

NZ  
Numeracy  
Project

Activities

Stage

Two

# Adding and Subtracting with Counters – Stage Two

Skill Number: 2:10

Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:10	Solving addition problems to 20 by joining sets and counting all the objects	<i>MCC.K.OA.2</i> <i>MCC.1.OA.6</i>

Required Resource Materials:

- Counters

**Activity:**

**Addition Problem to 5** (*groupings within 5 and addition facts to 5*):

State the following problem:

"Gary has 2 drinks in the cupboard and he buys 3 more drinks for his birthday party. How many drinks does Gary have now?"

Record  $2 + 3$  on the board. The students use counters to solve the problem.

Record  $2 + 3 = 5$  on the board.

Continue with word problem stories and recordings for:  $0 + 5, 1 + 4, 3 + 2, 4 + 1, 5 + 0$

**Subtraction Problem from 5** (*subtraction facts from 5*):

State the following problem:

"Susan has 5 marbles. She gives her sister 3 marbles. How many marbles does she have left?"

Record  $5 - 3$  on the board. The students use counters to solve the problem.

Record  $5 - 3 = 2$  on the board.

Continue with word problem stories and recordings for:  $5 - 0, 5 - 1, 5 - 2, 5 - 4, 5 - 5$

**Addition Problem with 5** (*groupings with 5*):

State the following problem

"Lou has 5 pictures. His mother gives him 3 more pictures. How many pictures does Lou have now?"

Record  $5 + 3$  on the board. The students use counters to solve the problem.

Record  $5 + 3 = 8$  on the board.

Continue with word problem stories and recordings for:  $5 + 0, 5 + 1, 5 + 2, 5 + 4, 5 + 5$

**Addition Problem to 10** (*groupings within 10*):

State the following problem

"Fred jumped 4 times in the morning and then jumped 6 times in the afternoon. How many times did he jump in all?"

Record  $4 + 6$  on the board. The students use counters to solve the problem.

Record  $4 + 6 = 10$  on the board.

Continue with word problem stories and recordings for:  $0 + 10, 1 + 9, 2 + 8, 3 + 7, 5 + 5, 6 + 4, 7 + 3, 8 + 2, 9 + 1, 10 + 0$

**Addition Problem - Pattern to 10** (*doubles and 5-based*):

State the following problem

"Janice has 3 apples. She buys 3 more apples. How many apples does she have now?"

Record  $3 + 3$  on the board. The students use counters to solve the problem.

Record  $3 + 3 = 6$  on the board.

Continue with word problem stories and recordings for:  $1 + 1$ ,  $2 + 2$ ,  $4 + 4$ ,  $5 + 5$

**Source URL:** <http://nzmaths.co.nz/resource/adding-and-subtracting-counters>

# Adding and Subtracting with One Hand – Stage Two

Skill Number: 2:9; 2:10

## Teacher Learning and Understanding: STAGE TWO

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:9	Instantly recognizing patterns to 10	<i>MCC.K.OA.1</i>
2:10	Solving addition problems to 20 by joining sets and counting all the objects	<i>MCC.K.OA.2; MCC.1.OA.6</i>

## Required Resource Materials:

- None

### Activity:

#### Adding on One Hand:

State the following problem:

"Jill has 3 apples and she buys 2 more apples. How many apples does she have altogether?"

Record  $3 + 2$  on the board. Have student model 3 fingers then 2 more fingers **on the same hand**. Be sure the student recognizes that 3 fingers and 2 fingers equal 5 **without counting** to solve the problem.

Record  $3 + 2 = 5$  on the board. Have student record  $3 + 2 = 5$  on paper.

Continue with word problem stories and recordings for:  $5 + 0, 4 + 1, 2 + 3, 1 + 4, 0 + 5, 4 + 0, 3 + 1, 2 + 2, 1 + 3, 0 + 4, 3 + 0, 2 + 1, 1 + 2, 0 + 3, 2 + 0, 1 + 1, 0 + 2, 1 + 0, 0 + 1$

#### Subtracting on One Hand:

State the following problem:

"Norman had 5 cars. He sold 2 of his cars. How many cars does he have now?"

Record  $5 - 2$  on the board. Have student model 5 fingers then taking away 2 fingers **on the same hand**. Be sure the student recognizes that 5 fingers minus 2 fingers equal 3 **without counting** to solve the problem.

Record  $5 - 2 = 3$  on the board. Have student record  $5 - 2 = 3$  on paper.

Continue with word problem stories and recordings for:  $5 - 0, 5 - 1, 5 - 3, 5 - 4, 5 - 5, 4 - 0, 4 - 1, 4 - 2, 4 - 3, 4 - 4, 3 - 0, 3 - 1, 3 - 2, 3 - 3, 2 - 0, 2 - 1, 2 - 2, 1 - 0, 1 - 1$

#### Adding on One Hand to Find the Missing Number:

State the following problem:

"When Paula goes to sleep she has 3 baby dolls in her bedroom. While she is asleep her mother gives her more baby dolls. She wakes up in the morning to find she has 5 baby dolls. How many baby dolls did her mother give her?"

Discuss and record  $3 + ? = 5$  on the board. Have student "act out" the problem using materials (blocks, dolls, etc.).

Then have the student create a finger pattern for the problem. Explain how to find the missing number by showing 3 fingers and then 5 fingers (**using the same hand**). Have student recognize that 2 fingers were added to 3 fingers to make 5.

Record  $3 + 2$  on the board. Have student model 3 fingers then 2 more fingers **on the same hand**. Be sure the student recognizes that 3 fingers and 2 fingers equal 5 **without counting** to solve the problem.

Record  $3 + 2 = 5$  on the board. Have student record  $3 + 2 = 5$  on paper.

Continue with word problem stories and recordings for:  $1 + ? = 5$ ,  $4 + ? = 5$ ,  $2 + ? = 5$ ,  $5 + ? = 5$ ,  $1 + ? = 4$ ,  $3 + ? = 4$ ,  $2 + ? = 4$ ,  $4 + ? = 4$ ,  $0 + ? = 4$ ,  $1 + ? = 3$ ,  $2 + ? = 3$ ,  $3 + ? = 3$ ,  $0 + ? = 3$ ,  $1 + ? = 2$ ,  $0 + ? = 2$ ,  $2 + ? = 2$ ,  $1 + ? = 1$ ,  $0 + ? = 1$

### **Subtracting on One Hand to Find the Missing Number:**

State the following problem:

"Mrs. Thomas has 5 marshmallows in a jar in her kitchen. She leaves to go shopping. When she comes home her son Bryce has eaten some of them and there are 2 marshmallows left. How many marshmallows did Bryce eat?"

Discuss and record  $5 - ? = 2$  on the board. Have student "act out" the problem using materials (blocks, marshmallows, etc.). Then have the student create a finger pattern for the problem. Explain how to find the missing number by showing 5 fingers and then 2 fingers (**using the same hand**). Have student recognize that 3 fingers were taken away from 5 to make 2 **without counting** to solve the problem.

Record  $5 - 3 = 2$  on the board. Have student record  $5 - 3 = 2$  on paper.

Continue with word problem stories and recordings for:  $5 - ? = 4$ ,  $5 - ? = 3$ ,  $5 - ? = 2$ ,  $5 - ? = 1$ ,  $5 - ? = 0$ ,  $5 - ? = 5$ ,  $4 - ? = 3$ ,  $4 - ? = 2$ ,  $4 - ? = 1$ ,  $4 - ? = 0$ ,  $4 - ? = 4$ ,  $3 - ? = 2$ ,  $3 - ? = 1$ ,  $3 - ? = 0$ ,  $3 - ? = 3$ ,  $2 - ? = 1$ ,  $2 - ? = 0$ ,  $2 - ? = 2$ ,  $1 - ? = 0$ ,  $1 - ? = 1$

**Source URL:** <http://www.nzmaths.co.nz/resource/adding-and-subtracting-one-hand>

# Arrow Cards – Stage Two

Skill Number: 2:1; 2:2; 2:3

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

### Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:1	Rote counting 0-20	<i>MCC.K.CC.1</i>
2:2	Saying the forwards and backwards number word sequence in the range 0-20, starting and ending with any number	<i>MCC.K.CC.2</i>
2:3	Numerals recognition 0-20	<i>MCC.K.CC.3</i>

### Required Resource Materials:

- Arrow Cards 1-100 (*you will only need the Arrow Cards up to the number 20 for this activity*)
- Arrow Cards 10's Only (*you will need several 10's cards for this activity*)

### Activity:

Give student a set of arrow cards 1-20 and several 10's cards as well. Have him make the number 18 by overlapping the arrow cards of '10' and '8'. Be sure the student knows that the points of both cards must be lined up. Have student state "10 and 8 make 18."

Call out the following set of numbers (one at a time): 20, 15, 9, 14, 18, 11

Have the student make each number with the arrow cards. Be sure the student says the two numbers plus the total number when constructing each number.

When finished constructing all of the numbers, have the student put them in order from least to greatest and then from greatest to least.

Continue with other number sets:

- 12, 13, 5, 9, 20, 17
- 20, 16, 12, 19, 3, 14
- 15, 12, 18, 20, 4, 7
- 19, 20, 6, 16, 13, 11

Source URL: <http://www.nzmaths.co.nz/resource/arrow-cards>

# Before and After – Stage Two

Skill Number: 2:2; 2:4

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:2	Saying the forwards and backwards number word sequence in the range 0-20, starting and ending with any number	<i>MCC.K.CC.2</i>
2:4	Number order: What comes before and after a given number in the range 0-20	<i>MCC.K.CC.2</i>

## Required Resource Materials:

- Before and After 1-10 *and* "teen" - Game Boards (*you will use both game boards to give the student exposure to all the numbers 1-20*).
- Number Cards for Before and After 1-10 *and* "teen" (cut apart)

## Activity:

Provide each student with a 'Before and After 1-10 game board' as well as a 'Before and After "teen" game board. Place the number cards (*that have been cut apart*) face down in a stack (*or you can spread them out on the table face down*). Each student takes turns drawing a card from the stack of number cards. When a student chooses a card, he looks at the game board and decides if the number drawn comes before or after a number on his game card. If it does, the student must say, "The number \_\_\_\_ comes before/after the number \_\_\_\_." He then places the number card in the correct square on the game board. If the number cannot be used on the game board the student loses his turn and returns the card to the stack so that it can be drawn again. The game ends when a student covers all of the blank squares on his game board.

Source URL: <http://www.nzmaths.co.nz/resource/and-after>

# Birthday Cakes – Stage Two

Skill Number: 2:3; 2:6; 2:7

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:3	Numeral recognition 0-20	<i>MCC.K.CC.3</i>
2:6	Counting sets 0-20	<i>MCC.K.CC.5</i>
2:7	Forming sets 0-20	<i>MCC.K.CC.4</i>

## Required Resource Materials:

- Toothpicks
- Numeral Cards 0-20
- Birthday Cake Sheet

## Activity:

In pairs, the students select cards for the age of a person having a party (between the ages of 1-20) and match this with "candles" (toothpicks) on the birthday cake. Repeat this except ask questions like 'How many more candles will be needed in 2 years' time?' and "How many more candles will be needed when the person goes from 15 to 18 years of age?"

Source URL: <http://www.nzmaths.co.nz/resource/birthday-cakes-0>

# Both Hands – Stage Two

Skill Number: 2:9; 2:10; 2:11

## Teacher Learning and Understanding: STAGE TWO

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

### Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:9	Instantly recognizing patterns to 10	<i>MCC.K.OA.1</i>
2:10	Solving addition problems to 20 by joining sets and counting all the objects	<i>MCC.K.OA.2; MCC.1.OA.6</i>
2:11	Solving subtraction problems from 20 separating sets and counting all the objects	<i>MCC.K.OA.2; MCC.1.OA.1</i>

### Required Resource Materials:

- None

### Activity:

#### Addition Using Materials (*fingers*):

State the following problem:

"Sarah has 4 pennies. Her mom gives her some more pennies. Sarah now has 7 pennies. How many pennies did Sarah's mother give her?"

Record  $4 + ? = 7$  on the board. Have student model 4 fingers on one hand and then add more fingers until he reaches a total of 7. Have him see how many fingers were added to 4 to reach 7.

Record  $4 + 3 = 7$  on the board. Have student record  $4 + 3 = 7$  on paper.

Continue with word problem stories and recording for:  $1 + ? = 9$ ,  $5 + ? = 8$ ,  $7 + ? = 8$ ,  $6 + ? = 9$ ,  $4 + ? = 6$ ,  $3 + ? = 10$ ,  $5 + ? = 6$ ,  $4 + ? = 9$ , etc.

#### Subtraction Using Materials (*fingers*):

State the following problem:

"Tony has 7 plastic bears and he hides some. Now his sister can see 2 bears. How many bears did Tony hide?"

Record  $7 - ? = 2$  on the board. Have student model 7 fingers as 5 and 2 and solve the problem.

Record  $7 - 5 = 2$  on the board. Have student record  $7 - 5 = 2$  on paper.

Continue with word problem stories and recording for  $8 - ? = 5$ ,  $10 - ? = 8$ ,  $9 - ? = 7$ ,  $6 - ? = 3$ ,  $8 - ? = 6$ ,  $9 - ? = 3$ ,  $7 - ? = 6$ ,  $8 - ? = 8$ ,  $7 - ? = 0$ , etc.

Source URL: <http://www.nzmaths.co.nz/resource/both-hands>

# Card Ordering – Stage Two

Skill Number: 2:5

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:5	Ordering the numbers in the range 0-20	<i>MCC.1.NBT.3</i>

## Required Resource Materials:

- Four sets of number cards 1-20.

## Activity:

The object of the game is to play the cards in order and be the student to play the cards that has 20 on it.

Place the 4 ones cards face up to begin four stacks. Shuffle the cards. Deal each student five cards. A student with a two card begins by placing it on top of the one. Students take turns putting one card on a stack of their choice. They must add to the stacks in sequence from 1 to 20. After each student has had their turn, they pick up a new card from the pack.

If a student cannot go, then they keep picking up cards from the pack until they can go. The student who plays the 20 collects the stack. They receive a point and put that stack of cards to one side. The students continue to play their cards until there are no cards left and all four stacks of 1 to 20 have been completed.

Source URL: <http://www.nzmaths.co.nz/resource/card-ordering>

# Caterpillar Legs – Stage Two

**Skill Number:** 2:3; 2:5; 2:6; 2:7

**Teacher Learning and Understanding: STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

<i>Stage</i>	<i>Behavioural Indicator</i>
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	<b>Skill Descriptions</b>	<b>Aligned to CCGPS</b>
2:3	Numeral recognition 0-20	<i>MCC.K.CC.3</i>
2:5	Ordering the numbers in the range 0-20	<i>MCC.1.NBT.3</i>
2:6	Counting sets 0-20	<i>MCC.K.CC.5</i>
2:7	Forming sets 0-20	<i>MCC.K.CC.4</i>

## Required Resource Materials:

- Toothpicks
- Numeral Cards 0-20
- Caterpillar Legs Sheet

## Activity:

Place a blank caterpillar in front of the student. Explain that a numeral card (between 1 and 20) will be placed on the caterpillar and that he/she will use toothpicks to put that number of legs on the caterpillar. Continue the activity by placing new blank caterpillars in front of the student with different numbers and having him/her add the correct number of legs for each. When several are complete, have the student order the caterpillars from the smallest number of legs to the largest.

**Source URL:** <http://nzmaths.co.nz/resource/caterpillar-legs>

# Chains – Stage Two

**Skill Number:** 2:7

**Teacher Learning and Understanding: STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

<i>Stage</i>	<i>Behavioural Indicator</i>
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

**Skill Descriptions Aligned to CCGPS:**

	<b>Skill Descriptions</b>	<b>Aligned to CCGPS</b>
2:7	Forming sets 0-20	<i>MCC.K.CC.4</i>

**Required Resource Materials:**

- Up to 6 rubber bands

**Activity:**

This activity is suitable for a whole class or large groups of students. It is best to work in a large indoor (gym, cafeteria, etc.) or outdoor space. Provide 5 or 6 children with a rubber band for them to wear on their wrist. Have the entire group move as instructed by the teacher (for example, hop like a rabbit, jump like a kangaroo, stomp like a giant, fly like a bird, etc.) At the teacher's signal everyone must freeze (stand still). Children wearing rubber bands reach out and touch as many children as they can without moving their feet. The children who have been touched then form a human chain by holding hands. Each chain must count how many members they have and shout out the number. The game continues with each chain holding hands and moving together. When they freeze, each member of the chain can reach out to touch and collect new members. Continue until everyone (or almost everyone) joins a chain and continue to count how many.

**Notes:**

- Chains should not be too long. Teachers need to be aware of the movement required by the chain.
- Define the area in which the children may move.
- Check the count. Fewer children with bands will give longer chains to count.
- Ask two chains to join together. *"How many now?"*
- Ask children to guess before counting. Ask: *"Who has more than 3? Who has fewer than 4? Which chain is longest? Which is the shortest?"*
- Join chains together and ask a child to count how many children. The class can join in the count.

**Source:** Martland, James; Stafford, Ann; Stanger, Garry; Wright, Robert; *Teaching Number in the Classroom with 4-8-year-olds*, SAGE, Los Angeles, p. 61.

# Challenging Hands Problems – Stage Two

Skill Number: 2:10; 2:11

## Teacher Learning and Understanding: STAGE TWO

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:10	Solving addition problems to 20 by joining sets and counting all the objects	<i>MCC.K.OA.2</i> <i>MCC.1.OA.6</i>
2:11	Solving subtraction problems from 20 separating sets and counting all the objects	<i>MCC.K.OA.2</i> <i>MCC.1.OA.1</i>

## Required Resource Materials:

- None

## Activity:

### State the following problem:

"Mitch has 7 teddy bears and he gives 3 of them to his friend. How many does Mitch now have?"

Record  $7 - 3$  on the board. The students model 7 on fingers as 5 and 2 and discuss removing the 2 then 1 more from the 5 to solve the problem. Record  $7 - 3 = 4$ .

Continue with more word stories and recording for:  $8 - 4$ ,  $7 - 4$ ,  $4 + 3$ ,  $10 - 6$ ,  $9 - 6$ ,  $10 - 1$ ,  $2 + 6$ ,  $3 + 6$ ,  $7 - 6$ , etc.

**Challenging Problem:** Fiona has \$9.00. She buys a cake and a drink at the café. When she gets home she has \$3.00 in her purse. How much did she spend at the café?

Record  $9 - ?$  on the board. The students use their fingers to realize 6 is the answer. Record the answer. Examples. Word stories and recording for:  $10 - ? = 2$ ,  $3 + ? = 9$ ,  $9 - ? = 2$ ,  $2 + ? = 8$ .

Source URL: <http://www.nzmaths.co.nz/resource/challenging-hands-problems>

# Clapping – Stage Two

Skill Number: 2:1; 2:2

## Teacher Learning and Understanding: STAGE TWO

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

### Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:1	Rote counting 0-20	MCC.K.CC.1
2:2	Saying the forwards and backwards number word sequence in the range 0-20, starting and ending with any number	MCC.K.CC.2

### Required Resource Materials:

- None

### Activity:

By **clapping hands** in time, the student:

- Counts from 0 to 20
- Counts from a number other than 1 and stops at a specific number (between 1 and 20)
- Counts backwards from 20 to 0
- Counts backwards to a different number (other than 20) and stop at a specific number (between 0 and 20)

By **clapping hands and slapping knees alternately** in time, the student:

- Counts from 0 to 20
- Counts from a number other than 1 and stops at a specific number (between 0 and 20)
- Counts backwards from 20 to 0
- Counts backwards to a different number (other than 20) and stop at a specific number (between 0 and 20)

By **slapping knees, then chest, then clapping hands alternately** in time, the student:

- Counts from 0 to 20
- Counts from a number other than 1 and stops at a specific number (between 0 and 20)
- Counts backwards from 20 to 0
- Counts backwards to a different number (other than 20) and stop at a specific number (between 0 and 20)

Source URL: <http://nzmaths.co.nz/resource/clapping>

# Comparisons with Cards – Stage Two

Skill Number: 2:8

Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:8	Comparing two numbers in the range 0-20 using number cards	<i>MCC.1.NBT.3</i>

Required Resource Materials:

- Number Cards (one set of cards 1-20 for each student)

Activity:

Give each student a set of number cards (1-20) and pair them with a partner. Have them each shuffle their cards. Tell one of the pair to turn over a card and say the number. Tell the other student to turn over a card and say the number. Ask questions such as *"Who has the biggest number? Who has the smaller number? Which number is the greatest? Which number is the least?"*

Have the students verbalize which number is the greatest and which is the least. For example, *"The number 16 is greater than the number 7"* or *"The number 12 is less than the number 19."*

Continue until all cards are compared. Play multiple times to practice comparing multiple pair combinations. Students may also want to play in teams of three to have more numbers to compare.

**Source:** Martland, James; Stafford, Ann; Stanger, Garry; Wright, Robert; *Teaching Number in the Classroom with 4-8-year-olds*, SAGE, Los Angeles, p. 54.

# Compatible Numbers to Ten – Stage Two

Skill Number: 2:9

## Teacher Learning and Understanding: STAGE TWO

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:9	Instantly recognizing patterns to 10	MCC.K.OA.1

## Required Resource Materials:

- Compatible Numbers to Ten Sheet (with exercises and answers)

## Activity:

### Prior Knowledge:

Use count on strategies  
Use their "10 and" facts

## Background:

Knowing the basic facts to 10, including the compatible numbers, is essential knowledge if students are to advance to becoming part-whole thinkers. For older students, one way to provide practice and reinforcement of these skills is for the students to play math games with two dice. (One at least of these should have a number rather than dots). Another way to prepare students for the part-whole leap is to develop their understanding around their facts to 10, so while these exercises are based around compatible numbers to ten, they include a number of other issues that are significant to the learning of students at this stage. This can introduce a level of challenge even for students who initially seem to know their compatible numbers to 10. Important learning is outlined below.

## Use of the equals sign:

There are a lot of misconceptions around the use of the equals sign. Some students seem to think that it means "work out the answer". Consequently, no equals signs have been provided in exercises where simple additions are required. Students with such an understanding may also think that  $4 + 6 = 10$  is a correct way to write the sentence, but not  $10 = 4 + 6$  (Hence number 25 in exercise 1). Such a question may be posed as part of the practice, then discussed at a later teaching session or could be included as part of a lesson.

The second part of exercise 1 is provided to reinforce the use of the equals sign when two things are identical/equal, and that the things on the left and right balance. This meaning of equals should also be

raised as part of the teaching around this topic.

### **Inequalities:**

It has been noted that in recent years there has not been the same emphasis on developing an understanding of inequalities in primary mathematics. This is not intended, but may mean that some students come through without the understandings they have had in the past. Consequently some teaching may need to be provided before students understand the sign and the concepts required by this exercise.

### **Start, Change, Result Unknown:**

Students don't really know a fact until they can recognize and use it in all three formats. Exercise 3 not only provides practice in recognizing the facts in these other formats, but also introduces students to lower level algebra. Mental computation (or recall of known facts) of such simple equations is most sensible method of solution.

### **Use of shapes as unknowns:**

Students should have been working with shapes as unknowns for quite some time before reaching secondary school, so should be conversant with what is expected in using a shape in a sentence/equation. In this example, however, the meaning of the unknown has changed. Firstly, there are two different shapes - which traditionally would mean that they represent different numbers (though there is the special case where they are the same). Students may need to discuss this before attempting the problem). However, the unknowns do not represent a single number in this context. This too may need to be introduced - that there could be lots of possibilities for such an equation (though is likely to arise naturally if you ask them all to think of two numbers that add up to 10.

### **The link between addition and subtraction:**

A single addition fact should be able to be turned into related subtraction facts and simple subtractions should be able to be solved using knowledge of basic addition facts. However, for many students, subtraction understanding lags behind addition understanding. Making the link between addition and subtraction is thus essential teaching at this level.

### **Word problems:**

One issue with providing words problems in an exercise alongside simple number problems is that some students learn not to read the words, and simply to pull out the numbers "and do the same to them." To address this problem, this exercise includes a variety of formats of problem. In fact, number one requires a subtraction with the numbers 6 and 4 - rather than an addition, while others include change unknown format - so could equally be an addition or a subtraction that relies on their compatible number knowledge. This exercise provides a good basis for a teaching session around "what words tell us that we should be adding the numbers ..." In this teaching session, students could be encouraged to develop a list of words commonly used to indicate that the operations of addition and subtraction are to be used.

### **Discovery based on patterning:**

Students learn a lot of mathematics (things that are not necessarily directly taught - or intended to be taught) by identifying patterns. Often, the better we are at identifying patterns, the better we are at mathematics. These exercises look to harness patterning to help students realize that knowing these facts to 10 mean that they can also answer a whole load of other problems. Both exercises require

follow-up discussion - and additional practice built around consolidating these discoveries. For example, students could make a poster showing how to use their facts to 10 to answer other problems. They should also do some practice working in using this new skill - all three formats, start, change and result unknown.

### **Comments on the Exercises:**

#### **Exercise 1**

Asks students to identify equations that sum to 10.

#### **Exercise 2:**

Asks students to identify if single digit additions are  $<$ ,  $>$ , or  $=$  to 10.

#### **Exercise 3:**

Asks students to complete compatible number equations.

#### **Exercise 4:**

Asks students to identify compatible numbers to 10.

#### **Exercise 5:**

Asks students to identify compatible numbers in subtraction equations.

#### **Exercise 6:**

Asks students to use compatible number to solve addition problems, e.g.,  $7 + 9 + 3 =$

#### **Exercise 7:**

Asks students to use compatible numbers to solve word problems.

#### **Exercises 8 and 9:**

Asks students to use compatible numbers to 10 with two-digit numbers, e.g.  
 $47 + 3 = 50$ ,  $10 + 90 = 100$

#### **Exercise 10:**

Extension problems.

**Source URL:** <http://www.nzmaths.co.nz/resource/compatible-numbers-ten>

# Counting – Stage Two

Skill Number: 2:1; 2:2

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:1	Rote counting 0-20	<i>MCC.K.CC.1</i>
2:2	Saying the forwards and backwards number word sequence in the range 0-20, starting and ending with any number	<i>MCC.K.CC.2</i>

## Required Resource Materials:

- Large Hundreds Board (preferably one that is laminated and can be written on with dry erase marker)
- Rekenrek with at least 20 beads (one for each student)

## Activity:

### With Hundreds Board

Have students clap as they count in ones to 20. Mark off each number on the hundreds board as they are said. Practice the number sequences forwards and backwards. Ask the students to identify individual numbers on the hundreds board from the sequence they have just counted.

### With Rekenrek

Have students count aloud as they move one bead at a time on the Rekenrek from one side to the other. Practice the number sequences forwards and backwards (moving beads from left to right and from right to left).

Source URL: <http://www.nzmaths.co.nz/resource/counting>

# Counting as We Go – Stage Two

**Skill Number:** 2:1; 2:2; 2:5

**Teacher Learning and Understanding: STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

<i>Stage</i>	<i>Behavioural Indicator</i>
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	<b>Skill Descriptions</b>	<b>Aligned to CCGPS</b>
2:1	Rote counting 0-20	<i>MCC.K.CC.1</i>
2:2	Saying the forwards and backwards number word sequence in the range 0-20, starting and ending with any number	<i>MCC.K.CC.2</i>
2:5	Ordering the numbers in the range 0-20	<i>MCC.1.NBT.3</i>

## Required Resource Materials:

- Objects to pass around

## Activity:

The students get into groups and arrange themselves in circles. Choose a student in each group to start at 1. They then pass an object around and count as it passes each student. The students count as far as 20.

Examples. Repeat counting from 1.

Challenging examples. The group selects a single digit number. Repeat the above activity, but count backwards from the selected number. Before counting back the students predict who will be number 1. They check their prediction by passing an object and counting down out loud.

More challenging examples. Give all groups the same starting number. All groups count forward (up to 20). Play some music. When you stop the music each student draws the group's current number in the air. Record the numbers of all groups on the board and discuss whose number is biggest.

**Source URL:** <http://nzmaths.co.nz/resource/counting-we-go>

# Dinosaur Stomp – Stage Two

Skill Number: 2:9; 2:10

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:9	Instantly recognizing patterns to 10	<i>MCC.K.OA.1</i>
2:10	Solving addition problems to 20 by joining sets and counting all the objects	<i>MCC.K.OA.2; MCC.1.OA.6</i>

## Required Resource Materials:

- Dinosaur Stomp Game Board (1-10)
- 10 counters

## Activity:

How to play Dinosaur Stomp

This is a game for 2 teams. One team will be the Stegs (odd numbers) and the other team T-Rexs (even numbers). If only one student is playing then the teacher must be the opponent from the other team. Place the Dinosaur Stomp Game Board in the middle of the table. On the count of three have one student from each team show a finger pattern on one hand (student holds up 0, 1, 2, 3, 4, or 5 fingers). Have all of the students playing the game determine the total number of fingers. Place a counter on the matching number on the game board. Continue the game in like manner until one team wins.

Winning team could be...

- First to get 3 numbers in their column
- First to get 4 numbers in their column
- First to get all 5 numbers in their column

Encourage students to share how they solved the problem.

Discuss odd and even numbers.

## Source

URL: <http://mathsleadteachers.wikispaces.com/file/view/Dinosaur%20Stomp.pdf/180682605/Dinosaur%20Stomp.pdf>

# Fabulous Fives – Stage Two

Skill Number: 2:9

## Teacher Learning and Understanding: STAGE TWO

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioral Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:9	Instantly recognizing patterns to 10	MCC.K.OA.1

## Required Resource Materials:

- Hands
- Rekenrek

## Activity:

The focus in these lessons is *not* on *counting* but is on *instantly recognizing or subitizing* combinations to ten. The ability of some young children to recognize small quantities without counting has been somewhat overlooked in the emphasis we have recently given to counting. This lesson is a combination of recognizing and just knowing groupings to ten, and recording these combinations and separations in multiple ways, and in so doing establishing a base for continued strategy development.

## Finger Patterns

Practice making finger patterns for the numbers 0 to 10. The focus is on grouping not counting. Many students like to show "bunny ears." This is where the student puts their hands behind their head and their fingers are like bunny ears sticking up.

Begin with finger patterns the students will know, like one, two, five, and 10. Find other patterns from these numbers. For example: "Show me five fingers ... Now, show me six. What did you do to make six (add a finger)? What would seven look like? What about four?"

"Show me 10 fingers ... How do you know it is 10?" (five and five) "Change it into nine." "How did you do that?" (took off a finger) "What would five look like?"

Repeat this activity with the students hiding their fingers behind their backs and imagining the finger patterns.

## Activity – Rekenrek

Push over a small number of beads, for example, six. Ask "How many beads did I just push over?" and "How did you know it was six without counting the beads?" Aim for responses like "I know that one more than five is six." Get the students to show you six fingers to reinforce the connection. Try this for other "five and ..." groupings. For example, "Eight is five and what?"

Alternatively, start by pushing across five beads and ask "How many more to make eight?"

Follow up by asking "How did you know?" Ask the students to show you the same fact with their fingers.

Push across a small number of beads and ask how many more are needed to make 10. This is reinforcing the key knowledge of pairs of numbers that add up to 10. Connect this with the finger patterns and matching fly flip card.

### **Activity - Fly Flip Cards (Material Master 4-5)**

Show the students a fly flip card with the five flies and a number on the front, for example, "8".

Ask how many flies there will be on the back. Ask the students to show eight on their fingers.

(They need to have five fingers showing on one hand.) Ask how many fingers they need to show on their other hand to make eight (three). Turn the card over to reveal the other three flies that make eight.

Repeat for the fly flip cards from six to 10.

Another activity: Show an eight-fly card. Ask, "How many more flies would make this a 10-fly card?" (two). Repeat for the fly flip cards from 6 to 10.

**Source URL:** <http://www.nzmaths.co.nz/resource/fabulous-fives>

# Feed the Elephants – Stage Two

**Skill Number:** 2:3; 2:5; 2:6; 2:7

**Teacher Learning and Understanding: STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

<i>Stage</i>	<i>Behavioural Indicator</i>
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	<b>Skill Descriptions</b>	<b>Aligned to CCGPS</b>
2:3	Numeral recognition 0-20	<i>MCC.K.CC.3</i>
2:5	Ordering the numbers in the range 0-20	<i>MCC.1.NBT.3</i>
2:6	Counting sets 0-20	<i>MCC.K.CC.5</i>
2:7	Forming sets 0-20	<i>MCC.K.CC.4</i>

## Required Resource Materials:

- Paper cups
- Counters
- Feed the Elephants Sheet

## Activity:

Cut apart the elephants on the 'Feed the Elephants' Sheet (copy enough sheets to have 20 elephants). Write a number (between 1 and 20) in the "speech bubble" on each elephant and paperclip each to a paper cup. The student "feeds" each elephant the correct amount of food (counters) and checks their answer. The student then orders the cups either forwards or backwards.

**Source URL:** <http://nzmaths.co.nz/resource/feed-elephants>

# Finger Patterns to 10 – Stage Two

**Skill Number:** 2:9

**Teacher Learning and Understanding: STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

**Skill Descriptions Aligned to CCGPS:**

	Skill Descriptions	Aligned to CCGPS
2:9	Instantly recognizing patterns to 10	MCC.K.OA.1

**Required Resource Materials:**

- None (students use both hands to create finger patterns to 10)

**Activity:**

Practice making finger patterns for the numbers 1 to 10. *The focus is on grouping not counting.*

**Showing Numbers with Fingers:**

Begin by modeling how to create finger patterns for each number 1-10 using one or both hands. Have students practice making each number. State a number (between 1 and 10) and have the student show the number with his finger(s).

**Making Groups within 5:**

Find **addition patterns** to 5. For example: "Show me 3 fingers ... Now, show me 5. What did you do to make 5?" (add 2 fingers); "Show me 2 fingers ... Now show me 5. What did you do to make 5?", etc. Continue for  $1 + 4$ ,  $4 + 1$ ,  $0 + 5$ ,  $5 + 0$

Repeat this activity with the students hiding their fingers behind their backs and imagining the finger patterns.

Find **subtraction patterns** from 5. For example: "Show me 5 fingers ... Now, show me 2. What did you do to make 2?" (took away 3 fingers); "Show me 5 fingers ... Now show me 4. What did you do to make 4?", etc. Continue for  $5 - 3$ ,  $5 - 4$ ,  $5 - 5$

Repeat this activity with the students hiding their fingers behind their backs and imagining the finger patterns.

**Making Groups with 5:**

Find **addition patterns** to 10 from 5. For example: "Show me 5 fingers ... Now, show me 8. What did you do to make 8?" (add 3 fingers); "Show me 5 fingers ... Now show me 7. What did you do to make 7?", etc.

Continue for  $5 + 1$ ,  $5 + 4$ ,  $5 + 5$

Repeat this activity with the students hiding their fingers behind their backs and imagining the finger patterns.

Find **subtraction patterns** to 5. For example: "Show me 9 fingers ... Now, show me 5. What did you do to make 5?" (took away 4 fingers); "Show me 10 fingers ... Now show me 5. What did you do to make 5?", etc. Continue for  $8 - 3$ ,  $7 - 2$ ,  $6 - 1$

Repeat this activity with the students hiding their fingers behind their backs and imagining the finger patterns.

Source URL: <http://nzmaths.co.nz/resource/fabulous-fives>

# Flower Petals – Stage Two

**Skill Number:** 2:2; 2:3; 2:6; 2:7

**Teacher Learning and Understanding: STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

<i>Stage</i>	<i>Behavioural Indicator</i>
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	<b>Skill Descriptions</b>	<b>Aligned to CCGPS</b>
2:2	Saying the forwards and backwards number word sequence in the range 0-20, starting and ending with any number	<i>MCC.K.CC.2</i>
2:3	Numeral recognition 0-20	<i>MCC.K.CC.3</i>
2:6	Counting sets 0-20	<i>MCC.K.CC.5</i>
2:7	Forming sets 0-20	<i>MCC.K.CC.4</i>

## Required Resource Materials:

- Small counters or other objects that can represent flower petals
- Flower Petals Sheets

## Activity:

Using the circles from the 'Flower Petals Sheets' the student surrounds the circle (the center of the flower) with the correct number of petals (counters) that correspond to the number on the circle. Have student touch each 'petal' and say its number as he places it on the flower. Then have the student 'pluck' the flower and count backwards from the number on the flower.

**Source URL:** <http://nzmaths.co.nz/resource/petals-and-flower-centres>

# How Many? – Stage Two

Skill Number: 2:6; 2:7

## Teacher Learning and Understanding: STAGE TWO

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:6	Counting sets 0-20	MCC.K.CC.5
2:7	Forming sets 0-20	MCC.K.CC.4

## Required Resource Materials:

- Marbles or heavy counters
- Container with a hole in the top

## Activity:

The students close their eyes and listen and count as you drop objects into a container. At the end ask how many objects are in the container. Check by emptying the container and counting them. Repeat with students in pairs. One student does the dropping and the other does the counting. Then they swap roles.

Source URL: <http://nzmaths.co.nz/resource/how-many-1>

# How Many Claps in All? – Stage Two

Skill Number: 2:9

## Teacher Learning and Understanding: STAGE TWO

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:9	Instantly recognizing patterns to 10	MCC.K.OA.1

## Required Resource Materials:

- None

## Activity:

State the following:

*"I am going to make some claps and I want you to tell me how many times I clap."* Clap three times. Ask, *"How many times did I clap?"* Have students say the number. Then clap six more times and ask, *"How many times did I clap?"* Have students say the number and then ask, *"How many claps was that altogether?"* (3 claps + 6 claps = 9 claps)

Continue with patterns to 10 such as: 1-2, 1-4, 2-1, 2-2, 2-3, 3-2, 3-3, 4-4, 5-2, 6-1, 3-4, 8-1, etc.

## Notes:

- Ask the child to look away so that they do not observe you making the claps.
- Typically, children are less able to count clapping sequences than at counting collections, for example, counting a sequence of ten claps versus a collection of ten counters.

**Source:** Martland, James; Stafford, Ann; Stanger, Garry; Wright, Robert; *Teaching Number in the Classroom with 4-8-year-olds*, SAGE, Los Angeles, p. 54.

# How Many Cubes? – Stage Two

Skill Number: 2:6

Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

<i>Stage</i>	<i>Behavioural Indicator</i>
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

Skill Descriptions Aligned to CCGPS:

	<b>Skill Descriptions</b>	<b>Aligned to CCGPS</b>
2:6	Counting sets 0-20	<i>MCC.K.CC.5</i>

**Required Resource Materials:**

- Wooden cubes or Unifix/Multilink

**Activity:**

- Place 20 loose cubes in front of the student. Pick up a handful of cubes and show them very briefly to the student. Have him estimate how many cubes he thinks are in your hands (without counting).
- Have the student count the cubes (using one-to-one correspondence) and state the number. See if it is the same number that was estimated.
- Do the same activity but have the student pick up the cubes and estimate how many he thinks are in his hands (without counting).
- Have him count the cubes and state the number. See if it is the same number that was estimated.
- Continue in like manner with different amounts in the range 1-20.

Source URL: <http://nzmaths.co.nz/resource/how-many-cubes>

# How Many Taps? – Stage Two

**Skill Number:** 2:1; 2:2; 2:3; 2:4; 2:5; 2:6

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:1	Rote counting 0-20	<i>MCC.K.CC.1</i>
2:2	Saying the forwards and backwards number word sequence in the range 0-20, starting and ending with any number	<i>MCC.K.CC.2</i>
2:3	Numeral recognition 0-20	<i>MCC.K.CC.3</i>
2:4	Number order: What comes before and after a given number in the range 0-20	<i>MCC.K.CC.2</i>
2:5	Ordering the numbers in the range 0-20	<i>MCC.1.NBT.3</i>
2:6	Counting sets 0-20	<i>MCC.K.CC.5</i>

## Required Resource Materials:

- Number Cards 1-20

## Activity:

Have the student sit directly in front of you with his back to you. Give student the number cards 1-20. Tap a specific number of times on the student's back and then have him hold up the number card that corresponds. Continue with different numbers.

Once comfortable with identifying the number of taps, have the student also show the number card for the number before and the number after the specific number.

After holding up the number card for a specific number of taps, have the student rote count to that specific number starting with 1. Also have him count backwards from the specific number down to 1.

Source URL: <http://nzmaths.co.nz>

# Lily Pads – Stage Two

Skill Number: 2:2; 2:3; 2:4

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:2	Saying the forwards and backwards number word sequence in the range 0-20, starting and ending with any number	<i>MCC.K.CC.2</i>
2:3	Numeral recognition 0-20	<i>MCC.K.CC.3</i>
2:4	Number order: What comes before and after a given number in the range 0-20	<i>MCC.K.CC.2</i>

## Required Resource Materials:

- Large Number Cards 0-20 (*you can use large number flashcards or write numbers on large blank index cards or create large number cards on the computer*)

## Activity:

Tape large number cards in order of 0-20 on the floor to create "lily pads". The student acts as a frog and jumps on specific numbers, sequences of numbers, or the number just after or before a given number.

Source URL: <http://nzmaths.co.nz/resource/number-mat-and-lily-pads>

# Loud and Soft – Stage Two

Skill Number: 2:1; 2:2; 2:4

Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:1	Rote counting 0-20	<i>MCC.K.CC.1</i>
2:2	Saying the forwards and backwards number word sequence in the range 0-20, starting and ending with any number	<i>MCC.K.CC.2</i>
2:4	Number order: What comes before and after a given number in the range 0-20	<i>MCC.K.CC.2</i>

Required Resource Materials:

- Puppets

Activity:

Students will practice counting with two puppets to ten forwards and backwards. One puppet (student) speaks loudly and the other speaks softly. Counting from zero the puppets say the numbers alternately and the students count with the puppets loudly then softly. If a puppet can squeak, get the students to close their eyes and count the squeaks the puppet made. Examples. Repeat by starting and counting forwards and backwards from different starting and ending points.

Source URL: <http://www.nzmaths.co.nz/resource/loud-and-soft>

# Lucky Dip – Stage Two

Skill Number: 2:3

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

<i>Stage</i>	<i>Behavioural Indicator</i>
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	<b>Skill Descriptions</b>	<b>Aligned to CCGPS</b>
2:3	Numeral recognition 0-20	<i>MCC.K.CC.3</i>

## Required Resource Materials:

- A container
- Numeral cards 0-20

## Activity:

Show the students a card and ask them what number it is. "Draw" the number in the air with your hand. "Draw" the number on the table, board, or floor in large writing. Have students also "draw" the number in the air then the table, desk, floor, etc. Repeat with further cards.

Source URL: <http://nzmaths.co.nz/resource/lucky-dip>

# Match it Up – Stage Two

Skill Number: 2:3; 2:6

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

<i>Stage</i>	<i>Behavioural Indicator</i>
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	<b>Skill Descriptions</b>	<b>Aligned to CCGPS</b>
2:3	Numeral recognition 0-20	<i>MCC.K.CC.3</i>
2:6	Counting sets 0-20	<i>MCC.K.CC.5</i>

## Required Resource Materials:

- Match it Up Sheet

## Activity:

The students place the dot cards face down in one row and the numeral cards face down in a parallel row. Then they take turns to turn over a card from each row and see if the numeral card and the dot card match. If there is a match, the student keeps the pair. The game continues until all the pairs are matched.

Source URL: <http://nzmaths.co.nz/resource/match-it>

# Number Fans – Stage Two

Skill Number: 2:1; 2:2; 2:3; 2:4

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:1	Rote counting 0-20	<i>MCC.K.CC.1</i>
2:2	Saying the forwards and backwards number word sequence in the range 0-20, starting and ending with any number	<i>MCC.K.CC.2</i>
2:3	Numerical recognition 0-20	<i>MCC.K.CC.3</i>
2:4	Number order: What comes before and after a given number in the range 0-20	<i>MCC.K.CC.2</i>

## Required Resource Materials:

- Fan Numbers Sheet

## Activity:

The students use the fans to show numbers. Teacher states a number between 0 and 20 and the student holds up that number in the fan (student folds under the numbers not being called). Have student rote count from 0-20 showing each number with the fan. Have student count backwards from 20 showing each number. Have student show the numbers that come before and after a specific number using the fan numbers. Have student create a set using objects (in the range from 1-20) then show the amount using the fan numbers.

Source URL: <http://nzmaths.co.nz/resource/number-fans>

# Number Line Flips – Stage Two

Skill Number: 2:2; 2:4

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:2	Saying the forwards and backwards number word sequence in the range 0-20, starting and ending with any number	<i>MCC.K.CC.2</i>
2:4	Number order: What comes before and after a given number in the range 0-20	<i>MCC.K.CC.2</i>

## Required Resource Materials:

- Number Line Flips Sheet

## Activity:

Construct the number line flaps (see 'Number Line Flips' Sheet) so that a number line can be inserted to create 'hidden' numbers. Insert either the 1-10 number line or the 11-21 number line (from the 'Number Line Flips' sheet) and have the student flip up the first and last number on the number line. Point to one of the hidden numbers on the line and have the student state which number it is. Flip up the flap to check for correctness. Continue by using different numbers and number lines. Expand the activity by having the student state the number that comes before and after the hidden number. Have student count up to a certain number from the hidden number. Have student count backwards from the hidden number.

Source URL: <http://nzmaths.co.nz/resource/number-line-flips>

# Number Mat – Stage Two

**Skill Number:** 2:2; 2:3; 2:4

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

### Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:2	Saying the forwards and backwards number word sequence in the range 0-20, starting and ending with any number	<i>MCC.K.CC.2</i>
2:3	Numeral recognition 0-20	<i>MCC.K.CC.3</i>
2:4	Number order: What comes before and after a given number in the range 0-20	<i>MCC.K.CC.2</i>

### Required Resource Materials:

**Number Mat:** *The number mat is a large mat that students can stand, walk, or jump on. The mat can be created using a table cloth, shower curtain, carpet squares, fabric, etc. Use the template below to create the mat for this activity:*

12	17	19	14
15	18	12	10
11	20	13	16
18	16	15	17

*The numbers can be drawn, stitched, taped, or painted on each square. This mat only contains the numbers 10-20. If the student needs a review of numbers 0-9, refer to the 'Number Mat - Stage One' activity.*

### Activity:

- State a number and have student stand on that number. Repeat for additional numbers.
- Have student stand on a specific number. Have student state the number that comes after and have him jump to that number on the mat. Have student state the number that comes before and have him jump to that number. Repeat for additional numbers.
- Have student stand on the number '10'. Have him rote count from 10-20 as he jumps on each number stated. Have student stand on the number '20'. Have him count backwards from 20 to 10 as he jumps on each number stated.
- Give the student a number sequence to count. For example. "Start at 13 and count to 17"; or "Start at 16 and stop at 12."
- Give the student two or three numbers to touch and have him bend and stretch to touch them all at one time (similar to "Twister").
- Have student toss a bean bag onto the mat and have him state the number it lands on.

**Source URL:** <http://nzmaths.co.nz/resource/number-mat-and-lily-pads>

# Pipe Cleaner Numbers – Stage Two

Skill Number: 2:3

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

<i>Stage</i>	<i>Behavioural Indicator</i>
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:3	Numeral recognition 0-20	<i>MCC.K.CC.3</i>

## Required Resource Materials:

- Two pipe cleaners for each student

## Activity:

Say a number between 0 and 20. Have the student make that number with the pipe cleaner(s). For 2-digit numbers, be sure the student has the numerals in the correct position (for example: 31 *not* 13)

Source URL: <http://nzmaths.co.nz/resource/pipe-cleaner-numbers>

# Rekenrek Patterns to Ten – Stage Two

Skill Number: 2:9

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:9	Instantly recognizing patterns to 10	<i>MCC.K.OA.1</i>

## Required Resource Materials:

- Rekenrek

## Activity:

Have students take out a rekenrek. Ask them to move a small number of beads from the left to the right. Ask "How many beads did you just push over?" and "How did you know it was \_\_\_\_ (number) without counting the beads?"

The teacher should look for responses like "I know that one more than five is six."

Ask the student how many more are needed to make 10.

This task is reinforcing the key knowledge of pairs of numbers that add up to 10.

Source URL: <http://www.nzmaths.co.nz/resource/using-slavonic-abacus-reinforce-five-grouping>

# Rocket – Where Will I Fit? – Stage Two

Skill Number: 2:5

Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

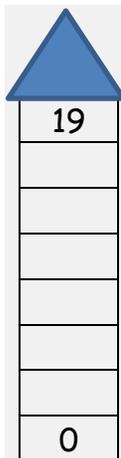
Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:5	Ordering the numbers in the range 0-20	<i>MCC.1.NBT.3</i>

Required Resource Materials:

- 2 Dodecahedral 0-9 dice



**Activity:**

Each student needs to draw a "rocket" playing board like the one shown. The number of floors on the rocket can be increased where larger whole numbers are involved. The aim of the game is to fill every floor of the rocket with numbers in order.

Each player takes turns throwing the dice to make numbers for their rockets. Before they cast the dice, they decide if they want a 1-digit number or a 2-digit number. For 1-digit numbers they only throw one dice. For 2-digit numbers, they set one dice to the number '1' (for the ten) and then throw the second dice for the 'ones' number. If a player cannot place a number they have thrown, they miss that turn.

The students then record the number on a level of the rocket where they think it best fits between 0 and 19. Once a number is written it cannot be moved.

Source URL: <http://www.nzmaths.co.nz/resource/rocket-where-will-i-fit>

# Teens and Fingers – Stage Two

Skill Number: 2:11

## Teacher Learning and Understanding: STAGE TWO

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:11	Solving subtraction problems from 20 separating sets and counting all the objects	<i>MCC.K.OA.2</i> <i>MCC.1.OA.1</i>

## Required Resource Materials:

- None

## Activity:

Check students' knowledge that teen means ten so they can decode a teen word as ones plus a ten. For example, 16 means six and ten. Check that in the two teen words that do not quite fit the pattern name fifteen and thirteen that the students know "fif" means five and "thir" means three. The students need to know that the two unsystematic "teen" words twelve and eleven actually mean ten and two, and ten and one respectively.

**Problem:** Vincent has 14 snack packs and he eats one every day of the week for his lunch at school. How many packs does he have left at the end of the week?

Record  $14 - 5$  on the board. Put the students in pairs and get them to negotiate how to show 14 fingers between them. Normally one student shows 10 as  $5 + 5$  and the other shows 4. Removing 5 from 10 leaves 5. So the answer is 4 from one student and 5 from the other which together is 9. Record  $14 - 5 = 9$  on the board.

Note that one of the problems below require going across a five. For example  $12 - 4$  is not asked because it would require the students to use part-whole thinking by removing 2 then 2 more out of the hands showing 10. This type of problem is delayed until the part-whole sections.

Examples. Word stories and recording for:  $14 - 4$ ,  $8 + 5$ ,  $7 + 5$ ,  $20 - 5$ ,  $5 + 10$ ,  $17 - 7$ ,  $12 - 5$  ....

**Challenging examples:** Word stories and recording for  $14 - ? = 9$ ,  $8 + ? = 13$ ,  $4 + ? = 14$ ,  $20 - ? = 10$ ,  $? = 4 = 14$ .

Source URL: <http://www.nzmaths.co.nz/resource/teens-and-fingers>

# Tens Frame Flashes – Empty Spaces – Stage Two

Skill Number: 2:6; 2:8

Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:6	Counting sets 0-20	<i>MCC.K.CC.5</i>
2:8	Comparing two numbers in the range 0-20 using number cards	<i>MCC.1.NBT.3</i>

## Required Resource Materials:

- Counters to use for game pieces
- 'Tens Frame Flashes - Empty Spaces' game board
- Stack of Tens Frames with 5 or more dots and Stack of complete Tens Frames with 10 dots

## Activity:

- Place the 'Tens Frame Flashes - Empty Spaces' game board in front of the student(s). If instructing only one student, you will need to play in order to establish a 'winner' at the end of the game. Have the student(s) choose a counter/game piece.
- Flash a full tens frame (with all 10 dots) and then a tens frame with 5 or more dots for 3 seconds. The student states the number of EMPTY (blank) spaces on the second frame.
- If correct, the student moves that many spaces on the game board. The first student to the FINISH spot wins.
- Review the tens frames shown and have him state the number represented by the frames. Have student compare the number of empty spaces to dots on the frames. Have student state which set has the greatest amount and which set has the least amount. ("The black dot set has the greatest amount. The empty spaces set has the least amount.")

Source URL: <http://nzmaths.co.nz>

# Tens Frames – Stage Two

**Skill Number:** 2:4; 2:6; 2:8; 2:9

**Teacher Learning and Understanding: STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:4	Number order: What comes before and after a given number in the range 0-20	<i>MCC.K.CC.2</i>
2:6	Counting sets 0-20	<i>MCC.K.CC.5</i>
2:8	Comparing two numbers in the range 0-20 using number cards	<i>MCC.1.NBT.3</i>
2:9	Instantly recognizing patterns to 10	<i>MCC.K.OA.1</i>

## Required Resource Materials:

- Tens Frames (for numbers 0-10) (*You will need 2 tens frames with all 10 dots*)

## Activity:

Begin by reviewing how to make finger patterns for the numbers 1 to 10. Link the dot patterns on tens frames to finger patterns. For example, show a "7" card and ask the students to show five fingers on one hand and two fingers on the other hand. Over time, the students will develop the ability to recognize instantly the number of dots without counting. Get the students to link these patterns with the numbers to 20. Show a numeral card and tell the students to show the matching tens frame (use two 10 frames with all 10 dots to represent 20). Then have them say and show the number that comes before and the number that comes after.

The students can be seated in pairs, one behind the other. Show a tens frame to one member of each pair. The student draws the pattern as dots with gentle taps on their partner's back. The partner then writes the matching number in the air with their finger then mimics the dot pattern in the air as well.

Show student two different numbers with the tens frames and have him compare the two. Ask which number has the most dots and which has the least dots. Interchange "most dots" to the word "greatest" and "least dots" to "least".

## Extension Activity:

When the students are familiar with the tens frames, ask them to identify the number of spaces on the cards as well as the number of dots. In each case, "dots" plus "spaces" equals 10. For example, seven dots plus three spaces makes 10. Record these results using numeral cards or by writing equations like  $7 + 3 = 10$  on the board.

**Source URL:** <http://nzmaths.co.nz/resource/tens-frames>

# Tens Frames Game- Stage Two

**Skill Number:** 2:6; 2:8; 2:9

**Teacher Learning and Understanding: STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:6	Counting sets 0-20	<i>MCC.K.CC.5</i>
2:8	Comparing two numbers in the range 0-20 using number cards	<i>MCC.1.NBT.3</i>
2:9	Instantly recognizing patterns to 10	<i>MCC.K.OA.1</i>

## Required Resource Materials:

- Counters to use for game pieces
- 'Tens Frames Game-game board
- Stack of Tens Frames with 5 or more dots and stack of complete Tens Frames with 10 dots

## Activity:

- Place the 'Tens Frames Game-game board in front of the student(s). If instructing only one student, you will need to play in order to establish a 'winner' at the end of the game. Have the student(s) choose a counter/game piece.
- Flash a full tens frame (with all 10 dots) and then a tens frame with 5 or more dots for 3 seconds. The student states the number of EMPTY (blank) spaces on the second frame.
- If correct, the student moves that many spaces on the game board. The first student to the FINISH spot wins.
- Review the tens frames shown and have him state the number represented by the frames. Have student compare the number of empty spaces to dots on the frames. Have student state which set has the greatest amount and which set has the least amount. ("The black dot set has the greatest amount. The empty space set has the least amount.")

**Source URL:** <http://nzmaths.co.nz>

# Tick Tock – Stage Two

Skill Number: 2:1; 2:2

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

<i>Stage</i>	<i>Behavioural Indicator</i>
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	<b>Skill Descriptions</b>	<b>Aligned to CCGPS</b>
2:1	Rote counting 0-20	<i>MCC.K.CC.1</i>
2:2	Saying the forwards and backwards number word sequence in the range 0-20, starting and ending with any number	<i>MCC.K.CC.2</i>

## Required Resource Materials:

- Weighted object on the end of a piece of string

## Activity:

Have the student choose one of the following exercises: taking giant steps, taking baby steps, jumping in place, jumping jacks, or toe touches. Using the weighted object on the string (a pendulum) swing it to a specific number between 1 and 20. The student would count aloud for each swing. Then the student would do the chosen exercise for that same number while counting aloud.

Have student do the same exercise (or a different) exercise starting on the specified number and counting backwards to 1.

Source URL: <http://nzmaths.co.nz>

# Toy Box – Stage Two

Skill Number: 2:3; 2:6; 2:7

## Teacher Learning and Understanding: STAGE TWO

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:3	Numerical recognition 0-20	<i>MCC.K.CC.3</i>
2:6	Counting sets 0-20	<i>MCC.K.CC.5</i>
2:7	Forming sets 0-20	<i>MCC.K.CC.4</i>

## Required Resource Materials:

- Collections of objects or counters
- Large die marked 0 and 1

## Activity:

Place a collection of small objects in the center of the table. One child rolls a large die labeled 0 and 1. If the die displays 1, the child takes one object. If the die displays 0, the child does not take anything. Take turns with each child building individual collections. When one child has a few objects in their collection (a set in the number range of 1 to 20) ask: "How many do you have?" Encourage the child to touch and count each object, saying each number in turn. Ask: "How many altogether?" Emphasize that the last number in the count corresponds to the number of objects in the collection. Continue to play until one child has five objects.

- Varying the size of the objects counted (larger objects, smaller objects).
- Vary the objects in the collections, sometimes all of the same, sometimes different.
- Vary the way the children collect the objects, for example arranging in a row, a ring, or a container.
- Use a die numbered with 0, 1, and 2.

## Notes:

- Children might have difficulty keeping track of the number words as they are counting.
- Children might not know the number word sequence very well.
- Children might have difficulty coordinating a number word with each item.
- Suitable for small groups.

**Source:** Martland, James; Stafford, Ann; Stanger, Garry; Wright, Robert; *Teaching Number in the Classroom with 4-8-year-olds*, SAGE, Los Angeles, p. 59.

# Walk the Bridge – Stage Two

Skill Number: 2:2; 2:3; 2:4

## Teacher Learning and Understanding: **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
<b>1</b>	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
<b>2</b>	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:2	Saying the forwards and backwards number word sequence in the range 0-20, starting and ending with any number	<i>MCC.K.CC.2</i>
2:3	Numeral recognition 0-20	<i>MCC.K.CC.3</i>
2:4	Number order: What comes before and after a given number in the range 0-20	<i>MCC.K.CC.2</i>

## Required Resource Materials:

- Large Numeral Cards (numbers 1-20)

## Activity:

Place large numeral cards on the ground in order from 1 to 20 to form a bridge. The students count as one student steps on the number. The student who is "walking the bridge" may decide to walk forwards or backwards. The other students follow closely to produce the forward or backward counting sequence. Have the student stand on a number and discuss what is before and after that number.

Source URL: <http://www.nzmaths.co.nz/resource/walk-bridge>

# Where Should I Go? – Stage Two

**Skill Number:** 2:1; 2:3

**Teacher Learning and Understanding:** **STAGE TWO**

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

**Skill Descriptions Aligned to CCGPS:**

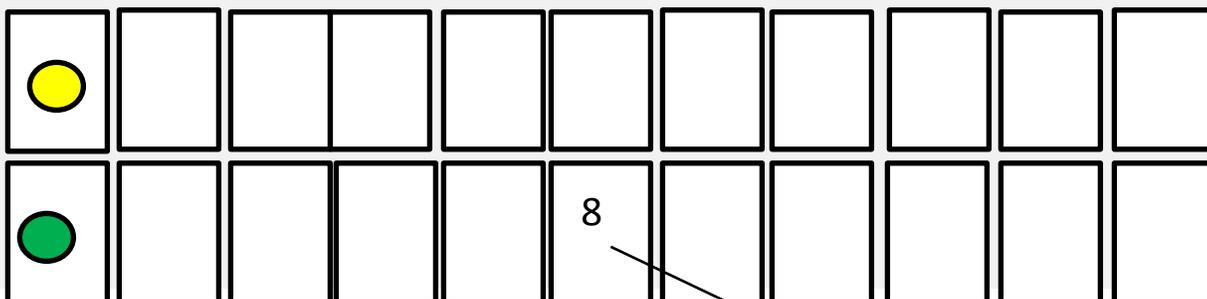
	Skill Descriptions	Aligned to CCGPS
2:1	Rote counting 0-20	<i>MCC.K.CC.1</i>
2:3	Numeral recognition 0-20	<i>MCC.K.CC.3</i>

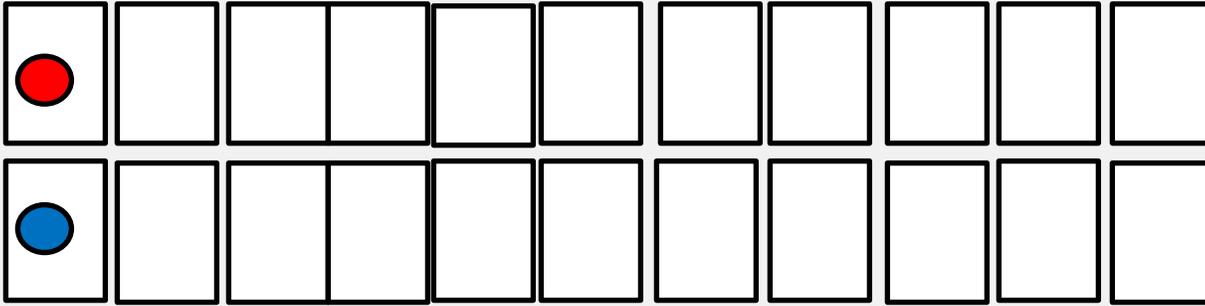
**Required Resource Materials:**

- 80 cards (numbers 1 to 20 in four different colors)
- 4 colored circle cards

**Activity:**

The teacher decides which numbers to use for the game. This will depend on the children's ability to identify numerals and also their forward number word sequence (FNWS) range. For example, a child might be able to say the FNWS to 20 but unable to identify some of the numerals from 1 - 20 and to count collections of up to 20 items. The teacher can decide to work in ranges such as: 1 to 10, 1 to 15, or 1 to 20. If working in the 1 to 20 range; the numerals 1 to 20 are written four times on cards. Each time in a different color (the number 9 for example could be red, yellow, green, and blue). Four other cards displaying a circle of each of the four colors are also needed. The teacher places the four colored circles in a column, shuffles all the other cards (80 if working in 1 to 20 range), and then lays out ten cards face down beside each circle card. The teacher asks a child to turn over any card. If the child was to turn a red 8, the teacher then explains that this card is presently in the yellow row and must be placed in the red row in the eighth position. The child might need to start at one and count each card to determine the eighth position. The child then picks up the card in the eighth position in the red row and replaces it with the red 8. The new card must then be placed in the correct position. The game ends when each card is in its correct position.





**Notes:**

- This activity is appropriate for children having difficulty coordinating number words and items or having difficulty with numeral identification.
- When children are familiar with this game they might observe that the numbers in a given column are the same. If they make a mistake in their perceptual counting the numbers are not the same and the error is apparent.
- If a child turns over a card that is already in its correct position, any other card is turned over.
- Initially, two rows (two colors) rather than four could be used in order to reduce the complexity of the task.
- This activity is suitable for individuals, pairs or small groups of children take turns in placing cards.

**Source:** Martland, James; Stafford, Ann; Stanger, Garry; Wright, Robert; *Teaching Number in the Classroom with 4-8-year-olds*, SAGE, Los Angeles, p. 58.

# Who is the Richest? – Stage Two

Skill Number: 2:5

## Teacher Learning and Understanding: STAGE TWO

Students working on this activity are Stage One working towards Stage Two.

Stage	Behavioural Indicator
1	<b>One to One Counting</b> The student has a reliable strategy to count an unstructured collection of items.
2	<b>Counting from One on Materials</b> The student's most advanced strategy is counting from one on materials to solve addition and multiplication problems.

## Skill Descriptions Aligned to CCGPS:

	Skill Descriptions	Aligned to CCGPS
2:5	Ordering the numbers in the range 0-20	<i>MCC.1.NBT.3</i>

## Required Resource Materials:

- Play money (at least 20 one dollar bills per child)

## Activity:

Give each student in the group a number of one dollar bills in the number range of 1-20. Have each child count their money and state the amount that they have. Record the amounts in a table (see below). Then ask the question: "Who is the richest?" The students compare their money to the amounts the other students have and as a group the students declare the richest among them. Then, using the information recorded in the table, assist the students in ordering the amounts from least to greatest and from greatest to least. Continue in like manner until each student has been the "richest" at least once.

Example of table:

Name	Amount
Emily	\$18
Phil	\$12
Bryan	\$16

Source URL: <http://www.nzmaths.co.nz/resource/who-richest>