# Reasoning and Problem Solving
## Step 5: Number Line to 1,000

## National Curriculum Objectives:

Mathematics Year 3: (3N4) Identify, represent and estimate numbers using different representations

## Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing Find the midpoint of a number line when given the start and end. Draw a number line with the same midpoint when given the start/end.
Expected Find the midpoint of a number line when given the start and end. Draw a number line with the same midpoint. The midpoint is a multiple of 10.
Greater Depth Find the midpoint of a number line when given the start and end. Draw a number line with the same midpoint. The midpoint is a multiple of 5.

Questions 2, 5 and 8 (Problem Solving)
Developing Find the end of a number line when given the start and clues. Increments are in 50, 100 or 200. Start point is a multiple of 100.
Expected Find the end of a number line when given the start and clues. Increments are in multiples of 10. Start point is a multiple of 100.
Greater Depth Find the end of a number line when given the start and clues. Increments are in multiples of 10. Start point is a multiple of 10.

Questions 3, 6 and 9 (Reasoning)
Developing Decide whether two number lines show the same number. Two labelled number lines used, start and end are multiples of 50.
Expected Decide whether two number lines show the same number. One labelled and one unlabelled number line used; start and end points labelled.
Greater Depth Decide whether two number lines show the same number. One labelled and one unlabelled number line used; two middle increments labelled.
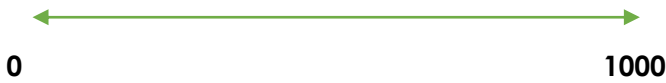
## More Year 3 Place Value resources.

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

# Number Line to 1,000

## Number Line to 1,000

**1a.** Yasmin has drawn this number line.

0 — 1000

Her friend Bohuslav has drawn a different number line with the same midpoint.

What could the start and end points of his number line have been?

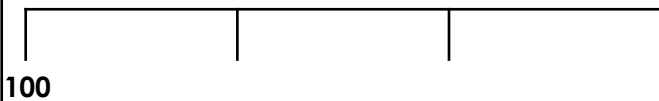D | PS

**1b.** Kieran has drawn this number line.

700 — 800

His friend Sasha has drawn a different number line with the same midpoint.

What could the start and end points of her number line have been?

D | PS

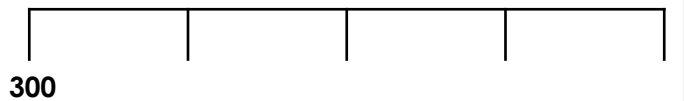**2a.** Lucy has drawn this number line but has forgotten to include the end point.

100

She knows the increments are either 50, 100 or 200. She also knows that 600 did fit on the line but 900 did not.

What was the end point of the number line?

D | PS

**2b.** Richard has drawn this number line but has forgotten to include the end point.

300

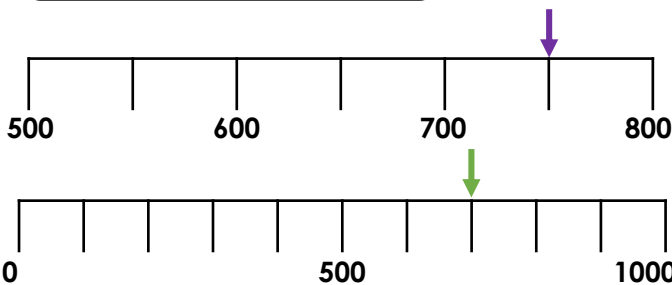He knows the increments are either 50, 100 or 200. He also knows that 400 did fit on the line but 600 did not.

What was the end point of the number line?

D | PS

**3a.** Taylor says,

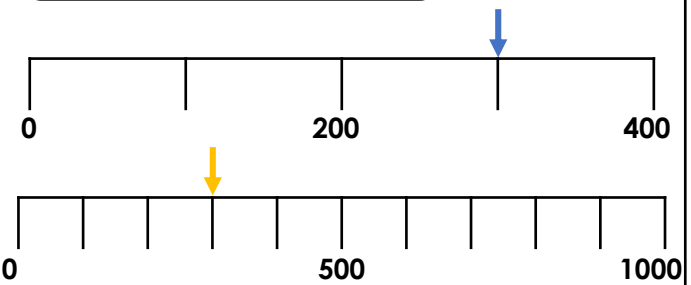> I have placed the same number on these number lines.

500  600  700  800

0  500  1000

Do you agree? Convince me.

D | R

**3b.** Victory says,

> I have placed the same number on these number lines.

0  200  400

0  500  1000

Do you agree? Convince me.

D | R

**4a.** Carla has drawn this number line.

400 ———————————— 500

Her friend Luke has drawn a different number line with the same midpoint.

What could the start and end points of his number line have been?

PS

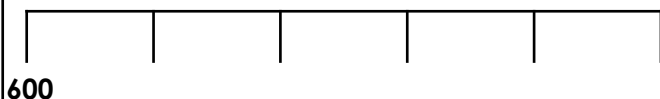**4b.** Matthew has drawn this number line.

380 ———————————— 400

His friend Farah has drawn a different number line with the same midpoint.

What could the start and end points of her number line have been?

PS

**5a.** Katie has drawn this number line but has forgotten to include the end point.
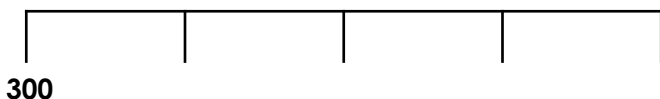
600

She knows that the increments are a multiple of 10. She also knows that 660 did fit on the line but 810 did not.

What could the end point of the number line be?

PS

**5b.** Laylu has drawn this number line but has forgotten to include the end point.

300

He knows that the increments are a multiple of 10. He also knows that 320 did fit on the line but 430 did not.
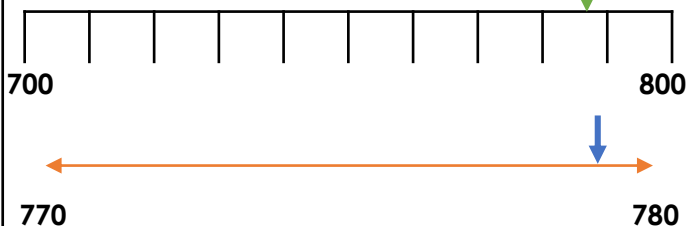
What could the end point of the number line be?

PS

**6a.** Mitchell says,

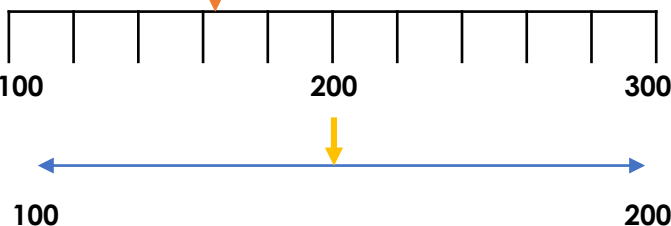I have placed the same number on these number lines.

700 ———————————— 800

770 ———————————— 780

Do you agree? Convince me.

R

**6b.** Paula says,

I have placed the same number on these number lines.

100 ——— 200 ——— 300

100 ———————————— 200

Do you agree? Convince me.

R

**7a.** Trina has drawn this number line.

420 ———————————————→ 430

Her friend Paul has drawn a different number line with the same midpoint.

What could the start and end points of his number line have been?

PS

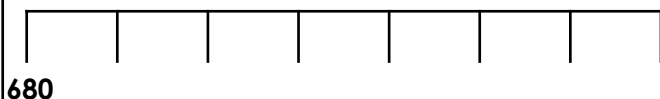**4b.** Jack has drawn this number line.

650 ←——————————————— 700

His friend Francine has drawn a different number line with the same midpoint.

What could the start and end points of her number line have been?

PS

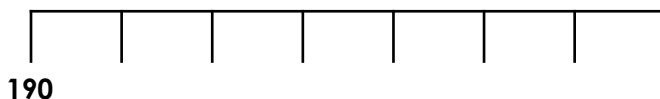**8a.** Joseph has drawn this number line but has forgotten to include the end point.

680

He knows that the increments are a multiple of 10. He also knows that 755 did fit on the line but 905 did not.

What could the end point of the number line be?

PS

**8b.** Hillary has drawn this number line but has forgotten to include the end point.

190

She knows that the increments are a multiple of 10. She also knows that 265 did fit on the line but 765 did not.
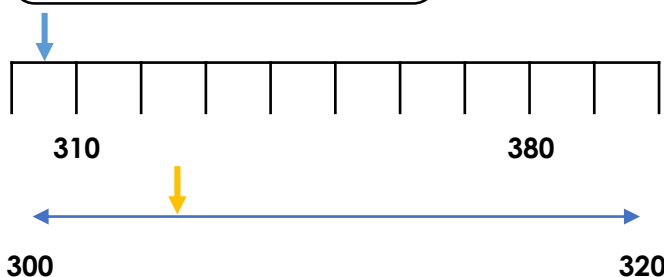
What could the end point of the number line be?

PS

**9a.** Georgina says,

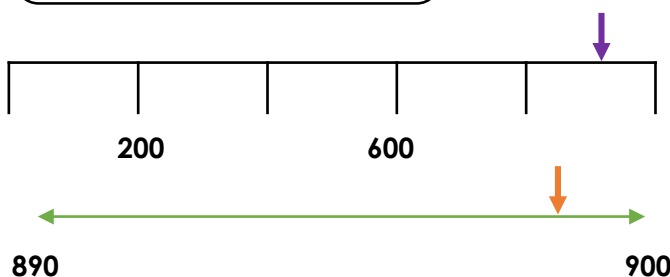I have placed the same number on these number lines.

310 ———————— 380

300 ←——————————————— 320

Do you agree? Convince me.

R

**9b.** Hugo says,

I have placed the same number on these number lines.

200 ———— 600

890 ←——————————————— 900

Do you agree? Convince me.

R

# Reasoning and Problem Solving
## Number Line to 1,000

**Developing**

**1a.** Possible answers: 400 and 600, 300 and 700

**2a.** 700 (increments of 200)

**3a.** Taylor is not correct because the first number line shows the number 750 and the second number line shows the number 700.

**Expected**

**4a.** Possible answers include: 440 and 460, 425 and 475

**5a.** 700 (increments of 20); 750 (increments of 30); 800 (increments of 40)

**6a.** Mitchell is not correct because the first number line shows a number less than 790 whilst the second number line shows a number less than 780.

**Greater Depth**

**7a.** Possible answers: 400 and 450, 415 and 435

**8a.** 820 (increments of 20); 890 (increments of 30)

**9a.** Georgina is correct because both number lines show 305.

# Reasoning and Problem Solving
## Number Line to 1,000

**Developing**

**1b.** Possible answers: 600 and 900, 500 and 1000

**2b.** 500 (increments of 50)

**3b.** Victory is correct because both number lines show 300.

**Expected**

**4b.** Possible answers include: 370 and 410, 389 and 391

**5b.** 340 (increments of 10); 380 (increments of 20); 420 (increments of 30)

**6b.** Paula is not correct because the first number line shows a number more than 160 whilst the second number line shows 150 as it is the midpoint of 100 and 200.

**Greater Depth**

**7b.** Possible answers: 670 and 680, 660 and 690

**8b.** 330 (increments of 20); 400 (increments of 30); 470 (increments of 40); 540 (increments of 50); 610 (increments of 60); 680 (increments of 70), 750 (increments of 80).

**9b.** Hugo is not correct because the first number line shows a number above 900 while the second number line shows a number below 900.