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| **TEAM Lesson Plan Template** |
| Teacher: |
| Subject/Grade: 4th grade Math |
| Lesson Title: “Creating Equivalent Fractions” |
| **STANDARDS:** |
| Standard: 4.NF.A.1 – Explain why a fraction a/b is equivalent to a fraction by using visual fraction models, with attention to how the number and size of the parts differ, even thought the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.  This lesson emphasizes:   * making equivalent fractions using fraction bars * being able to explain that equivalent fractions are equal in value |
| **OBJECTIVES:** |
| I can statements:   * I can make equivalent fractions by multiplying or dividing the numerator and denominator of a fraction by the same factor. (level 3) * I can explain why two fractions are equivalent using a model. (level 4) |
| **MATERIALS AND RESOURCES:** |
| Materials:   * Each student is given 1 fraction bar set.   What if technology is not working?   * Ideally, this is shown under document cameras and observations are recorded on a whiteboard; however, circulating around the room and writing observations on butcher paper works as well.   Routine for distributing materials:   * Each fraction bar set is prebagged and each student is given one set. If this is the first time they are given these manipulatives, outline expectations of use and give them a few minutes to explore them with a neighbor. |
| **ACCOMMODATIONS/ADAPTATIONS:** |
| Accommodations:   * Preferential seating   + Close to teacher for behavior or attention needs   + Close to a peer for students with math difficulties   Enrichment option:   * Students will draw models showing equivalency of fractions. * Example below shows original fraction was 1/3 and the student shows it as 2/6.  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | |  | |  |  |  | | --- | --- | --- | |  |  |  |     1/3 | |  |  |  | | --- | --- | --- | |  |  |  |   =  2/6 |  | |
| **MOTIVATING STUDENTS/ANTICIPATORY SET:** |
| Put the following question on the board:   * Jaqueze eats 2/4 of a pizza. Darien eats 4/8 of a pizza. Did they eat the same amount of pizza? Explain your reasoning. * Students will write their answer on a post stick note and place at the front of the room. Make sure to explain that they will have the opportunity to revise their answer later on, so have them write neatly and put their name or student # on it for easy identification. |
| **INSTRUCTIONAL PROCEDUCRES:** |
| **Lesson Layout**  Introduction:   * Pass out bagged fraction sets – 1 per student and tell them to “Organize it.” Give no further instructions. * Allow 2-3 minutes for students to organize the fraction bars, then have a class discussion about how they organized it and why. * Allow time here for the class discussion to deepen understanding. Use assessing and advancing questions and accountable talk practices; encourage the students to lead. You may want to add good observations to a class created anchor chart.   Middle:   * Instruct the students to pull out the ½ tile bar and build equivalent fractions. Allow a few minutes for exploration. Then discuss as a class what equivalent fractions they found. Continue to write good observations on the anchor chart. * “Now, I don’t know about you, but I don’t always have a set of fraction bars with me. How could we create equivalent fractions using an algorithm, or math operations?” Then begin using assessing and advancing questioning to allow the students to make the connection between how to get from ½ to the other equivalent fractions. Make sure to stress that the “rule” or “algorithm” must work for *all* of the equivalent fractions to be successful. * Repeat the process outlined in the above two bullets with 1/4 and then 4/6. Use the 4/6 to focus on division, or the inverse of multiplication, as a way to simplify.   End/Closure:   * Put the original hook question about Jaqueze back on the board. Instruct students to get their post stick notes and rethink their first answer. They can NOT erase the original answer, but they can write that they’ve changed it and why, or they can add to their original explanation to make it clearer and more math focused. Have them turn in their post stick note. This is now used by the teacher to see each child’s understanding of the concept. * Instruct students to clean up their fraction tiles and collect them.   **Motivating Students**   * Verbal praise; make sure to praise the *process* and not the end result. This helps encourage those struggling learners and keeps them engaged in putting forth the effort.   **Presenting Instructional Content**   * Hands-on * Class discussion with teacher assessing and advancing questioning and accountable talk   **Instructional Strategies**  Input:   * Hook   Exploration and Discussion:   * Hands on work * Teacher guides exploration through assessing and advancing questions   Check for Understanding:   * Check for understanding through questioning and observing student models   + Struggling Students: Give more 1 on 1 attention during partner/group work; question individually to see where the misunderstanding lies and help aid in understanding.   + Challenging Students: Extend thinking using higher level of questioning and include more advanced fractions; challenge to complete equivalencies without the fraction tiles or beyond what the tiles allow. |
| **QUESTIONING/THINKING/PROBLEM SOLVING:** |
| Questioning - These questions will occur throughout the activity as prompts based on groups’ or individual students’ progress and needs. These are also meant to be springboards to other questions.  Knowledge:   * Real Life Scenario:   + Part A) Is ½ of a donut the same size as, or equal to, ½ of a pizza?   + Part B) Why or why not?   Comprehension:   * Using the fraction bars, are there other ways to make ½?   Application:   * Let’s look at these two fractions, ½ and 2/4, how can you get from ½ to 2/4 using mathematical operations? ½ and 3/6? ½ and 4/8? ½ and 5/10? ½ and 6/12?   + Make sure to reference the fraction bars during this time and help them make the multiplying connection. Look for the pattern during the series of questioning. * Let’s look at these two fractions, 5/10 and ½, how can you get from 5/10 to ½ using mathematical operations? Repeat with 3/6 and ½; 4/8 and ½.   + Make sure to reference the fraction bars during this time and help them make the division connection. Connect multiplication and division as inverse operations. Look for the pattern during the series of questions. * Repeat the above questions with ¼’s equivalent fractions and 4/6 equivalent fractions.   **Thinking**  Practical:   * ½ of donut vs ½ of pizza question; are these two things equal, or equivalent, in size? * Real life scenario – pizza problem; Part A   Analytical:   * Application questions – finding multiplying and dividing connection between equivalent fractions.   What am I going to do to give students an opportunity to:   * Generate a variety of ideas?   + Use assessing and advancing questions during the class discussion.   + Allow students to explore the concept of equivalent fractions using manipulatives. * Analyze problems from multiple viewpoints?   + Facilitate class discussions and encourage a variety of thoughts/ideas from different levels of students.   **Problem Solving**  Experimenting:   * Allow plenty of time for students to use the manipulatives to discover equivalent fractions.   Predicting outcomes:   * Hook question * Students will generate a variety of ideas after using manipulatives.   Improving solutions:   * Teacher-led discussion using assessing and advancing questions based on student ideas * Exit ticket |
| **ASSESSMENT** |
| * Hook and Exit Ticket |
| **CLOSURE** |
| Students go and get their “hook” post stick note. They must leave their original work, but can change their answer or add to their original explanation to reflect their learning. ALL students will write and explanation to justify their answer. |

**NOTES:**

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