10–15 min

Interactive Learning

Overview Students use a multiplication table and compatible numbers to estimate quotients.

Essential Question How can you use compatible numbers to estimate quotients?

Materials 1 multiplication table per pair (Teaching Tool 9)

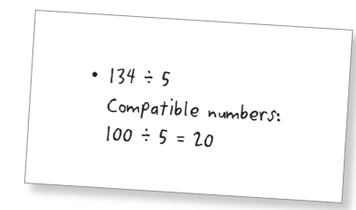
Engage

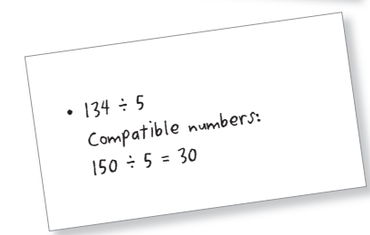
Set the Purpose *Today you will be learning how to estimate quotients.*

Connect *Suppose you and your classmates collect close to 200 cans for a recycling drive. Could you use an estimate to find out about how many cans each student collected? Why?* [Yes; you don't need to know exactly how many cans each student collected.]

Pose the Problem *Suppose you have 134 stamps in your collection. You want to display them on 5 pages of an album with about the same number of stamps on each page. About how many stamps should go on each page?* Allow pairs of students to find an estimate using any method they choose. [20 or 30 would be good estimates.] Have students share their solution strategies.

Use Reference Charts *What division problem would you write to find the exact number of stamps on each page?* [134 ÷ 5] On the board, write 134 ÷ 5. *Find compatible numbers to use in order to estimate.* Remind students that compatible numbers are numbers close to the actual numbers that work easily together in a computation. *What two division facts are close to 13 ÷ 5? If you are not sure, use the multiplication table and find the two products of 5 that are greater than and less than 13.* [10 and 15]





Model/ Demonstrate On the board, write 10 and 15 in a column. *13 is between 10 and 15.* Add a zero to the end of 10 and to the end of 15. *134 is between 100 and 150. 100 and 5 are compatible numbers. So are 150 and 5. What is 100 ÷ 5?* [20] *What is 150 ÷ 5?* [30] *What two numbers is the quotient of 134 ÷ 5 between?* [20 and 30] *Is 134 ÷ 5 closer to 20 or to 30? Explain.* [30; 134 is closer to 150 than to 100.] *About how many stamps will you put on each page?* [About 30] *Will you put more than 30 or less than 30 stamps on each page? Explain.* [Less; 134 is less than 150.]

Small-Group Interaction Have students work in pairs. On the board, write 465 ÷ 7 and 346 ÷ 4. *Estimate each quotient. Use the multiplication chart if necessary.*

Extend

Use compatible numbers to estimate 2,594 ÷ 6.

Link to *Investigations*, Second Edition
Joint-Usage Master Plan
Blended Instruction (Plan 1): Topic 4 and Unit 1