Alternate Eligible Content (AEC) Example

Subject: Math
Grade: 4
AEC Code: M04AF2.1.2a
AEC: Decompose a proper fraction into multiple copies of a unit fraction (denominators limited to 3, 4, or 8)
Intent Statement: Break a fraction into smaller pieces (denominators limited to 3, 4, or 8)

PA Reporting Category: M04.A-F Numbers and Operations—Fractions
PA Core Standards (List all that apply): CC.2.1.4.C.2 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
Assessment Anchor: M04.A-F.2 Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
Descriptor: M04.A-F.2.1 Solve problems involving fractions and whole numbers (straight computation or word problems).
Eligible Content: M04.A-F.2.1.2 Decompose a fraction or a mixed number into a sum of fractions with the same denominator (denominators limited to 2, 3, 4, 5, 6, 8, 10, 12, and 100), recording the decomposition by an equation. Justify decompositions (e.g., by using a visual fraction model).
Example 1: 3/8 = 1/8 + 1/8 + 1/8 OR 3/8 = 1/8 + 2/8 Example 2: 2 1/12 = 1 + 1 + 1/12 = 12/12 + 12/12 + 1/12

AEC Coded

- KNOW: Proper fraction, unit fraction
- DO: Decompose into multiple copies
- CONTEXT: Proper (fractions) and unit (fractions) denominators limited to 3, 4 or 8

Definition Notes: *definition not found in PSSA mathematics dictionary*
Unit Fraction- a fraction with a one in the numerator (on top) signifying one piece of a whole

Most Complex Level

Content Target: Given an explanation of a unit fraction, and how they are used in repeated addition of adding fractions; the learner will decompose (tear apart) a given proper fraction with a denominator of 4, into its unit fractions

Example: A unit fraction is any fraction that identifies one part of a whole; like this:

$$\frac{1}{\text{Total number of pieces}}$$

When we add fractions with a like denominator (bottom number), the denominator stays the same, while we add the top numbers. For example:

$$\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$$

so if we wanted to decompose or tear apart the fraction using only unit fractions, it would look like this

$$\frac{2}{3} \xrightarrow{\text{Tears apart to}} \frac{1}{3} + \frac{1}{3}$$

Using only unit fractions, how would we decompose (tear apart) the fraction $\frac{2}{4}$? *OR* what would the repeated addition problem with unit fractions look like for 2/4?

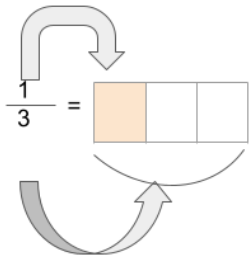
Mid Complexity Level

Content Target: With a picture explanation of unit fractions, and how they are combined by repeated addition to create a proper fraction, the learner will select the correct response from a group of three that show the parts of a proper fraction with a denominator of 4

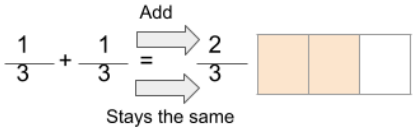
Example:

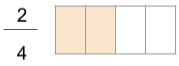
A unit fraction is any fraction that is one part of a whole. Unit fractions always have a 1 on the top, and the bottom number always shows how many total pieces there are in the shape.

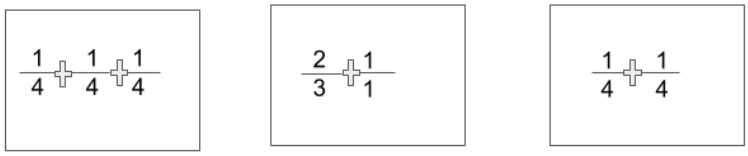
(teacher note: to draw attention/explain the “one” on top corresponding to the one portion colored in and the three on the bottom because there are three total squares, reiterate the fraction ⅓ is a unit fraction)



When we add fractions with the same bottom number, that number stays the same.
Then we add the numbers on the top



Which would show how to make the fraction  using unit fractions (fractions with a with 1's on top)?

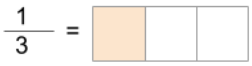


A B C

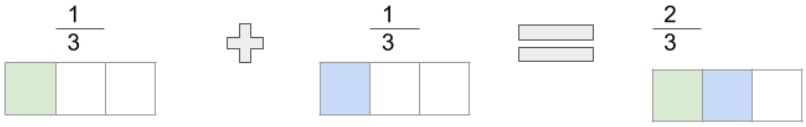
Least Complex Level

Content Target: Given an example that includes picture clues, Learner will select a picture answer using familiar images that deconstructs(tears apart) the model 3/4 into its unit fractions

Example:



If: (teacher shows one section out of the three is colored in)



Then when we add

(teacher shows with the model if one section and one section are combined 2 sections are now colored, and the same in reverse, that ⅔ can be torn apart into ⅓ and 1/3)

Teacher will show the answer choices, and then ask the students, "Which shows how to make" and show the students the ¾ model