

Lesson 53 ALGEBRA

Jumps of 2 on the number line: the pattern in the endings

CURRICULUM ALIGNMENT

ALG.PRR.2

identify and express relationships in patterns, including growing or shrinking shape patterns and number sequences.

INTERACTIVES [Number Line Jumps · challenge, display, explore](#)

WHAT THIS LESSON TEACHES

A hop of exactly two on the number line lands on the number that is two more than where you started. The endings of these landings cycle through 0, 2, 4, 6 and 8 and then repeat.

→ Standing on 6 and jumping 2 lands on 8.

→ From 0 the landings are 2, 4, 6, 8, 10...

MODEL THIS ON THE BOARD

FROG JUMP FROM 6

- 1 The frog stands on stone 6.
- 2 It jumps exactly 2 and lands on 8.
- 3 Say the ending: 6 became 8.
- 4 One more jump of 2 from 8 lands on 10.

LESSON ARC

Open with the frog-and-pond hook and five seconds of think-time on which stones the frog lands on. On the number-line interactive, jump two at a time to 20, ringing each end digit so the 0-2-4-6-8 cycle is heard. Try It Together starts on 4 with hands-up predictions before each jump. Pupils write landings 2 to 20 in copybook, then Class Challenge cues the end number before every board plot. Close on why a 5-ending is never a landing.

TEACHING MOVES

1. **Getting Started.** Show the frog-and-pond image. Give five seconds of silent think-time, then take three hands-up answers on which stones the frog lands on. Leave the never-touch question hanging — do not settle it yet.
2. **Watch and Notice.** Work the first line jump by jump: 2, 4, 6, 8, 10, 12. Pause after 12, point at the end digit on 12, and ask what the end numbers were so far. On the longer line to 20, ring just the end digit of each landing as it appears and revoice: the end numbers go round and round.
3. **Try It Together.** Start on 4 (or reset to 0 and climb). Before each jump, take a hands-up prediction of the landing. Several pupils take turns at the board; the watching class predicts each time. Listen for pupils naming the end number before the full landing — that is the pattern landing.
4. **Write the jumps in your copy.** Pupils write the landings from 2 to 20 in one careful line in their maths copy. Walk the row glancing at numeral formation and the landing sequence — this is whole-class copybook practice, not marking.
5. **Class Challenge.** Reveal one stem at a time so the board pupil and the class share the same goal. Cue before every plot: 'what will the end number be — how do you know before you jump?' On the two-jump

rounds from 14 and 16, ask both landings named before the second hop is drawn. Keep it brisk and check each answer as you go.

6. **What Did We Notice?** Ask why jumps of two never land on a number ending in 5. Listen for end numbers always being 0, 2, 4, 6 or 8 — never 1, 3, 5, 7 or 9. Revoice: two keeps you on those stones, so a 5 is never a landing.

COMMON MISCONCEPTIONS

⚠ Given a start like 6 or 14, pupils restart from 0 and recount the whole sequence instead of jumping two from the given stone.

Point at the given number on the number-line interactive and ask 'where is the frog standing right now?' Then hop exactly two from that stone only.

⚠ Pupils land on an odd number (e.g. 7 or 15) — they added 1, or counted the starting stone as a hop. Ring the end digit of their landing on the interactive. Revoice the 0-2-4-6-8 cycle, then try the same jump again from the correct stone.

⚠ Pupils say the end number is '12' or '20' — they name the whole landing instead of the last digit. Point at the little digit on the right of 12 on the board. 'The end number is the 2 — the one on the right. What end numbers have we seen so far?'

DIFFERENTIATION

EMERGING

- Stay on the line from 0 to 10 only; pupils call the landings 2, 4, 6, 8, 10 before the class moves past 12.
- On copybook, write the first three landings for them so they continue the sequence rather than start it.

DEVELOPING

- After the copybook line, ask: if the frog starts on 8, what are the next four end numbers — say them without drawing the jumps.
- On Class Challenge, add a stem 'landing after 18' and ask them to justify from the end-number pattern alone.

PROFICIENT

- Ask whether the frog, starting on 0 and jumping two, can ever land on 25 — write one sentence in copybook explaining from the end-number pattern without counting all the way.

✂ **Cross-curricular:** If the corridor has a painted number line, walk jumps of two and chant each landing's end digit aloud.

ANSWER KEY

a) 4, 6, 8

b) 28

c) 2, 4

Q1: 18

Q2: 12

Q3: 6, 8

Q4: 24 and 26

Q5: 16

Q6: 30

a) **Always** : The ending digits cycle through those five and never others.

b) **Never** : From 0, jumps of 2 land only on numbers ending in 0, 2, 4, 6 or 8.

c) **Always** : Adding 2 to 6 gives 8 every time.

d) **Never** : Jumps of 2 from an even number stay on even numbers.

EXTENSION SHEET · STRETCH ANSWERS

S1: 80

S2: 86

S3: 90

S4: 32