

Place Value Trades

Build, trade and draw equal-value models.

GRADE 2 • TEKS 2.2.A

2.2.A "use concrete and pictorial models to compose and decompose numbers up to 1,200 in more than one way as a sum of so many thousands, hundreds, tens, and ones;"

NAME _____

DATE _____

PAPER CARDS MODEL PLACE VALUE

Materials: paper slips and a pencil. Make 1 card labeled 1,000; 12 labeled 100; 10 labeled 10; and 12 labeled 1. Reuse them. Each printed rectangle below is one card. Its written number gives its value; card size does not. Trade 1 thousand for 10 hundreds, 1 hundred for 10 tens, or 1 ten for 10 ones.

WORKED EXAMPLE

These cards model 120. Build them. Trade one ten for ten ones. How can you show the same total a second way?

100	10	10
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1. First: 1 hundred and 2 tens; $100 + 20 = 120$.
2. After the trade: 1 hundred, 1 ten and 10 ones;
 $100 + 10 + 10 = 120$.
3. Draw small rectangles labeled with their values to record your cards.

Answer: The card count changes, but the total remains 120.

PRACTICE 4 problems

- 1** Read the cards. Write the number as a sum of thousands, hundreds, tens and ones. Name the total.

1000	100	1	1
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ANSWER _____

- 2** Read the cards. How many hundreds and tens are shown? Write their sum and total.

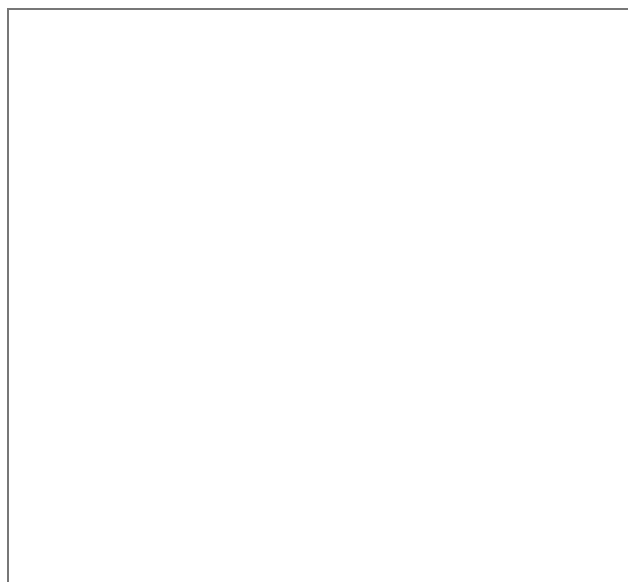
100	100	100	10	10	10	10
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ANSWER _____

- 3** Use your paper cards to replace one 1,000 card with cards labeled 100 of the same total value. How many hundred cards do you need? Write an equation.

ANSWER _____

- 4** Build 1,200 with paper cards. Trade one hundred for ten tens. Draw both card models in the box, labeling every card. Under each model, write its sum.



ANSWER _____

APPLY IT Show your work

- 1** Build 402 with cards. Trade one hundred for ten tens. Draw the before and after card models. Label each card and write a sum below each model.

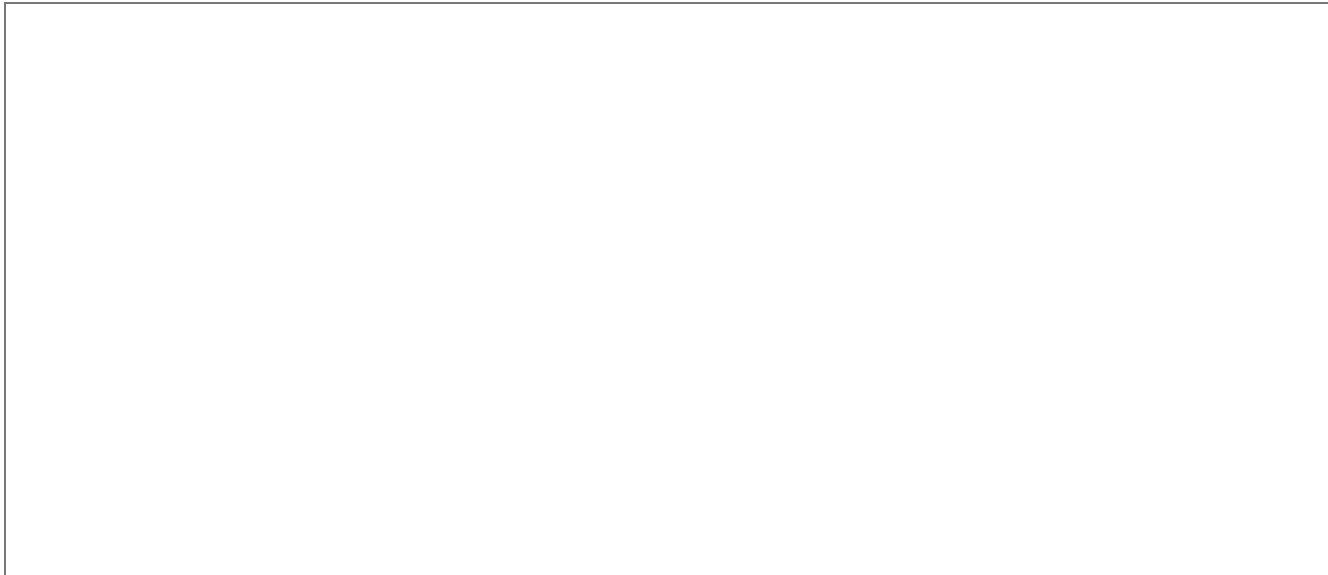
ANSWER _____

- 2** Build 1,010 with cards. Trade the thousand for hundreds. Write the thousands, hundreds, tens and ones counts before and after. Write each sum.

ANSWER _____

CHALLENGE One step up

Kai has one 1,000 card and two 100 cards. Mia has twelve 100 cards. Build each model in turn, reusing the cards. Draw both and write their sums. Explain aloud which trade shows they are equal.



PRACTICE 1

Read the cards. Write the number as a sum of thousands, hundreds, tens and ones. Name the total.

$1,000 + 100 + 0 + 2 = 1,102$; 1 thousand, 1 hundred, 0 tens, 2 ones.

PRACTICE 2

Read the cards. How many hundreds and tens are shown? Write their sum and total.

3 hundreds and 4 tens; $300 + 40 = 340$.

PRACTICE 3

Use your paper cards to replace one 1,000 card with cards labeled 100 of the same total value. How many hundred cards do you need? Write an equation.

10 hundred cards; $1,000 = 10 \text{ hundreds} = 1,000$.

PRACTICE 4

Build 1,200 with paper cards. Trade one hundred for ten tens. Draw both card models in the box, labeling every card. Under each model, write its sum.

First: one 1,000 card and two 100 cards; $1,000 + 200 = 1,200$. Second: one 1,000 card, one 100 card and ten 10 cards; $1,000 + 100 + 100 = 1,200$.

APPLY IT 1

First: four 100 cards and two 1 cards; $400 + 2 = 402$. Second: three 100 cards, ten 10 cards and two 1 cards; $300 + 100 + 2 = 402$.

Both models have value 402. The second has 3 hundreds, 10 tens and 2 ones.

APPLY IT 2

Before: 1 thousand, 0 hundreds, 1 ten, 0 ones; $1,000 + 10 = 1,010$. After: 0 thousands, 10 hundreds, 1 ten, 0 ones; $1,000 + 10 = 1,010$.

Observe the actual trade. Ten hundreds equal one thousand; the ten card stays.

CHALLENGE

Kai: $1,000 + 200 = 1,200$. Mia: 1,200 from 12 hundreds. Trading Kai's thousand for 10 hundreds gives 12 hundreds in all, matching Mia.

Use the physical paper cards as well as the pictorial card drawings. Read directions aloud. Watch each trade and check that every drawn card is labeled with its value. Cards are place-value tokens, not proportional area bars. Accept equivalent arrangements and sums; require both before/after models in tasks 4, 5 and 7. For task 7, build the models in turn with the same reusable cards.