PROBLEM SOLVED
MAKING SENSE OF MATHEMATICS

Division Procedure
A Closer Look at the Video

After watching the *Division Procedure* video, make sense of the mathematics by taking a closer look at the problem situation and solution. Use the comments and questions in bold to help you solve the problem and make sense of long division.

Problem: You and your two friends just finished cleaning up your neighbor's yard. Your neighbor gives you $72 to divide among you and your two friends. How much money does each person get?

Using a model to solve a division problem helps make sense of the procedure. This video uses money to explain long division.

How can you represent $72 using $10 bills and $1 bills?

Seven $10 bills and two $1 bills equal $72.

Share the seven $10 bills equally among three people. What is the result?

Each person gets two $10 bills. That is a total of six $10 bills and there is one $10 bill left over.

How can you share the remaining $10 bill?

Trade the remaining $10 bill for ten $1 bills. Now there are twelve $1 bills, ten from the $10 bill we traded and the two original $1 bills.

MakingSense

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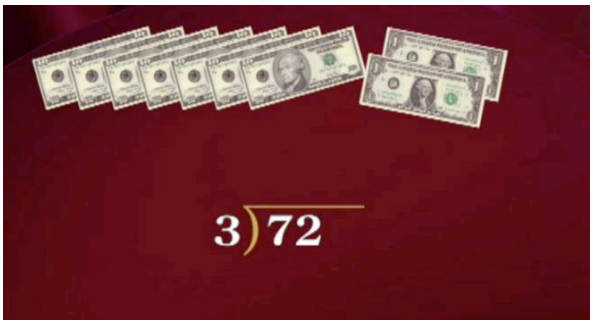
Share the twelve $1 bills equally among the three people. What is the result?

Each person gets four $1 bills. That is a total of twelve $1 bills.

Each person will receive a total of $24, two $10 bills and four $1 bills.

Using money helps make sense of the division procedure. Solve the problem again, but this time connect what you did with the money to the paper-and-pencil procedure.

First write 72 ÷ 3 as a long division problem.



72 is the number we want to divide into equal parts and 3 is the number of equal parts.

Now solve the problem using the money, but record your actions. Explain your reasoning for each step.

Share the $10 bills.
Each person gets two $10 bills, so record a **2** in the tens place of the answer.

Record the total number of $10 bills shared, **6**, and subtract to find how many $10 bills remain, **1**.

Trade the remaining $10 bill for ten $1 bills. Now there are a total of twelve $1 bills. One $10 bill and two $1 bills is the same amount as twelve $1 bills. Record the **2** to show there is a total of **12** $1 bills left to share.

Share the twelve $1 bills.
Each person gets four $1 bills, so record a **4** in the ones place of the answer.

Optional: You could record the total number of $1 bills you used, 12, and subtract to find how many $1 bills remain, zero.

$$\begin{array}{r} 24 \\ 3\overline{)72} \\ \underline{6} \\ 12 \\ \underline{12} \\ 0 \end{array}$$

72 ÷ 3 = 24, so each person will receive a total of $24, two $10 bills and four $1 bills.

The purpose of representing and solving problems with a model is to develop understanding. You can represent division problems with money, as shown in this video, or blocks grouped in ones, tens, and hundreds. Once you can make sense of long division using a model, using an efficient procedure is appropriate.