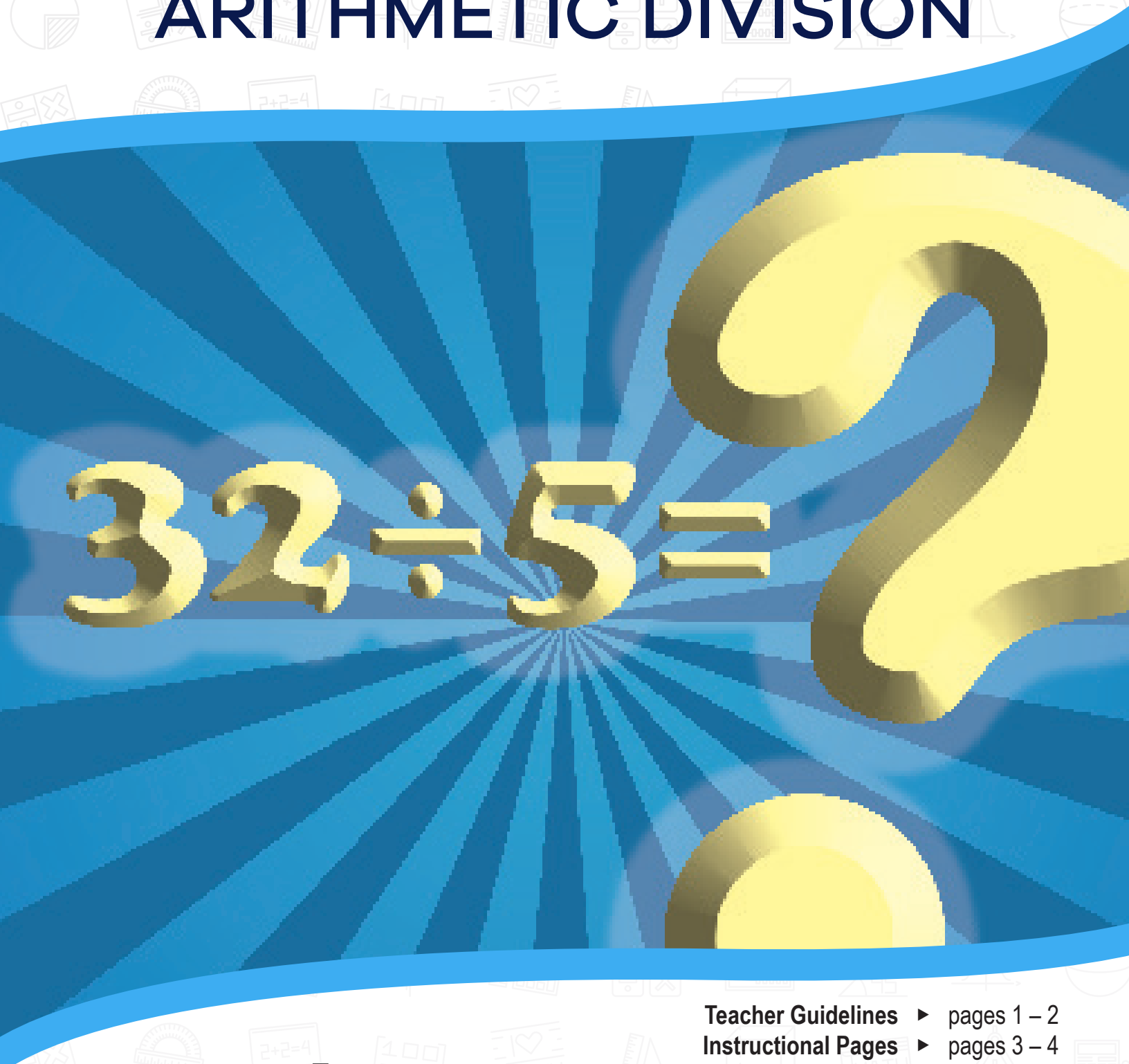
Learn BRIGHT

MULTI-DIGIT ARITHMETIC DIVISION



GRADE 4

Classroom Procedure:

1. Begin by asking students if they have ever shared something that didn't end up even. Have students share experiences and how they handled the left-overs. Link this concept to the idea of a remainder in math.
2. While reading the content pages, reinforce vocabulary, and give students additional examples of Multi-Digit Arithmetic Division problems to help them practice. Use the additional resources to enhance understanding.
3. Introduce notes on Multi-Digit Arithmetic Division. Have students practice problems with and without break apart division.
4. Follow the Activity page with students. Have students work in pairs on the activity.
5. Distribute the Practice page. Check and review the students' responses as a class.
6. Distribute the Homework page. Have students work a few problems at the beginning of the next class to reinforce their understanding.
7. In closing, ask students to share their experiences with the game and how they decided to make a remainder. Allow for responses and discussion.

Lesson Title: Multi-Digit Arithmetic Division

Subject: Math

Approximate Grade Level: 4

Objectives: Students will be able to find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors.

State Educational Standards*
LB.Math.Content.4.NBT.B.6

Class Sessions (*45 minutes*): 1

Teaching Materials/Worksheets:
Multi- Digit Arithmetic Division content pages
Activity pages
Practice page
Homework page

Student Supplies:
2 dice for each group

Prepare Ahead of Time:
Copy Materials

Options for Lesson:
Students can use money manipulatives to help them solve the problems. Allow students to work with a partner or in a small group on the Practice page and then go over as a whole class. For advanced students, allow them to create a problem with a certain number of teachers and a dollar amount.

*Lessons are aligned to meet the education objectives and goals of most states. For more information on your state objectives, contact your local Board of Education or Department of Education in your state.

Teacher Notes

In this lesson, students will learn about division problems that do not have an evenly split answer. Students will learn new vocabulary, including the word remainder. Remainders will be discussed and emphasized during this lesson. Using a partnered activity, students will become comfortable with the concept of remainders.

Multi-Digit Arithmetic Division

Sometimes there is not enough to split evenly with division. There may be pieces of pizza left-over or not enough candy for each person to have another one.

The same happens with math problems. When a division problem does not come out evenly and has "left overs," they are called a remainder. The remainder is written with a capital R, and then the amount left after it.

For example, two friends have 7 pieces of candy. They want to share the candy equally. Each friend gets 3 pieces, but there is one left-over. The mathematical way to write this is:

$$7 \div 2 = 3 \text{ R}1$$

It is read, "Seven divided by two equals three with a remainder of one."

Let's explore a couple of examples:

Tickets to the dance cost $5. How many can be purchased with $32?

$32 \div 5 = ?$

Five does not go evenly into 32.

Using our multiplication facts, we know that $5 \times 6 = 30$ and $5 \times 7 = 35$.

7 is too large, so we use 6 as the whole number

$6 \times 5 = 30$ and $32 - 30 = 2$

$32 \div 5 = 6 \text{ R}2$

6 tickets can be purchased.

There are 27 cups. Each tray holds 6 cups. How many trays can be filled?

$27 \div 6 = ?$

Six does not go evenly into 27.

Using our multiplication facts, we know that $6 \times 4 = 24$ and $6 \times 5 = 30$.

5 is too large, so we use 4 as the whole number

$4 \times 6 = 24$ and $27 - 24 = 3$

$27 \div 6 = 4 \text{ R}3$

4 trays can be filled with cups

One strategy for solving division problems is to break apart the dividend. Let's look at an example:

54 ÷ 3 =?

The dividend can be broken into 30 and 24 because 30 + 24 = 54.

Then divide each dividend by the divisor.

30 ÷ 3 = 10 24 ÷ 3 = 8

Add the answers to correctly solve the problem.

10 + 8 = 18

Therefore,

54 ÷ 3 = 18

By breaking the problem into smaller parts, you can solve the division problem without using long division.

Let's look at another example:

78 ÷ 6 =?

The dividend can be broken into 30 and 24 because 30 + 24 = 54.

Then divide each dividend by the divisor.

66 ÷ 6 = 11 12 ÷ 6 = 2

Add the answers to correctly solve the problem.

11 + 2 = 13

Therefore,

78 ÷ 6 = 13

Activity **Name** _____ **Date** _____

Instructions

Roll three dice at one time. Use two of the dice to create a two-digit number and one die to make a one-digit number. Then divide, trying to get a remainder. Write the division problem and the remainder in the space below. For each remainder, mark off one letter R. The first person to mark off all their Rs wins!

R	R	R	R	R	R	R	R	R	R
R	R	R	R	R	R	R	R	R	R

_____ ÷ _____ = _____ R _____

_____ ÷ _____ = _____ R _____

_____ ÷ _____ = _____ R _____

_____ ÷ _____ = _____ R _____

_____ ÷ _____ = _____ R _____

_____ ÷ _____ = _____ R _____

_____ ÷ _____ = _____ R _____

_____ ÷ _____ = _____ R _____

_____ ÷ _____ = _____ R _____

_____ ÷ _____ = _____ R _____

_____ ÷ _____ = _____ R _____

_____ ÷ _____ = _____ R _____

_____ ÷ _____ = _____ R _____

_____ ÷ _____ = _____ R _____

_____ ÷ _____ = _____ R _____

Practice

Name _____ Date _____

Instructions

Show how you divided in the space provided.

Five teachers are taking their students on a field trip to the zoo. They decide to have a fundraiser to help pay for the field trip. If they make $524 and they split the money evenly, how much will each class get?

Four teachers are taking their students on a field trip to the amusement park. They decide to have a fundraiser to help pay for the field trip. If they make $3678 and they split the money evenly, how much will each class get?

There are twenty teachers in the whole school. They decide to have a fundraiser to help pay for all of the yearbooks. If they make $3000 and they split the money evenly, how much will each teacher get to help pay for yearbooks?

Practice Name Answer Key Date _____

Instructions

Show how you divided in the space provided. Ways of solving will vary.

Five teachers are taking their students on a field trip to the zoo. They decide to have a fundraiser to help pay for the field trip. If they make $524 and they split the money evenly, how much will each class get?

$104

$4 remainder

Four teachers are taking their students on a field trip to the amusement park. They decide to have a fundraiser to help pay for the field trip. If they make $3678 and they split the money evenly, how much will each class get?

$919

$2 remainder

There are twenty teachers in the whole school. They decide to have a fundraiser to help pay for all of the yearbooks. If they make $3000 and they split the money evenly, how much will each teacher get to help pay for yearbooks?

$150

$0 remainder

Homework

Name _____ Date _____

Instructions

Break apart the dividend to solve. Show your work and circle your answer.

112 ÷ 4 =	453 ÷ 4 =
324 ÷ 3 =	1236 ÷ 6 =
936 ÷ 3 =	156 ÷ 5 =

Homework

Name Answer Key Date _____

Instructions

Break apart the dividend to solve. Show your work and circle your answer.

112 ÷ 4 = 28	453 ÷ 4 = 113 R1
324 ÷ 3 = 108	1236 ÷ 6 = 206
936 ÷ 3 = 312	156 ÷ 5 = 31 R1