Cracking Roman Numerals to 100

Teacher		**Class**	Year 4
Subject	Maths	**Topic**	Roman numerals
Date		**Room**	
Lesson length	60 minutes	**Country**	United Kingdom

Pupils learn to read Roman numerals I to C using add and take-away rules. They compare letters with our zero and place value system.

Curriculum links

- read Roman numerals to 100 (I to C) [2]
- know that over time, the numeral system changed to include the concept of zero and place value [2]
- Roman numerals should be put in their historical context so pupils understand that there have been different ways to write whole numbers and that the important concepts of 0 and place value were introduced over a period of time [1]

Learning objectives

- Students will read Roman numerals I to C to 100 using add and subtract rules.
- Students will explain how zero and place value changed our number system.

Success criteria

- I can read I, V, X, L and C to 100 by adding or taking away.
- I can explain why zero is needed to hold a place in numbers.

What students already know

Show XI and IX on the board for 2 minutes. Ask: what values do you think these are and how do you know?

Key words

Roman numeral	a capital letter used to show a number, like I for 1, V for 5, X for 10, L for 50 and C for 100 [12]
add	put values together to make a bigger total when a smaller sign comes after a bigger one [12]
subtract	take away a smaller value when it comes before a bigger one, like IV is 5 minus 1 [4]
zero	nothing at all, which has no symbol in the Roman system [3]
place value	what a digit is worth because of where it sits, like 6 in 64 means sixty [8]

Materials

- sets of I, V, X, L, C cards, colour-coded with values on the back
- points board for team game
- Slides 1-7 and 10-12 with whiteboard and projector
- Video clip 1 (0:00–4:17) on Slide 6, tested

Before the lesson

- print sets of I, V, X, L, C cards, colour-coded with values on the back, and a points board
- print Worksheet Task B to warm up memory, then add letters to read and write numerals, and Worksheet Task E to fill the chart to show place value and look where zero sits, one per pupil

Created with LessonDino.com · AI lesson planner with checkable sources

- Worksheet Task B copies to warm up memory, then add letters to read and write numerals
- Worksheet Task E copies to fill the chart to show place value and look where zero sits
- mini whiteboards and pens
- test Slides 1-7 and 10-12 and Video clip 1 (0:00–4:17) on Slide 6 for sound and picture
- set out mini whiteboards, pens and place-value charts ready for pairs

Lesson outline

0–8 min **Starter** 8 min · Whole class

To spark curiosity about letter-numbers and recall I to XII from clocks.

YOU DO

1. Show Slide 1 title and Slide 2 objectives, then give the hook: same letters, different order, one means 11 and one means 9.
2. Hold up XI and IX cards left to right and ask pupils to vote which is 9 and which is 11.
3. Show Slide 5 question and take quick ideas on where pupils have seen I, V or X as numbers, linking to clocks that use Roman numerals from I to XII [1].
4. Model reading VIII as 8 o'clock and XI as 11 o'clock on a clock face.

STUDENTS DO

1. Vote and hold up whiteboards showing XI = 11 and IX = 9.
2. Share with a partner where they have seen letter-numbers, such as on a clock face.
3. Read two o'clock times with Roman numerals on mini whiteboards.

Say: Same letters, different order — one means 11 and one means 9. Can you spot which is which? We read Roman numerals from left to right, so order changes everything. Show me on your whiteboard which one you think is 9.

Worked example: XI = X then I, big then small, so 10 + 1 = 11. IX = I then X, small then big, so 10 take away 1 = 9 [4].

Ask: Why does XI mean 11 but IX mean 9? (XI adds because small comes after big, IX takes away because small comes before big [4].) · Where have you seen I, V or X used as numbers? (On a clock face, in books, at the end of films [4].)

Check understanding: All hold up whiteboards for XI and IX; if mixed, reteach big-then-small adds, small-then-big takes away before moving on.

Support: Give a desk card showing I to XII in order to match shape to value while reading. **Stretch:** Ask pupils to write the times as am and pm and order three Roman clock times earliest to latest.

Use: Slides 1-2, 5

8–22 min **Teaching** 14 min · Whole class

To model the adding and subtracting rules for reading numerals to 100.

YOU DO

1. Teach I = 1, V = 5, X = 10, L = 50 and C = 100 and that we read Roman numerals to 100 as I to C [2].
2. Use Slide 3 steps and Slide 4 chain to model XIV as X + IV, where I before V means 5 take away 1 = 4, then 10 + 4 = 14.
3. Play Video clip 1 (0:00–4:17) on Slide 6 and ask pupils to listen for values and spot when we add or take away.
4. Reinforce that numerals are usually written as capital letters and you usually only write a maximum of three of the same numeral in a row [3].

STUDENTS DO

1. Chant values I, V, X, L, C and signal add with thumbs up or take away with thumbs down.
2. Watch the video and note one add example and one take-away example.
3. Join in to read XL = 50 - 10 = 40 [7] on whiteboards.

Say: Learn the five letters and values. Big then small? Add them up. Small then big? Take away. We always work left to right in chunks. So VI is 5 + 1 = 6 because the small I comes after the big V [12].

Worked example: XIV: split into X + IV. X = 10, keep 10. IV = 5 take away 1 = 4 [4]. Add chunks: 10 + 4 = 14. Check: you read from left to right, adding when in size order and subtracting when not in size order [3].

Ask: How do you read VI and IV? (VI = 5 + 1 = 6 [12], IV is 5 minus 1 = 4 [4].) · Why can we not write XXXX for 40? (You usually only write a maximum of three of the same numeral in a row, so use XL [3].)

Check understanding: Hinge question on whiteboards: show XL, pupils write 40; if many write 60, remodel 50 take away 10 before the game.

Support: Use colour-coded cards with values on the back and practise only with V, X and L first. **Stretch:** Challenge pupils to explain XIX as X + IX = 10 + 9 = 19, working left to right.

Use: Slides 3-4, 6; Video clip 1 (0:00–4:17)

22–42 min **Main activity** 20 min · Pairs

To practise reading numerals to 100 by deciding to add or subtract.

YOU DO

1. Set out sets of I, V, X, L, C cards and points board and explain turn-taking: turn two cards, decide add or subtract, score for correct reading.
2. Model with XL: X before L, so 50 - 10 = 40 [7], and with XXXVII as 10 + 10 + 10 + 5 + 1 + 1 = 37 [13].
3. Send pairs to play short rounds, first tens to 100: X, XX, XXX, XL, L, LX, LXX, LXXX, XC, C [6], then mixed numbers.
4. Hand out Worksheet Task B to warm up memory, then add letters to read and write numerals.

STUDENTS DO

1. Take turns turning two cards, saying add or take away and reading the total for a point.
2. Warm up memory, then add letters on Worksheet Task B to read and write numerals and check with partner.
3. Read back winning lines, for example L, LX, LXX means 50, 60, 70.

Say: Turn two cards and read left to right. If the small letter comes after the big one, add. If it comes before, take away. Only I, X and C can be used as subtractive numerals [5]. Write it like XL = 50 take away 10 = 40.

Worked example: LXX = L + X + X = 50 + 10 + 10 = 70. XC = C take away X = 100 take away 10 = 90 [7]. XCIV = XC + IV = 90 + 4 = 94.

Ask: How do you read XLVI? (XL = 40 plus VI = 6, so 46, adding and subtracting left to right.) · Which letters can be used to take away? (Only I, X and C can be used as subtractive numerals [5].)

Check understanding: Walk round with a calling card showing XCIX; pairs hold up 99; reteach 90 + 9 if needed, stressing 99 is XCIX not IC [7].

Support: Use colour-coded cards with values on the back and practise only with V, X and L first. **Stretch:** Include three-letter numerals such as XIV and XIX, working left to right by subtracting then adding.

Use: Worksheet Task B to warm up memory, then add letters to read and write numerals

42–52 min **Then and now** 10 min · Whole class

To explain why zero and place value changed number writing.

YOU DO

1. Show Slide 7 timeline and explain scholars around 725 used N for nothing from nihil meaning nothing [7], and the system was tweaked in the Middle Ages [10].
2. Show Slide 10 compare: Roman X always means ten, but in our Hindu-Arabic system the 6 in 64 means sixty but in 689 means six hundred [8].
3. Demonstrate with a place-value chart: 10 needs 1 ten and 0 to hold ones empty, while X needs no zero because there is no zero in the system [3].
4. Direct pupils to fill the chart on Worksheet Task E to show place value and look where zero sits.

STUDENTS DO

1. Fill the chart on Worksheet Task E to show place value and look where zero sits.
2. Pass the 0 card and say one thing zero lets us do.
3. Compare CI with 101 and say why 101 needs zeros but CI needs none.

Say: Romans had no zero to hold a place [3]. Our system uses 10 digits 0 to 9 to make all numbers [3]. Zero holds a place empty, and where a digit sits tells its worth. That is why 42 times 17 is straightforward with place value but nearly impossible with XLII and XVII.

Worked example: 20 on a hundreds, tens and ones chart = 0 hundreds, 2 tens, 0 ones. The 0 shows no ones. Roman XX = 10 + 10, no zero needed and no place value, X always means ten [8].

Ask: Why does 101 need zeros but CI does not? (101 needs zeros to hold tens and show place value; CI just adds 100 + 1 with no zero [3].) · What changed over time? (The numeral system changed to include the concepts of 0 and place value [1].)

Check understanding: Ask all to hold up Worksheet Task E charts showing place value and where zero sits; look for 0 in correct columns, remodel with base-ten blocks if ones and tens are muddled.

Support: Use base-ten blocks on the chart to show the empty column as 0. **Stretch:** Ask pupils to explain to a partner why 42 × 17 is straightforward but XLII by XVII is nearly impossible.

Use: Slides 7, 10; Worksheet Task E to fill the chart to show place value and look where zero sits

Created with LessonDino.com · AI lesson planner with checkable sources

52–60 min **Plenary** 8 min · Whole class

To check quick reading to 100 and vote on modern uses.

YOU DO

1. Run Slide 12 quick quiz: VI, IX, XL and C, asking for add or take away each time.
2. Take Slide 11 vote on where you would use Roman numerals today: clock face, chapters in a book, sports shirt number.
3. Ask winners to read back their quiz answers in both systems.
4. Link back to success criteria and set homework.

STUDENTS DO

1. Answer quiz on whiteboards and explain add or subtract for each.
2. Vote and justify one modern use for Roman numerals.
3. Self-check thumbs up against I can statements.

Say: Eyes down for the final check. I will show letters, you write figures. Be ready to say add or take away. Then vote: where would you still use Roman numerals today?

Worked example: VI = 6 as 5 + 1, IX = 9 as 10 take away 1 [4], XL = 40 as 50 take away 10 [7], C = 100 [2].

Ask: What is XL and how do you know? (40, because 50 take away 10 [7].) · Where would you use Roman numerals today and why? (On a clock face, for chapters in a book, where short letter-numbers are still used.)

Check understanding: Collect whiteboard answers for VI, IX, XL, C; if IX or XL are weak, replay one subtractive example tomorrow.

Support: Offer tens conversion strip showing X, XX, XXX, XL, L, LX, LXX, LXXX, XC, C [6]. **Stretch:** Pupils call the last number and must explain add or subtract before it counts.

Use: Slides 11-12

Common mistakes

Mistake	How to spot it	How to fix it
Reading IV as 6 and IX as 11 by always adding left to right	Whiteboards show 6 for IV or 11 for IX	Point left to right: small before big means take away, so IV is 5 minus 1 = 4 and IX is 10 minus 1 = 9 [4].
Writing 99 as IC or 44 as IL	Pupil builds IC for 99 or uses V, L or D to subtract	Remind only I, X and C can be used as subtractive numerals [5] and 99 is XCIX (90 + 9), not IC [7].
Thinking Romans had zero or that X can mean 100 if moved	Pupil adds 0 to a numeral or says X means hundred at the front	Show there is no zero in the system [3] and X always represents ten, no matter where it is placed [8].

Support

- Use colour-coded cards with values on the back and practise only with V, X and L first.
- Give a desk card showing I to XII and tens to C for matching while reading.
- Use base-ten blocks and Worksheet Task E chart to fill the chart to show place value and look where zero sits.

Stretch

- Include three-letter numerals such as XIV and XIX, working left to right by subtracting then adding.
- Challenge pupils to build 44, 49, 94 and 99 as XLIV, XLIX, XCIV and XCIX and spot why IC is not allowed.
- Ask pupils to explain why 42 × 17 is straightforward with place value but nearly impossible with XLII and XVII.

For the LSE or teaching assistant

Stay with the game pairs: read cards aloud, prompt add or take away, check Task B sentences. In then-and-now, guide the place-value chart and 0 card sentence.

Check for understanding

Question	Answer
What is IX and how did you work it out?	9, because 10 take away 1
What is XL and how did you work it out?	40, because 50 take away 10
Why do we need zero in our numbers but Romans did not use it?	Zero holds an empty place so digits show tens, ones; Romans had no zero [3]

Homework

Hunt at home for I, V, X, L or C as numbers and write what each one means in figures.

Sources

1. National curriculum in England: mathematics programmes of ... · gov.uk · https://www.gov.uk/government/publications/national-curriculum-in-england-mathematics-programmes-of-study/national-curriculum-in-england-mathematics-programmes-of-study
2. Year 4 mathematics new curriculum on a page · holtsmerejm.herts.sch.uk · https://www.holtsmerejm.herts.sch.uk/wp-content/uploads/2020/07/Yr-4-Maths-Curriculum.pdf
3. Roman numerals to 1000 - KS2 Maths - Year 5 - BBC Bitesize · bbc.co.uk · https://www.bbc.co.uk/bitesize/articles/z8trxg8
4. What Are Roman Numerals · lauramasson.co.uk · https://lauramasson.co.uk/s/What-Are-Roman-Numerals.pdf
5. Roman numerals - history and use · web40571.clarahost.co.uk · http://www.web40571.clarahost.co.uk/roman/howtheywork.htm
6. Kids Math: Roman Numerals - Ducksters · ducksters.com · https://www.ducksters.com/kidsmath/roman_numerals.php
7. Roman numerals Facts for Kids · kids.kiddle.co · https://kids.kiddle.co/Roman_numerals
8. Flexi answers - How to read Roman Numerals? | CK-12 Foundation · ck12.org · https://www.ck12.org/flexi/cbse-math/numeral-systems-(indian-international-roman)/how-to-read-roman-numerals/
9. Roman numerals - Kids | Britannica Kids | Homework Help · kids.britannica.com · https://kids.britannica.com/kids/article/Roman-numerals/390051
10. Roman numerals - Wikipedia, the free encyclopedia · taggedwiki.zubiaga.org · http://taggedwiki.zubiaga.org/new_content/aceca9d1c4b5a776098b83bb44b2df6f
11. Roman Numerals Explained For Kids | Why Is 4 = IV? · learnwithsitesforkids.com · https://learnwithsitesforkids.com/roman-numerals-explained-for-kids/
12. What Are Roman Numerals? – Explained for Kids · smartonlinegames.com · https://smartonlinegames.com/learn/what-are-roman-numerals.html
13. Roman Numerals 🇬🇧 LanGeek · langeek.co · https://langeek.co/en/grammar/course/1586/roman-numerals