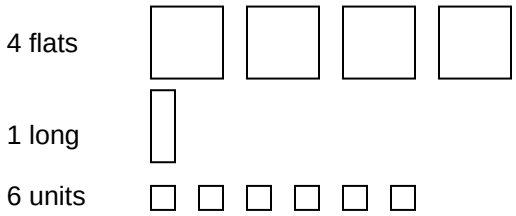
DIVISION WITH ONE-DIGIT DIVISORS

For Teacher Use

Multiplication can be modeled by repeated addition and joining together like groups. Division can be modeled by repeated subtraction and separating objects into equal groups. Students in WISD will have opportunities to use these models to represent division.

Division represented by separating objects into equal groups can best be demonstrated with a one-digit divisor. Students use materials such as Base 10 blocks and the teacher provides the language in order to illustrate the concept of division and how this method ties to the traditional algorithm. The example below shows how the Base 10 blocks and language are presented to students in order to divide 416 by 3.

- Ask students to get Base 10 blocks to represent 416. They should pick the following blocks -

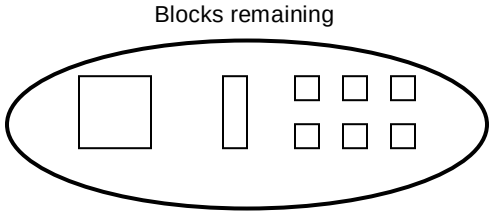


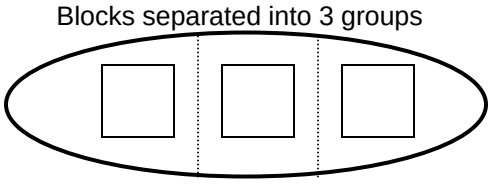
- Tell the students the following scenario – You are to share these blocks with two friends and yourself. Therefore, you will have 3 separate piles of blocks and each person is to have the same number of blocks.

  Remind the students that they may need to make exchanges, like 10 longs for 1 flat or 10 units for 1 ten.

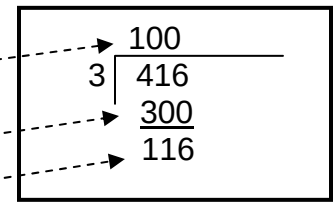
  Students will probably separate their blocks in a variety of ways. Watch for students who begin separating the flats, then the tens, and finally the units and make the appropriate exchanges along the way. Ask this student to come to the overhead and illustrate how they separated their blocks.

- Ask the student what he/she did first.

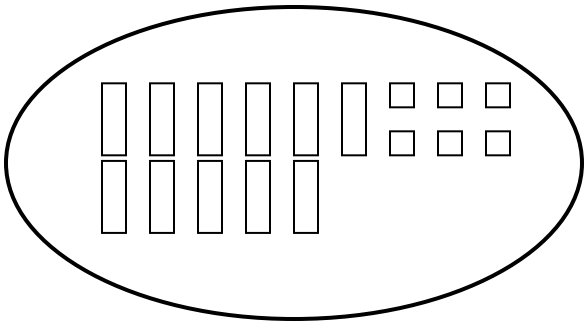




- After the student puts the flats in place ask:
  How many hundreds did each person receive?
  (1 hundred)
  How many hundreds did you use in all?
  (3 hundreds)
  How many blocks do you have left?
  (116)



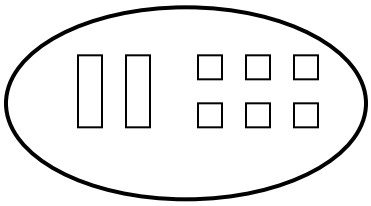
- Then ask the student what he/she did next. Have the student show the exchange on the overhead



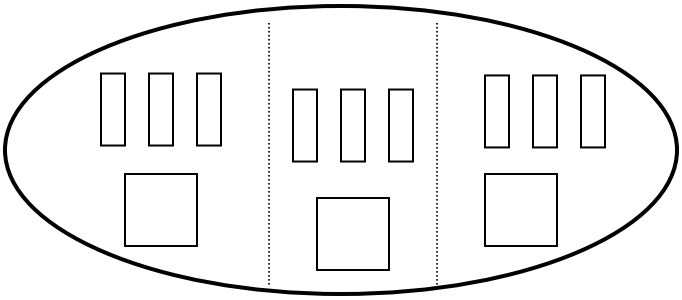
One flat (1 hundred) was exchanged for 10 rods (10 tens)

- As the student continues, ask the following questions

Blocks remaining



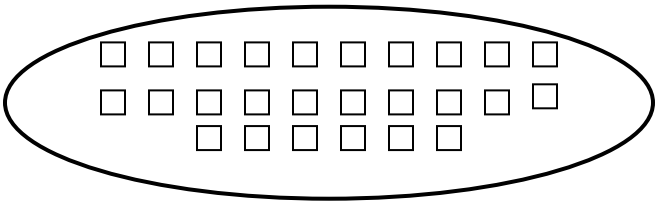
Blocks separated into 3 groups



How many tens did each person receive?
(3 tens)
How many tens did you use in all?
(9 tens)
How many blocks do you have left?
(26)

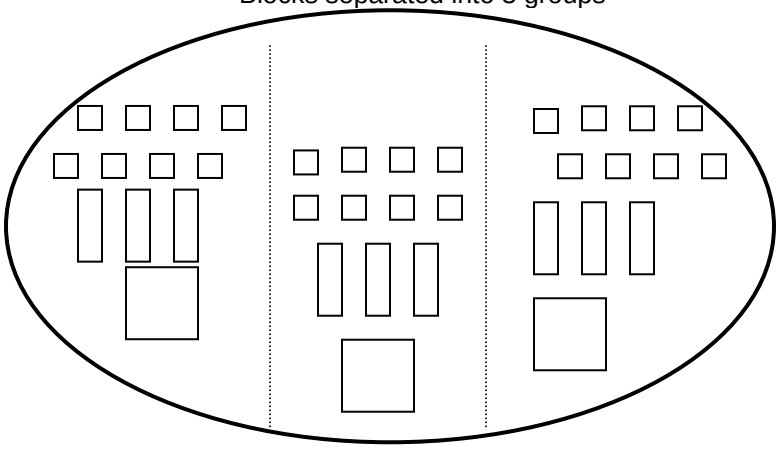
$$
\begin{array}{r|l}
 & 100 + 30 \\
\hline
3 & 416 \\
 & \underline{300} \\
 & 116 \\
 & \underline{90} \\
 & 26
\end{array}
$$

- Then, have the student show the exchanges of the two remaining tens to twenty ones

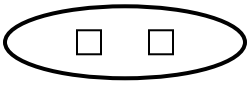


- Continue with the same line of questioning.

Blocks separated into 3 groups



Blocks remaining



How many ones did each person receive?

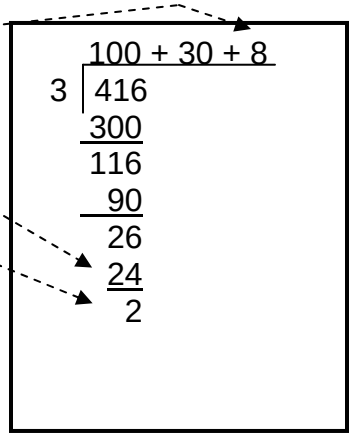
How many ones did you use in all?

How many blocks do you have left?

(8 ones)

(24 ones)

(2)



- Finally, have the students write the expanded form of 100 + 30 + 8 in standard form of 138 and to note the remaining 2 blocks as 138 r 2. Therefore, each student received 138 blocks with 2 left over.