

Grade Five HLC Learning Progressions

Fractions

Foundational Understanding of Fractions

The 5th grade HLC progression focuses on operating with fractions. Prior to operating with fractions, students should have opportunities to compare and order fractions, reason about the relative size of fractions and develop understanding about equivalent fractions. (see 5th grade HLC progression on the subsequent pages)





Grade Five HLC

Add, subtract, multiply and divide with fractions (in context and in equations) using visual representations

September

Grade Five Learning Progressions

June

Students must use models to build understanding along this trajectory and interact with a variety of contexts of adding, subtracting, multiplying and dividing fractions. **NO algorithms before conceptual understanding is SOLID. Introducing algorithms too early interrupts and/or has a negative impact on understanding**

Adding & Subtracting Fractions

Students move from adding/subtracting with same denominators to adding/subtracting with different denominators.





Multiplying Fractions

Students will interact with a whole number times unit fractions, then a whole number times a fraction less than 1, then move to unit fractions times unit fractions and finally to all other fraction multiplication types. Students will recognize and discover the patterns that lead to the standard algorithm.





fraction by a whole number

Dividing Fractions

In 5th grade, fraction division focuses only on problems with a whole number and a unit fraction (unit fractions by whole numbers, whole numbers by unit fractions). Students will be exposed to all problem types; partitive, multiplicative change, measurement conversion and rectangular area.

Use visual representations to divide 1 by a unit fraction

$$1 \div \frac{1}{4}$$

Quotitive

"How many groups of ¼ are there in 1?" "How many ¼ cup scoops of flour are there in 1 cup of flour?"



Multiplicative Change modeled with Rectangular Area

"I is ¼ of the total. Find the total." "I gallon fills ¼ of the gas tank. How many gallons does the whole tank hold?"

> 4 1 1 1 1 4 1 4

Use visual representations to divide a whole number by a unit fraction

$$2\div \frac{1}{3}$$

Quotitive

"How many groups of $\frac{1}{3}$ are there in 2?" "How many $\frac{1}{3}$ foot bracelets can I make out of 2 feet of ribbon?"



Multiplicative Change

"2 is ¼ of the total. Find the total." "2 feet of rope is ¼ of the total length. How long is the rope?



$\frac{1}{2} \div 3$

Use visual representations to divide a unit

Partitive

"There is ½ of a pan of brownies to be shared equally between 3 people. Each person will get ½ of a pan of brownies."



Measurement Conversion

"I have $\frac{1}{2}$ foot of ribbon. How many yards of ribbon do I have?"

