

Paola Higuera
Spring 2023
EDDN 637 / Dr. Cowin

Differentiated Instructional Activity

ORIGINAL LESSON PLAN

Subject: Math
Grade: 4th grade
Unit of Study: Fractions
Date: 03/14/23

Standard: 4.NF.A.1 Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.

Objective: Students will successfully generate equivalent fractions

Teaching Point: Students will successfully generate equivalent fractions using fraction pieces they've created

Focus Questions:

1. How can we create equivalent fractions using pre-made fraction pieces?
2. How can we create equivalent fractions for $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{4}$?

Materials: white board, interactive board, previously made fraction pieces, writing utensils, video (brainpopjr <https://jr.brainpop.com/math/fractions/equivalentfractions/>)

Modifications: manipulatives(magnetic fraction pieces), math word wall, anchor chart, visuals

Teacher Demo:

Students watch the short 4 min video and teacher models how to create an equivalent fraction using fraction pieces. The teacher models creating 3 fractions that are equivalent to one-half ($\frac{2}{4}$, $\frac{3}{6}$ and $\frac{4}{8}$).

Active Engagement

Students create 2 fractions equivalent to one-half by using tenths and twelfths.

Differentiated Activities

Ability Groups complete worksheet; each group will receive a different fraction and they will receive fraction pieces.

Assessment: exit ticket

Lesson Plan with Differentiated Instructional Activities

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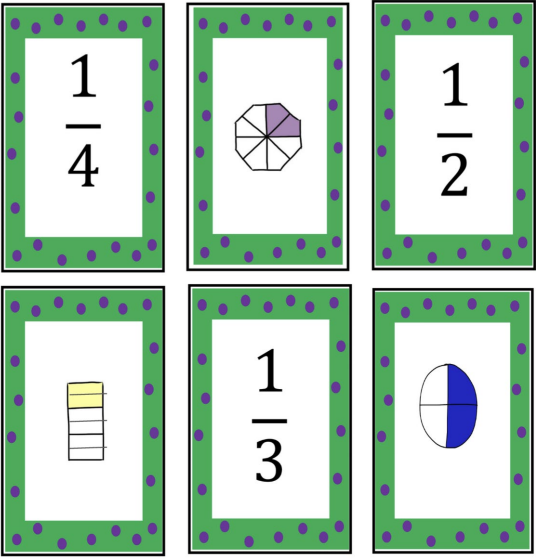
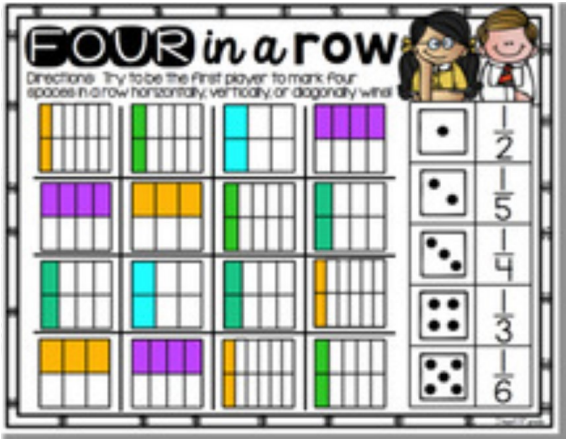
Focus Questions:

1. How can we create equivalent fractions using fraction pieces?
2. How can we identify equivalent fractions for $\frac{1}{2}$, $\frac{1}{3}$, and $\frac{1}{4}$ using pre-made fraction pieces?

Materials: white board, interactive board, video (brainpopjr <https://jr.brainpop.com/math/fractions/equivalentfractions/>), dry erase markers

Practice (how teachers deliver instruction to students)	Pre-teach vocabulary with visuals in English (fraction, denominator, numerator, equivalent, one-half, one-fourth, two-fourths, two-eighths,) *Entering/Emerging ELLs will receive a printout of the vocabulary with visuals and words in English/Spanish Activate prior knowledge Model how to make fractions equivalent to one-half Watch/Re-Watch Video (leave closed captions on) https://jr.brainpop.com/math/fractions/equivalentfractions/
Process (how the lesson is designed for students)	The lesson is designed to pre-teach vocabulary using visuals and Spanish/English vocabulary, activate prior knowledge, construct and identify equivalent fractions, and use fraction strips to find equivalent fractions. The teacher will make an anchor chart with students as they work on making equivalent fractions. The anchor chart will be displayed. Then, students will work in their assigned groups to complete the differentiated activity. Students will watch then re-watch the video.
Product (the kinds of work products students will be asked to complete)	Homogenous In-Class Groupwork: Red Group : entering & emerging Concentration/Memory game Equivalent Fractions Orange Group: expanding Four in a row Equivalent

	<p>fractions (include sentence frame <u> </u> is equivalent to <u> </u>)</p> <p>Yellow Group : transitioning & bridging Equivalent Fraction Bingo</p> <p>Homework: Students select Homework A = “I can create equivalent fractions using visual models”</p> <p>Homework B = “I am ready to create equivalent fractions without using visual models.”</p>
<p>Content (the specific readings, research, or materials, students will study)</p>	<p>Watch/Re-Watch Video (closed captions on) https://jr.brainpop.com/math/fractions/equivalentfractions/ Fractions equivalent to one-half (model with fraction pieces manipulatives, then students create their own and write equivalent fraction number sentence on personal whiteboard)</p> <p>Games – differentiated based on ELL proficiency</p>
<p>Assessment (how teachers measure what students have learned)</p>	<ul style="list-style-type: none"> • in-class worksheet • informally assess students during group activities • specific teacher feedback provided on worksheet and homework • homework
<p>Grouping (how students are arranged in the classroom or paired up with other students)</p>	<p>Homogenous groups so that students get the opportunity to work on materials that are ideal for their specific strengths and areas for development. Teachers can spend a majority of groupwork guiding entering and emerging ELLs.</p>

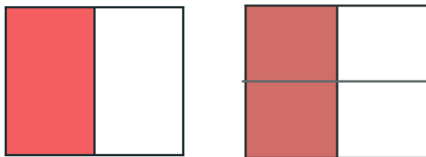


Equivalent Fractions

Equal
The same

=

Making Fractions equivalent to one-half

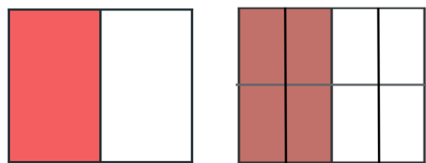


numerator 1
denominator 2

2
4

$$\frac{1}{2} = \frac{2}{4}$$

Making Fractions equivalent to one-half



numerator 1
denominator 2

4
8

$$\frac{1}{2} = \frac{4}{8}$$

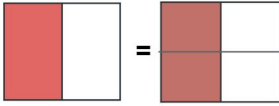

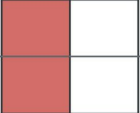
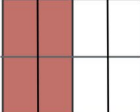
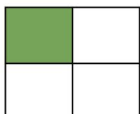
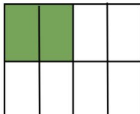
Making Fractions equivalent to one-fourth



1
4

2
8

$$\frac{1}{4} = \frac{2}{8}$$

Equivalent	=		equivalente
One half	$\frac{1}{2}$		una mitad
Two fourths	$\frac{2}{4}$		dos cuartos
Four eighths	$\frac{4}{8}$		cuatro octavos
One fourth	$\frac{1}{4}$		un cuarto
Two eighths	$\frac{2}{8}$		dos octavos

Reflection

As educators in a time when “the population of English language learners (ELLs) has grown dramatically throughout the United States” (Breiseth, 2015), we need to be mindful of our teaching practices in order to create opportunities that will allow all learners to be successful. We need to keep in mind that “ELLs are a diverse group whose needs may vary significantly (Breiseth, 2015). Therefore, we need to differentiate effectively because “the goal of differentiated instruction is to create learning opportunities that make allowances for differences in how individual students learn in order to ensure equal access to important academic content. Content may be modified for students who need additional practice with essential elements before moving on; however, the expectation is that modifications in other areas will ultimately allow all students to master the same key content” (Ford, 2012). By differentiating content, process, and affect we “create a balance between academic content and students' individual needs” (Ford, 2012).

One of the elements differentiated in the lesson above was content. Content refers to the “knowledge, understanding, and skills that students needs to learn” (ASCD). In order to meet the individual needs of every student, educators must provide effective scaffolding for specific content. This can be done in various ways. For example, pre-teaching specific content, allowing students to advance individually, modifying content for students based upon their individualized education programs (IEPs) are just a few of the ways (ASCD). In the differentiated lesson above, content was differentiated by pre-teaching vocabulary necessary for understanding equivalent fractions. The print outs of important fraction words include new vocabulary words related to fractions, the translated word in Spanish, and corresponding visuals. Including the words in Spanish allows students to make connections between the Spanish vocabulary word and the

English vocabulary word. In this lesson the teacher models how to create equivalent fractions to one-half by using fraction pieces. This is a clear message for students to understand what the expectation is of them when they begin to create fractions equivalent to $\frac{1}{4}$ using eighths.

Providing students with visuals and examples is an important part of a lesson (Echevarria, 2017). Students will watch and re-watch video, directly linked to the teacher's presentation, to hear the concept in a different format with more visuals, animation and very kid friendly. Slowing down the speed of the video will also help ELLs better understand what is being said. A slower rate for beginning speakers is one way teachers can differentiate spoken English to make it comprehensible for diverse English learners (Echevarria, 2017).

Another element that was differentiated for the lesson was process. Process is the way in which students understand content. Differentiating the process allows students to understand content by making connections to prior knowledge or experiences (ASCD). Differentiating the process of lesson plans allows students to figure out concepts independently and ask questions. Sometimes it can be beneficial to group students of similar "readiness" in order to provide needed support. Tomlinson and Imbeau (2010) define readiness "a student's current proximity to specified knowledge, understanding, and skills" (p. 16) (ASCD). In the differentiated lesson above, students are grouped homogeneously by language proficiency levels. Homogeneous grouping can be great for things like guided reading groups, interventions, extension activities, or differentiation methods where tasks need to be targeted to specific skill or proficiency levels; it can also be used to group students by their language levels (Model teaching, 2021). By differentiating by student need in homogeneous groups, the teacher is able to match a task strategically to students in their zone of proximal development, which should increase their understanding of the content, create opportunities for success, and increase confidence (Kang,

2022). While in groups, students will be instructed to identify equivalent fractions. Each group will receive a different equivalent fraction activity/game based on their academic needs. For example, one group will receive a sentence frame to support the academic language that will help students work in their ZPD.

Product was another element that was differentiated in the lesson above. Product allows students to demonstrate their understanding of a specific content. Educators can assess student understanding by analyzing student performance on assessments (ASCD). Authentic assessments provide creative learning experiences to assess student's knowledge and skills in realistic situations. Matching assessment to students' learning profiles and language proficiency ensures that every student has an opportunity to demonstrate what he/she knows (Ford.). In the differentiated lesson, students will play equivalent fraction four in a row, equivalent fraction bingo and concentration equivalent fractions. Using games in the classroom increases student engagement, participation and motivation. As a lesson extension/homework, students have the choice between two options. One worksheet will be for students who identify with the statement 'I can create equivalent fractions using visual models.' The other worksheet will be for students who identify with the statement 'I am ready to create equivalent fractions without using visual models.' Often times when students have options/choices in the work they complete, they feel more ownership of their learning. This often results in increased engagement and motivation in assignment completion.

Creating this lesson with differentiated instructional activities allowed me to focus on the on the modification of four elements: content, process, product, and affect/learning environment while using my understanding of student needs—the students' readiness, interests, and learning profile to guide the modifications.

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