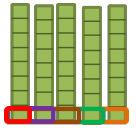
ROLE OF THE VINCULUM AS MEANING DIVIDED BY.

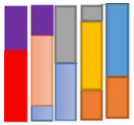
INVESTIGATIONS OVERVIEW PAGE
THIS PAGE IS A SUMMARY OF THE INVESTIGATIONS THAT STUDENTS MAY ENGAGE IN TO DEEPEN THEIR RELATIONAL UNDERSTANDING.
INVESTIGATIONS WITH INSTRUCTIONS TO STUDENTS FOLLOW ON SUBSEQUENT PAGES.

- Children select an Ace and another card to make a unit fraction. They record the fraction. They use the meaning of the numerator as the number of parts in the whole and the meaning of the denominator as the number of parts we have divided the whole into to record a division number sentence, for example, 1 ÷ __ = . They select a strip of paper. They divide by ___ by dividing the strip into ___ equal parts. Identify that the strip is 1 divided by ___ which equals $\frac{1}{\quad}$. They record a number sentence to describe how they divided the paper. They explain the meaning of the vinculum. Reflection: What does the vinculum mean?

- Children select 2 cards to make a non-unit fraction that they are ready to investigate. Children record the fraction, for example, $\frac{5}{8}$. They use the meaning of the numerator as the number of parts in the whole and the meaning of the denominator as the number of parts we have divided the whole into to record a division number sentence, for example, $\frac{5}{8} = 5 \div 8$
  They select 5 strips, which they divide by 8 by either dividing each strip into 8 equal parts, for example,
  Children identifying that each strip is 1 divided by 8 which equals one-eighth, so 5 divided by 8 must equal 5 of the eighths which is five-eighths



  OR
  by dividing the five strips into 8 equal parts, for example, and identifying that one part is five-eighths.



  Children then look at the number sentence, for example, 5 ÷ 8 = $\frac{5}{8}$ to identify that the vinculum means divided by.Reflection: What does the vinculum mean?

- Children select a card to use as the number of pizzas that they have, for example, 6. They select a higher number card to use as the number of children who will share the pizzas, for example, 10. They divide the 6 pizzas between the 10 children. They record their number sentence explaining that they divided 6 by 10, to get the fraction six-tenths, for example, 6 ÷ 10 = $\frac{6}{10}$. They explain that the vinculum means divided by. They explain which way of dividing makes sense when dividing pizzas between children. Reflection: How can we use the meaning of the vinculum to help us to divide a small number by a larger number?

- Children are told that they have 6 cups of milk to make 8 cakes. They work out the fraction of a cup of milk used in each cake. Reflection: How can we use the

meaning of the vinculum to help us to divide a small number by a larger number?

In pairs, children investigate improper fractions using the vinculum to mean divided by. For example, the improper fraction $\frac{15}{8}$ is recorded as $\frac{15}{8}$ = 15 ÷ 8 = 2 $\frac{1}{8}$Reflection: How can we use the meaning of the vinculum to help us to create a mixed numeral from an improper fraction?

Role of the Vinculum as Meaning Divided By

Select an Ace and another card to make a unit fraction, for example,

Record the fraction, for example, $\frac{1}{4}$.

Use the meaning of

- the numerator as the number of parts in the whole
- the denominator as the number of parts we have divided the whole into
- the vinculum to mean divided by

to record a division number sentence, for example, $\frac{1}{4} = 1 \div 4$

Select a strip of paper.

Divide by 4 by dividing the strip into 4 equal parts, for example,

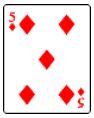
Identify that the strip is 1 divided by 4 which equals $\frac{1}{4}$.

Explain the number sentence to describe the meaning of the numerator, the denominator and the vinculum, for example,

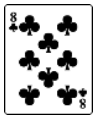
Reflection: What does the vinculum mean?

Role of the Vinculum as Meaning Divided By

Select 2 cards to make a non-unit fraction, for example,



Record the fraction, for example, $\frac{5}{8}$.

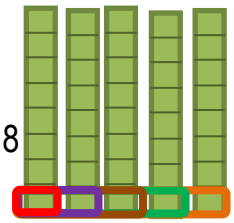


Use the meaning of

- the numerator as the number of parts in the whole
- the denominator as the number of parts we have divided the whole into
- the vinculum to mean divided by

to record a division number sentence, for example, $\frac{5}{8} = 5 \div 8$

Select 5 strips of paper.

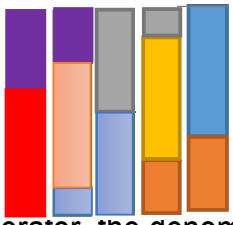


Divide by 8 by either dividing each strip into 8 equal parts, for example,

Identify that each strip is 1 divided by 8 which equals one-eighth, so 5 divided by 8 must equal 5 of the eighths which is five-eighths

OR

by dividing the five strips into 8 equal parts, for example,



Identify that one part is five-eighths.

Explain the number sentence to describe the meaning of the numerator, the denominator and the vinculum, for example,

Reflection: What does the vinculum mean?

Role of the Vinculum as Meaning Divided By

Select a card to use as the number of pizzas, for example, 6.

Select a higher number card to use as the number of children who will share the pizzas, for example, 10.

Divide the 6 pizzas between 10 children either by dividing each pizza by 10 and giving each child a piece of each pizza, or by dividing the 6 pizzas into 10 equal parts.

Record your number sentence explaining that you divided 6 by 10, to get the fraction six-tenths, for example, $6 \div 10 = \frac{6}{10}$.

What does the vinculum mean?

Reflection: How can we use the meaning of the vinculum to help us to divide a small number by a larger number?

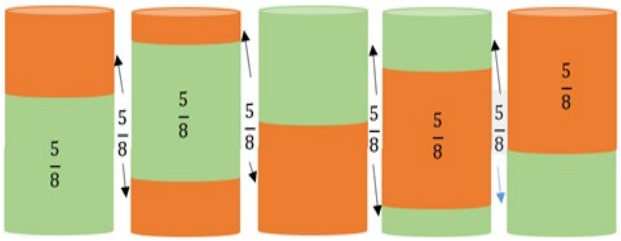
Investigating the Meaning of the Vinculum as Divided By

Select a card to use as the number of cups of milk that you have, for example, 5.

Select a higher number card to use as the number of cakes you will make, for example, 8.

Work out the fraction of a cup of milk used in each cake, for example,

or



Record your number sentence explaining that you divided 5 by 8, to get the fraction five-eighths, for example, $5 \div 8 = \frac{5}{8}$.

What does the vinculum mean?

Reflection: How can we use the meaning of the vinculum to help us to divide a small number by a larger number?

Role of the Vinculum as Meaning Divided By

Investigate improper fractions using the vinculum to mean divided by.

For example, the improper fraction $\frac{15}{8}$ could be recorded as $\frac{15}{8} = 15 \div 8 = 2\frac{1}{8}$

Reflection: How can we use the meaning of the vinculum to help us to create a mixed numeral from an improper fraction?