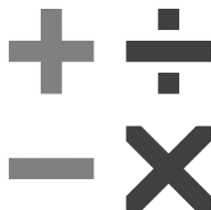


# Maths for Greater Understanding



## Activities Book

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# Counting Level 1

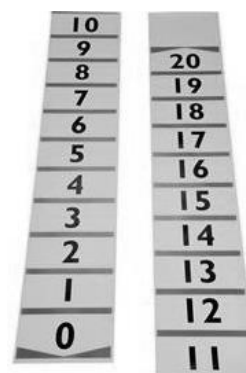
## What will the students learn?

- Number names to 10 – counting forwards
- Number names to 20 – counting forwards
- Counting backwards from 10 to 0
- Counting objects to 10
- Counting objects to 20
- Number line to 10
- Number line to 20
- The number in-between two numbers
- Ordinal number: 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, etc.

### Activity 1: Counting Walk to 10

*Resources needed:* Large 1-10 number line

Ask students to walk along the number line, counting 1-10.



### Activity 2: Counting rhymes

Word chants/Counting Rhymes, (See Resources p. 46)

*Example:*

1, 2, 3, 4, 5

Once I caught a fish alive

6, 7, 8, 9, 10

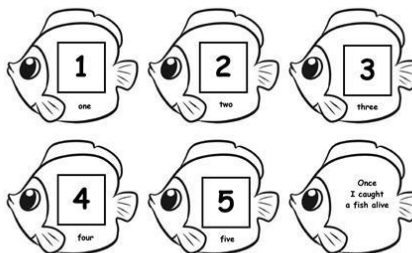
Then I let him go again

Why did I let him go?

Because he bit my finger, so

Which finger did he bite?

This little finger on the right.

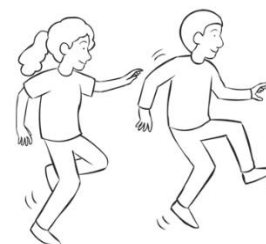


### Activity 3: Practise counting actions and objects to 10

Counting the number of steps, hops, jumps, claps, bounces, objects e.g.

1, 2, 3, steps etc.

When counting objects, make sure the child has accurate one-to-one correspondence.



#### **Activity 4: Counting backwards from 10**

Rocket blast-off:

10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 0 (blast-off)



#### **Activity 5: Counting Walk to 20**

*Resources needed:* large 1 to 20 number line

Ask students to walk along the number line, counting 1 to 20.

#### **Activity 6: Dot to Dot drawing**

*Resources:* Dot-to-dot picture sheets (See Resources p. 16-19)

Use the ones that are suited to the child's counting ability. If the child is fluent to 20, work on sheets a little higher to extend their counting ability.

#### **Activity 7: The number in-between**

*Resources needed:* Number chart 1 to 20 (See resources p. 22)

Ask the student to find a given number on the number chart, e.g. "Put your finger on 8. Now put your finger on 10. What is the number in-between 8 and 10?"  
Now give them different examples, e.g. "What is the number in-between 16 and 18?"

#### **Activity 8: Find the collection of counters that matches the dots on the die**

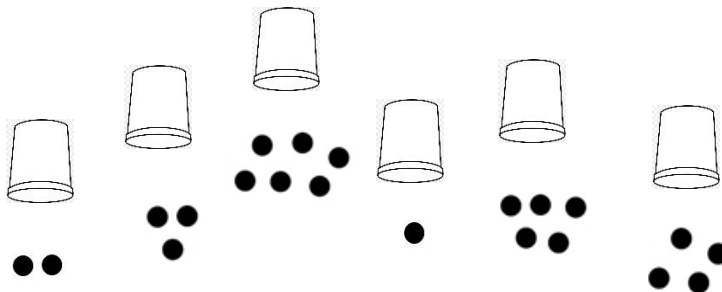
*Resources needed:* counters, die, empty margarine containers or paper cups

Take 6 margarine containers or paper cups. Hide different numbers of counters under these, (between 1 and 6 counters under each container).

Ask the student to roll a die.

They must find the collection that matches the number of dots on the die.

Repeat several times.



**Activity 9: Practise counting things up to 20**

*Resources needed: counters or objects*

Counting the number of steps, jumps, claps, bounces, objects, e.g. "Take 15 steps." Also ask them to set out counters, e.g. "Put out 13 counters."

**Activity 10: Count to Fifteen! Take a Counter**

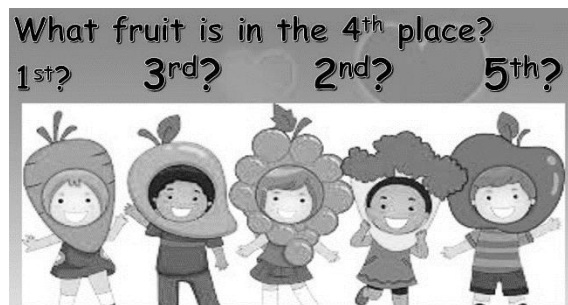
*Resources needed: counters*

Three people needed: 2 students plus the assistant. First person says 'one', second person says 'two', third person says 'three', first person says 'four'. Keep the counting going until fifteen is reached. The person who says fifteen takes a counter and begins the next count. Repeat four times. Ask the students if they know who will get the next counter.

**Activity 11: Ordinal number**

*Resources needed: counters or any objects*

Put 10 objects in a row. Say, "Show me the 3<sup>rd</sup> one; show me the 9<sup>th</sup> one" etc.



**Activity 12: Test**

The Assistant sets out 20 counters for each student. Each student in turn counts the counters out loud and tells you how many counters there are.

# Counting Level 2

## What will the students learn?

- Number names and counting by ones to 50
- Counting objects to 50
- Number names and counting by ones to 100
- Counting *from* a given number, e.g. count *from* 15 to 41
- Counting by twos to 20
- Counting by fives to 50 using number chart
- Counting by fives and tens to 100 using number chart
- Counting backwards by ones from 20 to 0
- Ordinal number to 20<sup>th</sup>

### **Activity 1: Count to 50**

*Resources needed: 50 counters or a bead string*

Count to 50 emphasising the ending sounds especially distinguishing between teen words (thirteen, fourteen, fifteen, sixteen, seventeen, eighteen, nineteen) and 'ty' words such as **twenty, thirty, forty**.

### **Activity 2: Longest Line Race**

*Resources needed: die, at least 30 beads, bead string*

Roll a die. Collect that number of beads. Thread them on to the string. Roll the die again. Add beads. Repeat 3 times, adding beads each time. Each student counts the total of beads on their string. Ask, "Who has the longest line of beads?"



### **Activity 3: Counting backwards from 20**

*Resources needed: Large number line 1 to 20*

Ask students to start on 20 and step backwards to 1 as they count.

#### **Activity 4: Counting 1 to 50 on the Number Chart**

*Resource needed: number chart 1 to 50, (See Resources p. 24), counters*

Tell the students to place one counter on a given number, e.g. 20. Then tell them to place the second counter on another number that is at least 20 numbers apart, e.g. 42. They have to count between the two counters, starting from 20 and counting to 42.

#### **Activity 5: Counting by 2s**

*Resource needed: counters*

Give the students 10 counters each. Ask them to set them out in twos. Ask them to count the counters in twos. Teach the counting rhyme:

2, 4, 6, 8

*10 mangoes on a plate*

Increase the counters up to 20 and ask them to count by 2s.



#### **Activity 6: Counting by 2s, 5s & 10s on the number chart**

*Resource needed: number chart 1 to 50, (Resources p. 24)*

Ask students to count by 2s on the number chart. This is also called 'skip counting' because you skip every second number.

Then help them count by 10s and 5s to 50. They can colour the fives and tens columns.

#### **Activity 7: Number chart counting to 100**

*Resource needed: number chart to 100 (See resources p.26)*

Help students count by ones, fives and tens to 100 on the number chart.

**Activity 8: Number chart counting between numbers**

*Resource: number chart 1 to 100 (Resources p. 26), counters*

Tell the students to place one counter on a given number, e.g. 32. Then tell them to place the second counter on another number that is at least 50 numbers apart, e.g. 97. They have to count between the two counters, starting from 32 and counting to 97.

**Activity 9: Number before and after on the number chart 1 to 50**

*Resource: number chart 1 to 50 (Resources p. 24), counters*

Ask the students to place ten counters randomly on the chart. They have to tell you what each number is. For each number you ask, “What is the number before? What is the number after?”

*Extension:* Ask, “What is the number that is 2 before? Then ask for 2 after?”

**Activity 10: Number before and after on the number chart 1 to 100**

*Resource: number chart 1 to 100 (Resources p. 26), counters*

Repeat Activity 9, but using the number chart to 100.

**Activity 11: “Number before” and “number after” Bingo**

*Resources needed: number cards 0 to 50 (3 packs), Bingo board for each player (size 3x3 – see Resources p. 3)*

Ask student to fill the spaces on their Bingo boards with number cards, (randomly – any card can be on any space). The Assistant calls any number between 0 and 50. If a student has the number BEFORE this number on a card, they cover this number with a counter. When a player has counters going 3 in a row, (horizontal, vertical or diagonal) they call “BINGO” and that player is the winner.

Repeat this game with “number after”.

7	21	25
32	4	19
48	28	42

Assistant calls “5”

The player with 4 covers 4 with a counter.

## **Activity 12: Test**

*Instructions for Assistant:*

- a) Ask one student to count between 21 and 35 on the number chart. Ask the other student to count between 18 and 29
- b) Give students 20 counters and ask them to count them by 2s.
- c) Ask one student to count by tens from 10 to 100 on the number chart.
- d) Give one student a number to find on the number chart 1-120. Ask, "What is the number after?" and "What is the number before?" Do the same for the other student with a different number.

## **Place Value Level 1**

### **What will the students learn?**

- Reading single digit numbers 0 to 20
- Writing single digit numbers 0 to 20
- Ordering single digit numbers 0 to 20
- Arranging numbers smallest to largest and largest to smallest 1 to 20

### **Activity 1: Calculator Count**

*Resources needed: Calculator or App on phone*

Ask the student to press numbers 1 to 9 in order, e.g.

Press 1, clear

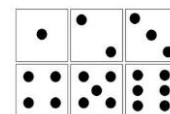
Press 2, clear

Press 3, clear etc.

If you don't have a calculator or a phone you can use number cards 0 to 9 and ask students to say the numbers.

### **Activity 2: Quick as a Flash**

*Resources needed: Dot cards 1 to 10, (See Resources p. 15)*



Randomly show dot cards (0 to 6).

Say, "Tell me how many dots as quick as a flash."

Once students can do this very well, try them with dot cards 1 to 8, and then dot cards 1 to 10

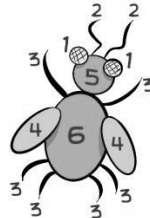


### **Activity 3: Beetle game**

*Resources needed: one die; pencil and paper*

The aim of the game is to be the first to complete a Beetle. Each person takes turns to roll of the die. According to the number they roll, they can draw a particular body part as follows:

- 6 = body
- 5 = head
- 4 = wings
- 3 = legs
- 2 = feelers
- 1 = eyes



The body must be drawn before the other body parts are added to it. Players must therefore roll a 6 to start. Once the body has been drawn, the other parts of the beetle may be added in any order.

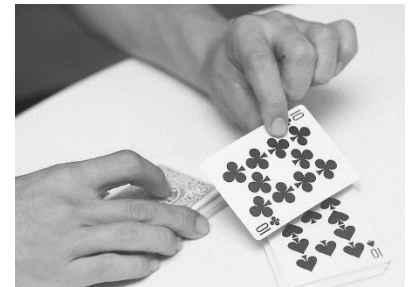
### **Activity 4: Snap**

*Resources: Number cards and Dot cards 1 to 10, (or playing cards)*

Each student has a handful of number cards and dot cards, (equal number of cards each).

The first student puts a card down face up. Then the second puts one of their cards on top of it.

The student calls 'Snap' when the same card follows the next one.



### **Activity 5: Remember how many counters**

*Resources: counters, empty margarine container, die or spinner*

Assistant puts out three groups of counters, (between 1 and 6 in each group).

While the students watch, cover one of the groups of counters with a margarine container. They must remember the number of hidden counters. Roll a die.

They have to clap when the number on the die matches the number of counters under the margarine container. The first to clap wins. (Give them a counter)

Repeat several times, changing the number of counters in the groups.



### **Activity 6: It's a Match**

*Resources: a die or 6-sided spinner, number 1 to 6 and dot cards 1 to 6.*

The Assistant sets out the number cards and dot cards so that the students can see them. They take turns to roll the die or spin the spinner. They pick up a number card or a dot card that matches the number on the die or spinner. Keep going until all the dot and number cards have been collected. The student with the most cards wins.

### **Activity 7: What's the Order?**

*Resources: 10-sided spinner, counters*

The students take turns to spin the spinner. They make a line of that many counters.

They each have 3 turns. Now they have 3 lines of counters. Ask them to put the lines in order smallest to largest, (with the shortest line at the top, and the longest line at the bottom).

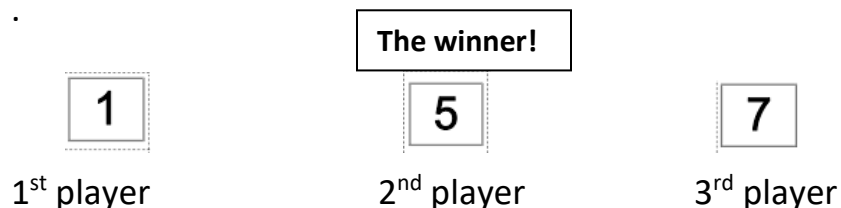
Then ask them to order the lines of counters from largest to smallest, (longest at the top and shortest at the bottom).



### **Activity 8: In the Middle (for 3 players – the Assistant will have to be a player)**

*Resources: number cards 0 to 9*

Set out the cards (0 to 9) face down. Each player selects a card. The players now have to work together to put the three number cards in order from smallest to largest. The player who puts in the middle number is the winner for this round and gets a point. Repeat several times.



Play the game again, but this time the players have to order the number from largest to smallest

### **Activity 9: Beads string number find**

*Resource: Bead string, one per student, (coloured beads arranged in tens, e.g. 10 yellow, 10 blue, 10 green.)*

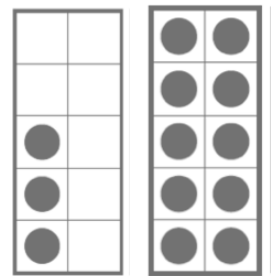
Assistant says, “Find 18!” The students have to quickly find the 18<sup>th</sup> bead without having to count the first ten. Continue, asking them to find the place for other numbers up to 20.



### **Activity 10: Using tens frames to make ‘teens’**

*Resource: tens frames 1 to 10 and plenty of whole tens. (See resources p. 42 & 44)*

Assistant calls numbers 11 to 20 and students make the number using tens frames.



### **Activity 11: Test**

*Instructions for Assistant:*

- In turn, show the students a dot card, “quick as a flash”. They tell you how many dots. Repeat a few times with different dot cards.
- Give each student 3 number cards 1 to 10. Ask them to arrange the numbers smallest to largest.
- Repeat, asking them to arrange the cards largest to smallest.

# Addition and Subtraction Level 1

## What will the students learn?

- Counting two groups of objects: how many altogether?
- Addition with counters up to 20: Put out 2, and now 3 more. How many altogether?
- Subtraction with counters up to 20: Put out 12, and take away 3. How many now?
- Terms for addition and subtraction: “and”, “take away”, “makes”. (Don’t use the words ‘plus’, ‘minus’ or ‘equals’ at this stage.)
- More than/less than
- Using the number line 1 to 10 for addition, e.g. 2 and 2 more
- Using the number line 1 to 10 for subtraction, e.g. 7, go back 3
- Extend to 1 to 20 on the number line
- “Counting-on”: When adding and subtracting on the number line, you don’t count the number you start on.

## **Activity 1: How many altogether? (addition)**

*Resources: Die and counters*

Roll a die. Put that many counters together in a group. Role the die again and put out that many counters, but in a different group. Tell a story about joining the 2 groups together, e.g. “Let’s pretend that this group of counters are apples and this group of counters are bananas. We put them together in a bowl. How many pieces of fruit altogether?”

## **Activity 2: Painted Disks (addition)**

*Resources needed: Disks that have been painted on one side.*

Give children about 6 disks each.

They shake them in their hands and tip them on the table.

How many coloured disks can you see? How many uncoloured disks?

Put coloured and uncoloured into 2 groups. Which has *more*? Which has *less*?  
How many altogether?

### **Activity 3: adding more to a group of counters (addition)**

*Resource needed: counters*

Ask student to set out a number of counters, e.g. 6. Say, "Now add 3 more. How many altogether?" (9)

Repeat with different numbers 1 to 10.

Then give them similar addition problems with numbers to 20, e.g. "13 counters. Now add 5 more. How many altogether?" (18)

### **Activity 4: addition with counters using "and"**

*Resources needed: counters*

Ask students to use counters to solve addition problems with counters e.g. *5 and 3 makes?* (They set out 5 counters in one group, 3 counters in another group, and push them together.)

### **Activity 5: 'Counting-on' board game**

*Resource: Die, 2 counters of different colours, Board game 1 to 20, (See Resources p. 10)*

Students take turns to roll the die and move their counter according to the number on the die. The first to reach 20 wins. When they are almost at the finish, they have to roll the die with the exact number to get to the end.

### **Activity 6: Number line addition**

Resource needed: large number line to 20

Ask the student to stand on a number on the large number line, e.g. "Stand on 3". Say, "3 and 2 more". They step forward and land on 5. Say, "3 and 2 more makes 5".

Give plenty of practice with different examples.

Start by working with numbers to 10. Then increase numbers to 20.

### **Activity 7: Some Went Away (subtraction with numbers to 10)**

*Resource: Counters*

Ask the student to put out a number of counters on the table, e.g. 9. Now ask them to take some of them away, e.g. Take away 6. How many are left? (3) Tell a story about what you just did, e.g. I had 9 pencils but I gave 6 away. Now I only have 3.

Continue with similar subtraction problems with numbers 1 to 10. Then give them problems with numbers to 20, e.g. “19 counters. Now take 7 away. How many altogether?” (12)

### **Activity 8: More Subtraction problems**

*Resource: counters*

Ask the students to solve subtraction problems with counters. Use the words “take away” and “makes”, e.g. 12 *take away* 4 *makes* 8.

### **Activity 9: Number line subtraction**

*Resource needed: large number line to 20*

Ask the student to stand on a number on the large number line, e.g. “Stand on 7 and go back 2”. They step backwards and land on 5. Say, “7 take away 2 makes 5”.

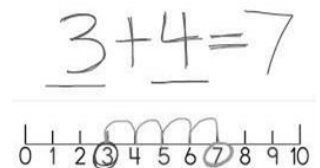
Give plenty of practice with different examples. Start by working with numbers to 10. Then work with numbers to 20.

### **Activity 10: Number line addition and subtraction**

*Resources needed: small number lines 0 to 10 and 0 to 20*

*(Resources p. 33)*

Give the students addition and subtraction problems similar to those on the large number line, but instead use the small number lines. Be sure that they ‘count on’. They do not count the number they start on.



## **Activity 11: Test**

*Instructions for Assistant:*

- a) With counters, ask the student to make 7 and 3 more. Ask how many altogether?
- b) With counters ask students to make 9 and take away 6. Ask how many altogether?
- c) Say, "On the number line, show me 8 and 3 more."
- d) Say, "On the number line, show me 13 take away 5."

## **Multiplication and Division Level 1**

**What will the students learn?**

- The meaning of a group or set
- Finding how many objects are in a group
- Finding out the total of objects on several groups

### **Activity 1: What Comes in Groups?**

*Resource: counters*

Ask the students what comes in groups, sets, in bunches, in packets? e.g. pencils, wheels, fruit, biscuits, people, birds.

### **Activity 2: Make 2 groups (Multiplication)**

*Resource: counters*

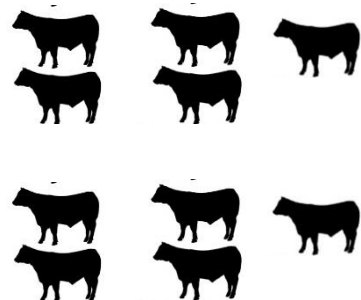
Tell the students to pretend that the counters are cows. Ask them to make a group of 5 cows.

Ask the students to make another group of 5 cows.

How many groups of cows? (2)

How many in each group? (5)

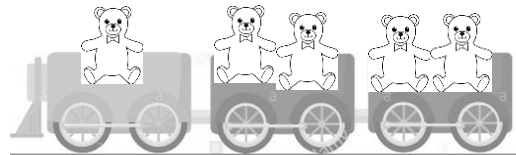
How many cows altogether? (10)



### **Activity 3: Train activity** (Multiplication)

*Resources: Pictures of train with carriages; pictures of teddies, (Resources p. 36 & 35)*

Make a train with three carriages. Roll a die. Put that many teddies in each carriage. How many teddies on the train altogether? What is the total of teddies? Repeat with different numbers of teddies and carriages.



### **Activity 4: What Comes in 2s?**

*Resources: counters, pencils and paper*

Ask the students “what comes in 2s (or pairs)?” e.g. socks, human legs, eyes, hands, bicycle wheels, slices of bread for a sandwich.

Make a list or draw pictures of items that come in pairs.

Ask, “Show me what 5 pairs of shoes would look like, using counters.” Count in twos.

### **Activity 5: Teddies and their Legs** (multiplication)

*Resources: Pictures of teddies – see Resources p, 35*

Use pictures of teddies. Hand out a different number of teddies to each student.

Ask, “How many legs altogether?” “How many lots of 2?”

Repeat several times by giving students a different number of teddies.

### **Activity 6: Teddies and their Arms**

*Resources: Pictures of teddies, spinner (Resources p. 35 & 40).*

Use a 6-sided spinner with the numbers 4, 6, 8, 10, 12 and 14. Ask students to spin and read the number. Show them the teddies. Explain that the number on the spinner tells us the number of teddy’s arms. Ask them to collect the number of teddies needed to make that number of arms. Repeat.

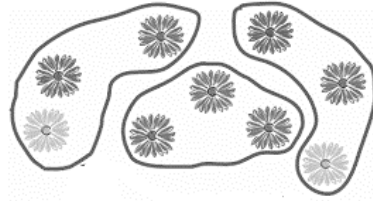


### **Activity 7: Making groups**

Ask the students to:

- a) Make a group of 3
- b) Make another group of 3
- c) Make another group of 3

Ask: How many groups? How many in each group? How many altogether?



Repeat with similar examples, with totals no higher than 20.

### **Activity 8: Test**

*Instructions for Assistant*

*Ask students to:*

- a) Put 2 teddies in 4 carriages on the train. Ask how many groups of teddies? How many teddies altogether?
- b) Make 3 groups of 4 with counters. How many altogether?
- c) Draw 4 bags of 5 bananas. How many altogether?

## **Counting Level 3**

- Counting to 200 from different starting points
- Counting backwards from 100
- Counting forwards by 2s, 5s, 10s to 100
- Counting to 19 by odd numbers

### **Activity 1: Count to 120**

*Resource: Number chart to 120 (Resources p. 28)*

Students practice their counting 1 to 120 using the number chart.

### **Activity 2: Number match**

*Resources needed: Number chart 1 to 100 (one per player); number cards 1 to 100.*

Number cards are placed in a pile, face down. Students take turns to turn up the number card on top of the pile. They cover the same number on the number chart. The Assistant make a rule that the winner will be the one who covers the most numbers between e.g. 20 and 40.

### **Activity 3: Number Chart Cover-up**

*Resources needed: Number chart 1 to 100 (p. 26), counters, strips of paper.*

The Assistant covers groups of numbers on the chart, in a row, horizontally or vertically.

Ask the students which numbers are covered.

Now repeat covering numbers in an 'L' shape.

Try a square shape.

1	2	3	4	5					
11	12	13	14	15		17	18	19	
21	22	23	24	25		27	28	29	
31	32	33	34	35		37	38	39	
41	42	43	44	45					
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

### **Activity 4: Before (or After) Bingo**

*Resources needed: number cards 50 to 100 (3 sets – one set is the caller's set), Bingo boards 4 x 4– one per player (Resources p. 3))*

Students fill Bingo boards with number cards, (any number anywhere). The Assistant calls any number between 50 and 99. If a student has the number BEFORE this number on their board, the number is covered by a counter. When a player completes a horizontal, vertical or diagonal row, they call "BINGO", and that player is the winner.

Repeat the game: "number AFTER".

### **Activity 5: Chart Jigsaw**

*Resources needed: copies of the number chart 1 to 120, (Resources p. 28), scissors*

Cut up a number chart into pieces. Ask students to arrange the jigsaw pieces to re-construct a number chart.

Repeat, cutting up the other number charts in different ways. Store these separately so they are not mixed up and can be used again in the future.

### **Activity 6: Counting backwards from 100**

*Resource: Number chart 1 to 100 (Resources p. 26)*

Use the number chart to help student practice counting backwards from 100.

### **Activity 7: Counting by tens to 100**

*Resource: Number chart 1 to 100 (Resources p. 26)*

Use the number chart to help student practice counting by tens to 100.

### **Activity 8: Counting by 5s to 100**

*Resource: Number chart 1 to 100 (Resources p. 26)*

Use the number chart to help student practice counting by 5s to 100.

### **Activity 9: Counting by 2s to 100**

*Resource: Number chart 1 to 100 (Resources p. 26)*

Use the number chart to help student practice counting by 2s to 100.

### **Activity 10: Counting by odd numbers to 21**

*Resource: Number chart 1 to 100 (Resources p. 21)*

Use the number chart to help student practice counting by odd numbers to 21.

## Activity 11: Test

*Instructions for Assistant:*

- Give each student 3 numbers between 20 and 100 (Write these on small pieces of paper). Ask the students to put the numbers in order lowest to highest.
- Ask students to put the same numbers in order highest to lowest
- Using the number chart 1-100, ask the students in turn to count backwards from 100, e.g. start at 60 and count back to 30, or start at 90 and count back to 50.
- Using the number chart 1-100, ask the students in turn to count by 2s from 2 to 100, e.g. from 50 to 90 by 2s, or, from 30 to 70 by 2s.
- Using the number chart 1-100, ask the students in turn to count by 5s from 5 to 100, e.g. from 15 to 45 by 5s, or, from 45 to 75 by 5s.

## Place value level 2

**What will the students learn?**

- Reading two-digit numbers (0 to 99)
- Writing two-digit numbers (0 to 99)
- Writing word numbers 1 to 99
- Ordering two-digit numbers (0 to 99)
- Bundling two-digit numbers, e.g. 35 = 3 bundles of 10 and 5 ones
- Using the number chart (0 to 120)
- Word numbers zero to twenty

### Activity 1: Ordering numbers

*Resources needed: number cards 0 to 100, Number chart 1 to 100 (p. 26)*

The Assistant shuffles the cards and gives 5 cards to each student. The students set out their 5 cards in front of them. The remaining cards are placed face down. In turn, the students place their **lowest** number where it fits on the number chart. Each time they place a card on the chart, they can take another from the pile.

This can be repeated, placing their **highest** numbers on the number chart.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100



91

56

63

59

96

### **Activity 2: Find the number**

*Resource needed: Bead string with beads set out in tens. Each group of ten is a different colour.*

The Assistant calls a number between 10 and 50. The students have to find that place on the bead string as quickly as they can.

### **Activity 3: Counting in tens and ones**

*Resources needed: a 10-sided spinner, counters, timer*

Ask each student to spin the spinner in turn. For each spin they make a line of counters e.g.

*First spin: 8 (They make a line of 8)*

*Next spin: 5 (They add a line of 5)*

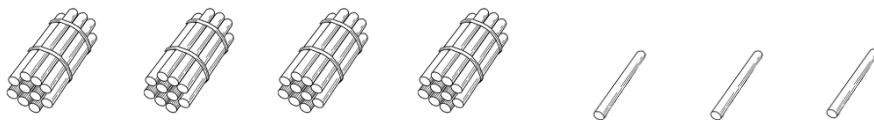
*Next spin: 7 (They add a line of 7) etc.*

They have 6 turns each, then stop and count their counters. They must put their counters into groups of ten, and then count. Who has the most?

### **Activity 4: Bundling tens and ones**

*Resources: straws in bundles of 10, extra single straws, number cards 1 to 100*

Assistant calls a number between 10 and 100. The students have to make the number by selecting the right number of straws, e.g. for 43 they select 4 bundles of ten and 3 single straws.



### **Activity 5: Writing numbers to 99**

*Resources: straws in bundles of ten plus single straws; paper and pens*

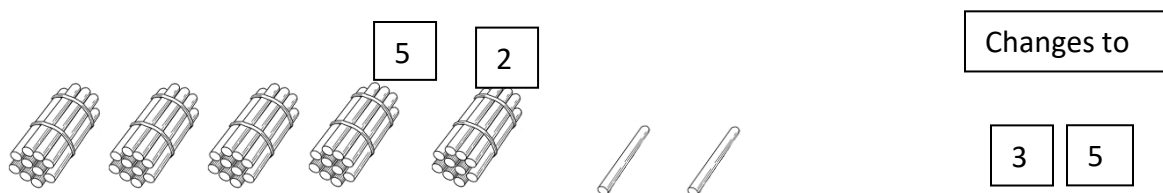
The assistant puts out a number of straws bundled in tens and ones, e.g. twenty-seven, (2 bundles of ten and seven ones). The students have to write down the number of straws. Keep this going, making new numbers. The students can also have a turn at making the numbers with the straws.

### **Activity 6: Change Your Number**

*Resources needed: number cards 1 to 9, straws in bundles of tens & ones.*

Have the number cards set out so that student can see the numbers. Ask one student to select two cards and make a 2-digit number, e.g. 5 and 2 to make 52. Ask the student to make this with straws, (5 bundles of ten and 2 singles). The partner selects one number and changes the 52 into another number, e.g. he might change the 5 to a 3 to make 32. He has to remove twenty straws to make 32.

Continue playing like this so each player has several turns.

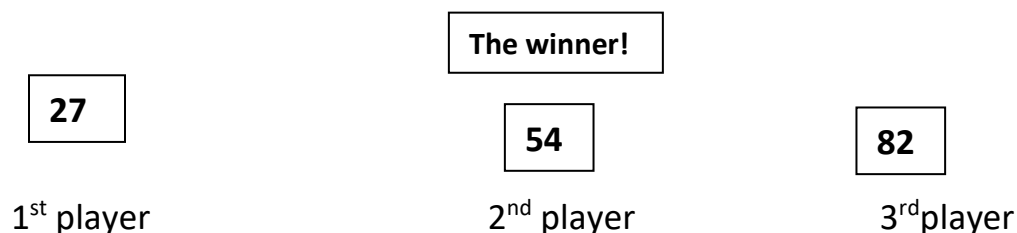


### **Activity 7: In the Middle (for 3 players – the Assistant will be a player)**

*Resources: number cards 1 to 100*

The Assistant selects about 20 number cards, shuffles them and sets them on the table face down. Each player selects a card. The players now have to work together to put the three number cards in order from smallest to largest. The player who put in the middle number gets a point. Repeat several times.

Play the game again, but this time the players have to order the number from largest to smallest.



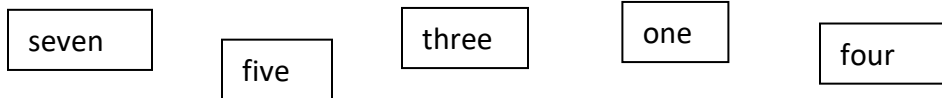
### **Activity 8: Word numbers one to ten**

*Resources: flashcards with word numbers one to ten; number cards 1 to 10*

Help students to match number cards with word cards.

Now set out the word cards in random order. Use a pointer and point randomly to the word cards while saying, "Tic tac toe, here I go, where I land I do not know."

The students have to say the word number that you land on.



### **Activity 9: Word numbers eleven to twenty**

*Resources needed: flashcards with word numbers eleven to twenty; number cards 11 to 20*

This is the same as Activity 7 but using word and number cards eleven to twenty.

### **Activity 10: Word numbers and tens frames**

Resources needed: flashcards with word numbers one to twenty; tens frames (p. and p. 41 & 43)

Set out the word cards in order from one to twenty. Now ask the students to match each number with tens frames.

### **Activity 11: Words for twenty, thirty, forty, fifty, sixty, seventy, eighty, ninety**

*Resources needed: Word number flashcards listed above and matching number cards*

Students can match number cards with word cards.

### **Activity 12: Test**

*Instructions for Assistant:*

- a) Get some straws bundled in tens, plus some ones. Ask the students to make whatever number you call, between 20 and 99
- b) Now you set out a number of straws (bundled) between 20 and 99. Ask the students to write down the number you have set out.
- c) Give the students about 50 counters each. Ask them to count them by setting them out in tens and ones.

## Addition and Subtraction Level 2

### What will the students learn?

- 'Counting-on' from a number to find the total
- Using the number line to 20 for addition and subtraction
- Using the terms 'plus' and 'equals'
- Using tens frames to find the missing numbers
- Visualizing numbers

### **Activity 1: What is equal?**

*Resource: counters*

Discuss the meaning of 'equal', e.g. 2 rulers the same length.

Ask the students to make 2 groups of counters with an equal number in each.

Put a paper 'equals' sign between the 2 groups (=)

### **Activity 2: Move the Teddies**

*Resources needed: die, 12 teddies – (6 of the teddies are red and 6 are green), (Resources p. 35), 'Plus' and 'Equals' signs on small cards or separate pieces of paper*

Roll a die. Put out this number of red teddies. Roll the die again and put out this number of green teddies. Move the 2 groups of teddies together.

Use the number cards, the 'plus' and 'equals' signs, to make an equation that shows what you did with the teddies.

### **Activity 3: More teddies on the train**

*Resources needed: at least 20 teddies; train, (Resources p. 35 & 36)*

Ask students to put 8 teddies on the train. Then say, "3 more teddies got on. How many now?"

Show this as an equation:  $8 + 3 = 11$

Repeat with other examples.



#### **Activity 4: Some teddies got off**

*Resources needed: at least 20 teddies; train*

Ask students to put 8 teddies on the train. Then say, “3 teddies got off. How many now?”

Show this as an equation:  $8 - 3 = 5$

Repeat with other examples.

#### **Activity 5: Number line addition**

*Resources: Large number line to 20*

Ask the student to stand on a number and then step forwards a given number, e.g. “Start on 4. What is 2 more than 4?” Ask child to say it as a sum e.g. 4 plus 2 equals 6. Continue with different examples.

#### **Activity 6: Number line subtraction**

*Resources: Large number line to 20*

Ask the student to stand on a number and then ask him/her to step backwards a given number, e.g. “Start on 8. Go back 3 steps. Ask, “What is 3 less than 8?” Ask the student to say it as a sum e.g. 8 take away 3 equals 5. Continue playing the game several times.

#### **Activity 7: Addition chart**

*Resource: Addition chart (See resources p. 2)*

Students can use counters to add 2 numbers together, and fill in the totals on the chart.

#### **Activity 8: Count-on two with spinner**

*Resources: a ten-sided spinner*

Take the ten-sided spinner. The student spins the spinner, says the number and adds on 2. Ask the student to say it as a sum e.g. 8 plus 2 equals 10. Continue playing the game several times. Each time the answer is correct the student scores 1 point. The first student with 5 points wins.

*Extension: play same game but add on 3.*

### **Activity 9: Count-on two with number cards**

*Resources: Number cards 10 to 20, number line 1 to 20*

Randomly show students a number card between 10 and 20. Ask them to imagine that there are that many objects and two more hiding behind the card. Ask the students to count-on to work out how many objects there are altogether. (They can use the number line.) Ask students to say it as a sum. Repeat with different numbers.

### **Activity 10: The Big Bucket**

*Resources: Margarine container or similar to represent the bucket.*

Tell the students that there are some pretend chicks in this container. Ask them how many they think there might be, e.g. They think that there might be "5".

Then you say that you're going to add 2 more chicks. Ask the students to count-on to work out how many altogether.

Now try again and ask them to add on 3, then 4.



### **Activity 11: Counting-on board game**

*Resources: Die, 2 counters of different colours, Board game 1 to 48, (See Resources p. 11)*

Students take turns to roll the die and move their counter according to the number on the die. The first to reach 20 wins. When they are almost at the finish, they have to roll the die with the exact number to get to the end.

### **Activity 12: Test**

*Instructions for Assistant:*

- a) Show students a number card between 10 and 20. Ask them to add on 2.
- b) Repeat, asking them to add on 3.
- c) Using the number line 0 to 20, ask students to solve addition and subtraction problems, e.g.  $12 + 3$ ;  $13 - 5$

# Multiplication and Division Level 2a

## What will the students learn?

- Counting objects by twos
- Making sets or groups as directed, e.g. 3 sets of 2
- Sharing objects between groups, e.g. share 9 pencils between 3 students

## **Activity 1: What Comes in 2s?**

*Resources: counters, pencils and paper, counters*

Ask student what comes in 2s (or pairs)? e.g. socks, human legs, eyes, hands, bicycle wheels, slices of bread for a sandwich.

Make a list or draw pictures of items that come in pairs.

Ask, "Show me what 5 pairs of shoes would look like, using counters." Count in twos.

Now set out 20 counters and ask student to put them into groups of 2. They can count them by 2s. Change the number of counters, (any even number of counters under 20.)

## **Activity 2: What Comes in fours?**

*Resource: counters*

Ask students what comes in set of 4, e.g. animal legs, wheels.

Ask the students to use counters to show how many wheels are on 3 cars.

If using bottle tops, they could draw the cars and place the lids on as wheels.

Give them practice with other examples, such as:

How many legs on 4 horses?

How many wheels of 5 trucks?

### **Activity 3: 12 Teddies at 4 Tables**

*Resources: counters and plates and/or pencils and paper*

Tell the students that 12 counters are 12 teddies, and the 4 plates are 4 tables at a café. Say that 12 teddies sat down at 4 tables at the café. Ask how many teddies would be at each table if there were the SAME number at each table. They can draw a picture or use counters and plates to represent the tables.

### **Activity 4: 12 Teddies at 3 Tables**

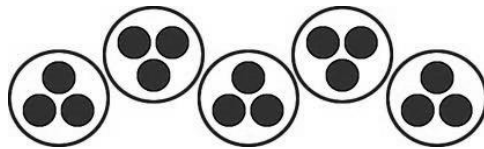
*Resources: counters and plates and/or pencils and paper*

Repeat Activity 3, but this time there are 12 teddies at 3 tables.

### **Activity 5: Making sets**

*Resources: paper plates, counters*

Give the students plenty of practice in making sets, e.g. 5 sets of 3. They put out 5 plates and put 3 counters on each plate. How many altogether?



**Note:** You can use circles of string to represent the sets, instead of plates.

### **Activity 6: How many groups?**

*Resources: counters*

Give students plenty of practice in working out division problems. They must use counters, e.g.

15, how many 3s? (They take 15 counters and make them into groups of 3)

12, how many 4s?

### **Activity 7: Test**

*Instructions for Assistant:*

- a) Ask students to make sets, e.g. 4 sets of 3, using counters and plates
- b) Draw 16 strokes on a piece of paper, (one paper for each student). Say, "Here are 16 legs. How many horses?"
- c) Give the students 15 counters each. Say, "Here are 15 pencils. Share them between 5 children."

## **Counting Level 4**

### **What will the students learn?**

*Using the number chart to 60 for:*

- Counting by 3s, 6s and 9s
- Counting by 4s to 48
- Counting by odd numbers
- Counting from various starting points

*Using the number chart to 1000 for:*

- Counting by ones, twos, fives and tens to 1000
- Counting backwards from 1000
- Counting by 50s and 100s to 1000

### **Activity 1: Number Chart Cover-up for 10s and 5s**

*Resources needed: 1 to 120 Number Chart (p. 28), strips of paper.*

Using a number chart 1 to 120, cut strips of paper to cover the columns with 5 and 10 at the top. A single strip is used to cover the 10s. Another strip is used to cover the 5s.

Ask the student to count by 5s, (without seeing the numbers).

### **Activity 2: Number Chart Cover-up for 2s.**

*Resources needed: Number Chart 1 to 120 (p. 28), strips of paper.*

Using a number chart 1 to 120, use strips of paper to cover up every second column, (the columns with 2,4,6,8,10 at the top).

Ask the student to count by 2s, (without seeing the numbers).

### **Activity 3: Odd and even numbers**

*Resource needed: Odd and Even Numbers song (See Resources p. 46), 1 to 60 number chart (p. 25).*

Ask students to colour in the even numbers in one colour the odd numbers another colour.

### **Activity 4: Number Chart Cover-up for odd numbers**

*Resources needed: 1 to 120 Number Chart (p. 28), strips of paper.*

Using a number chart 1 to 120, use strips of paper to cover the odd number columns, (1,3,5,7,9)

Ask the student to count by odd numbers, (without seeing the numbers).

### **Activity 5: Two Before/After Bingo**

*Resources needed: number cards 50 to 100. Bingo boards 5x5 (p. 4), counters*

The students fill their boards with number cards. The Assistant calls numbers from 60 to 120. If a student has the number that is 2 numbers **before** the number called, they place a counter on that number, e.g. Assistant calls 24. If the child has 22 on their board they put a counter on it, because 22 is 2 less than 24. The first student to complete a horizontal, vertical or diagonal row calls out BINGO.

Play again, but this time they put counter on the number that's 2 numbers **after**.

### **Activity 6: Five Before/ After) Bingo**

*Resources needed: number cards 50 to 100, Bingo boards 5x5.*

Play like the previous activity. Then try 10 Before/After.

**Activity 7: Counting by 5s and 10s on the number chart**

*Resource: Number chart 1 to 120 – small (See Resources p. 29)*

Give each student a copy of the small number charts 1 to 120.

Ask them to colour in the numbers that show counting by 5s. (yellow)

Now take another colour and colour in the numbers that show counting by 10s. (blue over the yellow)

Get them to practice counting by 5s and 10s to 120

**Activity 8: Counting by 2s and 4s on the number chart**

*Resource: Number chart 1 to 120 -small (p. 29)*

Give each student a copy of the small number chart 1 to 120.

Ask them to colour in the numbers that show counting by 2s. (yellow)

Now take another colour and colour in the numbers that show counting by 4s. (blue over the yellow). Ask, “What is the pattern?”

Using the number chart, get them to practice counting by 2s and 4s.

**Activity 9: Counting by 3s, 6s and 9s on the number charts**

*Resource: Number chart 1 to 120 -small (p. 29)*

Give each student a copy of the small number chart 1 to 120.

Ask them to colour in the numbers that show counting by 3s, (yellow).

Now they take another colour and colour in the numbers that show counting by 6s, (blue over the yellow).

Now they take another colour and colour in the numbers that show counting by 9s.

Using the number chart, get them to practice counting by 3s, 6s and 9s.

*Note:* Show the students that they can count by 9s by adding 10 and taking away 1, e.g. start with 9, add 10 makes 19, take away 1 is 18; add 10 makes 28, take away 1 is 27 and so on.

### **Activity 10: Counting using the number chart to 1000**

*Resource: Number chart to 1000, (See Resources p. 30 – 33)*

Give students experience with using this number chart for counting by 10s, 100s, and counting by ones in between 2 numbers, e.g. count between 654 and 698.

### **Activity 11: Test**

*Instructions for Assistant:*

- a) Ask students to count by odd numbers to 21
- b) Using the number chart to 1 to 120, ask students to count by: 2s to 24, 3s to 36, 4s to 48, 5s to 60
- c) Using the number chart 1 to 1000, ask students to count between 2 numbers, e.g. from 388 to 421, or, from 595 to 630.

## **Place Value Level 3a**

### **What will the students learn?**

- Reading 3-digit numbers up to 999
- Expanding 3-digit numbers up to 999
- Writing 3-digit numbers up to 999
- Ordering 3-digit numbers up to 999

### **Activity 1: Straw Count**

*Resources needed: 200 straws, rubber bands, small bags (cloth or plastic)*

Ask the students to count out straws in groups of ten. Each group of ten is bundled together with a rubber band. When they have 10 bundles of tens, the straws are counted by tens and placed in a “100 bag”.

Then they keep adding bundles of 10 until they get up to 200. They keep count as they go. When they have another 100, these go in another bag. Now they have 2 bags of 100!

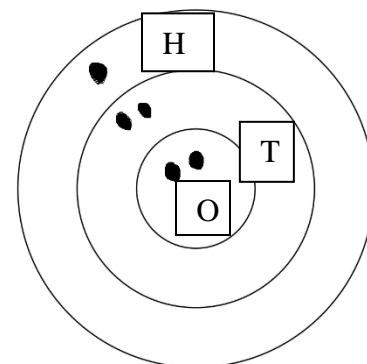


### **Activity 2: Number Target**

*Resources: Place value target board, (see Resources p. 39), counters to throw*

Give each player 5 counters. From a specified distance, throw all 5 counters onto the target, one at a time.

*How to score:* e.g. if a player threw 1 counter into the **Hundreds** section, 2 counters into the **Tens** and 2 counters into the **Ones** section, then the total will be 122. See who has the highest score.



Try again with a higher number of counters.

### **Activity 3: Five-Minute Collections**

*Resources: 10-sided spinner (p. 41), straws, rubber bands*

The students take turns to spin the spinner. They collect that number of straws. They keep taking turns to spin the spinner, collecting more straws. They put their straws in bundles of ten as they go. After 5 minutes, when assistant says, “time’s up” the students count their totals.

### **Activity 4: Make the Largest Number**

*Resources Needed: 2 sets of number cards 0 to 9*

Number cards are placed on the table face down. Each student picks up 3 cards. The aim is to make the largest number using three of the cards. The student with the highest number wins the first game. Repeat several times. The winner is the student with the most ‘highest’ numbers.

### **Activity 5: Make the Smallest Number**

*Resources Needed: 2 sets of number cards 0 to 9*

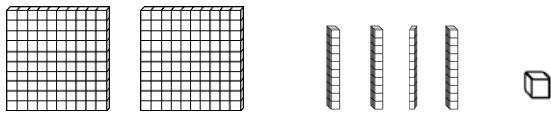
Repeat Activity 4, but this time the winner is the student with the most ‘lowest numbers’.

### **Activity 6: Using block-pictures to make 3-digit numbers**

*Resources needed: laminated block-picture of tens, hundreds and ones (Resources p. 7 - 9); a selection of about 20 number cards 100 to 999, (or random numbers written on small pieces of paper).*

Students select a number and make it with the block-pictures.

e.g. 241



*Note: dried lentils/peas or stones can be used instead of ones, which are time-consuming to cut out.*

### **Activity 7: Expanders**

Resources needed: Photocopy of Expanders, (See Resources p. 20)

Students cut out the expanders and write in their own numbers for hundreds, tens and ones. They then fold and expand.

### **Activity 8: Test**

*Instructions for Assistant:*

- a) Show each student a 3-digit number, e.g. one student gets 621 and the other student gets 782. They have to tell you how many hundreds, how many tens and how many ones in that number.
- b) Ask the students to make different 3-digit numbers with block pictures.
- c) Give the students 3 numbers each and ask them to put them in order from lowest to highest, e.g. 782, 691, 123
- d) Repeat, but ask them to put numbers in order from highest to lowest.

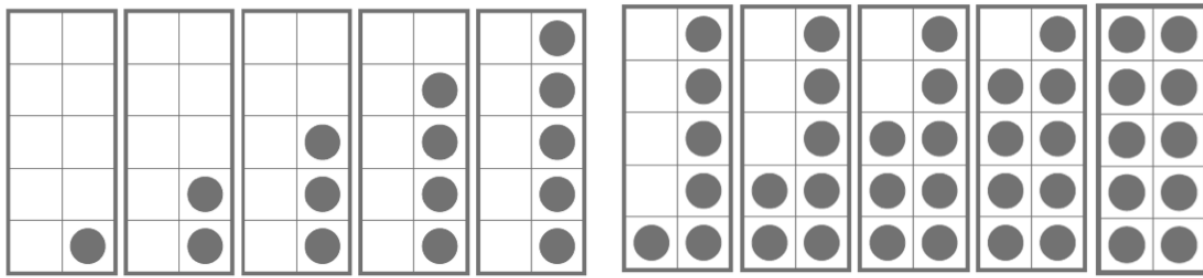
# Addition and Subtraction Level 3

## What will the students learn?

- Number facts of 10
- Increasing or decreasing a number by 10
- Adding 9
- Adding and subtracting using the number chart to 100
- Increasing or decreasing a number by 100
- Adding two 2-digit numbers together

## Activity 1: Number facts of ten

*Resource: Pack of tens frame cards with 1-10 dots Resources (p. 42).*



Ask the students 'How many more dots to make 10? How do you know?'

They can record all ten number facts as addition sums, starting from  $1 + 9 = 10$  through to  $10 + 0 = 10$

## Activity 2: Quick as a flash

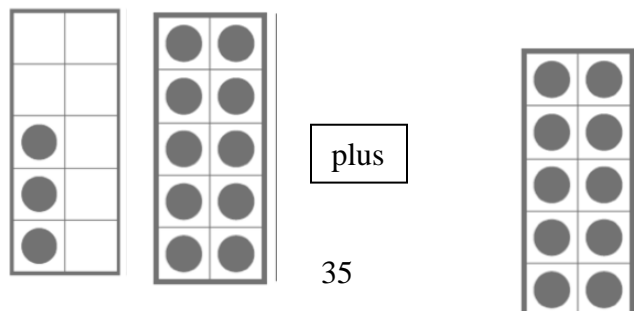
*Resource: Pack of tens frame dots with 1 to 10 dots*

Assistant holds up a tens frame, e.g. "3", and quick as a flash the students have to say the number needed to get up to 10. ("7"). Continue with other tens frames.

## Activity 3: Adding 10

*Resource: Pack of tens frame cards with 1 to 10 dots; extra cards with 10 dots.*

Example: Assistant shows e.g. 13 with tens frames and asks students to add ten. How many now?



**Activity 4: Adding 10 on the number chart**

*Resource: Number chart 1 to 120 (Resources p. 28)*

Give students practice in adding 10 using the number chart, e.g.  $24 + 10 = 34$ . Then see if they can do similar addition sums in their head, without the number chart.

**Activity 5: Adding 9**

Once the students can add 10, they can easily add 9 by adding ten and taking away 1.

**Activity 6: Taking away 10**

Give students practice in *taking away ten*, using the same methods as *adding ten*, (tens frames and number chart, and in their head).

**Activity 7: Some Went Away!**

*Resources: Counters, screen, e.g. a piece of paper or cardboard.*

Select a number of counters between 10 and 15. Place them on the table. Tell the students the number of counters, then cover the counters.

Take 3 counters away. Ask the students how many counters are still undercover.

**Activity 8: Keep adding 2**

*Resources: Number cards 1 to 100*

Randomly show student a number card. Ask student how many are there, when 2 are added. Then add another 2. How many now? Continue a few more times asking students to keep adding 2 and giving their answer. Then select another number card and do the same.

**Activity 9: Two Before/After Bingo** (Revision from Counting Level 4)

*Resources needed: number cards 51 to 100. Bingo boards 5x5, counters*

The students fill their boards with number cards. The Assistant calls numbers from 51 to 100 using the “caller’s set”. If a student has the number that is 2 numbers **before** the number called, they place a counter on that number, e.g. Assistant calls 24. If the child has 22 on their board they put a counter on it, because 22 is 2 less than 24. The first student to complete a horizontal, vertical or diagonal row calls out BINGO.

Play again, but this time they put counter on the number that’s 2 numbers **after**.

**Activity 10: Race Back to Zero**

*Resources: Number line 0 to 20*

*Number cards 1, 2, 3 (3 sets – quickly make them on pieces of paper). “Lucky dip” container*

Two players start at 20 on the number line. They take turns to pull out a number card (1,2 or 3), from the “Lucky dip” container, (eyes closed). They move backwards the number of places shown on the card. Before the student moves, ask them to predict which number they will land on and explain how they know. The aim is to be the first player to reach 0.

**Activity 11: Addition with 2 dice**

*Resources: dice, pen and paper (Resources p. 14)*

Each player takes turns to roll 2 dice.

They add the total of the 2.

The winner of each round gets a tick in the box.

At the end of 5 rounds, add up the number of ticks and see who has the most.

The one with the most ticks is the winner.

2 + 2 = 4	✓

**Activity 12: Subtraction with 2 dice**

Each player takes turns to roll 2 dice. (*Resources p. 14*)

They take the lowest number from the highest.

The winner of each round gets a tick in the box.

At the end of 5 rounds, add up the number of ticks and see who has the most.

The one with the most ticks is the winner.

$6 - 3 = 3$	✓

**Activity 13: Addition and subtraction using the number chart**

Resource: Number chart 1 to 100 (*Resources p. 26*)

Students can use the number chart like a number line. They count on and go forward. Give them examples such as:

$$25 + 7$$

$$58 + 11$$

$$99 - 6$$

$$42 - 12$$

**Activity 14: Addition using bundles of straws**

Resource: 100 straws in bundles of 10 plus some singles, rubber bands

Start with easy examples such as:

$$35 + 42$$

Students put 3 bundles of tens together with 4 bundles of tens.

They put 5 singles together with 2 singles. What is the number? They can write it as a sum:  $35 + 42 = 77$

Then try more difficult examples such as:

$$48 + 36$$

They put 4 bundles of 10 and 3 bundles of 10 together.

They put 8 singles and 6 singles together.

They will have to make a new bundle of 10 using the singles, with 4 left over.

What is the number?

### **Activity 15: Basic Subtraction using bundles of straws**

*Resource: 100 straws in bundles of 10 plus some singles, rubber bands*

At this stage, only use easy examples, where the number of ones to be taken away is smaller than the ones in the other number. Example:

$$98 - 54$$

They make 98, (9 tens and 8 ones)

They take 5 bundles from the 9 bundles.

They take 4 singles from the 8 singles. What is the answer?

### **Activity 16: Addition and subtraction using block-pictures**

*Resource: laminated block-pictures hundreds, tens and ones (Resources p. 6-8)*

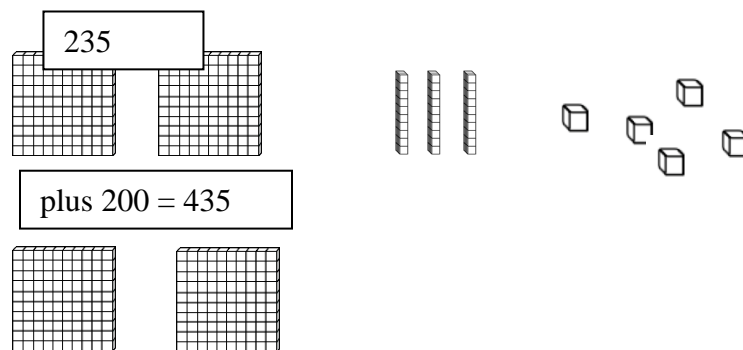
Use block-pictures for adding or subtracting tens and hundreds, e.g.

$$235 + 200$$

$$423 + 10$$

$$532 - 100$$

$$428 - 10$$



### **Activity 17: Test**

*Instructions for Assistant*

*Make up some problems as follows:*

- Addition problems using bundles of straws, e.g.  $72 + 28$
- Subtraction problems using bundles of straws, e.g.  $84 - 21$
- Addition problems using block-picture, e.g.  $47 + 35$
- Subtraction problems using block pictures, e.g.  $78 - 63$

# Multiplication and Division Level 2b

## What will the students learn?

- Revision from Level 2a
- Making sets
- Sharing
- Writing equations

### **Activity 1: 15 Teddies at 5 Tables**

*Resources: counters and plates and/or pencils and paper*

The students imagine that the 15 counters are teddies and the 5 plates are tables at a café. (Students may draw a picture to aid their imagination.) Say that the 15 teddies sat down at 5 tables at the café. Ask how many teddies would be at each table if there were the SAME number at each table.

### **Activity 2: Dice Multiplication**

*Resources: 2 dice, (one per student), paper and pencils.*

Student rolls his die twice.

*First roll:* tells the number of sets

e.g. If he rolls 3, he writes on his paper, “3 sets of”

*Second roll:* tells how many in the sets

e.g. If he rolls “4”, he finishes writing the sum, “3 sets of 4”

Then he makes 3 sets of 4 with counters and gets an answer.

### **Activity 3: Sets of fruits on plates**

*Resource: pictures of fruit, (see resources p. 34), paper plates*

Cut out the pictures of fruit. Put them into groups on the plates, e.g. 3 plates with 2 bananas on each plate. Ask the students to write the sum and work out the answer. (3 sets of 2 = 6)

Repeat with different numbers of fruits in the sets.



### **Activity 4: Can You Share?**

*Resource: counters*

Each player takes a handful of counters. They put them on the table. If they can share them evenly into groups, they score a point.

Repeat several times.

The player with the most points wins the game.

### **Activity 5: Test**

*Instructions for Assistant:*

- a) Ask students to make sets, e.g. 5 sets of 6, then to write this as an equation:  
5 sets of 6 = 30. Repeat with a similar example.
- b) Ask students to take 24 counters and put them into 6 groups. How many in each group? Repeat with a similar example.

## **Place Value Level 3b**

### **What will the students learn?**

- Revision from Place Value Level 3a
- Reading 3-digit numbers up to 999
- Writing 3-digit numbers up to 999
- Ordering 3-digit numbers up to 999

### **Activity 1: Ordering 3-digit numbers**

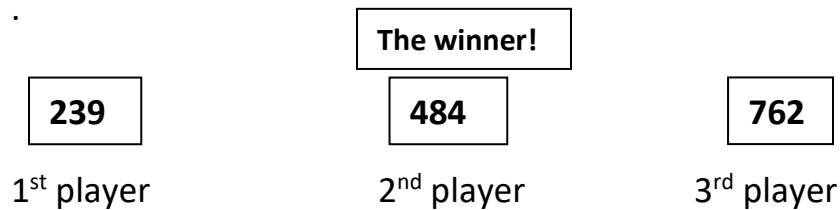
*Resources: Number cards 0 to 9 (2 sets)*

Give each student a set of cards. They have to make **three** 3-digit numbers from their cards. Now ask them to put the three numbers in order from smallest to largest. Repeat. Ask them to order their numbers from largest to smallest.

**Activity 2: In the Middle (for 3 players – the Assistant will be a player)**

*Resources: 20 random number cards 200 to 900 – write numbers on small pieces of paper*

The Assistant makes about 20 number cards, between 200 and 900 and sets them on the table face down. Each player selects a card. The players now have to work together to put the three number cards in order from smallest to largest. The player who puts in the middle number is the winner for this round and gets a point. Repeat several times.



Play the game again, but this time the players have to order the number from largest to smallest

**Activity 3: Make the Lowest Number**

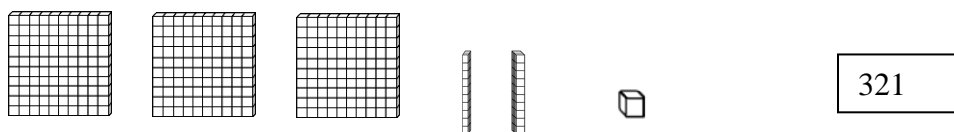
*Resources: 3 sets of number cards 1 to 9*

The Assistant places the cards face down on the table. Each player selects three cards and makes the lowest possible number from the three cards. e.g. one student might select 3, 5 and 1 to make 153. The other student might select 4, 6 and 1 to make 146. The student with the **lowest** number wins a point. Repeat several times. They keep score. At the end, each student adds up their points to see if they are the winner.

**Activity 4: Writing 3-digit numbers**

*Resources needed: laminated block-pictures of hundreds, tens and ones blocks (Resources p. 6-8)*

The assistant makes a 3-digit number using block-pictures as shown. The students have to write the number.



### **Activity 5: Adding hundreds, tens and ones**

*Resources needed: laminated block-pictures of hundreds, tens and ones (p. 6-8)*

Continue on from the last activity. This time, the Assistant asks students to make a 3-digit number with the block pictures, e.g. 367, and asks them to add another hundred:  $367 + 100 = 467$

Other examples, (all to be made with the block-pictures):

$$327 + 10 =$$

$$482 + 5 =$$

### **Activity 6: Subtracting hundreds, tens and ones**

*Resources needed: laminated block-pictures of hundreds, tens and ones*

The Assistant asks students to make a 3-digit number with the block pictures, e.g. 367, and asks them to take away a hundred:  $367 - 100 = 267$

Other examples, (all to be made with the block-pictures):

$$327 - 10 =$$

$$482 - 1 =$$

### **Activity 7: Test**

*Instructions for Assistant:*

- a) Give each student 3 numbers between 100 and 999 to put in order from lowest to highest.
- b) Repeat, but this time they put them in order from highest to lowest.
- c) You, the Assistant, makes a number with block-pictures between 101 and 999. Now ask students to write the number you have made, (as in Activity 4). Repeat with similar examples.

## **Addition and Subtraction Level 4a**

**What will the students learn?**

- Number facts to 10 (revision)
- Number facts 10 to 15
- Number facts 15 to 20
- Doubling and halving

### **Activity 1: Number Facts to 10**

*Resources: number cards 5 to 10*

Assistant selects a number card between 5 to 10 and shows it to the students. Students suggest two numbers to add together to make this number.

e.g. Number facts about 10:

0 and 10

1 and 9

2 and 8 etc.

Number facts about 6:

4 and 2

5 and 1

3 and 3 etc.

### **Activity 2: The Addition Chart**

*Resource: Addition chart, (See Resources p. 2)*

Students can use the addition chart for quick addition of numbers to 10. They should be able to do this now without counters.

### **Activity 3: Number Facts 10 to 15**

*Resources: number cards 10 to 15*

Assistant selects a number card between 10 to 15 and shows it to the students. They suggest two numbers to add together to make this number. (Refer to Activity 1)

### **Activity 4: Number Facts 15 to 20**

*Resources: number cards 15 to 20*

Assistant selects a number card between 15 to 20 and shows it to the students. They suggest two numbers to add together to make this number. (Refer to Activity 1)

### **Activity 5: Doubling**

*Resources needed: counters, number cards from 1 to 10*

Shuffle cards and put them in a pile face down. Ask students to select a number card. They make that number with counters, then show the double with counters. They can write the equation for each, e.g.  $8+8=16$

They can make a table:

$$1+1=2$$

$$2+2=4$$

$$3+3=6 \text{ etc.}$$

### **Activity 6: Halving**

*Resources needed: counters, even number cards from 2 to 20*

Shuffle cards and put them in a pile face down. Ask students to select a card. They make that number with counters, then show half of that number by taking away half. They can write the equation for each, e.g.  $12-6=6$

They can make a table:

$$20-10=10$$

$$18-9=9$$

$$16-8=8 \text{ etc.}$$

### **Activity 7: Spin and double**

*Resource: 10-sided spinner (Resources p. 41)*

The student spins the spinner and has to double the number the spinner lands on.

### **Activity 8: Spin and halve**

*Resource: Spinner with numbers 4, 6, 8, 10, 12, 14 (Resources p. 41)*

The student spins the spinner and has to halve the number the spinner lands on.

### **Activity 9: Doubles Bingo**

*Resources: Bingo boards 3 x 3; even number cards from 2 to 20 (3 sets); 1 set of number cards 1 to 10 as the caller's set.*

Players randomly cover their boards with 9 even number cards between 2 and 20. Assistant calls a number between 1 and 10. If a player has the double of the called number on their Bingo board they put a counter on top of the number. The first to have 3 in a row covered calls "Bingo".

### **Activity 10: Halves Bingo**

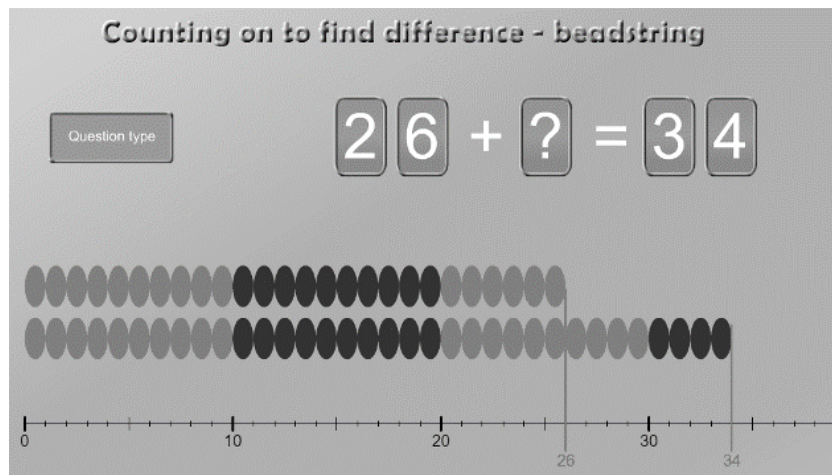
*Resources: Bingo boards 3 x 3; 3 sets of number cards from 1 to 10. One set of even numbers 2 to 20 as the caller's set.*

This is played the same ways as Doubles Bingo, except the students fill their boards with number cards 1- to 0. They put a counter on the number if it is half of the number that is called.

### **Activity 11: Finding the missing number**

*Resource: bead string to 50, set out in groups of 10*

Students can use the bead string to find the missing number, e.g.



More examples:

$$15 + \square = 21$$

$$19 + \square = 27$$

### **Activity 12: Test**

*Instructions for Assistant*

*Give the students the following problems to solve:*

- a)  $5 + \square = 9$
- b)  $6 + \square = 7$
- c)  $12 + \square = 18$
- d) Double the numbers: 5, 7, 3, 8
- e) Halve the numbers: 14, 12, 18

## **Multiplication and Division Level 3**

### **What will the students learn?**

- Solving word problems
- Showing visual representations of multiplication and division problems
- Using the multiplication and division signs, X and  $\div$
- Making equations

### **Activity 1: How many eggs?**

*Resources: Pencils and paper*

Say to the students 'There are 6 eggs in a carton. How many different ways can you set out the eggs?'

They draw the eggs in the cartons in different ways.

They make equations to show this, e.g.

$$6 \times 1 = 6$$

$$3 \times 2 = 6$$

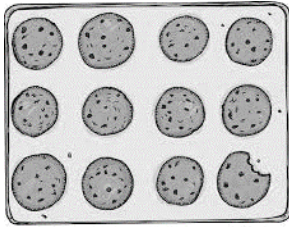
$$2 \times 3 = 6$$

### **Activity 2: Setting out cookies**

*Resources: Pencil and paper*

Tell the students they are making 12 cookies. Ask them to draw different cookie trays with rows of cookies designed in different ways. There have to be equal numbers in each row, e.g. 2 rows of 6. Then write it as an equation, e.g.

2X6=12  
6X2=12  
3X4=12  
4X3=12  
1X12=12



### **Activity 3: Making equations**

*Resource needed: counters*

Give the students 20 counters and ask them to put them into groups, with an equal number in each. They make equations from what they have made, e.g.  $5 \times 4 = 20$ ;  $4 \times 5 = 20$ ;  $2 \times 10 = 20$ ;  $10 \times 2 = 20$

They can do the same with other numbers of counters, e.g. 8, 15, 18, 24

### **Activity 4: Sharing Sweets**

*Resources: pencils, paper and counters*

A bag of 18 sweets were shared between children at a party. Each child got 3 sweets. How many children were at the party?  
Each student chooses the number of children at the party and works out their answer.

This can be made into a division sum:  $18 \div 3 = 6$

### **Activity 5: Sharing Pencils**

*Resources: pencils, paper and counters*

I have 18 pencils and I want to share them evenly, so that each student has the same number of pencils. How many students can I share them evenly with?"

Work out answer using counters or pencils and paper, e.g.

18 pencils shared between 9 students = 2 pencils each

Make this into a division sum:  $18 \div 9 = 2$

18 pencils shared between 6 students = 3 pencils each.

Division sum:  $18 \div 6 = 3$

18 pencils shared between 3 students = 6 pencils each.

Division sum:  $18 \div 3 = 6$



### **Activity 6: How many groups?**

*Resource needed: counters*

Ask students to make division sums from counters, e.g.

20, how many groups of 5? (4 groups)

Write this as  $20 \div 5 = 4$

Give them other examples, using different numbers of counters, e.g.

16, how many groups of 4?

8, how many groups of 2?

9, how many groups of 3?

### **Activity 7: Test**

*Instructions for Assistant*

*Ask the students to:*

- a) Draw sets for:  $4 \times 5 = \square$ ;  $3 \times 6 = \square$  (and other similar examples)
- b) Use counters to work out:  $21 \div 3 = \square$ ;  $24 \div 8 = \square$  (and other similar examples)

## **Addition and Subtraction Level 4b**

**What will the students learn?**

- Working out problems in their head, (without equipment)
- Creating their own addition and subtraction equations

### **Activity 1: Up to Twenty**

*Resources: number card (10 to 20)*

Show the students a number card (10 to 20). Ask them to tell you how many to add to get up to 20.

### **Activity 2: Down to Ten**

*Resources: number cards 10 to 20*

Show the students a number card from 10 to 20. Ask them to tell you how many to take away to leave ten.

### **Activity 3: Animals in the Paddock**

*Resources: Drawing materials or counters.*

A farmer has horses, cows and sheep in a paddock (field). Altogether there are 15 animals in the paddock. Ask:

How many horses could there be?

How many cows could there be?

How many sheep could there be?

The students can draw or use objects to show the combinations of animals. Then they can write an equation, e.g. 3 horses, 4 cows, 8 sheep would be shown as:

$$3 + 4 + 8 = 15$$

Ask them to now choose different numbers of horses, cows and sheep to make 15. They write other equations to show the different possibilities.

### **Activity 4: Making more equations**

*Resource needed: counters*

Give each student 20 counters. Ask them to use all 20 counters to make different 'plus' sums, e.g.  $8 + 9 + 3 = 20$ . What else equals 20?

Give them practice making addition equations with different numbers of counters.

### **Activity 5: Fruit in a bowl**

*Resource: Drawing materials or counters*

A mother put out a bowl of fruit. There were 5 oranges, 7 bananas and 5 apples. On Monday, 2 oranges were eaten. On Tuesday, 5 bananas were eaten. On Wednesday 3 apples were eaten. How many pieces of fruit were left?

Students can draw the fruit bowl and work out the take-away sum. They can call the 'take-away' sign 'minus'.

$$17 - 2 - 5 - 3 = 7$$

Ask them to make up other ways in which the fruit could have been eaten and make more take-away sums. They can use counters.

### **Activity 6: Test**

*Instructions for Assistant*

*Ask the students to solve the following:*

- a)  $6 + 8 + 9 + 3 = \square$
- b)  $29 - 5 - 6 - 2 - 7 = \square$
- c) Make as many equations as you can, using the PLUS sign (+) to equal 18
- d) Make as many equations as you can, using the MINUS sign (-) to equal 4.

## **Place Value Level 4**

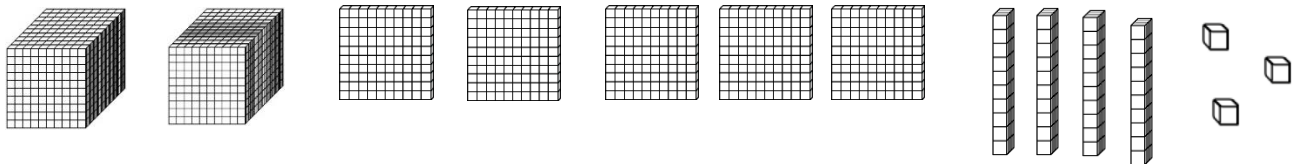
**What will the students learn?**

Reading, writing, expanding and ordering 4-digit numbers

### **Activity 1: Making 4-digit numbers with blocks-pictures**

*Resource needed: Laminated blocks-pictures (Resources p. 6-9)*

Use the pictures of the thousands, hundreds, tens and ones (blocks), to make, write and order numbers as directed, e.g. Make 2543



### **Activity 2: Writing 4-digit numbers**

*Resource needed: Laminated blocks-pictures*

Assistant uses the blocks-pictures to make a number.

The students have to write the number that the assistant has made.

### **Activity 3: Expanding 4-digit numbers**

*Resource needed: Place value chart, (see Resources p. 38), a selection of random numbers between 1000 and 9,999 (on small pieces of paper).*

The students select a number and expand the number by writing in the Place value chart, e.g. for 3472

Thousands	Hundreds	Tens	Ones
3	4	7	2

### **Activity 4: Ordering 4-digit numbers**

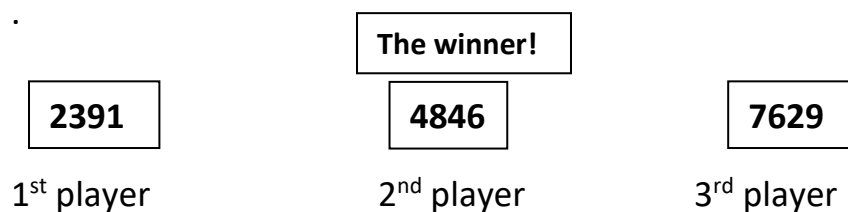
*Resources needed: a selection of random numbers from 1000 to 5000 (on small pieces of paper)*

Give the students 3 numbers. Ask them to order them smallest to largest. Then largest to smallest. Repeat with other 4-digit numbers. Extend to 9,999.

### **Activity 5: In the Middle (for 3 players – the Assistant will be a player)**

*Resources: 20 random number cards 1000 to 9000*

The Assistant makes about 20 cards and sets them out on the table face down. Each player selects a card. The players now have to work together to put the three number cards in order from smallest to largest. The player who puts in the middle number is the winner for this round and gets a point. Repeat several times.



Play the game again, but this time the players have to order the number from largest to smallest

### **Activity 6: Test**

*Instructions for Assistant:*

- a) Give students 4-digit numbers to make with block-pictures as in Activity 1.
- b) Give students three 4-digit numbers on pieces of paper (or number cards) and ask them to order them lowest to highest
- c) Repeat activity (b) highest to lowest.

## **Multiplication and Division Level 4**

**What will the students learn?**

Times tables x2, x3, x4, x5, x10

Times tables x6, x7, x8, x9, x11, x12

**Note for Assistants when students are up to Level 4:**

They need to memorize the times-tables before starting these activities. Allow practice using the tables grid, (*Resources p. 45*).

Activities 1, 2 and 3 are working on the following times-tables: x2, x4, x3, x5, x10.

Activities 4, 5 and 6 are about the following times-tables: x6, x7, x8, x9, x11, x12.

**Example of the Assistant's record:**

Name: Rani

Date	Activity 1	Activity 2	Activity 3
4 . 9 . 18	75 sec, 7 correct		
11 . 9 . 18	68 sec, 9 correct		
18 . 9 . 18	52 sec, 10 correct		

Name: Rani

Date	Activity 4	Activity 5	Activity 6
24 . 9 . 18	75 sec, 7 correct		
1 . 10 . 18	68 sec, 9 correct		
8 . 10 . 18	52 sec, 10 correct		

### **Activity 1: How Quick Can I Be?**

*Resources: pencils, paper and set of problems, watch or timer*

Ask students to write down the answers as quickly as possible. Note the time.

Next session: ask the same questions, note the time again. Are they improving?

Record results using a chart like the one on the previous page.

*Example:*

1.  $3 \times 4 =$
2.  $7 \times 3 =$
3.  $7 \times 10 =$
4.  $9 \times 5 =$
5.  $7 \times 2 =$
6.  $10 \times 10 =$
7.  $1 \times 3 =$
8.  $0 \times 1 =$
9.  $2 \times 4 =$
10.  $4 \times 5 =$

### **Activity 2: How Quick Can I Be?**

*Resources: pencils, paper and set of problems, watch or timer*

*Example:*

1.  $12 \div 2 =$
2.  $28 \div 4 =$
3.  $20 \div 5 =$
4.  $30 \div 10 =$
5.  $15 \div 3 =$
6.  $80 \div 10 =$
7.  $30 \div 6 =$
8.  $12 \div 1 =$
9.  $16 \div 4 =$
10.  $25 \div 5 =$

### **Activity 3: How Quick Can I Be?**

*Resources: pencils, paper and set of problems, watch or timer*

*Example:*

1.  $3 \times \square = 12$
2.  $7 \times \square = 14$
3.  $7 \times \square = 21$
4.  $9 \times \square = 27$
5.  $7 \times \square = 35$
6.  $10 \times \square = 100$
7.  $1 \times \square = 4$
8.  $0 \times \square = 0$
9.  $4 \times \square = 16$
10.  $4 \times \square = 20$

### **Activity 4: How Quick Can I Be?**

*Resources: pencils, paper and set of problems, watch or timer*

1.  $3 \times 6 =$
2.  $7 \times 3 =$
3.  $12 \times 5 =$
4.  $7 \times 5 =$
5.  $11 \times 10 =$
6.  $9 \times 3 =$
7.  $8 \times 1 =$
8.  $10 \times 4 =$
9.  $8 \times 5 =$
10.  $9 \times 10 =$

**Activity 5: How Quick Can I Be?**

*Resources: pencils, paper and set of problems, watch or timer*

1.  $12 \div 6 =$
2.  $28 \div 7 =$
3.  $20 \div 10 =$
4.  $64 \div 8 =$
5.  $81 \div 9 =$
6.  $80 \div 10 =$
7.  $60 \div 12 =$
8.  $99 \div 11 =$
9.  $49 \div 7 =$
10.  $45 \div 9 =$

**Activity 6: How Quick Can I Be?**

*Resources: pencils, paper and set of problems, watch or timer*

1.  $6 \times \square = 36$
2.  $7 \times \square = 49$
3.  $11 \times \square = 55$
4.  $9 \times \square = 72$
5.  $7 \times \square = 56$
6.  $10 \times \square = 10$
7.  $11 \times \square = 110$
8.  $12 \times \square = 84$
9.  $8 \times \square = 40$
10.  $6 \times \square = 24$

**Test:** Testing of tables will be ongoing – See “Assistant’s Record”