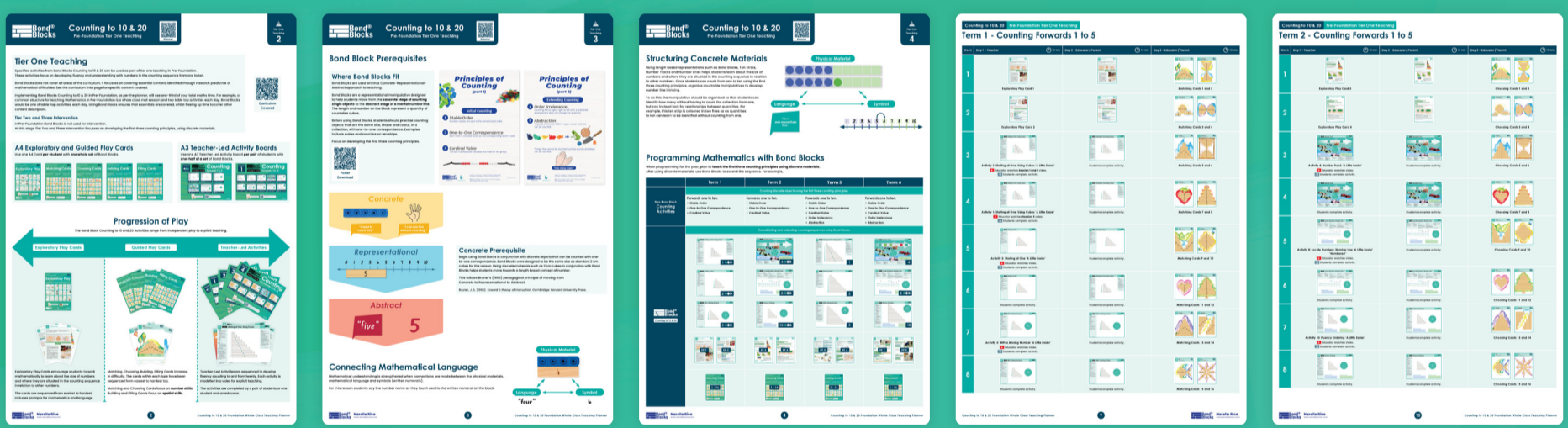


Bond® Blocks

Counting to 10 & 20

Pre-Foundation Tier One Teaching





Tier One Teaching

Specified activities from Bond Blocks Counting to 10 & 20 can be used as part of tier one teaching in Pre-Foundation. These activities focus on developing fluency and understanding with numbers in the counting sequence from one to ten.

Bond Blocks does not cover all areas of the curriculum. It focusses on covering essential content, identified through research predictive of mathematical difficulties. See the curriculum links page for specific content covered.

Implementing Bond Blocks Counting to 10 & 20 in Pre-Foundation, as per the planner, will use one-third of your total maths time. For example, a common structure for teaching Mathematics in Pre-Foundation is a whole class mat session and two table top activities each day. Bond Blocks would be one of table-top activities, each day. Using Bond Blocks ensures that essentials are covered, whilst freeing up time to cover other content descriptors.

Tier Two and Three Intervention

In Pre-Foundation Bond Blocks is not used for intervention.

At this stage Tier Two and Three Intervention focusses on developing the first three counting principles, using discrete materials.



Curriculum Covered

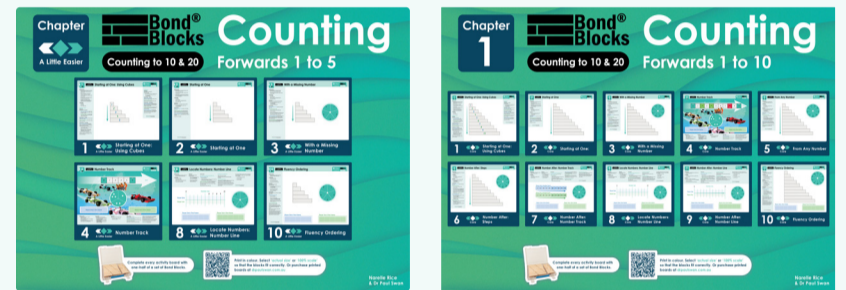
A4 Exploratory and Guided Play Cards

Use one A4 Card **per student** with **one whole set** of Bond Blocks.



A3 Teacher-Led Activity Boards

Use one A3 Teacher Led Activity board **per pair** of students with **one-half of a set** of Bond Blocks.



Progression of Play

The Bond Block Counting to 10 and 20 Activities range from independent play to explicit teaching.

Exploratory Play Cards

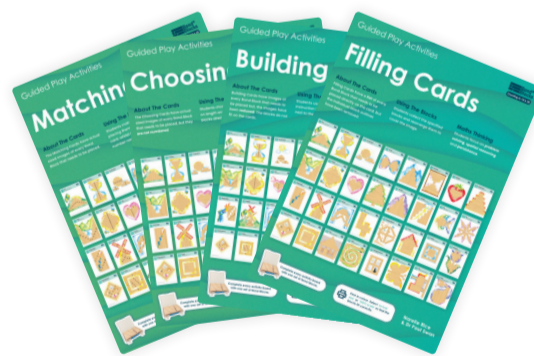
Guided Play Cards

Teacher-Led Activities



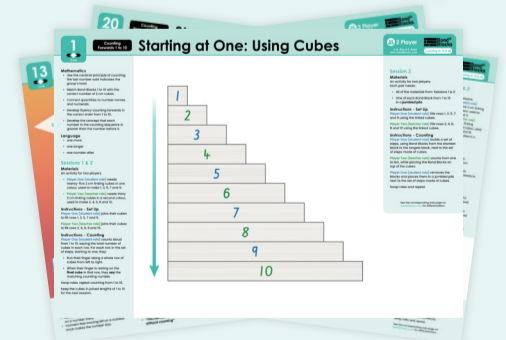
Exploratory Play Cards encourage students to work mathematically to learn about the size of numbers and where they are situated in the counting sequence in relation to other numbers.

The cards are sequenced from easiest to hardest. Includes prompts for mathematics and language.



Matching, Choosing, Building, Filling Cards increase in difficulty. The cards within each type have been sequenced from easiest to hardest too.

Matching and Choosing Cards focus on **number skills**. Building and Filling Cards focus on **spatial skills**.



Teacher-Led Activities are sequenced to develop fluency counting to and from twenty. Each activity is modelled in a video for explicit teaching.

The activities are completed by a pair of students or one student and an educator.



Bond Block Prerequisites

Where Bond Blocks Fit

Bond Blocks are used within a Concrete-Representational-Abstract approach to teaching.

Bond Blocks are a representational manipulative designed to help students move from the **concrete stage of counting single objects** to the **abstract stage of a mental number line**. The length and number on the block represent a quantity of countable cubes.

Before using Bond Blocks, students should practise counting objects that are the same size, shape and colour, in a collection, with one-to-one correspondence. Examples include cubes and counters on ten strips.

Focus on developing the first three counting principles.



Poster
Download

Principles of Counting (part 1)

Initial Counting

- 1 Stable Order**
Number names are said in the conventional order.
- 2 One-to-One Correspondence**
Each item is counted once, as the corresponding word is said.
- 3 Cardinal Value**
The last number said indicates the total for the group.

Gelman, R. & Gallistel, C. (1978) The Child's Understanding of Number. Cambridge, MA, Harvard University Press.
© N. Rice & P. Swan
Note: The language in these charts is technical language that children do not need to know.

Principles of Counting (part 2)

Extending Counting

- 4 Order Irrelevance**
Counting left to right, right to left or in a scattered arrangement does not change the quantity.
- 5 Abstraction**
Physical items that differ in type, colour and size can be counted.

Things that cannot be touched such as sounds and ideas can be counted.

"How many claps?"

Gelman, R. & Gallistel, C. (1978) The Child's Understanding of Number. Cambridge, MA, Harvard University Press.
© N. Rice & P. Swan
Note: The language in these charts is technical language that children do not need to know.

Concrete

"I need to count this."

"I can see five without counting."

Representational

Abstract

"five" 5

Concrete Prerequisite

Begin using Bond Blocks in conjunction with discrete objects that can be counted with one-to-one correspondence. Bond Blocks were designed to be the same size as standard 2 cm cubes for this reason. Using discrete materials such as 2 cm cubes in conjunction with Bond Blocks helps students move towards a length based concept of number.

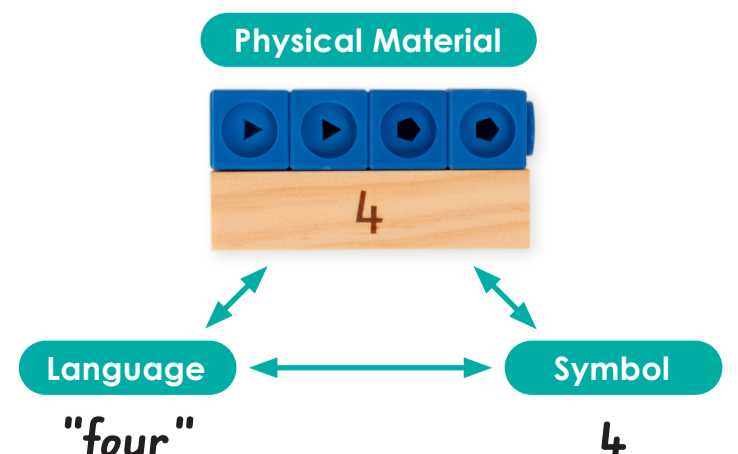
This follows Bruner's (1966) pedagogical principle of moving from Concrete to Representational to Abstract.

Bruner, J. S. (1966). *Toward a theory of instruction*. Cambridge: Harvard University Press.

Connecting Mathematical Language

Mathematical understanding is strengthened when connections are made between the physical materials, mathematical language and symbols (written numerals).

For this reason students say the number name as they touch next to the written numeral on the block.

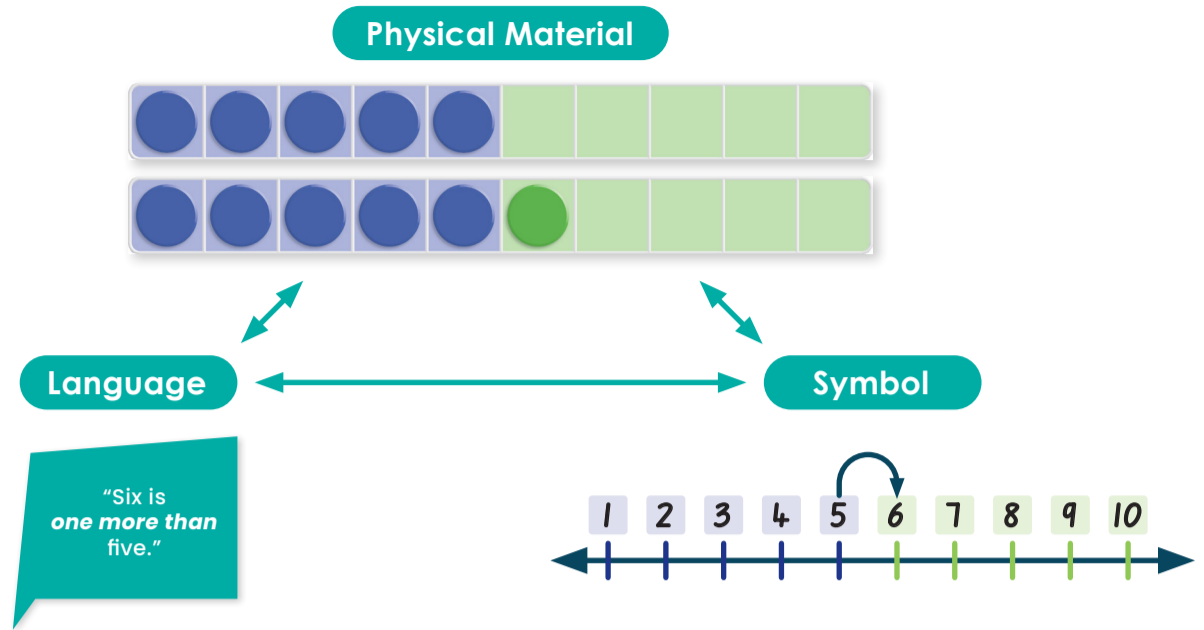




Structuring Concrete Materials

Using length based representations such as Bond Blocks, Ten Strips, Number Tracks and Number Lines helps students learn about the size of numbers and where they are situated in the counting sequence in relation to other numbers. Once students can count from one to ten using the first three counting principles, organise countable manipulatives to develop number line thinking.

To do this the manipulative should be organised so that students can identify how many without having to count the collection from one, but can instead look for relationships between quantities. For example, this ten strip is coloured in two fives so as quantities to ten can learn to be identified without counting from one.



Programming Mathematics with Bond Blocks

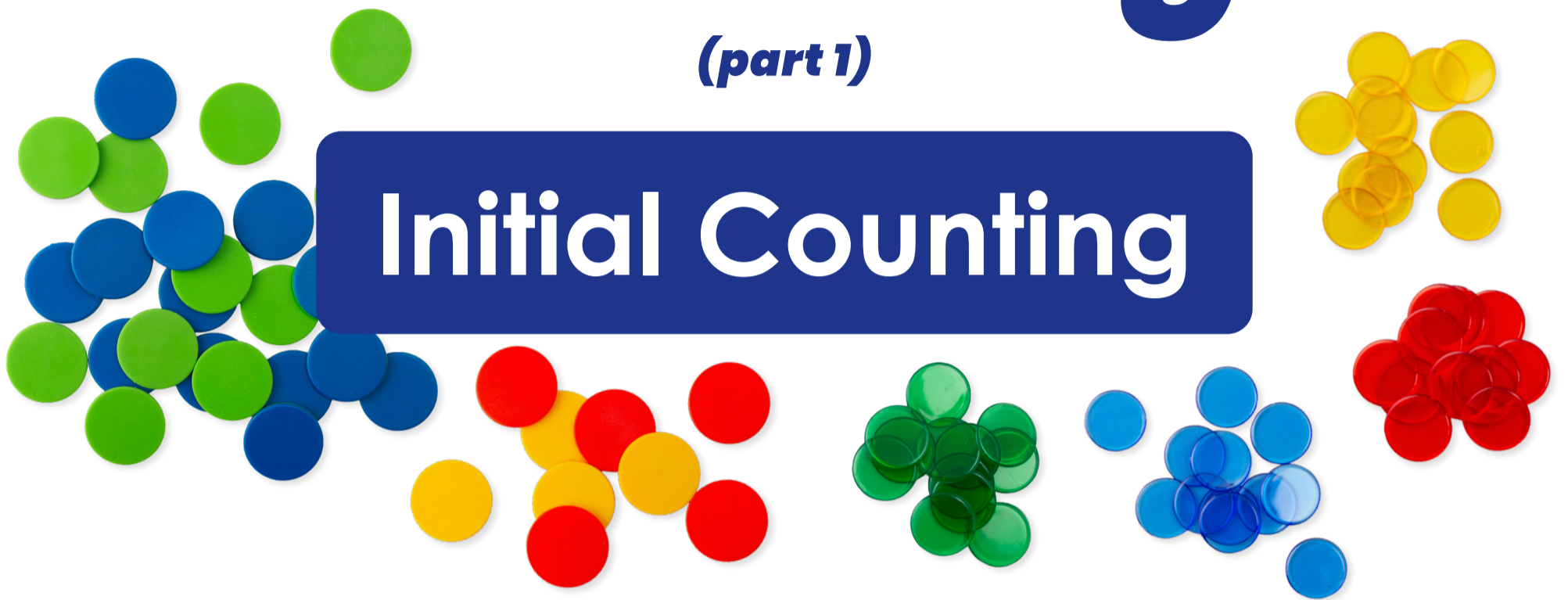
When programming for the year, plan to **teach the first three counting principles using discrete materials.** After using discrete materials, use Bond Blocks to extend the sequence. For example,

	Term 1	Term 2	Term 3	Term 4
Non-Bond Block Counting Activities	Counting discrete objects using the first three counting principles.			
	<p>Forwards one to ten.</p> <ul style="list-style-type: none"> Stable Order One-to-One Correspondence Cardinal Value 	<p>Forwards one to ten.</p> <ul style="list-style-type: none"> Stable Order One-to-One Correspondence Cardinal Value 	<p>Forwards one to ten.</p> <ul style="list-style-type: none"> Stable Order One-to-One Correspondence Cardinal Value Order Irrelevance Abstraction 	<p>Forwards one to ten.</p> <ul style="list-style-type: none"> Stable Order One-to-One Correspondence Cardinal Value Order Irrelevance Abstraction
Bond® Blocks Counting to 10 & 20	Consolidating and extending counting sequences using Bond Blocks.			

Principles of Counting

(part 1)

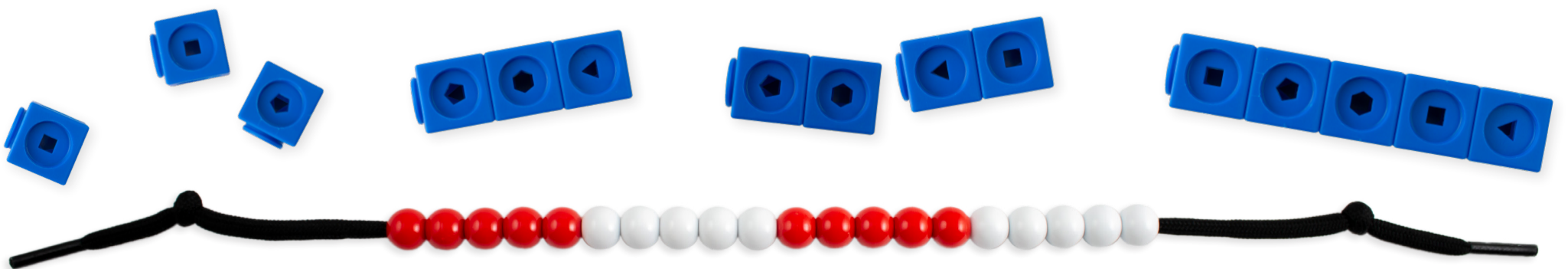
Initial Counting



1 **Stable Order**
Number names are said in the conventional order.

2 **One-to-One Correspondence**
Each item is counted once, as the corresponding word is said.

3 **Cardinal Value**
The last number said indicates the total for the group.



Principles of Counting

(part 2)

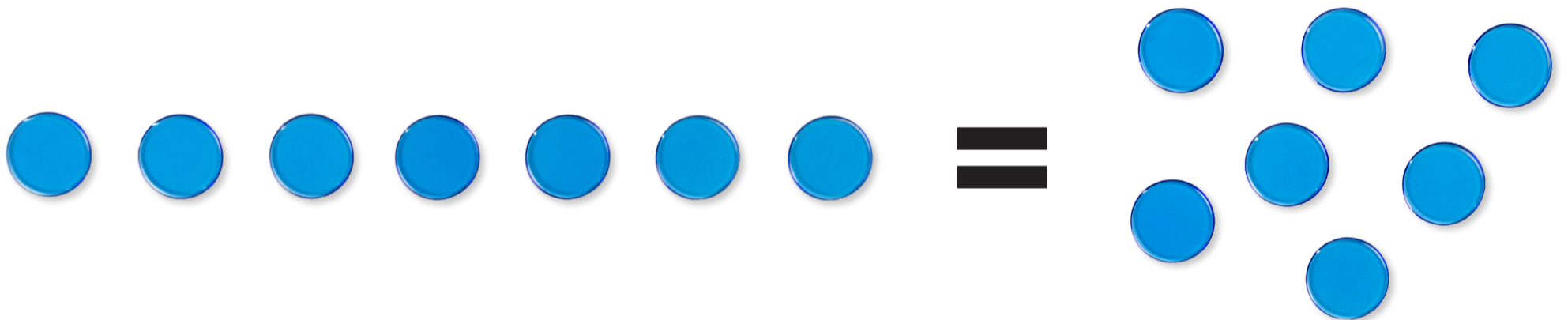


Extending Counting

4

Order Irrelevance

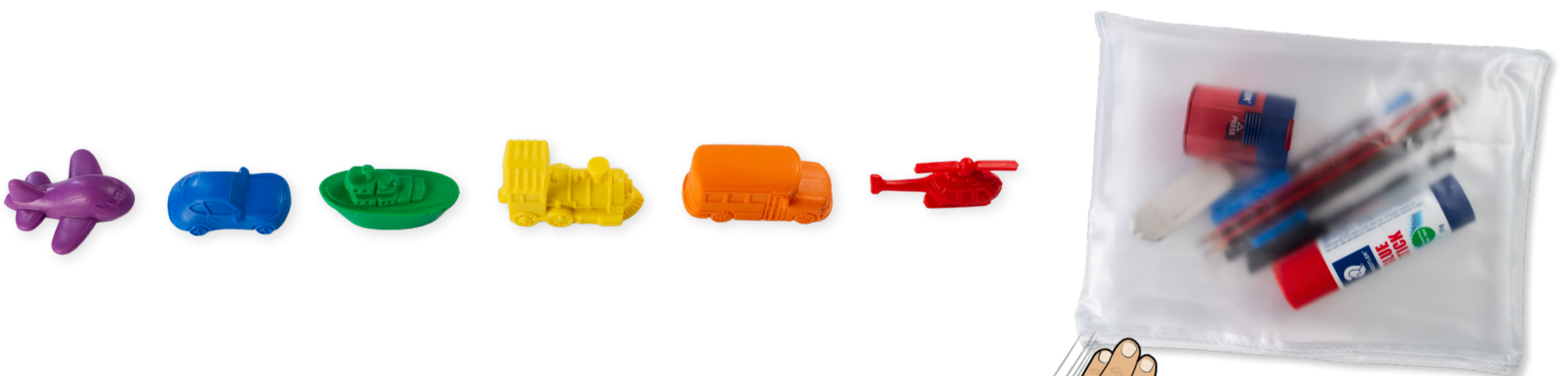
Counting left to right, right to left or in a scattered arrangement does not change the quantity.



5

Abstraction

Physical items that differ in type, colour and size can be counted.






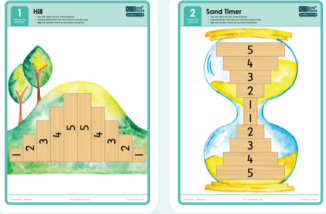


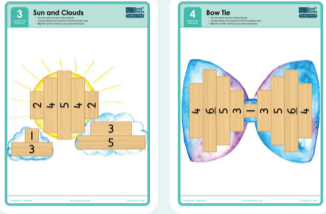
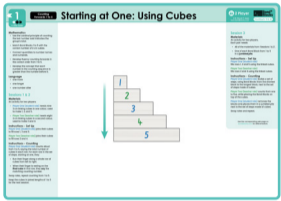


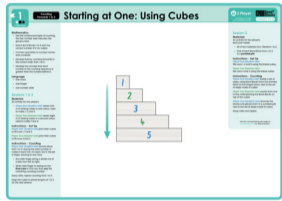
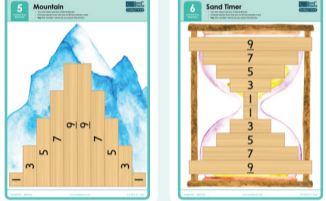
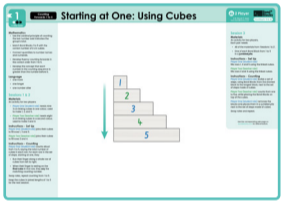


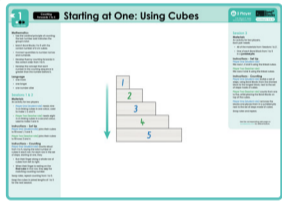
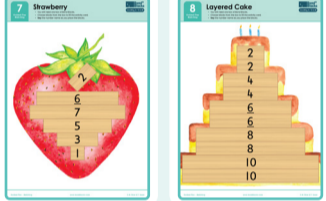
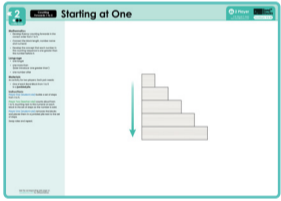


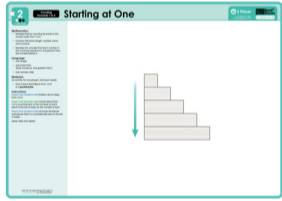

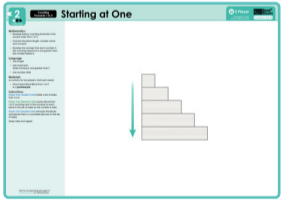
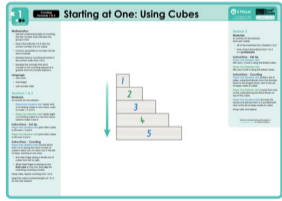

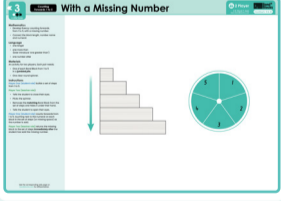


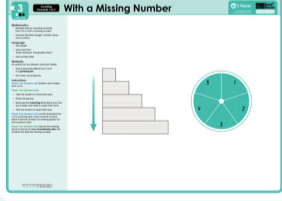
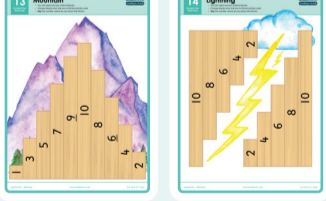
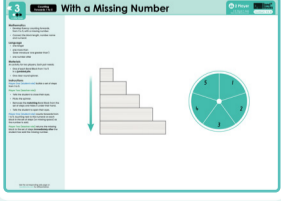
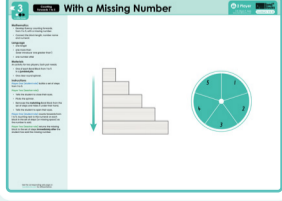
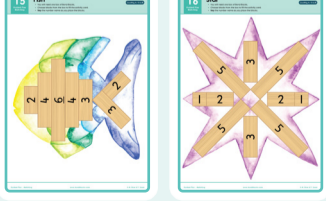


Things that cannot be touched such as sounds and ideas can be counted.




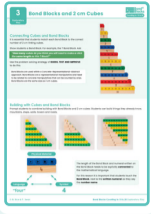
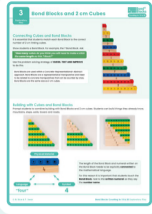



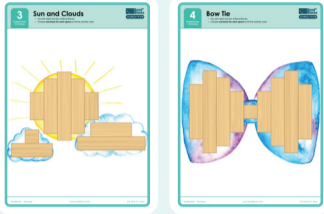



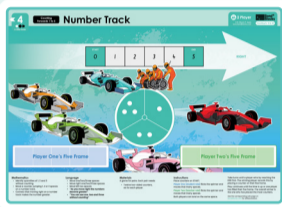


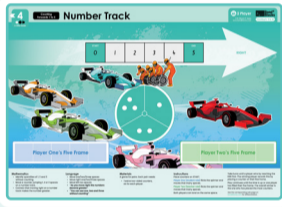
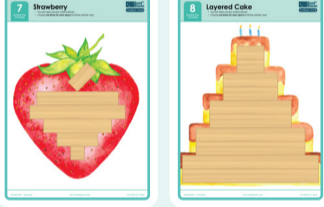
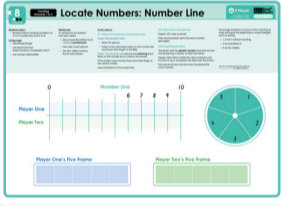


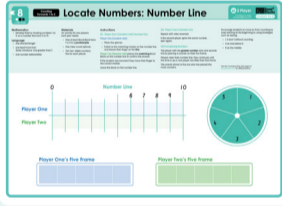

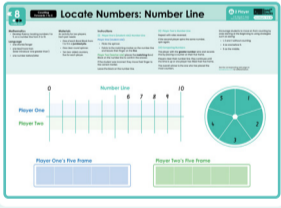
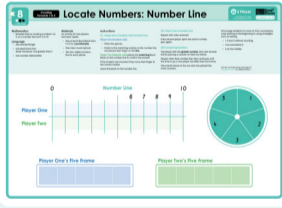

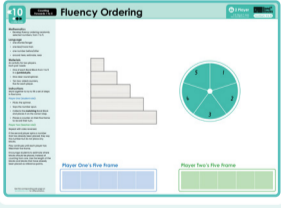


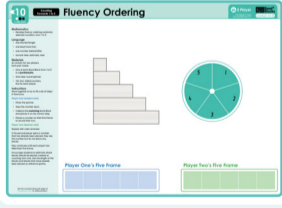

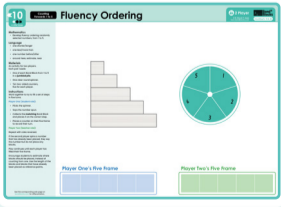
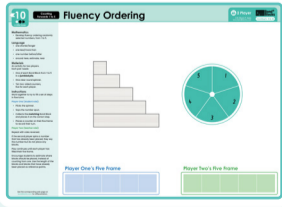
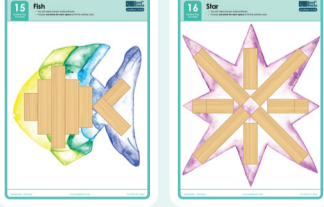


“How many claps?”






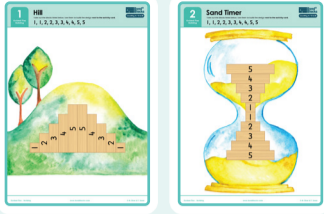


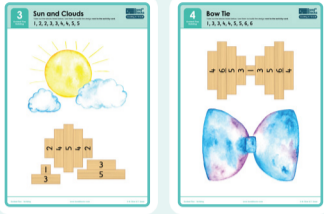
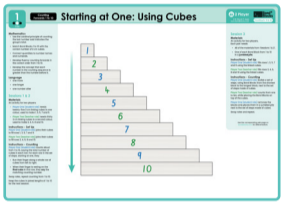


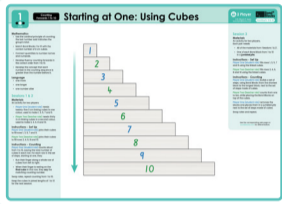
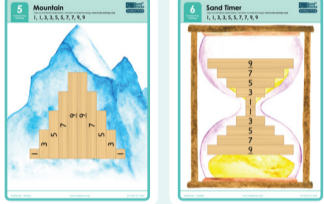
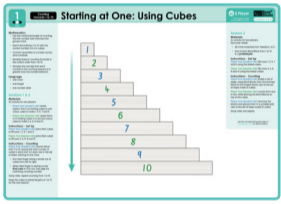
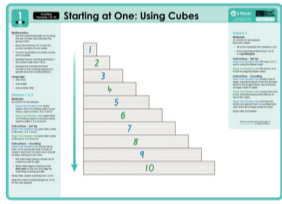
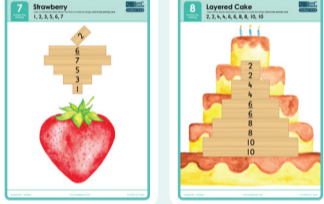





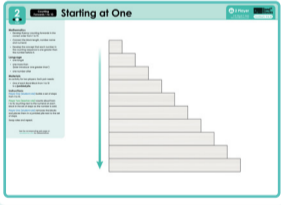
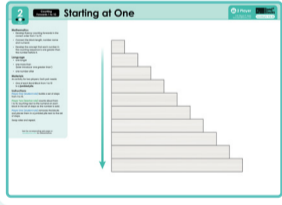

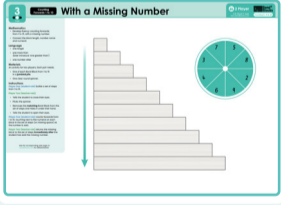


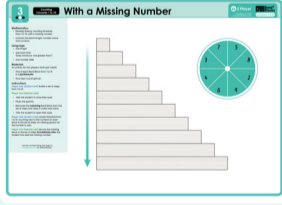
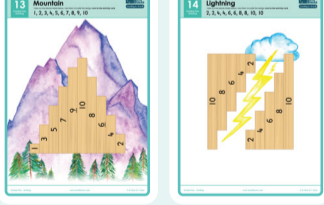
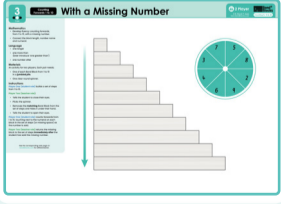
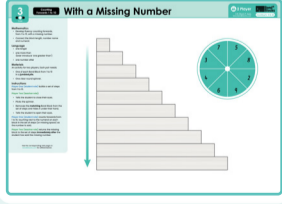
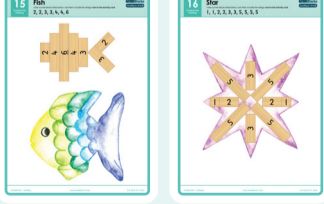
Term 1 - Counting Forwards 1 to 5

Week	Day 1 • Teacher  10 min	Day 2 • Educator / Parent  10 min	Day 3 • Educator / Parent  10 min
1	 Exploratory Play Card 1		 Matching Cards 1 and 2
2	 Exploratory Play Card 2		 Matching Cards 3 and 4
3	 Activity 1: Starting at One: Using Cubes 'A Little Easier'  Educator watches Session 1 and 2 video.  Students complete activity.	 Students complete activity.	 Matching Cards 5 and 6
4	 Activity 1: Starting at One: Using Cubes 'A Little Easier'  Educator watches Session 3 video.  Students complete activity.	 Students complete activity.	 Matching Cards 7 and 8
5	 Activity 2: Starting at One 'A Little Easier'  Educator watches video.  Students complete activity.	 Students complete activity.	 Matching Cards 9 and 10
6	 Students complete activity.	 Students complete activity.	 Matching Cards 11 and 12
7	 Activity 3: With a Missing Number 'A Little Easier'  Educator watches video.  Students complete activity.	 Students complete activity.	 Matching Cards 13 and 14
8	 Students complete activity.	 Students complete activity.	 Matching Cards 15 and 16




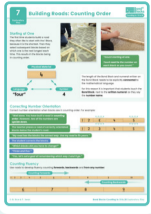




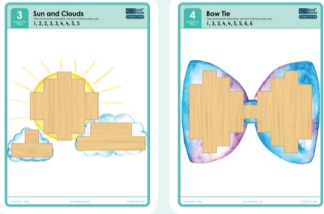
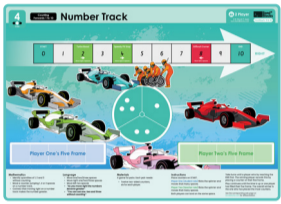


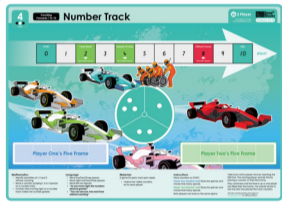

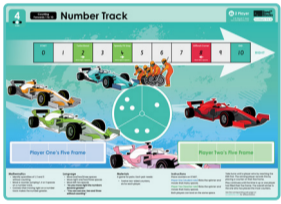
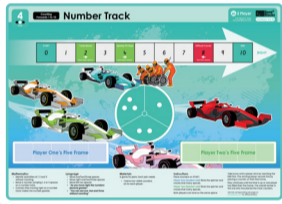
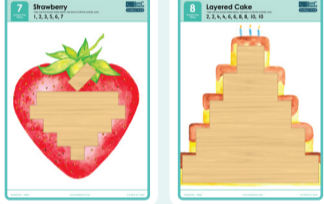
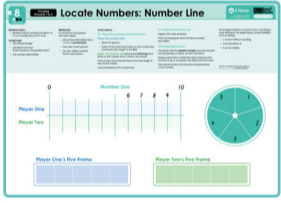


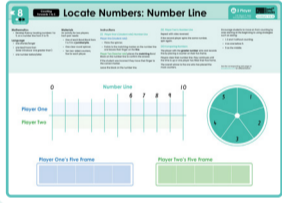

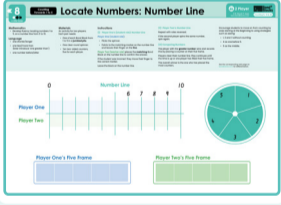
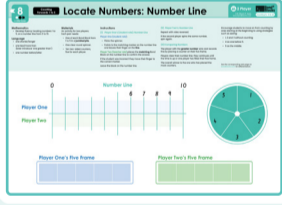
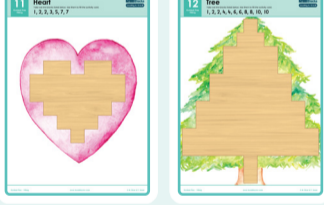
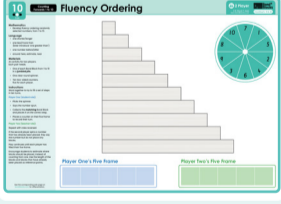


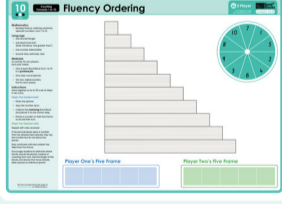

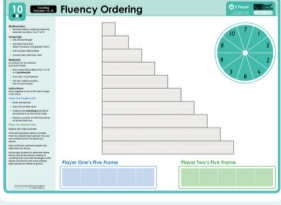
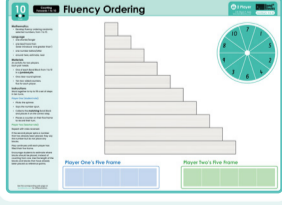
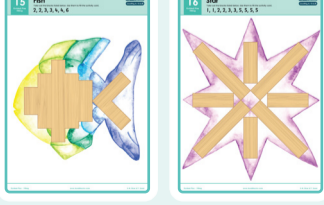
Term 2 - Counting Forwards 1 to 5

Week	Day 1 • Teacher  10 min	Day 2 • Educator / Parent  10 min	Day 3 • Educator / Parent  10 min
1	 <p>Exploratory Play Card 3</p>		 <p>Choosing Cards 1 and 2</p>
2	 <p>Exploratory Play Card 4</p>		 <p>Choosing Cards 3 and 4</p>
3	 <p>Activity 4: Number Track 'A Little Easier'</p> <p> Educator watches video.  Students complete activity.</p>	 <p>Students complete activity.</p>	 <p>Choosing Cards 5 and 6</p>
4	 <p>Students complete activity.</p>	 <p>Students complete activity.</p>	 <p>Choosing Cards 7 and 8</p>
5	 <p>Activity 8: Locate Numbers: Number Line 'A Little Easier' "Numbered"</p> <p> Educator watches video.  Students complete activity.</p>	 <p>Students complete activity.</p>	 <p>Choosing Cards 9 and 10</p>
6	 <p>Students complete activity.</p>	 <p>Students complete activity.</p>	 <p>Choosing Cards 11 and 12</p>
7	 <p>Activity 10: Fluency Ordering 'A Little Easier'</p> <p> Educator watches video.  Students complete activity.</p>	 <p>Students complete activity.</p>	 <p>Choosing Cards 13 and 14</p>
8	 <p>Students complete activity.</p>	 <p>Students complete activity.</p>	 <p>Choosing Cards 15 and 16</p>

Term 3 - Counting Forwards 1 to 10

Week	Day 1 • Teacher  10 min	Day 2 • Educator / Parent  10 min	Day 3 • Educator / Parent  10 min
1	 Exploratory Play Card 5	 Exploratory Play Card 5	 Building Cards 1 and 2
2	 Exploratory Play Card 6	 Exploratory Play Card 6	 Building Cards 3 and 4
3	 Activity 1: Starting at One: Using Cubes  Educator watches video.  Students complete activity.	 Students complete activity.	 Building Cards 5 and 6
4	 Students complete activity.	 Students complete activity.	 Building Cards 7 and 8
5	 Activity 2: Starting at One  Educator watches video.  Students complete activity.	 Students complete activity.	 Building Cards 9 and 10
6	 Students complete activity.	 Students complete activity.	 Building Cards 11 and 12
7	 Activity 3: With a Missing Number  Educator watches video.  Students complete activity.	 Students complete activity.	 Building Cards 13 and 14
8	 Students complete activity.	 Students complete activity.	 Building Cards 15 and 16

Term 4 - Counting Forwards 1 to 10

Week	Day 1 • Teacher  10 min	Day 2 • Educator / Parent  10 min	Day 3 • Educator / Parent  10 min
1	 Exploratory Play Card 7		 Filling Cards 1 and 2
2	 Exploratory Play Card 8		 Filling Cards 3 and 4
3	 Activity 4: Number Track  Educator watches video.  Students complete activity.	 Students complete activity.	 Filling Cards 5 and 6
4	 Students complete activity.	 Students complete activity.	 Filling Cards 7 and 8
5	 Activity 8: Locate Numbers: Number Line 'A Little Easier' "Partly Numbered"  Educator watches video.  Students complete activity.	 Students complete activity.	 Filling Cards 9 and 10
6	 Students complete activity.	 Students complete activity.	 Filling Cards 11 and 12
7	 Activity 10: Fluency Ordering  Educator watches video.  Students complete activity.	 Students complete activity.	 Filling Cards 13 and 14
8	 Students complete activity.	 Students complete activity.	 Filling Cards 15 and 16