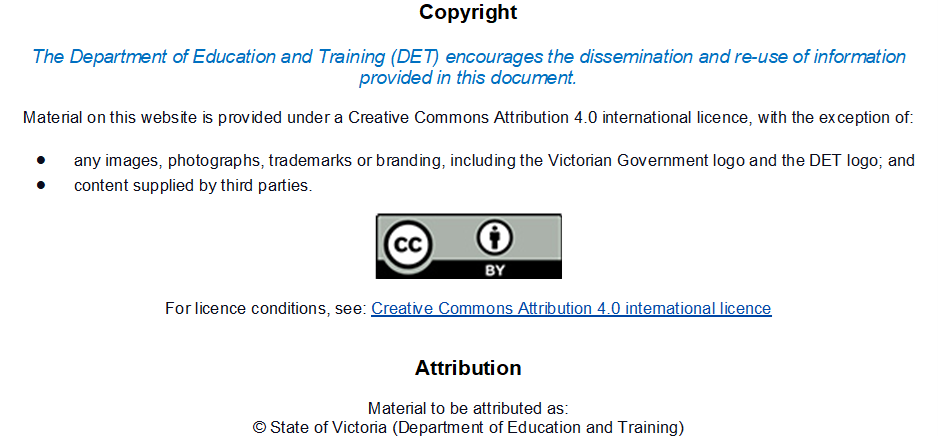
Mathematics



*How do I measure length without a ruler?*



**1. Focus**

|  |  |
| --- | --- |
| This is when I tell you what you will be doing for the activities! | S21570467708050209410 |

**2. Introduction**

|  |
| --- |
| During the discussion you will learn the how, why, what and when of the maths topic.  S21570467708050209430000000 |

**Did you know?**

|  |  |
| --- | --- |
| Find out interesting facts about the topic you are studying! | DidYouKnow |

To the supervisor

**Correcting your child’s work**

It is recommended that the supervisor checks and corrects a student’s maths work daily. There are advantages in doing this.

* It provides positive reinforcement on the spot.
* If there is a difficulty with some of the work, it can be explained whilst fresh in your child's mind.
* Useful and positive discussion will take place on certain aspects of the work.

# How to go about it

1. Always ✓ things that are correct as this gives positive feedback to your student. Be generous with both spoken and written comments praising fine effort, showing calculations and progress.
2. If your child has made an error, discuss how and why the error was made and encourage him or her to have another go. (Rather than cross out and go over incorrect calculations it is often best to make a fresh start.)

|  |  |
| --- | --- |
| Contents | |
| 1 | Learning about standard units of measurement.  Measuring everyday items using standard units of measurements. |
| 2 | Estimating the length of everyday items.  Learning to define and understand the difference between perimeter, mass and volume. |
| 3 | Breaking up 2 or 3 digit numbers when solving addition equations.  Placing numbers in the correct order and continuing a counting pattern. |
| 4 | Learning about and explaining the link between multiplication and addition. |
| 5 | Revision of concepts. |

|  |  |
| --- | --- |
| 6 | Learn what happens when multiplying by 10, 100 and 1000. |
| 7 | Devise strategies to solve problems written in words. |
| 8 | Revising 2, 3, 5 and 10 times tables.  Coming up with problem solving strategies. |
| 9 | Making prisms and pyramids. |
| 10 | Revise concepts. |

**Mathematics**

The activities will help us to answer the question:

***“How do I measure length without a ruler?"***

**You will learn to:**

**Number**

* Use numbers up to 10 000
* Look for the link between multiplication and addition
* Multiple numbers by 10, 100 and 1000
* Create strategies to solve mathematical word problems
* Revise the 2, 3, 5 and 10 times tables

Shapes

* Make 3D models

Measurement

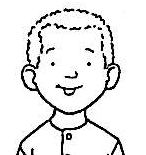
* To measure a range of everyday items using different types of measuring
* To estimate length of a range of everyday objects
* Measure the item using standard units of measurement.
* Define perimeter, mass and volume.

****

# 1

You will use body parts and rulers to measure the length of different objects.

## Focus



I’ve got a new bookshelf. I have to work out if it will fit between the window and the corner of the room.

**Introduction**

I can use my *foot* as a measuring tool. I will measure both the bookshelf and the wall space with my feet to *estimate* if the shelf will fit.

I can measure it exactly by using my *ruler*.



Introduction

**Vocabulary to remember**

*You will be using these terms throughout your work on measurement.*

**Estimate**: When you estimate you use your judgement. *I estimate that it will take me ten minutes to walk to the shop.*

**Approximate**: means almost, but not completely, exact. You get an approximate result when you estimate. *There are approximately ten biscuits in the jar.*

**Standard unit of measure**: An **exact measure** that is widely used. Some standard units of measure we use are *centimetres* and *metres*.

**Informal units of measure**: A unit of measurement that is **not exact**. It could be a piece of *string*, a *stick*, a *footstep*, or anything close to hand.

|  |
| --- |
| **Important Fact**  You can estimate or measure length in many different ways. If you need an **approximate** measurement you can use a measure such as your foot or a length of string, or else make a judgement of the length. If you need an **exact** measurement you use a ruler or tape measure. |

**Body part measures** were commonly used before standard units of measurement were invented. We can still use them to measure distances when we do not need an exact measurement.

|  |  |  |
| --- | --- | --- |
| **Digit**  The width of your finger.  HANDP003 | **Palm**  The width of the palm of your hand.  HAND165 | **Foot**  The distance from heel to toe.  FOOTW040 FOOTW014  (measure using bare feet, socks or shoes) |
| **Hand span**  The distance between your outstretched thumb and your longest finger.  HAND083 | **Cubit**   |  | | --- | | PPLPR047 |   The distance between your elbow and your outstretched fingers. | **Footstep**  The distance of your usual walking step.  ANIMA001 |

## Activity 1

**bd06121_**

**For you to do**

**Informal Units of Measure**

1 (a) In this activity you will be:*Choosing a suitable body part measure.*

Choose the body part measure that would be the most suitable for measuring the following objects. You need to think about the *length* of the object and how easy or difficult it would be to use the measure.

A small measure, such as a **digit** or **palm**, would be suitable for a small object such as a book, but would be unsuitable for measuring a car.

You do not have to measure the objects listed. The first two have been done for you.

|  |  |
| --- | --- |
| **Object** | **Measure** |
| the length of a paper clip | digit |
| the length of my stapler | palm |
| the width of your workbook |  |
| the width of the window |  |
| the height of the table |  |
| the length of a leaf |  |
| the length of a swimming pool |  |

**Activity 1 continued**

1 (b) In this activity you will be: *estimating and measuring with body part measures.*

Look around you. You can probably see your workbooks and writing tools resting on your desk or table, the chair you are sitting on, and a door or window. You are going to **estimate** and **measure** some of these items using *body part* measures.



**Remember**

Your estimate will be closer if you think about the size of the measure you are using. You need to have a good look at the item you are measuring before you make your estimate.

When measuring *length*, measure from *end to end.*

|  |  |  |  |
| --- | --- | --- | --- |
| **Item or Distance** | **Body part measure** | **Estimate** | **Answer** |
| a pencil | digit |  |  |
| A pencil | palm |  |  |
| the height of a chair | your hand span |  |  |
| the height of a chair | supervisor’s hand span |  |  |

This activity is continued on the next page.**Activity 1 continued**

|  |  |  |  |
| --- | --- | --- | --- |
| **Item or Distance** | **Body part** | **Estimate** | **Answer** |
| Length of the table or bench you are working at | your hand span |  |  |
| Length of the table or bench you are working at | cubit |  |  |
| The width of the window that is nearest to you. | your hand span |  |  |
| The distance around the building you are in | your footstep |  |  |
| The distance around the building you are in | supervisor’s footstep |  |  |

## Activity 2

**bd06121_**

**For you to do**

**Standard Units of Measure**

In this activity you will be: *estimating and measuring in centimetres and metres.*

Did you and your supervisor get the same result when you measured the height of your chair using your hand spans?

You will not always get the same result as someone else using a body part measure because you are different sizes.

If you need to get the same result as someone else measuring an object, you must use a **standard unit of measurement**. The **centimetre** is a standard unit of measurement. The **metre** is another.

j0078805When using a ruler or tape measure it is important to:

* start at 0
* make sure you measure straight
* measure to the nearest centimetre

**Activity 2 continued**

1. In this activity you will: *measure your body part measures.*

Use your own ruler or tape measure, or cut the 20 centimetre and one metre rulers to measure the length of your body part. Measure to the nearest centimetre.

|  |  |
| --- | --- |
| digit | cm |
| hand span | cm |
| cubit | cm |
| foot | cm |
| footstep | cm |

2. In this activity you will: *identify objects or distances that are about one metre long.*

Look at the one metre mark on your ruler or tape measure, then look around the room and choose objects you think are about that length. You might choose *some tiles on the wall of tiles, window panes in the window, cupboards,* or *the height of the door as far as the door handle*. List your objects or distances in the table below.

Estimate if the object is **less than a metre** or **more than a metre**, then use the ruler or tape measure to check if you were right.

|  |  |  |  |
| --- | --- | --- | --- |
| **Object or Distance** | **Less than a metre** | **More than a metre** | **Were you correct?**  **Yes/No** |
| Tick one column | |
| The height of the table |  |  |  |
| The width of the table |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## Activity 2 continued

## In this activity you will: *measure with a ruler.*

Use a ruler to estimate the length, and then measure the flowers shown on this page. Look at the ruler and then look at the flower. Think about how many centimetres long the flower is from the top to the bottom. Write your estimate before you check the answer.

|  |  |
| --- | --- |
| tmcio1fr[1]  estimate: \_\_\_\_ cm  measure: \_\_\_\_\_ cm | gsuliijd[1]  estimate: \_\_\_cm measure: \_\_\_cm |
| atvzi0zn[1]  estimate: \_\_\_\_ cm  measure: \_\_\_\_\_ cm | bd00083_  estimate: \_\_\_\_ cm  measure: \_\_\_\_\_ cm |

Explain why it is important to have a standard unit of measurement like centimetres, rather than using our hand span to measure things.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_



…units of length such as the centimetre and metre have only been used for about two hundred years? Before the 1790s there were no standard units of length.

# 2

## Focus

You will complete some more measurement activities.

You will practise making close estimates. You will also revise measuring the perimeter of a shape.



Introduction

How can I measure something if I don’t have a ruler?

I have been practising big footsteps that are a metre long. I take 12 big footsteps to measure our front fence. It is 12 metres long.

You could learn how long your hand span or footstep is. Then you could estimate more accurately.



When you are asked to estimate something, many people will have a guess. Have you ever entered a *Guess How Many Lollies are in the Jar* competition? Did you guess a number or did you try to work out how many there might be? If you did try to work it out, did you do it in your head, or did you get a pencil and paper and try to work it out?

You can learn strategies to help you estimate more accurately.

You will practise skills to help you estimate **length**.

**Introduction continued**

**How to make close estimates using a body part measure**

If you know the length of your body part measure you can work out close estimates in **centimetres**.

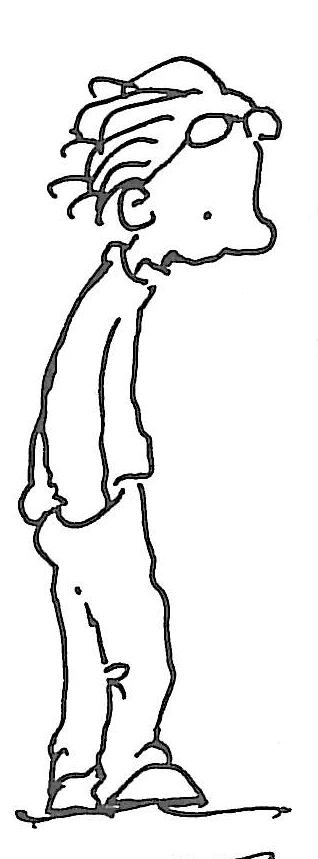
Example:

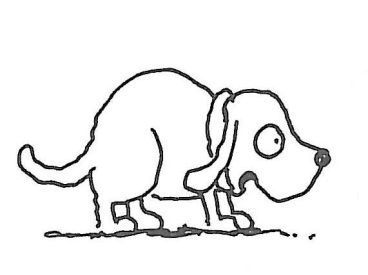
I am building a kennel, so I need to know how tall my dog is.

I can make a close estimate if I measure it with my **hand span**.

This dog is 3 of my hand spans tall. My hand span is almost

20 cm, so the dog is almost 60 cm tall.

****



You can measure the length of your hand span and round it off to the nearest 10 so that you can work out an estimate in your head.

If your hand span is 18 cm, you round it off to 20.

The height of the dog is 3 hand spans, so you multiply 3 x 20 or add 20  + 20 + 20. You might be able to work this out in your head.

The dog is about 60 centimetres tall. 1 9

To make a more accurate estimate, multiply 3 × 19. × 3

5 7 cm

## Activity 1

bd06121_**For you to do**

Use a ruler to measure the body part measures you made, then complete this table.

|  |  |  |
| --- | --- | --- |
| **Body Part** | **Length in Centimetres** | **Round number off to the nearest 10** |
| palm | cm |  |
| hand span | cm |  |
| foot | cm |  |
| footstep | cm |  |

## Activity 2

bd06121_**For you to do**

|  |  |  |
| --- | --- | --- |
| In this activity you will: *use your hand span length to measure the size of these animals.* The first measurement has been completed for you using a hand span measure of 18 cm. | | |
| **Animal** | **Show working out**  (use your own hand span measure) | **Measurement** | |
| 003  hen 2 hand spans | 1 8  × 2  3 6  + 9  4 5 | 45 cm | |
| FISH  big fish 4hand spans |  |  | |

## *This activity is continued on the next page.*Activity 2 continued

|  |  |  |
| --- | --- | --- |
| **Animal** | **Show working out** | **Measurement** |
| animals-bat-01  batwings 5 hand spans |  |  |
| horse  horse 10 hand spans |  |  |
| sheep1  sheep 4 hand spans |  |  |
| ANMFA167  pig 5 hand spans |  |  |
| ANMWI139  rabbit 2 hand spans |  |  |
| ANMBR067  duck 4 hand spans |  |  |

Check your answers on a calculator. Were you correct? \_\_\_\_\_\_\_

## Activity 3

bd06121_**For you to do**

In this activity you will: use your hand span to estimate the length of objects around you.

Look around you. Choose two different objects to measure with your hand span. Your supervisor can help you choose objects that are suitable to measure with a hand span measure. Look at the object and estimate how many hand spans it is. Use your hand span measure to measure the object. Approximately how many centimetres is this? Show your working out. You can round your hand span measure off to the nearest 10. The first one has been completed for you using a hand span measure of 19 cm rounded off to 20cm.

|  |  |  |  |
| --- | --- | --- | --- |
| Object (write name of object in this column) | Estimate number of hand spans | Measure number of hand spans | Approximate length of object in cm |
| height of my supervisor | 8 | 8½ | 2 0  ≈ 8  1 6 0  + 1 0  = 1 7 0 |
|  |  |  |  |
|  |  |  |  |

**Activity 4**

bd06121_**For you to do – Estimation of Length in Centimetres**

In this activity you will: *estimate the length of each fruit or vegetable*

Draw a line along the **length** of the piece of fruit or vegetable. Estimate how long the line is. Write your estimate. Use a ruler to measure the line. Write your answer.

*Look at the onion to see what you have to do.*

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | onion | | | | Est: Length: | Est: Length: |
| Onion  Estimate: 3 cm  Length: 4 cm | | | lettuce | pineapple |
| celery_tallthin | | | | Est: Length: | | | |
|  | 1110_poor_carrot_full | | | |
|  |
|  |
|  |
|  |
|  | Est:  Length: | | watermelon | |
|  |
|  |
|  |  |  |
| Est: Length: | | | | |  |  |
| Est: Length:  Pear | | | | | |  |
|  |
|  |
|  |
| Est: Length:  POTATO | | cherryEst: Length: |

## Activity 5

## bd06121_For you to do Measuring perimeter

In this activity you will: *work out the perimeter of each of these shapes,*

All of these squares have sides 1 centimetre long.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Remember: Perimeter is the distance around a shape.  The distance around this square is 8 cm.  2 + 2 + 2 + 2 = 8 | 2 cm   |  |  | | --- | --- | |  |  | |  |  |   2 cm |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |   Perimeter = \_\_\_\_\_ cm | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |   Perimeter = \_\_\_\_\_ cm |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |   Perimeter = \_\_\_\_\_ cm | |  |  |  |  |  | | --- | --- | --- | --- | --- | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  | |  |  |  |  |  |   Perimeter = \_\_\_\_\_ cm |

**Activity 6**

## bd06121_For you to do – Standard units for measuring mass and capacity

The litre is a standard unit for measuring capacity. Its symbol is L. You can buy milk in 1L containers. Sometimes for smaller amounts, millilitres (mL) are used. There are 1000 mL in a litre.

Mass is measured in kilograms. Its symbol is kg. A big block of butter weighs about ½ a kilogram. There are 1000 grams in a kg.

Look at the table below and colour the item with its matching estimate in the same colour. You will need 6 different coloured pencils / crayons.

|  |  |
| --- | --- |
| ITEM | ESTIMATE |
| My height | 2L |
| The length of a football field | 2kg |
| Amount of water in a jug | 140cm |
| Amount of medicine in a medicine cup | 400g |
| Amount in a can of tinned fruit | 10mL |
| Amount of sugar in a big bag | 100m |

**Activity 7 — Optional**

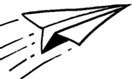
bd06121_**For you to do – Estimating Distances: Outside**

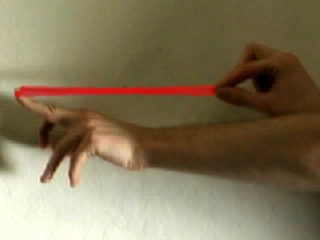
This activity is optional. Do it if you have time. It is fun to do.

**You will need:**

* a tape measure. If you do not have a long tape measure to measure distances of several metres, you can either use the one metre measures *or* estimate and measure in footsteps.
* a paper plane. Use the paper dart or experiment with your own design. You can find lots of ideas by doing an internet search for paper planes.
* a piece of newspaper scrunched up into a ball
* a rubber band
* a leaf

Ask your supervisor for advice about where you should work. You will need a flat area that is large enough to throw the objects listed above.

**NATPL025**

****

Be careful not to shoot towards anyone when you throw the rubber band.

This activity is continued on the next page.

## Activity 7 continued

**Instructions:**

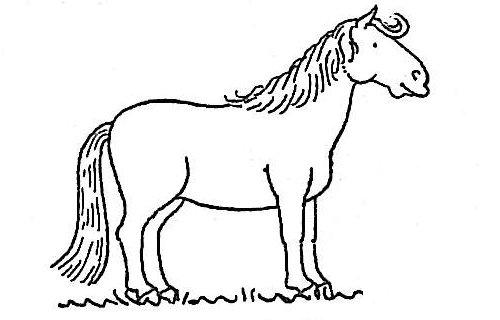
1. Mark a line that you will stand behind to throw the objects.
2. Stand behind the starting line and throw the first object.
3. Estimate the distance in metres (or footsteps).
4. Measure the distance in metres (or footsteps).
5. Repeat procedure for each object.

|  |  |  |
| --- | --- | --- |
| **Item to throw** | **Estimate**  Estimate the distance you threw to the closest metre. | **Measurement**  Measure to the closest metre. |
| paper plane  first throw |  |  |
| paper plane  second throw |  |  |
| a scrunched up  piece of paper |  |  |
| a leaf |  |  |
| a rubber band |  |  |
| your choice of object |  |  |



…we measure the height of horses with a measurement called a **hand**.

A **hand** is not part of the metric system of measurement. It measures approximately 10.16 centimetres.



A horse that is 16 hands high is approximately 162 centimetres.

# 3



You will explore numbers to 10 000. You will say numbers, count numbers and order numbers. You will also write numbers up to 10 000.

**Introduction**

Can you count up to 10 000?

I can count up to 10 000. I can count quickly if I count by 2, 5 or 10. I can’t count as quickly by 3, 4 or 6 yet. I will do some more practice.

I can, but sometimes I have to think carefully about what the next number will be or I will get mixed up.



## The best way to learn how to count and to remember number facts, such as the times tables, is to practice. You could:

## make a chart to put on a wall where you will look at it often

## get your family to test you when you are going for a walk or doing the dishes together

## play tables races with your brother or sister.

## Introduction continued

**Revision: Place Value. What is a digit worth?**

You need to understand place value to be able to work with numbers

to 9999.

## Look at these numbers. Look at what the 2 is worth in each number.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Thousands** | | **Hundreds** | **Tens** | **Units** |
| **2** |  | |  |  | **2** |
| **2** | 0 | | 0 | 0 | **2** |
| The digit **2** goes in the units column. The units are also called ones.  There are no tens, hundreds or thousands. | | | | | |
|  | | | | | |
| **2**0 | |  |  | **2** | 0 |
| **2**0 | | 0 | 0 | **2** | 0 |
| The number 20 means that there are 20 ones, but you can only have one digit in each column, so the digit **2** in **2**0 goes in the tens column.  Remember: If you have a digit in the tens column, you must also have a digit in the units column. | | | | | |
|  | | | | | |
| **2**39 |  | | **2** | 3 | 9 |
| The number 239 (*two hundred and thirty-nine)* does not have a digit in the thousands column.  The **2** is **2** hundreds. | | | | | |
|  | | | | | |
| **2**348 | **2** | | 3 | 4 | 8 |
| If you draw yourself a simple chart with four columns you can always work out what a digit is worth. | | | | | |

## Activity 1

## bd06121_For you to do – What is a digit worth?

1a Say each number aloud, then write each digit in the correct column.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Thousands** | **Hundreds** | **Tens** | **Units** |
| 4018 |  |  |  |  |
| 37 |  |  |  |  |
| 850 |  |  |  |  |
| 4 |  |  |  |  |
| 140 |  |  |  |  |
| 9490 |  |  |  |  |
| 949 |  |  |  |  |
| 94 |  |  |  |  |

1b Say each of the numbers in the table below aloud. Write the value of the **5**. The first one has been done for you.

|  |  |  |  |
| --- | --- | --- | --- |
| **Number** | **Value** | **Number** | **Value** |
| 200**5** | **5** units | 6**5**91 |  |
| 46**5**0 |  | 7**5**77 |  |
| **5**000 |  | 298**5** |  |
| 1**5**90 |  | 19**5**9 |  |

**Activity 2**

**bd06121_For you to do – Complete the number patterns**

Look at this counting pattern: 1170 1172 1174

Can you work out the rule?

To continue the pattern you must **add 2**.

When you work out the rule of the pattern you can then work out what the next numbers will be.

If you **add 2** each time, the pattern will continue with the numbers:

1176 1178 1180 1182

Work out what each of these patterns is increasing or decreasing by and complete the missing numbers.

|  |
| --- |
| 1. What is the rule for this pattern? Take 3   4024 4021 4018 **\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_** |
| 1. What is the rule for this pattern? Add 100     2007 2107 2207 **\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_** |
| 1. What is the rule for this pattern?   5085 5090 5095 **\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_** |
| 1. What is the rule for this pattern?   9999 9997 9995 **\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_** |
| 1. What is the rule for this pattern?   5600 5500 5400 **\_\_\_\_\_\_\_ \_\_\_\_\_\_\_ \_\_\_\_\_\_\_** |

**Activity 3**

**bd06121_For you to do – Match numbers and words**

3 (a) Draw a line from the number to the matching written words.

|  |  |  |
| --- | --- | --- |
| 1299 | five hundred and fifty−five | 942 |
| four hundred and thirty−six |
| 436 | nine thousand, nine hundred and ninety−one | 639 |
| one thousand, two hundred and ninety−nine |
| 1009 | three thousand, five hundred | 9142 |
| six hundred and thirty−nine |
| 555 | one thousand and nine | 1660 |
| one thousand, six hundred and sixty |
| 9991 | nine thousand, one hundred and forty−two | 3500 |
| nine hundred and forty−two |

3 (b) Ordering numbers

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Order these numbers from largest to smallest | |  | Order these numbers from smallest to largest | |
| 8600 |  |  | 27 |  |
| 6800 |  |  | 1050 |  |
| 1000 |  |  | 3890 |  |
| 2001 |  |  | 1500 |  |

3 (c) Complete this pattern

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 |

This pattern is counting by \_\_\_\_\_\_\_.

**ADDITION STRATEGIES**

We can use our understanding of place value to partition numbers. When we *partition* numbers, we *break them up into their place values* so they are easier to add (or subtract).

Eg: Partitioning 1 number Partitioning both numbers

|  |  |
| --- | --- |
| Here we will partition 36. We will break it up into its tens and ones.  55 + 36 = 55 + 30 + 6  = 85 + 6  = 91 | This method partitions both numbers, then you just have to add the tens together, then the ones.  55 + 36 = 50 + 5 + 30 + 6  = 50 + 30 + 5 + 6  = 80 + 11  = 91 |

Description: C:\Users\Family\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\JJWAJO1N\MC900435989[1].wmf

Do you prefer to partition one or both numbers?

Have a go at the next questions!

**Activity 4**

**bd06121_ For you to do – Fill in the spaces**

|  |  |
| --- | --- |
| Partitioning 1 number | Partitioning both numbers |
| 64 + 25 = 64 + 20 + 5  = \_\_\_\_\_\_ + 5  = \_\_\_\_\_\_ | 64 + 25 = 60 + 4 + 20 + 5  = 60 + 20 + 4 + 5  = \_\_\_\_\_\_ + \_\_\_\_\_\_  = \_\_\_\_\_\_\_ |
| 72 + 33 = 72 + 30 + \_\_\_\_  = \_\_\_\_\_\_+ \_\_\_\_\_  = \_\_\_\_\_\_ | 72 + 33 = 70 + 2 + 30 + 3  = 70 + 30 + 2 + 3  = \_\_\_\_\_ + \_\_\_\_\_  = \_\_\_\_\_ |
| For the next question you need to choose which method you will use. | |
| I chose \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  because \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  61 + 46 = \_\_\_\_\_\_\_\_\_\_\_\_  = \_\_\_\_\_\_\_\_\_\_\_\_  = \_\_\_\_\_\_\_\_\_\_\_\_ | |



…the **tallest mountain** on the Australian mainland is Mount Kosciuszko, which is **2,228 metres** tall? Mount Kosciuszko is located in south eastern Australia, near Canberra, in the Great Dividing Range.

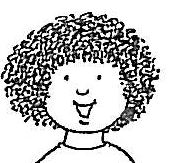


The tallest mountainin the world is Mount Everest in Nepal and Tibet. It is 8848 metres tall.

# 4

You will complete number problems and playing games that will help you improve your addition, subtraction and multiplication skills.

## Focus



A magic square is a puzzle. The numbers are arranged in a square so that each row, column and diagonal add up to the same total.

To complete a magic square you use some clues and a strategy called **Guess and Check**. When you use the **Guess and Check** strategy, you think carefully about the problem, then you make a reasonable guess. You must check your answer to make sure it is right. If it isn’t, you make another guess.



|  |  |  |  |
| --- | --- | --- | --- |
| 9 IntroductionExample: | 2 | 7 | → = 18 |
| 4 | 6 | 8 | → = 18 |
| 5 | 10 | 3 | → = 18 |
| ↓  = 18 | ↓  = 18 | ↓  →  = 18 | = 18 |

## Activity 1

bd06121_**For you to do**

In this activity you will: *fill in the gaps to complete each magic square*.

Follow this procedure:

1. Work out the tally from the one completed row or column. Complete the row or column that has two numbers, g*uessing and checking* the number that will make that row equal to the tally of the first row.
2. Complete the next row, column or diagonal that has two numbers.

Tally: Tally:

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 4 |  |  |  | 8 | 1 | 6 |
|  | 5 |  |  | 3 |  |  |
|  | 1 | 6 |  |  |  |  |

## Tally:

|  |  |  |
| --- | --- | --- |
| 2 |  |  |
|  | 5 | 3 |
|  |  | 8 |

You know that addition and subtraction are linked from our work on questions like these:

7 + 3 = 10 10 – 3 = 7 10 – 7 = 3

But what about multiplication and addition? Can you find the link? Look at the problem below:



## Activity 2

bd06121_**For you to do**

|  |  |
| --- | --- |
| Luca eats 3 Weet-Bix for breakfast every day. How many will he eat in a week? (There are 7 days in a week) | |
| I can solve using addition only. This is how. | I can solve using multiplication only. This is how. |
| Luca eats \_\_\_\_\_ Weet-Bix in a week. I prefer to work it out using addition or multiplication (circle one). | |

## Activity 3

bd06121_**For you to do – Word values**

In this activity you will: *use a code to work out value of words.*

This is the code:

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| A | B | C | D | E | F | G | H | I | J | K | L | M |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| N | O | P | Q | R | S | T | U | V | W | X | Y | Z |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 |

Here is an example of how the code works.

If you set your work out like this, in a column, you can add up the value of the numbers easily.

|  |  |
| --- | --- |
| 19 | S |
| 1 | A |
| 18 | R |
| 1 | A |
| 8 | H |
| 47 | Total |

Answer these questions:

What is your first name worth? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What is your full name worth? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Which of your family members has the name with the greatest value?

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Value: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Activity 4: Optional

bd06121_**For you to do** – **Game: Cover Up**

**Aim of the Game:**

The aim is to cover up the numbers on a game card.

**Players:** 2 or more

**You will need:**

* a pack of playing cards, with the jacks, queens & kings removed (Ace = 1)
* die
* one game card for each player.
* small buttons or counters to cover the numbers on cards.

**Procedure:**

1. Shuffle the cards and place them face down.
2. Take a card and throw the die.
3. Multiply the numbers and work out the answer.
4. Cover that number on your game card.
5. If a number is already covered, have another turn.

|  |  |
| --- | --- |
| dieten  Example: | 10 x 6 = 60  Cover 60 on the game card |

**Variation:** You can play this game on your own. Instead of trying to win against someone else, time yourself and try to beat your own time for covering a game card.

**Variation:** You can cover one row of numbers (horizontal, vertical or diagonal) instead of covering every number on the game card.

Use the multiplication tables on the next page to help you.

## Activity 3 continued

**Multiplication Tables for Game: *Cover Up***

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1x1=1 | 2x1=2 | 3x1=3 | 4x1=4 | 5x1=5 | 6x1=6 |
| 1x2=2 | 2x2=4 | 3x2=6 | 4x2=8 | 5x2=10 | 6x2=12 |
| 1x3=3 | 2x3=6 | 3x3=9 | 4x3=12 | 5x3=15 | 6x3=18 |
| 1x4=4 | 2x4=8 | 3x4=12 | 4x4=16 | 5x4=20 | 6x4=24 |
| 1x5=5 | 2x5=10 | 3x5=15 | 4x5=20 | 5x5=25 | 6x5=30 |
| 1x6=6 | 2x6=12 | 3x6=18 | 4x6=24 | 5x6=30 | 6x6=36 |
| 1x7=7 | 2x7=14 | 3x7=21 | 4x7=28 | 5x7=35 | 6x7=42 |
| 1x8=8 | 2x8=16 | 3x8=24 | 4x8=32 | 5x8=40 | 6x8=48 |
| 1x9=9 | 2x9=18 | 3x9=27 | 4x9=36 | 5x9=45 | 6x9=54 |
| 1x10=10 | 2x10=20 | 3x10=30 | 4x10=40 | 5x10=50 | 6x10=60 |



…the game of Monopoly is the most played board game in the world?

It was invented by Charles B. Darrow of Pennsylvania, U.S.A. in 1934, and has now sold over 200 million units.

## 5

## Focus

You have completed many activities this week. It is time to slow down and revise that work. You will estimate and then check measurements in centimetres. You will also explore numbers

to 10 000.

MCj00787110000[1]

**Completing the work**

|  |
| --- |
| **Looking Back**  Test your knowledge on work covered.  Complete without the assistance of your supervisor.  When you have completed your work ask your supervisor to correct your work and discuss any problems. |

|  |
| --- |
| Comments Did you have any problems? yes/no  Did you find the work easy? yes/no  How can I help you?  Write your responses in the comments section *- pink page.* |

## Estimating and Measuring Length in Centimetres

## Activity 1

bd06121_**For you to do**

Can you estimate how many centimetres long the shaded section of each row is?

Look at a ruler before writing your estimate in the shaded area.

Measure the length of each shaded section with a ruler after you estimate the length. Measure to the nearest centimetre.

Write your answer in the white section. *The first one has been done  
for you.*

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Estimate** | | | | | | **Length of shaded section of row** | | | | |
| 10 cm | | | | | | 8 cm | | | | |
|  | |  | | | | | | | | |
|  | | | | | | | | |  | |
|  | | | | | | | | | |  |
|  | | | | | | | |  | | |
|  | | |  | | | | | | | |
|  | | | | |  | | | | | |
|  | | | | | | |  | | | |
|  | | | |  | | | | | | |
|  |  | | | | | | | | | |

You might have noticed your estimations become more accurate as you became familiar with the task.

**Estimate whether an object is *more than* or *less than* a metre**

## Activity 2

bd06121_**For you to do**

For this activity you are going to estimate whether a given object or group of objects is *more* or *less* than a metre (m). You will then check the measurement.

For each item listed in the table below:

* Look at the listed item. You will have to set it up with equipment from your kitchen.
* Look at your metre ruler and estimate whether the item is *more than*, *less than* or the *same* length as your metre ruler.
* Record your estimate.
* Use your metre ruler to measure and record your result.

|  |  |  |  |
| --- | --- | --- | --- |
| **Item** | **Estimate**  More than 1 m  Less than 1 m  Exactly 1 m | **Measurement**  More than 1 m  Less than 1 m  Exactly 1 m | **Tick if you**  **were correct** |
| Six soup spoons placed end to end in a line. |  |  |  |
| Five forks placed end to end. |  |  |  |
| Eight teaspoons placed end to end. |  |  |  |
| Three long items from your utensil drawer. |  |  |  |
| Five packets of food from your food cupboard. |  |  |  |

## Activity 3

bd06121_**For you to do**

Solve these equations by regrouping. Write the missing numbers in the squares. Make the equations with your MAB cut-out shape.

Write the missing numbers in the squares.

tens units tens units

a. 3 7 b. 3 6

+ 3 5 + 5 4

1 0

0 8

Solve these equations by doing regrouping using the **short way**.

tens units tens units

c. 4 8 d. 1 4

+ 2 5 + 2 7

Use *partitioning* to solve these problems:

52 + 27 = 52 + \_\_\_\_\_ + 7 46 + 31 = \_\_\_\_\_\_\_\_\_\_\_\_\_\_

= \_\_\_\_\_\_\_ = \_\_\_\_\_\_\_

MCj01302710000[1]

## Activity 4

bd06121_**For you to do**

Complete these patterns after you work out what you have to count by.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| I will count by: | | | | | | | |
| 111 | 113 | 115 | 117 |  |  |  |  |
| I will count by: | | | | | | | |
| 33 | 36 | 39 | 42 |  |  |  |  |
| I will count by: | | | | | | | |
| 87 | 83 | 79 | 75 |  |  |  |  |
| I will count by: | | | | | | | |
| 580 | 585 | 590 | 595 |  |  |  |  |
| I will count by: | | | | | | | |
| 3460 | 3470 | 3480 | 3490 |  |  |  |  |

## Activity 5

bd06121_**For you to do**

Order each row of numbers from smallest to largest.

|  |
| --- |
| 277 207 2007 |
| 509 5090 950 |
| 1750 1705 1075 |
| 1998 2012 1912 |
| 1525 2512 5212 |
| 1900 9110 9105 |
| 9699 9689 9709 |

## Comments

Did you have any difficulties? Was it too easy? Did you need assistance? Were the instructions easy to follow?

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Congratulations. You’ve done it!

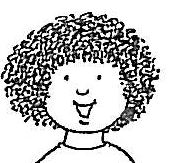
j0078742

# 6

You will:

1. practise multiplying numbers.
2. learn an easy way to multiply by 10 or 100.
3. practise multiplication facts up to 10 x 10.
4. practise doubling and halving numbers.

## Focus



Introduction

I would like to learn how to multiply numbers easily.

I try to work out ways to multiply easily. I can show you a simple rule so you can remember how to multiply by 10 or 100. I practise my times tables every day.

I use drawings, counting charts and number patterns to help me learn. I do lots of practice to help me remember.



**Introduction continued**

**Multiplying**

When we model the number 3 with MAB we use ones or units.

3 lots of one looks like this:

We write this as the multiplication equation: 3 ≈ 1 = 3

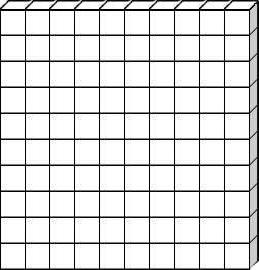
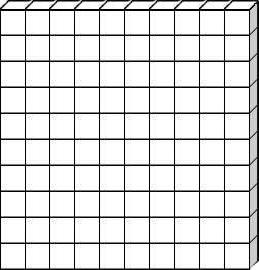
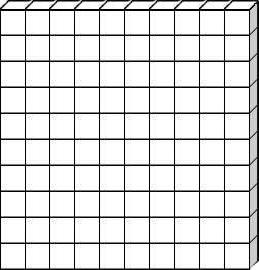
When we model the number 30 with MAB we use tens.

MAB 10MAB 10MAB 10

3 lots of ten looks like this:

We write this as the multiplication equation: 3 ≈ 10 = 30

When we model the number 300 with MAB we use hundreds.



3 lots of hundreds looks like this:

We write this as the multiplication equation: 3 ≈ 100 = 300

This is the question from the previous page:

|  |
| --- |
| 3 ≈ 1 = 3  3 ≈ 10 = 30  3 ≈ 100 = 300 |

Can you see the pattern when multiplying by 10 or 100?

**Remember:**

* When you multiply a number by 10, you are making it bigger by a factor of 10. It is **10 times bigger**.
* When you multiply a number by 100, you are making it bigger by a factor of 100. It is **100 times bigger**.

|  |  |  |  |
| --- | --- | --- | --- |
| 1000 x 1 | 100 x 1 | 10 x 1 | 1 x 1 |
| thousands | hundreds | tens | units |



Each column to the left is 10 times bigger.

Each column to the right is 10 times smaller.

Have a look at this example:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 1000 x 1 | 100 x 1 | 10 x 1 | 1 x 1 |  |  |
| thousands | hundreds | tens | units |  |  |
|  |  |  | 3 | 3 x 1 |
|  |  | 3 | 0 | 3 x 10 |
|  | 3 | 0 | 0 | 3 x 100 |
| 3 | 0 | 0 | 0 | 3 x 1000 |

## Activity 1

bd06121_**For you to do**:

Apply your understanding of place value to these questions:

|  |  |  |  |
| --- | --- | --- | --- |
| 1000 x 1 | 100 x 1 | 10 x 1 | 1 x 1 |
| thousands | hundreds | tens | units |  |
|  |  |  |  | 8 x 1 |
|  |  |  |  | 8 x 10 |
|  |  |  |  | 8 x 100 |
|  |  |  |  | 8 x 1000 |



|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 10 000 x 1 | 1000 x 1 | 100 x 1 | 10 x 1 | 1 x 1 |  |
| Tens of thousands | thousands | hundreds | tens | units |  |
|  |  |  |  |  | 12 x 1 |
|  |  |  |  |  | 12 x 10 |
|  |  |  |  |  | 12 x 100 |
|  |  |  |  |  | 12 x 1000 |

|  |  |
| --- | --- |
| 6 ≈ 1 = ­­\_\_\_\_\_  6 ≈ 10 = \_\_\_\_\_\_  6 ≈ 100 = \_\_\_\_\_\_ | 9 ≈ 1 = ­­\_\_\_\_\_  9 ≈ 10 = \_\_\_\_\_\_  9 ≈ 100 = \_\_\_\_\_\_ |
| 7 ≈ 1 = ­­\_\_\_\_\_  7 ≈ 10 = \_\_\_\_\_\_  7 ≈ 100 = \_\_\_\_\_\_ | 10 ≈ 1 = ­­\_\_\_\_\_  10 ≈ 10 = \_\_\_\_\_\_  10 ≈ 100 = \_\_\_\_\_\_ |

**Activity 1 continued**

Take a look at these examples:

127 × 10 = 1270 38 × 100 = 3800

10 × 589 = 5890 100 × 938 = 93800

Complete these equations:

|  |  |
| --- | --- |
| 5 ≈ 10 =  6 ≈ 10 =  7 ≈ 10 =  8 ≈ 10 =  9 ≈ 10 =  62 ≈ 10 = | 5 ≈ 100 =  6 ≈ 100 =  7 ≈ 100 =  8 ≈ 100 =  9 ≈ 100 =  62 ≈ 100 = |

Write three examples of each equation:

|  |  |  |
| --- | --- | --- |
| ≈ 10 | ≈ 100 | ≈ 1000 |

**Challenge:** When you multiply by 10 or 100 or 1000, will the answer be even or odd? Use an example to help you explain.

**Activity 2**

**bd06121_For you to do**

Revision of times tables using a multiplication grid.

Strategies:

* **double** the first number to complete the 2s facts
* complete the 4s facts by **doubling** and **doubling** again
* use the strategy you have just learnt for multiplying by 10
* complete the 5s facts by **halving** the 10s facts

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ≈ | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 10 |
| 0 |  |  |  |  |  |  |  |  |
| 1 |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |  |
| 11 |  |  |  |  |  |  |  |  |
| 12 |  |  |  |  |  |  |  |  |

**Activity 3**

**bd06121_For you to do**

Circle the numbers highlighted on the number chart or continue the shading of the pattern until you get to 100.

What rule are you using? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **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** |

Answers to the 6 times tables are even / odd (circle one)

Write the answers:

|  |  |  |
| --- | --- | --- |
| 1 ≈ 6 =  2 ≈ 6 =  3 ≈ 6 =  4 ≈ 6 = | 5 ≈ 6 =  6 ≈ 6 =  7 ≈ 6 =  8 ≈ 6 = | 9 ≈ 6 =  10 ≈ 6 =  11 ≈ 6 =  12 ≈ 6 = |

**Activity 4 continued**

**bd06121_**For you to do - Drawing Arrays

This picture shows five groups of three flowers.

When we write this as an equation it is 5 ≈ 3 = 15

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| bk00029_ | bk00029_ | bk00029_ | bk00029_ | bk00029_ |

You can draw this equation as an array.

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5 × 3 = 15

3 × 5 = 15

**For you to do**

Here is another array. Write 2 equations for this array.

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**Activity 4 continued**

**bd06121_For you to do**

You will need 2 dice.

* Throw both dice, then colour the matching array on the grid.
* Write the answer (or product) in each array.
* Try to fit as many arrays into the grid as possible. Use different colours to show each array.

*You can see one array completed as an example. It was produced by throwing a 2 and a 3. The product is 6.*

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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How many blocks are not coloured in?

Write an array or arrays that would complete the grid. \_\_\_\_\_\_\_\_\_\_\_\_\_

There are many web sites you can use to learn your tables.

You could try these:

<http://www.times-tables.com/times_tables_test/times_tables_test.htm>

<http://www.berghuis.co.nz/abiator/tables/frame1.html>

<http://www.multiplication.com/interactive/flashfun/flash/>

<http://www.kidzworld.com/site/p4107.htm>

<http://www.woodlands-junior.kent.sch.uk/maths/timestable/6x.html>

If you have a Mathletics account have fun with the “times tables toons” at <http://www.mathletics.com.au/>



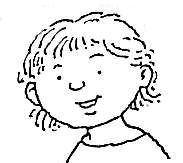
…children have about 300 bones but some of these fuse together so that the adult skeleton contains only 206 bones. The largest bone in the human body is the femur (thigh bone), which is likely to be

50 cm long in a man standing 1.8 m tall.

# 7

## Focus

You will do some work on solving number problems. Number problems are written in words so you have to READ very carefully in order to understand exactly what has to be done. You will also do some multiplication practice.



Introduction

I find it easy to solve maths equations, but when I do a maths problem I sometimes get confused.

I don’t know whether to add or subtract, divide or multiply.

How do you solve maths problems?

I read the problem very carefully, and then I underline the words that tell me what I have to find out.



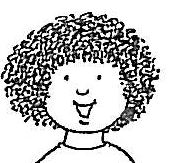
If you learn to solve problems by carefully following a method,

you will also be able to solve difficult problems.

## Introduction continued

**How to solve number problems**

1. Read the question once to get a general understanding of the problem.
2. Read the question again and underline the numbers that have to be used.
3. Draw a frame around the words that ask the question.
4. Underline the word that tells the kind of things mentioned in the question.
5. Draw a diagram or write a sentence that describes the situation.
6. Decide which operation to use in an equation.



Read the maths problem below. It follows the above rules to solve the problem.

1. CRICK001**Read the problem**.

The local cricket team scored 259 runs

in a two-day match.

If the first day total was 118 runs, how

many runs did the team score on the

second day?

1. **Read the problem again and underline the numbers that have to be used**. The numbers are 259 and 118.
2. **Draw a frame around the words that ask the question**.

In this example you should draw a frame around these words:

|  |
| --- |
| How many runs did the team score on the second day? |

## Introduction continued

1. **Underline the word that tells you the kind of things mentioned in the question.** You should draw a line under the word runs.
2. **Write a number sentence or draw a diagram to describe the situation.** This has been done for you for this example.

|  |  |
| --- | --- |
| Diagram 1st day + 2nd day = total  CRICK009 + CRICK009 = CRICK005  118 + ? = 259 | Number sentence 118 + ? = 259  or   1. 118 + ? |

1. **Decide what operation is needed to work out the missing number.**

## The operation here is subtraction. You can also use counting on from 118 to 259 to work out the difference.

1. **Set out the working of the problem.**

subtraction algorithm Strategies Counting on

CRICK003

118 + 100 = 218

218 + 40 = 258

258 + 1 = 259

So 100 + 40 +1 = 141

259

- 118

141

**Answer:** The number of runs on the 2nd day is 141.

## Activity 1

## bd06121_For you to do – Problem solving

Follow the method described above to solve these number problems. You may need to do more than one equation.

Checklist:

* Underline numbers to be used.
* Draw a frame around the question.
* Draw a line under the main question word.
* Write a sentence or draw a diagram to describe the problem.
* Decide on an operation for the equation.
* Do the equation.

|  |  |
| --- | --- |
| ANMPT023  ANMPT080  ANMFA015 | How many legs are there altogether on 4 dogs, 6 cats and 10 hens? |

|  |  |
| --- | --- |
| Sally picked 100 daisies. Each daisy had 34 petals. How many petals altogether? | NATFL081 |

## Activity 1 continued

|  |  |
| --- | --- |
| MCj03303400000[1] | There were 50 people at a barbecue. They ate 61 sausages, 22 hamburgers, 12 vegetable burgers, and 11 pieces of steak. There were 10 sausages left uneaten. How many items were cooked altogether? |

|  |  |
| --- | --- |
| Sue made a fruit salad with 2 pears, 2 apples, 2 plums, 2 bananas, 2 peaches, a punnet of 15 strawberries and 20 cherries. How many pieces of fruit did Sue use to make the salad? | FRUIT194 |

|  |  |
| --- | --- |
| Connor went into the garden and collected 12 leaves, 12 flowers and 15 pine cones. How many plant things did he collect altogether? | NATPL027 NATPL027 NATPL027  NATFL392NATFL392  NATOT018NATOT018NATOT018NATOT018NATOT018  NATFL392NATFL392NATFL392  NATPL027NATPL027NATPL027 |

## Activity 1 continued

|  |  |
| --- | --- |
| The Mothers’ Day stall at school sold 5 flower pots with 6 flowers in each pot, and 10 flower pots with 4 flowers in each pot. How many flowers altogether? | NATFL297 NATFL297 NATFL297 NATFL297 NATFL297  NATFL198NATFL198 NATFL198 NATFL198NATFL198 NATFL198NATFL198NATFL198NATFL198NATFL198 |

## Activity 2

## bd06121_For you to do – Write a problem

Write your own problem, and then complete the equation. You might like to illustrate the problem.

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## Activity 3

## bd06121_For you to do – Times tables practice

How quickly can you complete these times tables? Get your supervisor to time you. You will do the same problems on Day 10. Will you do them more quickly today or on Day 10?

|  |  |  |
| --- | --- | --- |
| 1 ≈ 12 = | 3 ≈ 6 = | 4 ≈ 4 = |
| 2 ≈ 8 = | 4 ≈ 5 = | 5 ≈ 12 = |
| 3 ≈ 7 = | 5 ≈ 3 = | 6 ≈ 6 = |
| 4 ≈ 10 = | 6 ≈ 1= | 10 ≈ 12 |
| 5 ≈ 5 = | 10 ≈ 8 = | 1 ≈ 3 = |
| 6 ≈ 12 = | 1 ≈ 9 = | 2 ≈ 11 = |
| 10 ≈ 10 = | 2 ≈ 1= | 3 ≈ 9 = |
| 1 ≈ 8 = | 3 ≈ 12 = | 4 ≈ 9 = |
| 2 ≈ 10 = | 4 ≈ 8 = | 5 ≈ 9 = |
| 3 ≈ 3 = | 5 ≈ 7 = | 6 ≈ 7 = |
| 4 ≈ 2 = | 6 ≈ 9 = | 10 ≈ 11 = |
| 5 ≈ 11 = | 10 ≈ 2 = | 2 ≈ 5 = |
| 6 ≈ 4 = | 1 ≈ 11 = | 3 ≈ 2 = |
| 1 ≈ 0 = | 2 ≈ 7= | 4 ≈ 0 = |
| 2 ≈ 12 = | 3 ≈ 7 = | 5 ≈ 4 = |
| Time taken: | | |

## Activity 4 – Optional

## bd06121_For you to do

## Game: *Multiplication and Division Bingo*

This is a game for two or more players. *It is good to play with a group of 3-4 people. You might like to do it when your family gathers together.*

**Aim of the game:**

To cover a row of 4 numbers on a game card. The row can be horizontal, vertical or diagonal.

**You will need:**

* Multiplication and division equation cards.
* One game card for each player.
* Counters or buttons to cover the numbers on your game card.

**Procedure:**

* 1. Players take turns selecting an equation card.
  2. Each player must say the answer to the equation out loud before all players cover that number if it is on their game card.
  3. As soon as a player has covered a row of 4 numbers with counters he/she calls out **Bingo**!

**Example:**

Equations used to cover the line of numbers on the card:

8 ÷ 4 =

21÷ 3 =

4 ≈ 5 =

10 ≈ 8 =

BINGO!

|  |  |  |  |
| --- | --- | --- | --- |
| 2 | 3 | 4 | 5 |
| **k-bear**6 | 7 | 8 | 9 |
| 10 | 15 | 20 | 25 |
| 30 | 35 | 70 | 80 |



…that some plants grow very fast?



Some species of bamboo grow at a rate of up to 91 cm per day.

# 8

## Focus

You will use a clock, calendar, bus timetable and movie guide to plan a trip to the cinema.



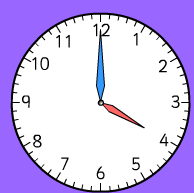
Introduction

Plan a trip to the cinema next weekend.

We can look in the newspaper to see what time the movie starts. I’ve got a bus timetable, so we can check which bus we need to catch to get there on time.

If we know how long the movie is, we can work out what time we will get home.



A_EAR253**TRNGR031**

## november02Activity 1

## bd06121_For you to do

## Complete the calendar

**Instructions:**

Complete the dates for each day of the month.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| April | | | | | | |
| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|  |  | **1** | **2** |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |

Answer these questions

|  |
| --- |
| Which two days are the weekend days? |
| What date is the first Saturday in April? |
| Which day of the week is most difficult to spell? |

## timeqt7Activity 2

## bd06121_For you to do – Complete the timetable

Use this information to complete the gaps in the timetable:

* during the week the bus runs every twenty minutes
* on Saturday the bus runs every thirty minutes (half hour)
* on Sunday the bus runs every forty-five minutes (three quarters of an hour)

It is recommended to have a clock for you to use.

|  |  |  |
| --- | --- | --- |
| Bus timetable (afternoons only) | | |
| Weekdays | Saturday | Sunday |
| 12:05 pm | 12.20 pm | 12:00 pm |
| 12:25 pm | 12:50 pm | 12:45 pm |
| 12:45 pm | 1:20 pm | 1:30 pm |
|  | 1:50 pm |  |
| 1:25 pm |  | 3:00 pm |
|  | 2:50 pm |  |
| 2:05 pm |  | 4:30 pm |
|  | 3:50 pm |  |
| 2:45 pm | 4:20 pm | 6:00 pm |
|  |  |  |
| 3:25 pm | 5:20 pm |
| 3:45 pm | 5:50 pm |
|  | There are no buses after 6:00 pm each day. | |
|  |
| 4:45 pm |
| 5:05 pm |
|  |
| 5:45 pm |

## Activity 3

## bd06121_For you to do

Look at the film timetable on the next page and choose 3 films you might like to see.

* Write their titles.
* Work out how long the film will be in hours and minutes. (Remember that there are 60 minutes in one hour.)

|  |  |
| --- | --- |
| Example:  My neighbour Totoro (89 minutes) | 1 hour, 29 minutes |
|  |  |
|  |  |
|  |  |

## Activity 4

bd06121_ **For you to do**

Answer these questions using the bus and cinema information and a clock**.**

1. If you catch the 1:50pm bus to go and see **Haunted Castle** on Saturday the 5th of April, what time film session will you go to? It takes 20 minutes to get to the cinema.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. If you are planning to go to the 3:20pm session of **Mary Poppins** on Saturday the 5th of April, which bus would you catch? The bus takes 20 minutes to get to the cinema.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| **Movie Guide** | |
| **Mary Poppins** (G) 139 min  Daily to Wed: 12.10, 3.20, 6.30 & 9.15pm  mary poppins silver chair  **The Silver Chair** (G) 88 min  Daily to Wed: 11.15am, 1.50, 4.20, 6.50 & 9.20pm  **Haunted Castle** (M) 97 min  Daily to Wed: 10.50am, 12.30, 2.50, 4.50 (not Wed), 7.25 & 9.05pm  Also Lateshows Fri & Sat: 10.45pm  **Laputa Castle in the Sky** (G)  90 min  Thur, Mon & Wed: 2.20pm Fri, Sun & Tue: 9.15pm | **Spiderman** (M) 132 min  Daily to Wed: 2.10 (not Sun), 4.40, 7.15 (not Tue) & 9.35pm  **My Neighbour Totoro** (G) 89 min  Thur, Sat & Mon: 10.35am & 6.55pm Fri: 4.35pm  Sun & Tue: 10.35am & 4.35pm  **Toy Story** (G) 89 min  Daily to Wed: 11.20am, 4.00 & 8.50pm  **Harry Potter and the Prisoner of Azkaban** (PG) 142 min  Daily to Wed: 12.30, 3.30, 6.40 & 9.20pm  harrypotter_azkaban_p shrekRpt  **Shrek 2** (PG) 93 min  Thur, Sat, Mon & Wed: 12.30 pm, 9.15pm Tue: 2.20pm |
| **SESSION TIMES - Thursday April 3 to Wednesday April 9**  (Session length follows film title) | |

## Image sources:

## <http://www.hollywoodteenmovies.com/DisneyMenuMaryPopins.jpg>

## <http://www.hundland.com/posters/t/ToyStory.jpg>

## <http://serwisy.gazeta.pl/im/1815/z1815377H.jpg> (Harry Potter)

## <http://www.film.ru/img/afisha/SHRK2/poster.jpg> Activity 5

## bd06121_ Optional Challenge Activity

In this activity you are going to: *decide on a film to see, working out which bus you will catch to get to the cinema on time. You can also work out which bus you will catch home.*

You may complete some or all of this activity.

Use this information:

* You will be going to the film on Saturday or Sunday afternoon.
* The trip from the bus stop near your home to the bus stop at the cinema takes 20 minutes.
* You need to allow five minutes to buy your tickets.
* Choose a film rated G or PG.
* You can leave home at any time from 12:00 noon.
* You need to be home by 6:00 pm.

You will need to refer to the bus timetable, the movie guide and a clock. You might need to work your answer out on the next page or on scrap paper. Record your results below.

|  |  |
| --- | --- |
| Day |  |
| Date |  |
| Title of film |  |
| Bus time – to cinema |  |
| Film start time |  |
| Film end time |  |
| Bus time ‑ home |  |
| Arrive home time |  |
| Total time away from home |  |

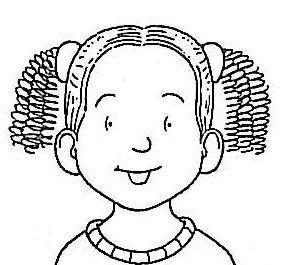


…before we had clocks, people told the time by looking at the position of the sun in the sky. They could tell that it was the middle of the day when the sun was directly overhead. Their shadows were smallest at this time. It was early morning when the sun was close to the eastern horizon, and late afternoon when it was close to the western horizon.

# 9

## Focus

You will revise names of 2D shapes. You will also make models of 3D objects.



## Introduction

Can you tell the difference between a 2D and 3D shape?

I learnt that a 2D geometric shape has length and width. A 3D geometric object has height, width and depth. It also has faces and vertices.

A 2D geometric shape is flat and has sides and edges. A 3D object is solid. It stands up.



|  |  |  |  |
| --- | --- | --- | --- |
| This is the face.  The 2D face of the 3D object is flat. | |  | | --- | | SYMOT083 | |  |     *The vertices are the corners*.  *The 3D object has height (blue), width (red) and depth (yellow).* |

**Introduction continued**

|  |  |  |
| --- | --- | --- |
| **2D shapes are flat.**  **They have two dimensions:**  **width and length.**  **You can join several 2D shapes together to make a 3D object.**   |  | | --- | | rectangle  or  oblong |   **length**  **width**  square  triangle  diamond  hexagon | **3D objects are solid.**  **They have three dimensions.**  **They have width and height and depth.**    **height**  **depth**  **width**  **solid_f5** |

**Activity 1**

**bd06121_ For you to do**

|  |  |  |
| --- | --- | --- |
| **1 (a) Naming 2D shapes**  Unjumble the shape word.  Draw a line from the word to the matching picture | | |
|  |  |  |
| gantecrel | lova | maniodd |
| lantirge | leccir | quaser |
|  |  |  |

**1 (b) What shape am I?**

|  |
| --- |
| I have four sides/edges all the same length |
| I have four sides/edges, but not all are the same length. |
| I have three sides/edges. |
| I am a curved shape, but I am not a circle. |

## Activity 2

**bd06121_ For you to do – 3D objects**

In this activity you will:

* complete the chart, filling in the name of each 3D object

Choose from this list: triangular prism, rectangular prism, square pyramid, cube.

* identify and list the 2D shapes in each of the pictured objects
* count how many of each different 2D shape is in each object.

You cannot see all sides of the object. You can check your answers after you complete Activity 3.

|  |  |  |  |
| --- | --- | --- | --- |
| **3D object** | **Name of 3D object** | **2D shapes it is made from** | **How many of each 2D shape?** |
| Toblerone | triangular prism | triangle  rectangle | 2  3 |
| pyramid |  |  |  |
| cereal_box |  |  |  |
| b0681 |  |  |  |

**Activity 3**

**bd06121_** For you to do – Make 3D objects

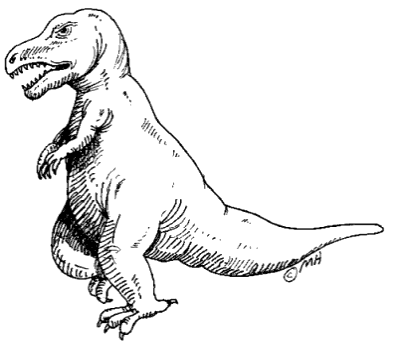
* Look at the pictured shape patterns.
* Write the name of the 3D object you think you could make from each shape pattern.
* Cut out each shape and fold along the lines.
* Use glue or sticky tape to hold the shapes together.

|  |  |
| --- | --- |
| **cube** | pyramid1 |
|  |  |
| net_for_rect_prism | tri prism2 |
|  |  |



…a Tyrannosaurus Rex

could eat up to 230 kg of meat in one bite!



# 10

## Focus

C:\Users\lmarcon\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\JQ2551LD\MC900141353[1].wmf

Time to revise work covered.

**Completing the work**

|  |
| --- |
| **Looking Back**  Test your knowledge on work covered.  Complete without the assistance of your supervisor.  When you have completed your work ask your supervisor to correct your work and discuss any problems. |

|  |
| --- |
| Comments Did you have any problems? yes/no  Did you find the work easy? yes/no  How can I help you? |

## Activity 1

**bd06121_ For you to do – Times tables practice**

How quickly can you complete these times tables today?

|  |  |  |
| --- | --- | --- |
| 1 ≈ 12 = | 3 ≈ 6 = | 4 ≈ 4 = |
| 2 ≈ 8 = | 4 ≈ 5 = | 5 ≈ 12 = |
| 3 ≈ 7 = | 5 ≈ 3 = | 6 ≈ 6 = |
| 4 ≈ 10 = | 6 ≈ 1= | 10 ≈ 12 |
| 5 ≈ 5 = | 10 ≈ 8 = | 1 ≈ 3 = |
| 6 ≈ 12 = | 1 ≈ 9 = | 2 ≈ 11 = |
| 10 ≈ 10 = | 2 ≈ 1= | 3 ≈ 9 = |
| 1 ≈ 8 = | 3 ≈ 12 = | 4 ≈ 9 = |
| 2 ≈ 10 = | 4 ≈ 8 = | 5 ≈ 9 = |
| 3 ≈ 3 = | 5 ≈ 7 = | 6 ≈ 7 = |
| 4 ≈ 2 = | 6 ≈ 9 = | 10 ≈ 11 = |
| 5 ≈ 11 = | 10 ≈ 2 = | 2 ≈ 5 = |
| 6 ≈ 4 = | 1 ≈ 11 = | 3 ≈ 2 = |
| 1 ≈ 0 = | 2 ≈ 7= | 4 ≈ 0 = |
| 2 ≈ 12 = | 3 ≈ 7 = | 5 ≈ 4 = |
| Time taken:Faster than day 7? Yes/No | | |

## Activity 2

**bd06121_ For you to do – Match the shape to the description**

Draw a line from the description to the matching shape

|  |  |
| --- | --- |
| My sides are all the same length. I have six faces.  I am a three-dimensional object. | gr4_m_what_are_nets1  sphere  prism3pyramid1pyramidCuberect prismconecube2pyramid1 |
| I am a two-dimensional shape. I have no straight edges.  Whichever way you cut me in half,  I will remain symmetrical. |
| I have length, width and height.I have five faces. One of my faces is a different shape to the other four. |
| I am a two dimensional shape.I can be folded into a 3D object with six faces. Two of my faces are square. |
| I am a three-dimensional object. I have no straight edges. |
| I am a three-dimensional object. I have straight edges.  Two of my faces are different from the other three. |

## Activity 3

**bd06121_ For you to do –**

Complete these equations. Use the array to help you. You might like to number the squares, or write the 6x table on the array.

|  |  |
| --- | --- |
| 6 × 6 = | 24 – 6 = |
| 10 × 6 = | How many 10s in 60? |
| 18 + 6 = | 24 take away 6 = |
| 6 × 7 = | 42 – 6 = |
| 10 + 6 = | 42 and 6 more equals\_\_\_\_ |
| 6 + 6 + 6 + 6 = | 24 – 6 – 6 – 6 – 6 = |
| 36 – 6 = | 24 + 6 – 6 = |
| 2 × 6 = | 36 how many 6s = |
| 6 × 10 = | 8 groups of 6 = |
| 6 × 1 = | How many 6s in 60? |

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| Array: |  |  |  |  |  |
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**Activity 4: Addition Strategies**

Solve these equations using a partitioning strategy. Remember to partition means to break up a number into its place value amounts so that they are easier to add.

|  |  |
| --- | --- |
| 42 + 23 = | 53 + 34 = |
| 23 + 71 = | 46 + 62 = |
| 72 + 16 = | 123 + 62 = |



...the longest distance a peanut has been

thrown is 34.1 metres.

The throw was made by a Tasmanian in 1999.

Look out!

MC900348313[1]

**Comments**

Did you have any difficulties? Was it too easy? Did you need assistance? Were the instructions easy to follow? I’d like to know how you managed with your Week 2 work.

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Take a look at the front at front of this book and respond to the question. Write a sentence about it.

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Congratulations!

You have completed another section!

j0078742

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| **4C MaSh 28 Dog's Bones 1** |

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| 4C MaSh 28 Dog's Bones grid |

|  |
| --- |
| 4C MaSh 28 Dog's Bones grid |

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| **Maths Activity—Dog’s Bones** |

**Did you talk to your other team members about this activity before you began? What did you talk about?**

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**Explain how you looked for the dog’s bones in this activity. Did your other team members find the bones in the same way?**

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**How could you change or play this game differently?**

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**Supervisor report** (Please briefly comment on your student’s strategies, planning and organisation for this project).

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**TEACHER ASSESSMENT**

*How do I measure length without a ruler?*

Student: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| Description | Demonstrated | Needs further opportunity |
| Measure, order and compare objects using familiar metric units of length, mass and capacity |  |  |
| Recognise, model, represent and order numbers to at least 10 000 |  |  |
| Describe, continue, and create number patterns resulting from performing addition or subtraction |  |  |
| Recall addition facts for single-digit numbers and related subtraction facts to develop increasingly efficient mental strategies for computation |  |  |
| Recall multiplication facts of two, three, five and ten and related division facts |  |  |
| Apply place value to partition, rearrange and regroup numbers to at least 10 000 to assist calculations and solve problems |  |  |
| Make models of three-dimensional objects and describe key features |  |  |

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| **YOUR QUESTIONS OR COMMENTS** |