

Counting Backwards by 1s is Subtracting 1 Each Time, on a Number Line ↖

Table of Contents

Teaching Plan Overview and Summary	page 2
Counting backwards by 1s by subtracting 1 counter each time	page 3
Counting backwards by 1s by subtracting 1 each time on a number line	page 5

Let's Implement Seamless ASSESSMENT, DIFFERENTIATION, INVESTIGATION, PROBLEM SOLVING, INTERVENTION, INTEGRATION in Mathematics

SEAMLESS ASSESSMENT, DIFFERENTIATION, INVESTIGATION, PROBLEM SOLVING, INTERVENTION, INTEGRATION

Not every student will be ready to investigate or solve problems at this Level and so we will need to assess and differentiate to ensure every student is learning at their leading edge. Some students may not yet be ready to investigate this concept at any Level, and so we will need to provide some intervention.

Every mathematical concept is integrally related to other mathematical concepts. Teaching and learning related concepts simultaneously develops deep relational understanding.

COUNTING BACKWARDS BY 1s IS SUBTRACTING 1 EACH TIME, ON A NUMBER LINE.

EXPLICIT TEACHING PLAN OVERVIEW PAGE

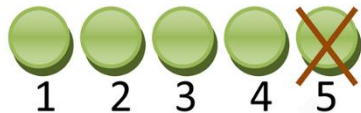
THIS PAGE IS A SUMMARY OF THE EXPLICIT TEACHING PLAN, INCLUDING STRATEGIC QUESTIONS, AND DESCRIBING THE SEQUENCE WHICH WILL OCCUR OVER MULTIPLE LESSONS.

RESOURCES: Counters, Numeral Cards, Paper, Pencil

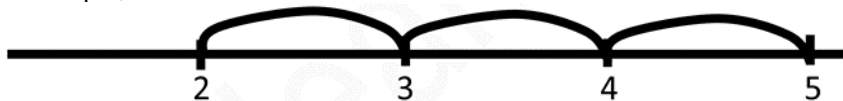
What could we do?

Children:

- count backwards
- subtract counters one at a time
- cross counters out one at a time, recording the backwards count, for example,



- record an open empty number line
- repeatedly subtract 1, recording as jumps backwards on the number line, for example,



- explain counting backwards by ones is subtracting 1 each time

What language could we use to explain and ask questions?

Children ask one another questions about counting forwards by 1s is adding 1 each time, recording on a number line, for example,

- how can we subtract 1 counter?
- how many counters altogether?
- did we subtract one from 3 to get 2?
- is the number before 3 one less than 3?
- how many have we been subtracting each time?
- when we count backwards by ones, how many are we subtracting each time?

- how can we subtract 1 on a number line by jumping backwards?
- did we subtract one from 3 to get 2?
- is the number before 3 one less than 3?
- how many have we been subtracting each time?
- when we count backwards by ones, how many are we subtracting each time?

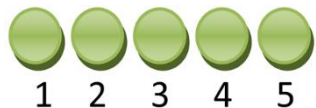
COUNTING BACKWARDS BY 1s IS SUBTRACTING 1 EACH TIME, ON A NUMBER LINE.

EXPLICIT TEACHING PLAN

FULL EXPLICIT TEACHING PLAN, EMBEDDING DEEP RELATIONAL UNDERSTANDING, METALANGUAGE, AND QUESTIONS THAT MAY BE USED OVER MULTIPLE LESSONS.

What could we do?	What language could we use to explain and ask questions?
<p>Children think about, talk and listen to a friend about, then have the opportunity to share what they already know.</p> <p>Record the numbers 10 – 1 as children count backwards.</p> <p>Point to the numbers 1-10 as children count forwards.</p> <p>Children identify that we are saying the same numbers when counting forwards and backwards.</p> <p>Record the numbers 23 – 17 as children count backwards.</p> <p>Point to the numbers 17-23 as children count forwards.</p> <p>Children identify that we are saying the same numbers when counting forwards and backwards.</p> <p>Display a container of counters (grouping 20 counters in small containers is very convenient).</p> <p>Display 5 counters.</p>	<ul style="list-style-type: none">▶ Today we're going to investigate what we are doing when we count backwards by ones.▶ What do you already know about counting backwards by 1s?▶ Talk to a friend about counting backwards by 1s.▶ Is anybody ready to share what they are thinking about counting backwards by 1s? ▶ Let's count backwards, 10, 9, 8, 7, 6, 5, 4, 3, 2, 1▶ Let's count forwards, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10▶ When we counted backwards and forwards, did we say the same numbers? ▶ Let's count backwards from 23, 23, 22, 21, 20, 19, 18, 17▶ Let's count forwards from 17, 17, 18, 19, 20, 21, 22, 23▶ When we counted backwards and forwards, did we say the same numbers? ▶ How many counters?▶ How could we record this?▶ Could we record the counters?

Record 5 counters and the numerals 1, 2, 3, 4, 5, for example,



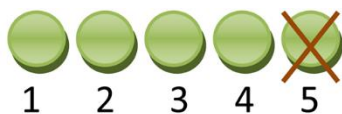
Children take away 1 counter.

Children explain that they took away 1 counter.

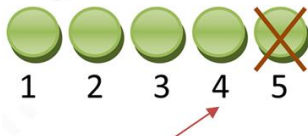
Record, for example, subtract.

Children explain that they have 4 counters left.

Cross out the final counter, for example,



Point to number 4.



Children subtract 1 counter.

Children explain that they subtracted 1 counter.

Children explain that they have 3 counters left.

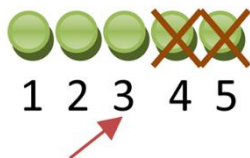
Cross out one counter, for example,



- ▶ Could we record the numbers?
- ▶ Please take away 1 counter.
- ▶ What did we do?
- ▶ Did we take away 1 counter?
- ▶ When we take away, we say we are subtracting.
- ▶ Subtract means take away.
- ▶ How many counters are left?
- ▶ How could we record this?
- ▶ Could we cross out the counter that we took away?

- ▶ Let's look at the number 4.
- ▶ Is 4 the number before 5?
- ▶ Is 4 one less than 5?
- ▶ Did we subtract one from 5 to get 4?
- ▶ Please subtract 1 counter.
- ▶ What did we do?
- ▶ Did we subtract 1 counter?
- ▶ How many counters are left?
- ▶ How could we record this?
- ▶ Could we cross out the counter that we subtracted?

Point to number 3



Record an open, empty number line (a line), for example,



- ▶ Let's look at the number 3.
- ▶ Is 3 the number before 4?
- ▶ Is 3 one less than 4?
- ▶ Did we subtract one from 4 to get 3?
- ▶ How many have we been subtracting each time?
- ▶ Have we been subtracting 1 each time?
- ▶ Let's read the numbers, 5, 4, 3
- ▶ Are we counting backwards by ones?
- ▶ When we count backwards by ones, how many are we subtracting each time?

- ▶ **This time when we count backwards, we're going to place the numbers on a number line** to investigate what is happening when we count backwards by ones.
- ▶ So far, this is just a line.
- ▶ What do you think we're going to put on the line to make it a number line?
- ▶ Let's put some numbers on the number line.
- ▶ When we count backwards, do the numbers get bigger or smaller?
- ▶ Do the numbers get smaller when we count backwards?
- ▶ On a number line, numbers get smaller as we move to the left. There is no reason for this, but if everyone in the world makes the numbers get lower as they move to the left, we will all be able to read everyone else's number lines!
- ▶ Our highest number today is 5, which end of the number line do you think 5 would go?
- ▶ Will 5 go on the right end of the number line? Why?
- ▶ Will 5 go the right end of the number line so that we can get lower as we count backwards?

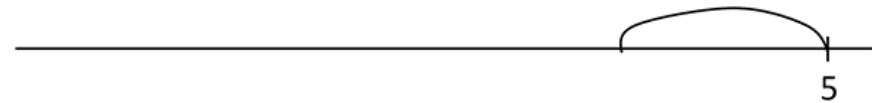
Place a mark on the right end of the open, empty number line, for example,



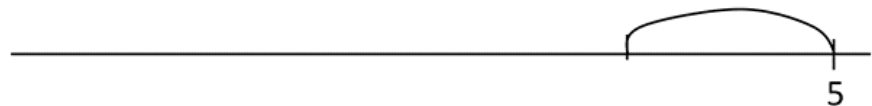
Place the number 5 on the right end of the open, empty number line, for example,



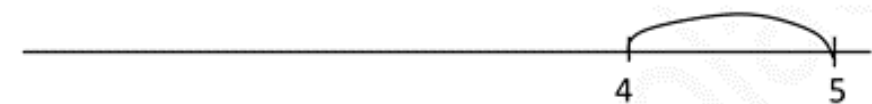
Record a jump from the mark where 1 is on the open, empty number line, for example,



Record a mark where the jump ends on the open, empty number line, for example,

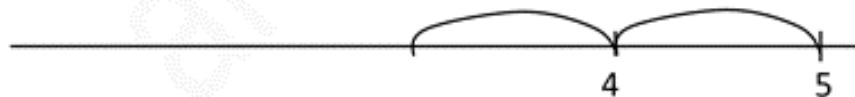


Record 4 on the mark where the jump ends on the open, empty number line, for example,

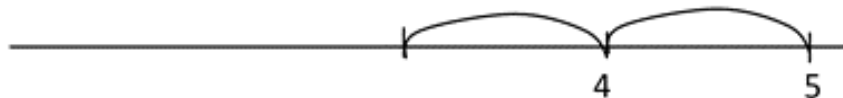


- ▶ Will 5 go the right end of the number line so that we can get smaller as we count backwards?
- ▶ Let's start by making a mark where the number 5 will go.
- ▶ Now let's record the number 5.
- ▶ Let's subtract 1.
- ▶ To show that we are subtracting 1, we'll record a jump to the left.
- ▶ Where is the jump starting from?
- ▶ Is the jump starting from the mark where 5 is on the number line?
- ▶ Let's record a mark where the jump ended.
- ▶ If we started at 5, and subtracted 1, what number will we end on?
- ▶ Will we end on number 4?
- ▶ Let's record 4 on the mark where the jump ended.
- ▶ Let's look at the number 4.
- ▶ Is 4 the number before 5?

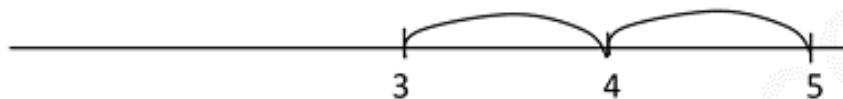
Record a jump from the mark where 4 is on the open, empty number line, for example,



Record a mark where the jump ends on the open, empty number line, for example,



Record 3 on the mark where the jump ends on the open, empty number line, for example,



- ▶ Is 4 one less (fewer) than 5?
- ▶ Did we subtract one from 5 to get 4?
- ▶ Did we subtract 1 on a number line?

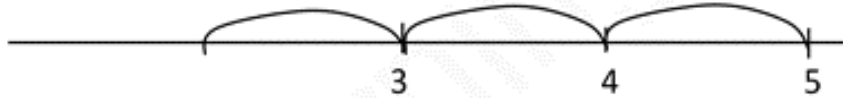
- ▶ Let's subtract another 1!
- ▶ How will we show that we are subtracting 1?
- ▶ Will we record a jump to the left?
- ▶ Where is the jump starting from?
- ▶ Is the jump starting from the mark where 4 is on the number line?

- ▶ Let's record a mark where the jump ended.
- ▶ If we started at 4, and subtracted 1, what number will we end on?
- ▶ Will we end on number 3?
- ▶ Let's record 3 on the mark where the jump ended.

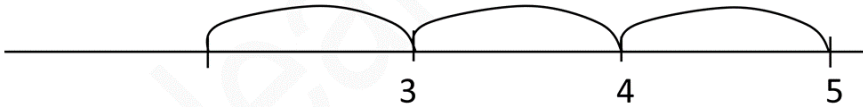
- ▶ Let's look at the number 3.
- ▶ Is 3 the number before 4?
- ▶ Is 3 one less (fewer) than 4?
- ▶ Did we subtract one from 4 to get 3?
- ▶ Did we subtract 1 on a number line?

- ▶ Let's subtract another 1!
- ▶ How will we show that we are subtracting 1?

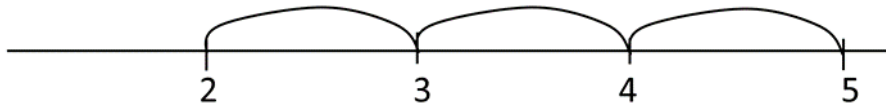
Record a jump from the mark where 3 is on the open, empty number line, for example,



Record a mark where the jump ends on the open, empty number line, for example,



Record 2 on the mark where the jump ends on the open, empty number line, for example,



Children alternate between counting forwards by adding 1 each time and counting backwards by subtracting 1 each time to develop deep and flexible understanding of BOTH, and the inverse relationship between counting forwards and counting backwards.

- ▶ Will we record a jump to the left?
- ▶ Where is the jump starting from?
- ▶ Is the jump starting from the mark where 3 is on the number line?
- ▶ Let's record a mark where the jump ended.

- ▶ If we started at 3, and subtracted 1, what number will we end on?
- ▶ Will we end on number 2?

- ▶ Let's record 2 on the mark where the jump ended.
- ▶ Let's look at the number 2.
- ▶ Is 2 the number before 3?
- ▶ Is 2 one less (fewer) than 3?
- ▶ Did we subtract one from 3 to get 2?
- ▶ Are we subtracting 1 on a number line?
- ▶ Let's read the numbers in order, 5, 4, 3, 2
- ▶ Are we counting backwards by ones?
- ▶ When we count backwards by ones, how many are we subtracting each time?
- ▶ Are we subtracting 1 each time?
- ▶ How do we show that we subtracting 1 on a number line?
- ▶ Do we record a jump to the left?

Numerals 0 – 20 (print, cut out and distribute as appropriate to each child) [back](#)

0	1	2	3
4	5	6	7
8	9	10	

Numerals 11-20

14	16	17	18
19	15	13	12
11			

