

Trade Up Place Value

Build both sides of each equal trade.

GRADE 2 • 2.NS.2.d

2.NS.2.d "Investigate and explain the ten-to-one relationships among ones, tens, and hundreds, using models."

NAME _____

DATE _____

Work with an adult. Build, match and trade. Show your models. Write short records; explain your reasoning aloud.

Materials and setup

Per pair: 2 hundred flats, 20 ten rods and 20 unit cubes of matching base-ten sizes. Flats and rods must show their unit divisions. Clear the work area between tasks.

Try the idea

A trade changes the pieces, not the total value. Ten ones equal one ten. Ten tens equal one hundred. Investigate these relationships with real pieces.

Try it together

An adult builds 23 with 2 ten rods and 3 unit cubes. How can we check its value?

Read the model

Look	Record
2 ten rods	20
3 unit cubes	3

Each rod is worth 10. Count their value: 10, 20. Count on from 20, touching each of the 3 cubes: 21, 22, 23. The model represents 23.

1. Ones become a ten

Line up unit cubes beside one ten rod until the lengths match. Count the cubes. Trade that row for the rod. Write the equal trade.

2. Tens become a hundred

Cover a hundred flat with rods, with no gaps or overlaps. Count the rods and the flat. Record both counts. Say the equal trade and tell how the model proves it.

Match both sides

Piece	My count
Rods covering flat	
Hundred flats	

3. Trade back to ones

Start with 1 ten rod. Replace it with unit cubes of equal value. Count the cubes and write the trade in this direction.

4. Trade back to tens

Start with 1 hundred flat. Replace it with rods of equal value. Count the rods and write the trade in this direction.

5. A collection of 34

Build 34 with 3 rods and 4 cubes. Trade one rod for cubes. Record how many rods and cubes you now have. Explain why the value is still 34.

After the trade

Look	Record
Ten rods	
Unit cubes	

6. A collection of 120

Build 120 with 1 flat and 2 rods. Trade the flat for rods. Count all the rods. Write the count and the total value.

7. Two trades, same amount

Build 100 with 1 flat. Trade it for rods. Then trade one of those rods for cubes. Record what remains and explain why it still equals 100.

Teacher notes

Require model demonstrations in both directions. Cubes must align with one rod; ten rods must cover one flat. Count value as well as number of pieces: one large piece can equal ten smaller pieces. Tasks 5–7 assess applying the relationship, not memorizing a sentence.

Task 1

10 ones = 1 ten.

Task 2

10 tens = 1 hundred. Ten rods cover the hundred flat.

Task 3

1 ten = 10 ones.

Task 4

1 hundred = 10 tens.

Task 5

2 rods and 14 cubes. $20 + 14 = 34$; one ten became ten ones.

Count 2 tens as 20 and add 14 ones. The exchanged ten rod is not kept in the new model.

Task 6

12 ten rods; value 120. Ten rods replace the flat, then add the original two.

One flat trades for ten rods, plus the two rods already present: $10 + 2 = 12$ rods.

Task 7

9 ten rods and 10 unit cubes. $90 + 10 = 100$; both trades kept equal value.