

What are HEADS UP *maths workouts*?

The **HEADS UP *maths workouts*** programme is an in-class or homework system that provides a **comprehensive review of mathematical skills and concepts**. It is constructed to build **mathematical knowledge** through regular, organised, cyclical practice and review. It reflects the new **National Standards** and aims to raise student achievement.

DAY 1

Basic Facts: **Addition**

1. **Numeracy**
2. **Patterns**
3. **Measurement**

DAY 2

Basic Facts: **Subtraction**

4. **Numeracy**
5. **Vocabulary**
6. **Geometry**

DAY 3

Basic Facts: **Addition**

7. **Numeracy**
8. **Time / Money**
9. **Symmetry/ Mapping**

DAY 4

Basic Facts: **Subtraction**

10. **Numeracy**
11. **Algebra**
12. **Data Analysis**

DAY 5

Basic Facts: **Addition**

13. **Basic Operations**
14. **Problem-solving**

HEADS UP *maths workouts* are daily review in individual student workbooks. Components of the programme include:

- **Student Workbooks.** – Each student receives two 64-page workbooks that cover the school year. Each workbook covers 12 CYCLES, a total of 24 for the year (one CYCLE = 5 pages or a week of work). Over one CYCLE, five workout pages, the workbook covers 13 concepts (see Fig 1), basic facts for addition and subtraction, and one problem-solving question. Additionally, photocopyable RECYCLES, in the Teacher's Manual, cover the same set of skills and concepts.
- **Student Tracking.** The inside cover of the workbook has a Tracking Sheet on which students record their results.
- **Teacher Resource.** The Teacher's Manual includes information about the **HEADS UP** programme, photocopyable Tracking Sheets, answers to the daily worksheets and additional practice pages, RECYCLES, with their answers. RECYCLE pages (photocopyable) may be used as extra review or as a test.
- **Grids of Learning Intentions, National Standards and Sample Problems .** Grids of concepts and skills with associated Learning Intentions, National Standards and Numeracy Stages are found in the Teacher Manual

How and when do I use HEADS UP?

The features of **HEADS UP *maths workouts*** allow for many teaching and management preferences. **HEADS UP** does not prescribe how to teach; teachers are inventive and have their own styles. However, we offer some suggestions and ideas from other teachers:

Fig. 1

- **Beginning of school as the first activity of the day or as maintenance at the beginning of the daily maths lesson.**

A **HEADS UP maths workout** is an excellent start and routine for the beginning of the school day or maths class.

- **One day a week in maths class as weekly review.**

Set aside one day a week as **HEADS UP** review time. The students work through all five pages for that CYCLE. The teacher is available to help individual students with problem areas.

- **Daily maths homework.**

A page from the **HEADS UP maths workouts** can be used as daily homework or as a combination of in-class and homework.

Whatever strategy is used, the students will be maintaining their memory through regular, cyclic review of skills and concepts from the NZ Curriculum.

Features of HEADS UP maths workouts

ORGANISATION OF DAILY PAGES

CYCLE 1

Numeracy	4
Vocabulary	5
Geometry	6

2 Monday Tuesday Wednesday Thursday Friday

In the upper corner of each page is the CYCLE number with the problem types for that day. These concepts are identified on the Student Tracking sheet as well.

Every number covers the same concept. Example: all question 4's are Numeracy (Place Value) and Question 6 always relates to Geometry.

Within each concept, the geometric shape identifies a CYCLE group. For example, all diamond shapes for #6 will have similar wording. This provides the repetition that builds memory. The specific component of the concept is repeated for three CYCLES and reviewed once more several CYCLES later.

NAME Jacob CHERRY 1 Tracking

CYCLES

1	2	3	4	5	6	7	8	9	10	11	12
3	4	4	5	5	4	4	5	5	4	5	5
1	1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3

DAY 1

Addition Facts
Numeracy (Whole Numbers)
Patterns
Measurement

DAY 2

2	4	3	3	5	4	3	3	4	4	5	5
4	4	4	4	4	4	4	4	4	4	4	4

Subtraction Facts
Numeracy (Place Value)

STUDENT TRACKING

A Student Tracking Sheet is found on the inside front cover of each workbook.

Tracking encourages **self-management**; it is a visual presentation of successes, weaknesses and improvements.

Again, teachers have their own styles and methods for marking work. We suggest, however, giving students responsibility for tracking so that they can watch their progress. See Fig. 2 for an example of a completed Tracking Sheet.

Features of Tracking:

- CYCLE number
- Correct answers tracked
- Number of correct basic facts out of 5.
- Area of weakness – needs attention
- Total correct problems for the CYCLE.

NAME <i>Jacob</i>		CHERRY 1 Tracking	
CYCLES		DAY 1	
1	3 4 4 5 5 4 4 5 5	Addition Facts	
2	4 4 4 4 5 4 4 5 5	Numeracy (Whole Numbers)	
3	3 3 3 3 3 3 3 3 3	Patterns	
4	2 4 3 3 5 4 3 3 4 4 5 5	Measurement	
5	4 4 3 5 4 4 5 5 4 5 5	DAY 2	
6	8 8 8 8 8 8 7 7 8	Subtraction Facts	
7	9 9 9 9 9 9 9 9 9	Numeracy (Place Value)	
8	3 4 4 5 5 4 4 5 5 4 5 5	Vocabulary	
9	10 10 10 10 10 10 10 10 10	Geometry	
10	11 11 11 11 11 11 7 7 8	DAY 3	
11	12 12 12 12 12 12 12 12 12	Addition Facts	
12	5 5 4 5 5 5 5 5 5 5 5 5	Numeracy (Number Sense)	
13	13 13 13 13 13 13 13 13 13	Time / Money	
14	14 14 14 14 14 14 14 14 14	Symmetry / Mapping	
15	5 7 8 10 10 7 8 10 11 11 10 11	DAY 4	
16		Subtraction Facts	
17		Numeracy (Fractions)	
18		Algebra	
19		Data Analysis	
20		DAY 5	
21		Addition Facts	
22		Basic Operations	
23		Problem Solving	
24		TOTAL CORRECT	

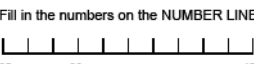




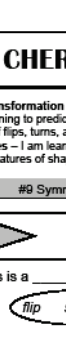


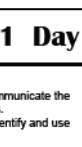

Topics from the NZ Curriculum

Fig. 2

LEARNING INTENTIONS AND SAMPLE PROBLEMS




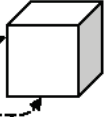
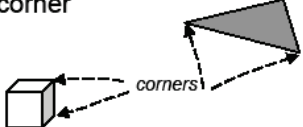


For quick reference use the Learning Intentions and Sample Problem grids in the Teacher Manual. These provide:

- Learning Intentions
- Sample problem types for each geometric shape
- Numeracy Stages

HEADS UP Learning Intentions and Sample Problems – CHERRY 1 Day 3			
LEARNING INTENTION	Number Knowledge ◊ I am learning to order whole numbers. ○ I am learning to sequence numbers using ordinals. ∇ I am learning to classify numbers as odd and even.	Measurement ◊ I am learning to recognise and add NZ coins. ○ I am learning to use calendars to measure time. ∇ I am learning to use analog and digital clocks to read time.	◊ ∇ Transformation I am learning to predict and communicate the results of flips, turns, and slides. ○ Shapes – I am learning to identify and use spatial features of shape.
Cycles	#7 Numeracy	#8 Time / Money	#9 Symmetry / Mapping
1	Fill in the numbers on the NUMBER LINE.  The number just before 36 is _____.	Colour 90¢. 	 This is a _____. 
2			
3			
10			
4	Sam is the FIRST bear in line. _____ is the FOURTH bear. 	January has _____ days. The first day of the month is _____ January. 	Draw a LINE OF SYMMETRY. 
5			
6			
11			
7	Colour the group that is all ODD NUMBERS. 	Circle the time.  3:30 4:30 4:00	This is a _____. 
8			
9			
12			

GLOSSARY

Each book of **HEADS UP maths workouts** includes a GLOSSARY of mathematical terms in case students forget the meaning of one of the maths words in the exercises. Words in capital letters throughout the book will be found in the Glossary.

GLOSSARY	
<p>area</p>  <p>6 square units is the <u>area</u> of this shape.</p>	<p>digit</p> <p>49</p>  <p>There are two <u>digits</u> in 49.</p>
<p>bar graph</p> 	<p>edge</p> 
<p>corner</p> 	<p>estimate</p>  <p>An answer that is close to the exact amount.</p> <p>20 is an <u>estimate</u> of the number of balls.</p>
<p>difference</p> <p>$9 - 4 = 5$</p> <p>← difference</p>	<p>even number</p>  <p>6 is an <u>even number</u>.</p> <p>Every item has a partner.</p>

Ideas and suggestions

- *Meet with parents at the beginning of the year to explain the HEADS UP system.*
- *All problems have been created to be solved without the use of calculators.*
- *Create an end-of-term certificate for recognition of accomplishment.*

RATIONALE

It is widely known in educational circles, and supported by brain-based learning theory, that for the brain to retain some forms of information, skills, and concepts, regular review and practice are necessary.

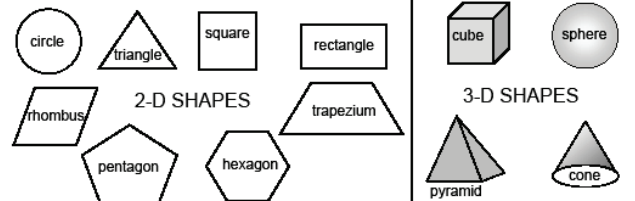
Students may demonstrate proficiency immediately after learning a strategy, skill or concept, however, unless the learning is revisited regularly the learning can be lost.

HEADS UP is a tool to help students retain memory through regular, cyclic review.

ORDINAL NUMBERS

first	1 st	seventh	7 th
second	2 nd	eighth	8 th
third	3 rd	ninth	9 th
fourth	4 th	tenth	10 th
fifth	5 th	eleventh	11 th
sixth	6 th	twelfth	12 th

greater than	>	SYMBOLS	
less than	<		
equal to	=		
plus	+		addition
minus	-		subtraction
times	x		multiplication
cents	¢		
dollars	\$		



length / height

Use a ruler.



Units:

centimetres
metres
kilometres

time

Use a clock.



Units:

minute
¼ hour
(15 minutes)
½ hour
(30 minutes)

weight

Use a scale.



Units:

grams
kilograms

MEASUREMENT