

Reasoning and Problem Solving

Step 1: Multiply by 10

National Curriculum Objectives:

Mathematics Year 4: (4C6a) [Recall multiplication and division facts for multiplication tables up to \$12 \times 12\$](#)

Mathematics Year 4: (4C6b) [Use place value, known and derived facts to multiply and divide mentally, including: multiplying by 0 and 1; dividing by 1; multiplying together three numbers](#)

Differentiation:

Questions 1, 4 and 7 (Problem Solving).

Developing Use clues to match numbers when multiplying up to 3-digit numbers by 10 including using place value counters.

Expected Use clues to match numbers when multiplying up to 3-digit numbers by 10 including using knowledge of commutative law.

Greater Depth Use clues to match numbers when multiplying up to 3-digit numbers by 10 including using knowledge of commutative law and some use of unconventional partitioning.

Questions 2, 5 and 8 (Reasoning)

Developing Solve and explain a one step problem using knowledge of multiplying up to 3-digit numbers by 10.

Expected Solve and explain a two step problem using knowledge of multiplying up to 3-digit numbers by 10 including using knowledge of commutative law.

Greater Depth Solve and explain a two step problem using knowledge of multiplying up to 3-digit numbers by 10 including using knowledge of commutative law and some use of unconventional partitioning.

Questions 3, 6 and 9 (Reasoning)

Developing Prove who has the most. Using knowledge of multiplying up to 3-digit numbers by 10 including pictorial representation.

Expected Prove who has the most. Using knowledge of multiplying up to 3-digit numbers by 10 and use of the commutative law. Using a variety of pictorial representations.

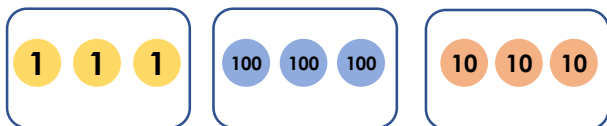
Greater Depth Prove who has the most. Using knowledge of multiplying up to 3-digit numbers by 10 and use of the commutative law. Using mixed representations within a question and some use of unconventional partitioning.

More [Year 4 Multiplication and Division](#) resources.

Did you like this resource? Don't forget to [review](#) it on our website.

Multiply by 10

1a. Three children pick numbers out of a hat. Use the clues below to match the children to their number.



Marco's number is 10 lots of 3.

Florence's number is 10 times greater than Marco's.

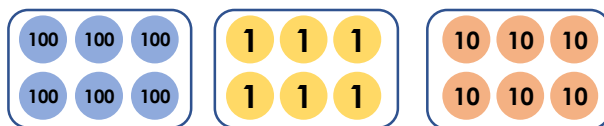
Marco's number is 10 times bigger than Noah's.



PS

Multiply by 10

1b. Three children are thinking of a number. Use the clues below to match the children to their number.



Lois thought of a number that was 10 times bigger than 60.

Ten lots of Jude's number is 60.

Graham's number is 10 times greater than Jude's.



PS

2a. There are 10 toffees in a pack.

Tianna needs 78 toffees to share with her friends.

She buys 8 packs.

Does Tianna have enough toffees to share with her friends?

Explain how you know.



R

2b. There are 10 bouncy balls in a pack.

John needs 35 bouncy balls to give one to each child at his son's party.

He buys 3 packs.

Does John have enough bouncy balls to give one to each child at his son's party?

Explain how you know.



R

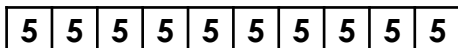
3a. Emily and Ron have bought badges for their collections.

Emily says,

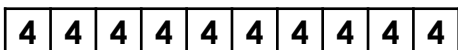
I have more because I have 10 lots of 5 badges.



Ron says,



I have more because I have 10 lots of 4 badges.



Who has the most? Prove it.



R

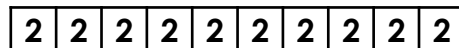
3b. Macy and Rai have each bought some stickers.

Macy says,

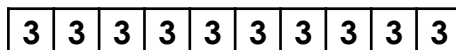
I have more because I have 10 lots of 2 stickers.



Rai says,



I have more because I have 10 lots of 3 stickers.



Who has the most? Prove it.



R

Multiply by 10

4a. The numbers below are the journey times in minutes to three destinations. Use the clues to match the child to their journey time.

23

230

210

21

Chloe's journey is 10 times longer than Phoebe's

Ten lots of Phoebe's journey is 210.

Kayden's journey is 10 times longer than Alex's.



PS

Multiply by 10

4b. The numbers below are the scores achieved in a darts tournament. Use the clues to match the child to their score.

360

18

180

36

Nathan's score is 10 times greater than Max's.

Nathan threw 18 darts and scored 10 each time.

Sam's score is 10 times greater than Sally's.



PS

5a. Tom buys a pack of football cards. There are 10 cards in a pack.

He needs 245 cards to fill his football album.

His mum buys him 23 more packs.

Does Tom have enough cards to fill his album?

Explain how you know.



R

5b. Ingrid buys a pack of stamps. There are 10 stamps in a pack.

She needs 51 stamps for her party invitations.

She buys 4 more packs.

Does Ingrid have enough stamps to send all of her party invitations?

Explain how you know.



R

6a. Kathy and Mia have bought sweets for a party.

Kathy says,

I bought more because I have 10 lots of 24 sweets.



Mia says,

I bought more because I have 24 lots of 10 sweets.



Who has bought the most? Prove it.



R

6b. Juan and Ben have bought marbles to play a game.

Juan says,

I bought more because I have 10 lots of 36 marbles.



Ben says,

I bought more because I have 63 lots of 10 marbles.



Who has bought the most? Prove it.



R

Multiply by 10

Multiply by 10

7a. The numbers below are the amount of pages read by three reading groups last term. Use the clues to match the groups to their amount.

590

5,090

5,900

509

Purple group read ten books with 410 pages and read another ten books with 180 pages.

Green group read 10 times more pages than Blue group.



PS



PS

8a. Ava buys 27 pack of pencils. There are 10 pencils in a pack.

She needs 2,630 pencils for her classes.

Ava buys 210 more packs.

Does Ava have enough pencils for her classes?

Explain how you know.



R



R

9a. David and Ken have each bought some football stickers.

David says,



I bought more because I have 10 lots of 256 stickers.

Ken says,

I bought more because I have 265 lots of 10 stickers.



Who has bought the most? Prove it.



R



R

7b. The numbers below are the number of house points collected by different house teams. Use the clues to match the teams to their numbers.

4,070

470

7,400

740

In Red team 36 children each collected 10 points and 10 children each collected 11 points.

Green team collected 10 times more badges than Blue team.

8b. Che buys 35 pack of nails. There are 10 nails in a pack.

It takes 7,120 nails to build his project.

He buys 687 more packs.

Does Che have enough nails to build his project?

Explain how you know.

9b. Olivia and Sue have been reading their books.

Olivia says,



I've read more because I've read 10 lots of 123 pages.

Sue says,

I've read more because I've read 123 lots of 10 pages.



Who has read the most? Prove it.



R

Reasoning and Problem Solving Multiply by 10

Developing

- 1a. Marco = 30; Noah = 3; Florence = 300
2a. Yes, because $8 \times 10 = 80$ which is bigger than 78.
3a. Emily has the most because $10 \times 5 > 10 \times 4$

Expected

- 4a. Phoebe = 21; Kayden = 230; Alex = 23; Chloe = 210
5a. No, because $24 \times 10 = 240$ and he needs 245.
6a. They both have the same because $10 \times 24 = 24 \times 10$

Greater Depth

- 7a. Purple = 5,900; Green = 5,090; Blue = 509
8a. No, because $237 \times 10 = 2,370$ which is less than 2,630.
9a. Ken, $10 \times 256 < 265 \times 10$

Reasoning and Problem Solving Multiply by 10

Developing

- 1b. Lois = 600; Jude = 6; Graham = 60
2b. No, because $3 \times 10 = 30$ and he needs 35.
3b. Rai has most because $10 \times 2 < 10 \times 3$

Expected

- 4b. Nathan = 180; Max = 18; Sally = 36; Sam = 360
5b. No, because $5 \times 10 = 50$ which is less than 51.
6b. Ben because $10 \times 36 < 63 \times 10$

Greater Depth

- 7b. Red = 470; Blue = 740; Green = 7,400
8b. Yes, because $722 \times 10 = 7,220$ which is more than 7,120.
9b. They have both read the same because $10 \times 123 = 123 \times 10$.