with a counter. If an answer is unavailable, the player misses a turn.
- Each of the other players has a turn.
- The first player to place all four counters on the game board is the winner.

Assessment

Name

Date

4, 6 and 8's

1. 4 x 8 = ___
2. 8 x 9 = ___
3. 6 x 4 = ___
4. 8 x 10 = ___
5. 4 x 3 = ___
6. 6 x 1 = ___
7. 8 x 2 = ___
8. 6 x 5 = ___
9. 4 x 6 = ___
10. 4 x 7 = ___
11. 8 x 6 = ___
12. 6 x 3 = ___
13. 6 x 4 = ___
14. 8 x 9 = ___
15. 4 x 5 = ___
16. 6 x 10 = ___
17. 8 x 1 = ___
18. 4 x 2 = ___
19. 4 x 7 = ___
20. 8 x 8 = ___

Name

Date

4, 6 and 8's

1. 4 x 8 = 32
2. 8 x 9 = 72
3. 6 x 4 = 24
4. 8 x 10 = 80
5. 4 x 3 = 12
6. 6 x 1 = 6
7. 8 x 2 = 16
8. 6 x 5 = 30
9. 4 x 6 = 24
10. 4 x 7 = 28
11. 8 x 6 = 48
12. 6 x 3 = 18
13. 6 x 4 = 24
14. 8 x 9 = 72
15. 4 x 5 = 20
16. 6 x 10 = 60
17. 8 x 1 = 8
18. 4 x 2 = 8
19. 4 x 7 = 28
20. 8 x 8 = 64