## Mathletics

## (C) Student <br> 

## Time and Money

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## Series Author:

## Rachel Flenley

## Time - months of the year

1 a Fill in the missing letters in these months of the year.

$\square$

$\square \quad e c \_\ldots b \ldots r$ Fe_ru $\qquad$
b Number them 1 to 12, starting with January.

2 Guess the mystery months.
a I come after April but before June. I am $\square$
b I have 7 letters in me. I have an ' $o$ ' and $a$ ' $b$ '. $\square$
cI am the 2nd last month of the year. I am $\square$

## Time - months of the year

1 What special things happen in your world over a year?
a Ask your friends and family for ideas and draw or write them in the matching boxes.
copy
$+8$

| October | July | March |
| :---: | :---: | :---: |
| April | September | November |
| January | August | May |
| December | February | June |

b Did you notice that the months are in the wrong order? Cut the boxes out and reorder them. Stick them onto a new page.

## Time - calendars and dates

Calendars are usually organised month by month.
This calendar page shows
January.
The 1st day of this January is on a Monday.
The last day of this January is on a Wednesday.

| January |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sunday | Monday | Tuesday Wednesday | Thursday | Friday | Saturday |  |
|  | 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 |  |  |  |

1 Use the calendar below to answer the questions.
a How many Tuesdays are there in October? $\square$
b How many Sundays are there in October?
c Luke's birthday is circled. Pretend today is 17th October. How many days till his birthday?
d If you had to feed your fish every 2nd day, how many times would you feed your fish in October? Start feeding them on the 1st.

e Find the mystery date.
I have a 2 in the tens place. I am even.
I am on a Sunday.
I am


| Octo ber |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|  | 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 |  |  |  |

## Time - calendars and dates

We can name and write dates in lots of different ways.
The ninth day of August 2014 could be written as:
9th August 2014
9 August 2014
August 9th 2014
9-8-14
09-08-2014

1 Write your birth date as many ways as you can.


2 How many days in a ...
a week $\square$
b fortnight $\square$
c year

d leap year $\square$

3 Where do you think the word fortnight comes from?

4 When will the next leap year be?

## Time - calendars and dates

11 of the months have either 30 or 31 days in them. One month has 28 days or 29 in a leap year.
How do we remember which month has which number of days?
One way is to learn a simple rhyme.

1 Can you fill in the missing words in the rhyme? If you don't know the answers, research with a partner.

30 days has September, $\qquad$ , $\qquad$ and November.

All the rest have $\qquad$ , except February alone, which has $\qquad$ days clear, and $\qquad$ each leap year.

2 Write the number of days in each month.

January $\qquad$ February $\qquad$ March $\qquad$ April $\qquad$
$\qquad$ June $\qquad$ July $\qquad$ August $\qquad$
September $\qquad$ October $\qquad$ November $\qquad$ December $\qquad$

3 Which month am I?
a I have 31 days.
The month before me has 28 days.
The month after me has 30 days.
I am
b I have 31 days.
The month before me also has 31 days.
The month after me has 30 days.
I am

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## Time - seasons

Many places experience 4 seasons in a year. Each season lasts for 3 months. Hot places near the equator often only have 2 seasons, called the wet and the dry.

## You will need: 3 partners of scissors <br> the next page

## What to do:

Find out which months match the seasons where you live.
Cut out the four seasons. Without looking, choose a season each. Now cut out the months of the year (on page 7) and place them face down. Take turns turning over a month card. If it matches your season, keep it. If it doesn't, put it back. The winner is the 1st player to collect all 3 matching months.
If you live somewhere with just 2 seasons, make cards to match your seasons and play with one partner.

## winter

## spring

## summer

## autumn

Time - seasons

## January

## February

March
April

May
June

July

## August

## September

## October

November
December

## Time - ordering events

You will need: a black pen or pencil

## What to do:

Think of 8 things you do over a school day. Write or draw them in the boxes.


## What to do next:

Cut out the boxes and ask a partner if they can reorder them for you. You can give clues to help.

## Time - duration and language of time

1 What are some words we use when we are thinking or talking about time? Add them below.

## moming

2 Write or draw some things that you usually do ...
slowly
at the same time each day
at different times over the day

## Time - duration and language of time

1 Think about roughly how long it takes you to do the actions on the right side of the page. Then draw or write an action on the left side of the page to match the statement.

d

takes less time than

$\square$ takes about the same time as


## Time - hours, minutes and seconds

How long is a minute? What does it 'feel' like? One way to tell is to find out what we can do during that time.

You will need: a partner a stopwatch

## What to do:

Your project is to work out how many times you can do the following actions in a minute. Ask your teacher to show you how to work and read your stopwatch to 1 minute. Take turns timing each other. It can be tricky timing and counting, so it works best if the person doing the action counts the numbers as well. You could also ask a third person to count.

I can tie my shoelaces $\square$ times in 1 minute. I can do $\square$ star jumps in 1 minute.

I can run around the basketball court times in 1 minute.


I can


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## Time - hours, minutes and seconds

1 What are some things you might spend an hour doing? Record them.

2 Put a circle round the above things you would enjoy doing for an hour. Does the hour feel like it goes quickly or slowly when you are enjoying the activity?

3 For this activity you will need a stopwatch and a partner. Spend 1 minute playing a computer game such as Live Mathletics. Now spend 1 minute sitting still in ABSOLUTE silence. Do they feel the same? Why or why not?

## Time - hours, minutes and seconds

How long is a second? Say, "1 elephant" at your normal talking speed. That was a second!

1 What are some things that take a second to do? Use '1 elephant' as your timer to find out. Record them.

Our time system is based on 60. There are 60 seconds in a minute and 60 minutes in an hour.

2 How many star jumps could you do in a minute? Time yourself and see. I can do $\qquad$ star jumps in 1 minute.

3 Now see how many star jumps you can do in 60 seconds. Get a partner to time you with a stopwatch or count in 'elephants' to 60 . I can do star jumps in 60 seconds.

4 Are your answers the same? Why or why not, do you think?

5 Let's say you are super fit and can keep going at the same pace. What sum could you do on the calculator to find out how many star jumps you could do in an hour? Write it and find the answer.

## Time - o'clock

Look at this clock.
The minute (big) hand is pointing to the 12 .
When this happens we know that it is an o'clock time.
The hour (little) hand is pointing to the 11.
The time is $\mathbf{1 1}$ o'clock.
On a digital clock this looks like 11:00.


## 11:00

1 Write the digital time below each clock face.



d


2 Now draw the digital time onto the clock face.



3 What is something you might be doing at this time at night? $8: 00$
Draw or write it.

## Time - half past

The time shown on this clock is $\mathbf{2}$ o'clock.
The minute (big) hand is on the 12.
The hour (little) hand is on the 2 .



The time shown on this clock is half past 2.
The minute hand has moved halfway to the next hour. It is pointing to the 6 .
The hour hand has also moved halfway to the next hour. It is halfway between the 2 and the 3 .

1 What is the time?
 half past __


2 Draw the hour hands on the clocks to finish the times.


## Time - half past

When making half past times on clocks we need to make sure we draw the hour hand halfway between the hours, not on the hours. We also have to make sure the minute hand is longer than the hour hand, otherwise we can't tell the time properly.

1 Draw in the missing hands to finish these half past times.
a



2 What are some things you do over the day at a half past time?

## Time - half past

This clock shows half past 1.
We know there are 60 minutes in an hour and half of 60 is 30 . Half past means it is 30 minutes past the hour.


This is how we show it in digital time: 1:30

1 Show these times in digital form.



2 Millie, our maths helper, has written these digital times for us but we're not sure she got them all right. Tick the ones that are right and write the proper time under any wrong ones.




3 What error was she making?

## Time - half past

You will need:
a partner
2 clocks with movable hands

## What to do:

Cut out the times on page 19 and turn them face down. Take turns turning over a card and making that time on your clock.
Show your partner. If they think it's correct, you keep the card. If they disagree with you, ask a third person or your teacher.
The person with the most cards at the end of the game, wins.


## What to do next:

You could play speed time instead. Turn over a card and both of you make the time as fast as you can. The first person to make the time and then put their hands on their head, takes the card.
OR
Play memory and match cards that give the same time such as 7:30 and half past 7 .

Time - half past

8:30

## 4 o'clock

## half past 3

2:30

4:30

## eight thirty

## 9 o'clock

2:00

5 o'clock

19

## Time - quarter past

The time shown on this clock is $\mathbf{2}$ o'clock. The minute (big) hand is on the 12.
The hour (little) hand is on the 2 .


The time shown on this clock is quarter past 2.
The minute hand has moved a quarter of the way to the next hour. It is pointing to the 3 .
The hour hand has also moved a quarter of the way to the next hour.

1 What is the time?

b


C


2 Draw the missing hands on the clocks to finish the times.


## Time - quarter past



This clock shows a quarter past 4.
We know there are 60 minutes in an hour and one quarter of 60 is 15 . Quarter past means it is 15 minutes past the hour.

This is how we express it in digital time:

```
4:15
```

1 Express these times in digital form.
a $\left(\begin{array}{ccc}11 & 12 & 1 \\ -10 & & \\ -9 & & 3 \\ -8 & & 3 \\ 8 & 6 & 5\end{array}\right]$

b


d


2 Draw lines to match the quarter past times.


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## Time - quarter to



The time shown on this clock is a quarter to 6 . This means that 45 minutes have passed since 5 o'clock and that it is 15 minutes until 6 o'clock.

In digital form, we write this as $\square$

1 What is the time?
a

b

c
$3: 45$
quarter to

d

quarter to

2 Draw the missing hands on the clocks to finish the times.


d



## Time - quarter to and past

## What to do:

Cut out the time cards and place them face down. Choose who will go first. Turn over two cards. If they match, and you can make the time on the clock, you keep them. Play until all the cards are gone.


23

## Time - a day

There are 24 hours in a day. There are 12 hours on a clock so a day is made up of ' 2 clocks'.


You are probably in school at 9 o'clock in the morning.


You are probably in bed at 9 o'clock at night.

1 Write or draw what you might be doing at:


2 Look at the digital clocks around your house. How do they show the difference between 8 o'clock in the morning and 8 o'clock in the evening?

How do we write amounts with dollars and cents?

## We keep the dollar sign. $\$ 20$. We remove the c sign.

We put a decimal point between the dollars and cents.
If the amount has no cents we can write it as:

## \$2 г $\$ 2.00$

If the amount has no dollars we can write it as:

## 50c or \$0.50

1 Write the amounts on the price tags.
a one dollar
c 12 dollars and 50 cents

e 27 dollars

b 80 cents

d 30 cents

f 10 cents


2 Put these amounts in order of value from least to most.


## Money - skip counting

Knowing how to count by $5 \mathrm{~s}, 2 \mathrm{~s}$ and 10 s is useful when we are working with money. And if we know how to count by 2 s and 5 s , we can count by 20s and 50s.

1 Fill in the missing amounts on the number lines.

b


2 How much money?


## Money - skip counting

## You will need: <br> 1 to 3 partners <br> Ot scissors <br> a die

## What to do:

Each player cuts out the notes on page 28. You'll also each need the score card below. Combine all the notes into 1 'bank', keeping the values separate (keep all the $\$ 10$ notes together etc).
Take turns rolling the die. First you will roll for $\$ 50$ notes. Take the number of notes the die shows and record how much money you make.
Then roll for $\$ 20$ notes, $\$ 10$ notes and finally $\$ 5$ notes. Record the amounts as you go.
How much money does each player have at the end of the game? You can use a calculator to help add the amounts. Who is the richest?


Altogether I have: $\square$

## What to do next:

How much money do you have as a group? $\square$

## Money - skip counting

## of



Another useful skill to have is recognising coins that add to make easy amounts. Look at these coins:


We could add them like this but there are easier ways.
We could rearrange the coins like this. Now we have:


1 Warm up by adding these coin combinations.

| a $5 c+5 c$ | b $5 c+10 c=15 c$ | c $3 c+3 c$ |
| :---: | :---: | :---: |
| $10 c+10 c=$ | $5 c+20 c=$ | $30 c+30 c=$ |
| $20 c+20 c=$ | $5 c+30 c=$ | $4 c+4 c=$ |
| $50 c+50 c=$ | $5 c+40 c$ | $40 c+40 c=$ |
| \$1+\$1 = | $5 c+50 c$ | $2 c+3 c$ |
| \$2+\$2 $=$ | $10 c+20 c=$ | $20 c+30 c=$ |
| $25 c+25 c=$ | $10 c+30 c=$ | $2 c+4 c=$ |
| \$2.50 + \$2.50 = | $10 c+40 c=$ | $20 c+40 c=$ |

## Money - adding coins

1 Find a way to add these groups of coins. Write the total in each box.


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## Money - adding coins

## You will need: plastic coins

## What to do:

Use coins to make a picture such as the ideas on the right. Record your picture in the box and then add up how much it costs.

$\square$
My drawing costs:

## What to do next:

Compare your picture with those of your classmates. Whose picture was most expensive? Whose was cheapest?

## Money - amounts to \$2



## What to do:

We can make amounts in many different ways. Work with your partner to find 2 ways to make these amounts. Record them.

70c

## \$1.50

## \$1.20

## 

## What to do:

By making a donation of $\mathbf{\$ 1}$, you can send these dogs to good homes. Work with your partner to:
a Rescue this dog by using 1 coin to make $\$ 1$. Show how you did it.

c Rescue this dog by using 4 coins to make \$1. Show how you did it.



Rescue this dog by using 2 coins to make \$1. Show how you did it.
d Rescue this dog by using 5 coins to make \$1. Show how you did it.


## What to do next:

What is the greatest number of coins you can use to rescue this dog? (That's if you dare.) He also costs $\$ 1$ to rescue. Show how you did it.

## Money - amounts to \$2

1 Mara thinks the amounts on the left are the same as the amounts on the right. Tick the ones she gets right. Fix any she gets wrong by drawing more coins or crossing out extra coins to make them the same.
a



d



## Money - amounts to \$5

1 You are at your school fair. Show which coins you could use to buy:

|  |  |  |
| :---: | :---: | :---: |
|  |  |  |




## Money - amounts to \$5

## Price list

| Salad sandwich .. $\$ 3.00$ | Sausage roll... $\$ 2.20$ | Juice .... $\$ 1.50$ |
| :--- | :--- | :--- |
| Sushi roll............ $\$ 2.00$ | Cookie .......... $\$ 1.00$ | Water... $\$ 1.50$ |
| Ham and  <br> cheese toastie ..... $\$ 1.50$ Fruit .............. $\$ 0.50$ |  |  |

1 Make yourself a lunch order up to the value of $\$ 5$. Write it on the lunch bag.


2 Your friend also has \$5 and wants to order:


Can she do it? Why or why not?

## Money - change

One way of working out change is to imagine adding coins until you get to the amount you paid. It's a way of counting on.
We buy an for 80c and pay with a $\qquad$ How much change should we receive?

We can make 80c like this
 If we add we have
 So is our change.

1 Draw the coins you would need to add to get to the amount you paid. This is your change.

| You pay with | Cost | Coins to add | Change |
| :---: | :---: | :---: | :---: |
|  |  |  | ¢¢ |
| 502 |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## Money - change

A book costs $\$ 2.00(\$ 2)$. We pay with a $\$ 5.00(\$ 5)$ note. How much change should we receive? One good strategy is to count on using a number line.
We start at $\$ 2.00$.
We make 3 jumps of $\$ 1.00$.
 We should receive $\$ 3.00$ change.

1 How much change?

| Item and cost | You pay with | Number line | Change |
| :---: | :---: | :---: | :---: |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

## Money - change

A cake costs $\$ 2.60$. We pay with a $\$ 5.00$ note. How much change should we receive? We can count on to find out.
First we count the cents on to the nearest dollar. We start at 60c and make 4 jumps of 10 c to 100 c . We have jumped 40 c and we are now at $\$ 3.00$.


Then we count the dollars on to $\$ 5.00$.
We make 2 jumps.
$40 c+\$ 2.00=\$ 2.40$


We should receive $\$ 2.40$ change.

1 Use the number lines in the help strip to work out the change.

| Item and cost | You pay with | Working out | Change |
| :---: | :---: | :---: | :---: |
| $\begin{aligned} & 3.8 \\ & \$ 3.60 \end{aligned}$ |  | $\ldots$ |  |
| $\begin{array}{r} 6 \\ \$ 1.80 \\ \hline \end{array}$ | $52^{\circ}$ | ___c + \$ |  |
| $\sum_{\$ 2.30}^{\substack{4 \\ 4 \\ \hline}}$ |  | $\ldots$ |  |

