







Topic: Patterns and algebra

Representing and recording counting sequences

Lesson concepts

-  Number — Counting
-  Number — Names and symbols
-  Number — Quantity
-  Patterns — Describing patterns
-  Patterns — Continuing patterns
-  Patterns — Growing patterns

Today students will:

- ▶ recall the 1s, 2s and 10s counting sequences
- ▶ skip count a collection.

Resources

Text

Familiar picture book

Digital

Learning object — Hundred board

Find and prepare

Materials to represent counting sequences (for example, buttons, pasta shells, dried beans)

Sheets

Number symbols 0–100

Hundred board 0–99

Number lines (blank)

Key terms

addition (add), counting sequence, decrease, increase, number pattern, numeral, skip counting, subtraction

For definitions and explanations of terms, please see the [Glossary](#).

Lesson

Introduce the lesson

Explain to students

‘ In this lesson, we will learn about counting sequences and we will skip count in 2s and 10s. Counting sequences can be used to tell us how many and they can be used to help us order things and events. ’

- Read a familiar picture book to students out of sequence (for example, read page 11, then page 4, then page 8, and so on).

Focus questions

Q. *What happens when the pages are read out of sequence?*

A. For example: The story doesn't make any sense.

Q. *When do you think it would be important to follow a sequence correctly?*

A. For example: when reading a book; following a recipe or other instructions

- Ask students to:
 - identify the numbers on the pages of the book
 - read the numbers in order.

Focus questions

Q. *What is the counting sequence shown in the book?*

A. For example: 1s counting sequence starting from 2 and ending at 20

Q. *How do you know that?*

A. For example: Each number increases by 1.

Q. *What would be the next number in this counting sequence?*

A. For example: 21

Recall counting sequences

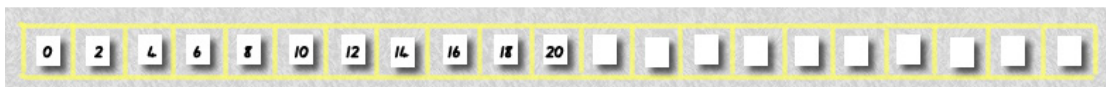
- Cut cards from [Number symbols 0–100](#) or cut squares of paper and number them 1–100.
- Ask students:
 - to create a 1s counting sequence by placing numbers in the correct order, starting from 0



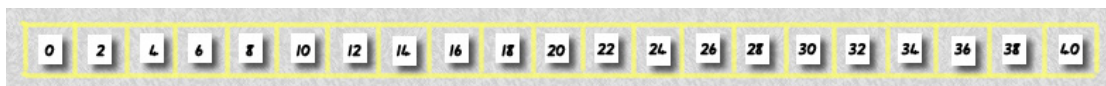
- start on 0 and jump along in 1s, counting forwards to 20 and then backwards from 20 (in 1s)
- start on 0 and jump along in 2s, counting forwards to 20 and then backwards from 20 (in 2s)



- remove the unused cards (for example, 1, 3, 5) except for 0, and create the 2s counting pattern up to 20



- identify and select the appropriate number cards to continue the 2s counting sequence (that is, numbers 22, 24, 26, 28 ... 38, 40)



- jump along in 2s, counting forwards and then backwards in 2s.

Focus questions

Q. *What is the new counting sequence?*

A. A 2s counting sequence

Q. *When you jump forwards, what are you 'adding' to each number?*

A. 2

Q. *When you jump backwards, what are you 'subtracting' or 'taking away'?*

A. 2

Q. *What patterns do you notice in this 2s counting sequence?*

A. The numbers end with either 0, 2, 4, 6 or 8.

Q. *What would be the next number after (40) in the 2s counting sequence?
How do you know?*

A. 42. For example: I would need to skip 41, so the next number would be 42.

Q. *What number comes before (18) in the 2s counting sequence?*

A. 16

Q. *When would you use skip counting in 2s?*

A. For example: when you have a large number of objects to count

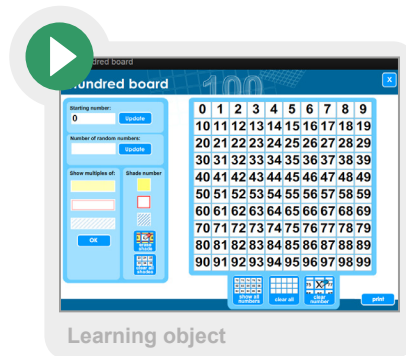
Q. *Why do we skip count?*

A. For example: to find the total or how many, to count faster

- Provide students with a large collection of items (for example, buttons, pasta shells, dried beans).
- Ask students to:
 - count the collection
 - tell you the total
 - identify the counting sequence they used to count the collection and why it was chosen.

Represent counting sequences

- Display the **Learning object** — Hundred board.



- Ask students to highlight the 2s counting sequence (starting from 0).

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

- Click 'clear all shades' and shade the number 6 only.
- Ask students to continue the 2s counting pattern from 6 to 40 (that is, highlight 8, 10, 12, 14 ... 40).
- Repeat the activity, starting at different numbers (for example, 8, 10, 12).
- Ask students to:
 - highlight the numbers in the 10s counting sequence on the hundred board
 - say the numbers in the 10s counting sequence (starting at 0)
 - place the appropriate number cards for the 10s counting sequence.



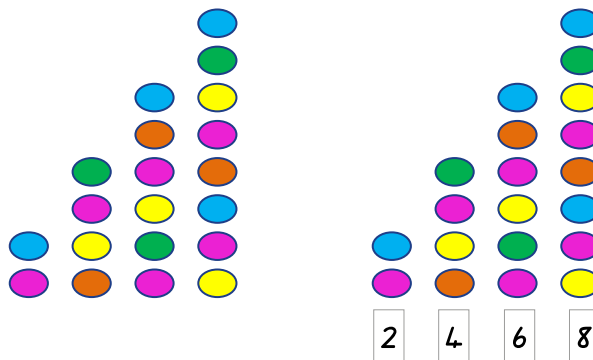
Explain that the total increases by 10 each time and that the 10s counting sequence continues after 100.

Represent and record counting sequences

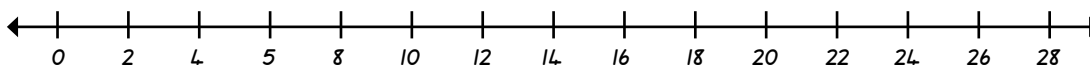
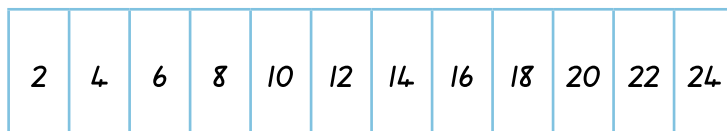
Note

Students will complete a series of activities to represent and record counting sequences. Please demonstrate the activities below to your student. Students will be asked to perform the activities afterwards.

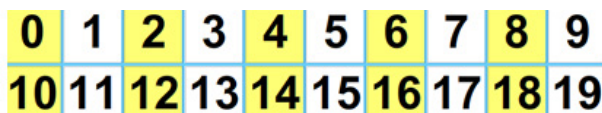
- Create a growing pattern by 2s using counters and then demonstrate how to match the correct number card to show the 2s counting sequence.



- Say the numbers in the counting sequence.
- Show students how to record the numbers on [Number lines \(blank\)](#) and continue the sequence.



- Identify and highlight the numbers in the 2s number sequence on the hundred board.



Reinforce to students

- Counting sequences are ways of describing growing patterns.
- In this sequence, each part increases (gets bigger) by 2.
- Starting at 0 and 'increasing (getting bigger) by 2' is known as the 'rule' of the counting pattern.

- Provide students with a variety of materials to represent counting sequences (for example, buttons, pasta shells, dried beans).
- Ask students to:
 - create a growing pattern (by 1s, 2s or 10s, forwards or backwards)
 - match the appropriate number cards cut from **Number symbols 0–100** with their growing pattern
 - record the numbers of the counting sequence on **Number lines (blank)**
 - identify what comes next in the sequence
 - state the pattern rule (for example, increasing by 2, increasing by 10, decreasing by 2)
 - identify any pattern features (for example, all the numbers end with 0).