

Math 306
Example of 10-15 min Lesson plan

Grade Level: Fifth or sixth grade

Student objectives

- To develop the partitive meaning of division with fractions through informal explorations
- To reinforce the partitive meaning of division

Prior Knowledge

Students solved both partition and measurement problems with whole numbers. They understand the symbolic notation of fractions (i.e., they know what the top number in the fraction means-the number of parts-and what the bottom number in the fraction means-the kind of parts we are counting). The students can add fractions and find equivalent fractions.

Materials and preparation

- Prepare paper/transparency with the problems for the lesson.
- Interlocking cubes
- Color chips
- String
- Scissors
- Number lines

Lesson Procedure (Script)

Ask students how they would solve the following story problem:

*Marie bought 24 pieces of bubble gum to share among herself and her 3 friends.
How many pieces of gum will each person get?*

Handout chips/cubes to represent the bubble gum.

- Have the students work out the problem using the manipulative(s).

What are some ways you came up with solving this problem?

Write these answers on the board/document camera and discuss with the class why it works.

What fraction of the candy did Marie get?

Write the possible answers on the board.

What happens if there are 26 pieces of candy?

- Students are to solve the following problems:

Put up the problem containing the next problem

Cassie had $5 \frac{1}{4}$ yards of ribbon to make three bows for birthday packages. How much ribbon should she use for each bow if she wants the same length of ribbon for each?

What are some ways that we can set up this problem?

Start listing possible ways to solve.

When list is done have students work it out themselves.

Now work out the problem in at least two different ways. If you get this done before everyone else finishes, think of a way that is not listed on the board and work it out that way.

Walk around the room looking at different ways things are being done.

Help but don't tell.

If something looks close but is wrong, ask the student to explain their reasoning so they may find the fault themselves.

When most students are finished place the other problem on the board.

Everyone keeps on working on your problems. If you finish with this problem, here is another problem to start working on.

Put up the third problem:

Mark has $1 \frac{1}{4}$ hours to finish his three household chores. If he divides his time evenly, how many hours can he spend on each?

Divides is another way of saying he will split up his time.

Here's a hint. If you get stuck, try to split the pieces into smaller parts.

Post the "Extra" question on the board.

This question is to be done only after the other problems are completed

For those groups who finish the two problems that I have listed on the board, I have another problem for you to work out.

Ryan has $6 \frac{2}{3}$ yards of rope to hang 4 bird feeders. How much rope will he use for each feeder if he wants to use the same length of rope for each?

Use any of the strategies that we have talked about to this point. Remember to listen to your partners because it could use a combination of the ways that you each do the problem.

After all the students have finished the 2 problems and all started on the “extra” problem. Get ready to put answers on the board.

Ok, don’t worry if you did not get the last problem finished, let’s work through the first two and see the different ways we can work this problem out.

- Start the first problem and get answers from the class. Record all answers and do not say which is the right answer.
- Have the individual students come to the board and explain their reasoning to the rest of the class.

So why did you set up your problem this way? Why did you split up the parts like this? Does anyone have a question about how it was done? Does someone else have a different way to do it? It does not matter if your answer is different because we are not sure this is the correct way yet.

- After the students have put different solutions up on the board and showed their way to evaluate them. Keep the discussion organized and help the class decide what the correct answer is. Then find the solutions that get to this answer.
- Work through the second problem the same way.

Keep order in the class and call on different students for input to ensure they are all following what is happening in front of them. Keep in mind that not all the students will agree on one way to do the problem.

So do you see how this way of splitting the problem is close to this other way? What types of things about this way of solving similar to the other ways?

- Help students establish the fact that some of the different ways are actually equivalent ways to do the problem.
- Also help students establish that they are asking “How much is in the whole?” or “How much for one?”

Recommended resource:

Fractions, Decimals, Ratios, and Percents: Hard to Teach and Hard to Learn?, edited by Carne Barnett, Donna Goldstein, and Babette Jackson, Heinemann Publishers, 1994.