Unit 1: Lesson 2

Number and place value — Using the 2s, 5s and 10s counting sequences

In this lesson students will:

- ☐ recall the sequences for counting by 2s, 5s, 10s
- ☐ identify missing elements in the 2s, 5s, 10s sequences.

Resources

Digital

Hundred board and calculator combo (or calculator)

Hundred board (concrete or print from Maths Pack)

Creating number sequences using a calculator (4:24)

Find and prepare

Sheet 2 — Number sequences with missing numbers (Send-in)

Maths exercise book

Helpful information

Creating number sequences using a calculator

Maths specific language

This language supports the delivery of this lesson.

number pattern, sequence, element, count, skip count, repeat, next, after, before, start, finish, forwards, backwards, starting point, missing element

element: part or number in a pattern

missing element: missing part or number in a pattern

skip count: leaving out or skipping numbers in a counting sequence

Lesson

Explain to students:

Today you will be counting in 2s, 5s and 10s and learning about numbers up to 1 000.

Ask students:
Q: When do you use the 2s, 5s and 10s counting sequences in your life?

A: Example: 5 minute intervals on an analogue clock, counting 5 or 10 cent coins, counting 2 dollar coins, counting the number of decades in a century, counting the number of people on the bus or train in 2s .

Represent counting patterns

Display a Hundred board (concrete or print from Maths Pack).

Note: You will need to change the starting number on the digital **Hundred board** for each of the following questions.

Note: Students who are fluent with number patterns starting at zero may find it difficult to continue or create patterns starting at unfamiliar starting points.

Place 550 as the starting number on the **Hundred board**.
Ask students to:

- find the number 590 on the **Hundred board**
- point and count *forwards* in *twos* until they reach the number 620
- point and count *backwards* from 620 in *twos* until they arrive back at 590.

550	551	552	553	554	555	556	557	558	559
560	561	562	563	564	565	566	567	568	569
570	571	572	573	574	575	576	577	578	579
580	581	582	583	584	585	586	587	588	589
590	591	592	593	594	595	596	597	598	599
600	601	602	603	604	605	606	607	608	609
610	611	612	613	614	615	616	617	618	619
620	621	622	623	624	625	626	627	628	629
630	631	632	633	634	635	636	637	638	639
640	641	642	643	644	645	646	647	648	649

Place 350 as the starting number on the **Hundred board**.
Ask students to:

- find the number 363 on the **Hundred board**
- point and count forwards in twos until they reach the number 393
- point and count backwards from 393 in twos until they arrive back at 363.

350	351	352	353	354	355	356	357	358	359
360	361	362	363	364	365	366	367	368	369
370	371	372	373	374	375	376	377	378	379
380	381	382	383	384	385	386	387	388	389
390	391	392	393	394	395	396	397	398	399
400	401	402	403	404	405	406	407	408	409
410	411	412	413	414	415	416	417	418	419
420	421	422	423	424	425	426	427	428	429
430	431	432	433	434	435	436	437	438	439
440	441	442	443	444	445	446	447	448	449

Ask students:

Q: *What did you notice about the numbers you were counting?*
A: Example: The numbers increased or decreased by 2

Q: *Can you identify and describe a rule?*
A: Example: add or subtract 2

Place 220 as the starting number on the **Hundred board**.
Ask students to:

- find the number 220 on the **Hundred board**
- point and count *forwards* in *tens* until they reach the number 310
- point and count *backwards* from 310 in *tens* until they arrive back at the number 220.

220	221	222	223	224	225	226	227	228	229
230	231	232	233	234	235	236	237	238	239
240	241	242	243	244	245	246	247	248	249
250	251	252	253	254	255	256	257	258	259
260	261	262	263	264	265	266	267	268	269
270	271	272	273	274	275	276	277	278	279
280	281	282	283	284	285	286	287	288	289
290	291	292	293	294	295	296	297	298	299
300	301	302	303	304	305	306	307	308	309
310	311	312	313	314	315	316	317	318	319

Place 896 as the starting number on the **Hundred board**.

Ask students to:

- find the number 896 on the **Hundred board**
- point and count *forwards* in *tens* until they reach the number 986 (Example: 896, 906, 916, 926)
- count *backwards* from 986 in *tens* until they arrive back at the number 996 (Example: 986, 976, 966, 956, 946).

Ask students to:

- find the number 962 on the **Hundred board**
- count forwards in fives to 997 (Example: 962, 967, 972, 977, 982, 987)
- count backwards in fives from 997 until they reach their starting number (Example: 997, 992, 987, 982, 977).

Ask students:

*Q: What did you notice about the numbers you were counting?*
A: Example: When counting forwards, I added 5 each time. When counting backwards, I took 5 away.
Q: Can you identify and describe a rule?
A: Example: add or subtract 5

Record counting sequences

Watch **Creating number sequences using a calculator** (4:24) to find out how to use a calculator to show 3 digit number patterns by clicking the box below.
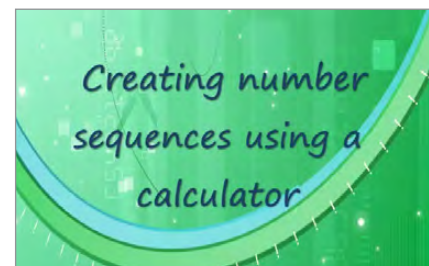
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In this video, students are shown how to use an interactive **Hundred board and calculator combo** to explore number sequences with 3 digit numbers.

Tell students:

I will now show you how to use the **Hundred board and calculator combo** *(or a calculator) to show the repeated addition (constant) function on a calculator.*

Note: You will need to change the starting number on the digital **Hundred board and calculator combo** for each of the following questions.

Show and continue:

- the 2s counting sequence
  e.g. 2 + 2 = = =; 250 – 2 = = =

- the 5s counting sequence
  e.g. 5 + 5 = = =; 1000 – 5 = = =

- the 10s counting sequence
  e.g. 10 + 10 = = =; 890 – 10 = = =
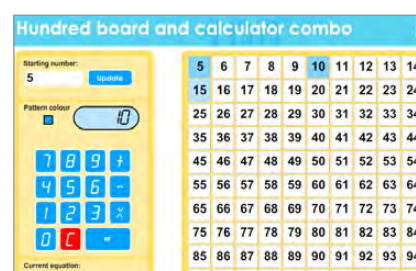
Continue to use **Hundred board and calculator combo** to show students how to use the repeated addition (constant) function on the calculator to *explore unfamiliar patterns* using the 2s, 5s and 10s counting sequences.

Show and continue:

- the 2s counting sequence
  e.g. 173 + 2 = = =; 887 – 2 = = =

- the 5s counting sequence
  e.g. 273 + 5 = = =; 662 – 5 = = =

-     the 10s counting sequence
  e.g. 565 + 10 = = =; 994 – 10 = = =
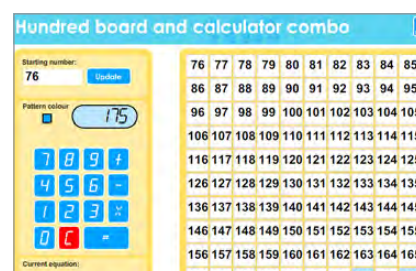
Ask students:

Q: *What pattern do you see when you 'add 2'?*
A: I am skip counting in 2s and the pattern repeats in each ten

Q: *What happens when you start at 273 and add 5? What do you notice?*
A: Example: The number in ones place is either a 3 or an 8.

Q: *If you start at 3 and add 10 will the number 30 be in the pattern? Why?*

Q: If you start at 3 and add 10 will the number 30 be in the pattern? Why?
A: Example: No, because if I start on 3 and continue to add 10, the sequence will be 3, 13, 23, 33, 43.

Ask students to:

- choose a 3-digit number, for example, 465

- enter the number on the calculator

- use the repeated addition function on the calculator to continue the 2s counting sequences, for example, (465) + 2 = = =; (465) – 2 = = =

- use the repeated addition function on the calculator to continue the 5s counting sequences, for example, (465) + 5 = = =; (465) – 5 = = =

- use the repeated addition function on the calculator to continue the 10s counting sequence, for example, (465) + 10 = = =; (465) – 10 = = =
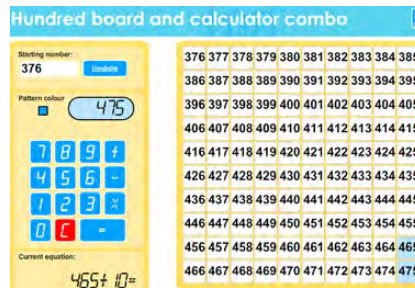
Identify missing numbers

Ask students:
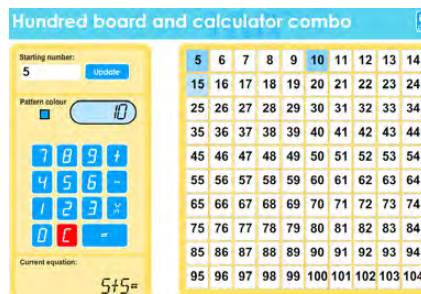
You will now find missing numbers in a pattern.

Display this number sequence and read aloud to students:

6, 11, 16, 21, _, _, _.

Work with students to:

- identify how the number sequence is changing

- develop and record a rule in the maths exercise book (+5)

- continue the sequence and record in the Maths exercise book

- check that the sequence is correct on a calculator.

6, 11, 16, 21, 26, 31, 36.   (+ 5)

Display this number sequence and read out loud to students:

49, 47, 45, 43, _, _, _.

Work with students to:

- identify how the number sequence is changing
- create and record a rule in the maths exercise book (– 2)
- continue the sequence and record solutions
- check that the sequence is correct on a calculator.

49, 47, 45, 43, 41, 39, 37.   (subtracting 2)

Find **Sheet 2 —** Number sequences with missing numbers in the Activity Book.

> **Say to students:**
>
> *On this sheet you need to work out the missing number in each sequence and write it in the empty box.*