|  |  |
| --- | --- |
| **Lesson Plan:** “See It and Believe It” | **Room Requirements & Arrangement:** Open space (if desk or chairs are in the way, these are to be moved to the walls of the room to create open space) |
| **Content Area & Arts Discipline:**  Math and Dance |  |
| **Overview of the Lesson:**  Review the process of multiplying fractions, including simplifying the fraction equation solution, through an exploration of upper/lower and right/left body halves. The dance concept of body parts vs. whole body will also be incorporated. | **Materials/Equipment:** CD, boombox, poster showing fractions simplified, pencils (6), multiplication equations (unsolved) using fractions (6)  **School:** Saltillo Elementary School, Saltillo, MS & Oakland Heights Elementary School (MAAE) |
| **Grade Level:** 5th Grade | **Date Lesson Created:** 2015 |
| **Proposed Time Frame:** 45 minutes | **Lesson Author:** Julie White |

**Big Ideas & Learning Objectives**

1. The student will review the process of multiplying fractions and will demonstrate this clearly through movement.
2. The student will correctly identify denominators, numerators, and a simplified fraction and use this knowledge to create a “fraction equation dance.”
3. The student will clearly demonstrate an understanding and ability to do body halves (upper/lower, right/left) as well as doing different movement/shaping in each. A comparison of this relationship between two parts of a whole to fractions will be given, understood, and applied in movement activities.
4. The student will work cooperatively, respectfully, and creatively with their peers throughout instruction.

**Procedures**

***Affective Hook*:** Who has ever heard the saying “I need to see it to believe it?” What does this mean? Who has ever experienced this themselves? Sometimes in order for us to understand what is possible or how something works, we need to see it. This is why learning with movement can be so helpful. Today we will be using our bodies to demonstrate how to correctly multiply and simplify fractions.

***Relevance*:** It is important to know how to solve problems and have a clear process of how to do this. This is helpful in math, in life, and in dance. In all three, if we understand how to do this in one area, we can apply what we know and can do to more complicated things. Dancers do this all the time – the basic skills they learn allow them to do more complicated things and eventually dance well in any style. The same is true for math.

***Introduction of Participation Expectations:*** *This is a special kind of class. You need to give me your full attention and do your best to watch me as I teach. In a movement class, you follow-the-leader and what you see me do as much as you listen to what I am saying and follow spoken directions. You also want to be spatially aware and respectful of those around you. Keep your body to yourself and stay safe in your movement above all else. We will be working together in teams for part of this class, which is important to know how to do well, and I will be asking for volunteers to help me be leaders and demonstrators as well (define a good volunteer). Make it clear to me if this is you from the beginning of class so I notice you and ask you to help me teach! Finally, we have a special “cue” for attention in class because we are moving a lot (model call-and-response and have students practice it several times). Any questions? Now we are ready to go.*

***Warm-up*: *BrainDance***

Follow my lead but feel free to explore. We will be moving in all different kinds of ways in the warm-up. Do your best to do everything clearly. We will do the warm-up in place.

* Breath
* Tactile
* Core/Distal
* Head/Tail
* Upper/Lower
* Right/Left
* Cross Lateral
* Vestibular

***Discussion:*** *During the warm-up we did many different types of movement. Some things happened in the upper body, some in the lower. Some with the left side of the body, some with the right. Some with just one body part, and much with the whole body. The teacher will ask students to give examples of each. Today we will be doing all three of these things to help us review and show multiplication of fractions.*

***Activity One (Introduction of Movement Concept): Numerator and Denominator***

**Dividing the Room: Body Part vs. Whole Body**

The teacher will ask the students to stay seated in their place, but split the room in half and ask them to face one another. She will then lead students through a simple improvisation where students creatively explore three action/non-locomotor movements:

* Shake
* Bounce
* Swing

She will then repeat each word, having half the room do the movement in one body part (student’s choice) and half the room do it using their whole body. She will also introduce the dance elements of time and level.

* Shake: body part (1) and whole body (2) – fast and slow
* Bounce: body part (2) and whole body (1) – high (standing) and low (sitting)
* Swing: body part (all) and whole body (all) – all

The teacher will then explain to students that one half of the room is the numerator and one half of the room is the denominator, and that the movement done represented the relationship between these two numbers in a fraction and how they are parts of a whole and function as a unit.

**Dividing the Body: Upper/Lower**

The students will be asked to stand in their personal space and will be given new movements:

* Poke
* Roll

They will be directed to try these in their upper body and their lower body. They will be encouraged to “interpret” the words and come up with unexpected movements. Students that do will be pointed out by the teacher and asked to show the class what they did. The teacher will then ask students to “poke” in the upper body, and “roll” in their lower body. They will then try the reverse and practice going between the two. The teacher will explain that numbers can be either numerators or denominators no matter what their value, and the place that they are in, helps us to know what the solution to the fraction equation is.

**Dividing the Body: Right/Left**

The students will be asked to find a partner. They will then be directed to be “sculptor” and “clay” where the sculptor “moves and manipulates” the clay into a shape that is symmetrical in the upper body and asymmetrical in the lower body. The teacher will model with a student volunteer what this looks like and how to respectfully touch and work with a partner in this activity. The students will be asked to focus on the right/left sides of the body to ensure that they can accomplish this. Approximately one minute will be given to the sculptor to make a “statue.” Once this has occurred, the sculptors will be directed to “step back” and become “museum patrons” and look at the art in the museum. They will also be asked to select their favorite shape and be able to tell their peers why they love it. Sculptures will stay frozen until the “museum visit” is done. The students will then switch roles and do this again. The teacher will ask them to avoid repetition of the last shape. For example: if the shape was on the ground, it needs to be standing, etc. This encourages students to stay creative in their movement choices.

***Activity Two (Exploration of Movement Concept): Review of Multiplication***

The students will be taught “Rock, Paper, Scissors, Math!” which is similar to the known hand gesture game, but instead of choosing rock, paper, or scissors, each student will make a number with their hand (1 – 5, zeros not allowed). They will then quickly multiply these two numbers and share their answer. Whoever shares their answer first, “wins” the math battle. Partners will do this with one another for five rounds for pure review. They will then battle one another and whoever does not win, will follow their partner to battle another partner. These two people will battle, and whoever wins this will continue to lead the line and all other students will line up behind him and follow him. Students will then “snake” through the room battling, until one final match-up occurs and one final “winner” is determined.

***Activity Three (Development of Movement Concepts): Simplifying Fractions***

The teacher will share the following equations:

1 x 3 = 3 2 x 1 = 2

3 5 15 3 4 12

She will ask students to simplify the answers to these equations (1/5 and 1/6) and ask students to explain how they arrived at these answers. She will then explain that in today’s lesson, students will show the original answer will full body movement and a simplified equation with one body part. The students will try this using the action JUMP (students will “jump” in their finger, in one arm, their head, and then finally in their whole body).

***Activity Four (Culmination of Combined Academic and Movement Concepts): Dancing a Multiplication Fraction Equation!***

The students will be divided into groups of 5 – 6. Each group will be given a pencil, two action words/movements, and one of three multiplication equations using fractions (see below). They will be directed to work together to first solve the equation and then simplify the answer. Once completed, they will do the following to dance this equation and their solution to it:

* Select one movement to represent the numerator and decide how to show this in the upper body
* Select one movement to represent the denominator and decide how to show this in the lower body

*\*Students will be encouraged to do each movement in a variety of ways*

* Use body shaping to show the multiplication and equals signs
* Show the simplified answer to the equation by first dancing the answer and then putting each movement in one body part

Each group will then show their equation as the teacher reads it aloud and guides the pace of the “performance.” Observing students will be asked to comment on the clarity and correctness of the movement and the math involved. The teacher will share performance/audience expectations before showings, and affirm quality participation in this activity afterwards.

Equations:

1 x 2 = 2 2 x 1 = 2

2 3 6 4 4 16

1 x 2 = 2

4 3 12

***Differentiated Learning for Culminating Activity***

* *Below Grade Level: Complete all but one requirement.*
* *On Grade Level: Complete all the requirements, and perform with energy and confidence.*
* *Above Grade Level: Complete all the requirements, perform with energy and confidence, and find creative and diverse movements to represent each action in each equation.*

***Closure***

Today we reviewed denominators, numerators, and simplifying fractions and compared this with doing movement in our bodies that shows two different things working together to make a whole. The teacher will ask student volunteers to identify upper/lower, right/left, and body part/whole body. Finally, the teacher will discuss with students how there are many different ways to learn and many different kinds of “smart” (intelligences). She will reassure them that it is “ok” if they don’t “get something” right away sometimes, and remind them that learning the information in a new way might help. In other words, when you “see it you will believe it” – “when you learn it in the way you learn best, you will get it.” The teacher will thank students for their efforts and their creativity in class.