Reasoning and Problem Solving
Step 7: Subtract Tens from 3-digits

National Curriculum Objectives:

Mathematics Year 3: (3C1) Add and subtract numbers mentally, including three-digit number and ones three-digit number and tens three-digit number and hundreds

Mathematics Year 3: (3C2) Add and subtract numbers with up to three digits, using formal written methods of columnar addition and subtraction

Mathematics Year 3: (3C3) Estimate the answer to a calculation and use inverse operations to check answers

Mathematics Year 3: (3C4) Solve problems, including missing number problems, using number facts, place value, and more complex addition and subtraction

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Find all possibilities of 2 or 3 missing digits in a given subtraction. Using numbers up to 500, no crossing 100s.
Expected Find all possibilities of 3 missing digits in a given subtraction. Using numbers up to 999, crossing 100s.
Greater Depth Find all possibilities of 3 or 4 missing digits in a given subtraction. Using numbers beyond 1,000, crossing 100s.

Questions 2, 5 and 8 (Reasoning)
Developing Compare 2 statements to a subtraction. Find and explain errors of method or calculation. Using numbers up to 500, no crossing 100s.
Expected Compare 3 statements to a subtraction. Find and explain errors of method or calculation. Using numbers up to 999, crossing 100s.
Greater Depth Compare 3 statements to a subtraction. Find and explain errors of method or calculation. Using numbers beyond 1,000, crossing 100s.

Questions 3, 6 and 9 (Reasoning)
Developing Create a scenario based on a given subtraction. Using numbers up to 500, no crossing 100s.
Expected Create a scenario based on a given subtraction. Using numbers up to 999, crossing 100s.
Greater Depth Create a scenario based on a given subtraction. Using numbers up to 1,000, crossing 100s.

More resources which follow the same small steps as White Rose.

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Reasoning and Problem Solving – Subtract Tens from 3-digits

1a. Which digits could be used to complete the following subtraction?

$$5\boxed{}3 - 20 = 4\boxed{}3$$

Find all possibilities.

D ⭐ | PS

1b. Which digits could be used to complete the following subtraction?

$$\boxed{}46 - 10 = 2\boxed{}\boxed{}$$

Find all possibilities.

D ⭐ | PS

2a. The children are calculating the following subtraction: 165 – 40

Sajid

> The hundreds digit will change.

> Only the tens digit will change.

Mollie

Who is correct? Prove it.

D ⭐ | R

2b. The children are calculating the following subtraction: 393 – 60

Leah

> The answer will be less than 300.

> The answer will be more than 300.

Adam

Who is correct? Prove it.

D ⭐ | R

3a. Write a sensible word problem for the subtraction below.

$$253 - 40 = 213$$

D ⭐ | PS

3b. Write a sensible word problem for the subtraction below.

$$499 - 90 = 409$$

D ⭐ | PS

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Reasoning and Problem Solving – Subtract Tens from 3-digits – Year 3 Developing

4a. Which digits could be used to complete the following subtraction?

☐ 1 3 - 6 0 = ☐ ☐ 3

Find all possibilities.

4b. Which digits could be used to complete the following subtraction?

9 1 ☐ - 8 0 = 8 ☐ ☐

Find all possibilities.

5a. The children are calculating the following subtraction: 475 – 80

Isla: I need to find the difference between 75 and 80.

Tiger: I could use a number line.

Jez: I'll use my multiples of ten to help.

Who is correct? Prove it.

5b. The children are calculating the following subtraction: 759 – 90

Mary: The ones digit will be > 5.

Alex: The ones digit will be 5.

Dinah: The ones digit will be < 5.

Who is correct? Prove it.

6a. Write a sensible word problem for the subtraction below.

645 – 70 = 575

6b. Write a sensible word problem for the subtraction below.

578 – 80 = 498

Reasoning and Problem Solving – Subtract Tens from 3-digits

7a. Which digits could be used to complete the following subtraction?

$$\square\square 4\,8 - 6\,0 = \square\square 8\,8$$

Find five possibilities.

PS

7b. Which digits could be used to complete the following subtraction?

$$\square 8\,2\square - 6\,0 = 7\square 6\square$$

Find all possibilities.

PS

8a. The children are calculating the following subtraction: 1,035 – 50

Hassan: The answer has 4 digits.

Tedikah: The answer has 3 digits.

Keyah: The answer has 3 digits with 5 ones.

Who is correct? Prove it.

R

8b. The children are calculating the following subtraction: 5,807 – 80

Miriam: The answer has a 4 in the thousands place.

Joe: The answer has an 8 in the hundreds place.

Ollie: The answer has 7 in the hundreds place.

Who is correct? Prove it.

R

9a. Write a sensible word problem for the subtraction below.

$$3,165 - 80 = 3,085$$

PS

9b. Write a sensible word problem for the subtraction below.

$$5,989 - 90 = 5,899$$

PS

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Reasoning and Problem Solving – Subtract Tens from 3-digits – Year 3 Greater Depth

Reasoning and Problem Solving – Subtract Tens from 3-digits

Developing

1a. Possible answers: 5<u>9</u>3 – 20 = 4<u>7</u>3; 5<u>8</u>3 – 20 = 4<u>6</u>3; 5<u>7</u>3 – 20 = 4<u>5</u>3; 5<u>6</u>3 – 20 = 4<u>4</u>3; 5<u>5</u>3 – 20 = 4<u>3</u>3; 5<u>4</u>3 – 20 = 4<u>2</u>3; 5<u>3</u>3 – 20 = 4<u>1</u>3; 5<u>2</u>3 – 20 = 4<u>0</u>3

1b. Possible answers: <u>2</u>46 – 10 = 2<u>36</u>

2a. Mollie is correct. The tens digit will change to 2, the other digits remain the same. 165 – 40 = 125.

2b. Adam is correct. 393 – 60 = 333.

3a. Various possible responses, for example: A team of soldiers has 253 members. 40 soldiers are sent on exercise, how many soldiers remain at camp?

3b. Various possible responses, for example: A builder's company has plans for 499 houses. The council decide they must reduce the plan by 90 houses. How many houses can they build?

Expected

4a. Possible answers: <u>9</u>13 – 60 = <u>853</u>; <u>8</u>13 – 60 = <u>753</u>, <u>7</u>13 – 60 = <u>653</u>; <u>6</u>13 – 60 = <u>553</u>; <u>5</u>13 – 60 = <u>453</u>; <u>4</u>13 – 60 = <u>353</u>; <u>3</u>13 – 60 = <u>253</u>; <u>2</u>13 – 60 = <u>153</u>

4b. Possible answers: 91<u>9</u> – 80 = 83<u>9</u>; 91<u>8</u> – 80 = 838; 91<u>7</u> – 80 = 83<u>7</u>; 91<u>6</u> – 80 = 836; 91<u>5</u> – 80 = 83<u>5</u>; 91<u>4</u> – 80 = 83<u>4</u>; 91<u>3</u> – 80 = 83<u>3</u>; 91<u>2</u> – 80 = 83<u>2</u>; 91<u>1</u> – 80 = 83<u>1</u>; 91<u>0</u> – 80 = 83<u>0</u>

5a. Isla and Tiger are correct. Isla can use 75 – 80 to subtract from the hundreds value. Tiger can use a number line to count back 80 from 475. 475 – 80 = 395.

5b. Mary is correct. The ones digit will remain the same as 759. Only tens are being subtracted so the ones value doesn't change. 759 – 90 = 669.

6a. Various possible responses, for example: The local bookshop has 645 copies of 'Harry Potter', they put on a 'buy one get one half price' event and sell 70 books altogether. How many books do they have left?

6b. Various possible responses, for example: Jenny drops a bag of marbles, she knows she had 578 marbles in her bag, but when she counts them again she only has 80! How many marbles has she lost?

Greater Depth

7a. Various answers, for example: <u>2</u>,348 – 60 = <u>2</u>,288; <u>3</u>,748 – 60 = <u>3</u>,688; <u>4</u>,148 – 60 = <u>4</u>,088; <u>5</u>,348 – 60 = <u>5</u>,288; <u>7</u>,848 – 60 = <u>7</u>,788; <u>9</u>,948 – 60 = <u>9</u>,888

7b. Possible answers: <u>7</u>,82<u>9</u> – 60 = 7,<u>7</u>6<u>9</u>; <u>7</u>,82<u>8</u> – 60 = 7,<u>7</u>6<u>8</u>; <u>7</u>,82<u>7</u> – 60 = 7,<u>7</u>6<u>7</u>; <u>7</u>,82<u>6</u> – 60 = 7,<u>7</u>6<u>6</u>; <u>7</u>,82<u>5</u> – 60 = 7,<u>7</u>6<u>5</u>; <u>7</u>,82<u>4</u> – 60 = 7,<u>7</u>6<u>4</u>; <u>7</u>,82<u>3</u> – 60 = 7,<u>7</u>6<u>3</u>; <u>7</u>,82<u>2</u> – 60 = 7,<u>7</u>6<u>2</u>; <u>7</u>,82<u>1</u> – 60 = 7,<u>7</u>6<u>1</u>; <u>7</u>,82<u>0</u> – 60 = 7,<u>7</u>6<u>0</u>

8a. Tedikah and Keyah are correct. The answer will have 3 digits and have 5 ones. 1,035 – 50 = 985.

8b. Ollie is correct. 5,807 – 80 = 5,727.

9a. Various possible responses, for example: A local festival sells 3,165 tickets online. Following an outbreak of chicken pox, the events office receives refund requests for 80 tickets. How many people can they expect to attend the event?

9b. Various possible responses, for example: After their stock take, a supermarket calculates there are 5,989 packs of magic sand. The next day there is a flood in the stock room and 3 boxes of 30 packs of magic sand are damaged so badly that they cannot be sold. How many magic sand packs remain to be sold?