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Year 4

Small Steps Guidance and Examples

Block 3 – Time

White Rose Maths

Year 4 – Yearly Overview

	Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
Autumn	Number – Place Value				Number- Addition and Subtraction			Measurement - Length and Perimeter	Number- Multiplication and Division			Consolidation
Spring	Number- Multiplication and Division			Measurement - Area	Fractions				Decimals			Consolidation
Summer	Decimals		Measurement- Money		Time	Statistics		Geometry- Properties of Shape		Geometry- Position and Direction		Consolidation

Overview

Small Steps

- Hours, minutes and seconds
- Years, months, weeks and days
- Analogue to digital – 12 hour
- Analogue to digital – 24 hour

NC Objectives

Read, write and convert time between analogue and digital 12- and 24-hour clocks.

Solve problems involving converting from hours to minutes; minutes to seconds; years to months; weeks to days.

Hours, Minutes & Seconds

Notes and Guidance

Children recap the number of minutes in an hour and seconds in a minute from Year 3

They use this knowledge, along with their knowledge of multiplication and division to convert between the different units of time.

Mathematical Talk

What activity might last one hour/minute/second?

How many minutes are there in an hour?

How can we use a real clock to check? How could we count the minutes?

How many seconds are there in one minute? What could we use to check?

How many minutes in ____ hours? How many seconds in ____ minutes?

Varied Fluency

- 1 Sort the activities under the headings depending on the approximate length of time they take to complete.

One hour	One minute	One second
Clap	Run around the playground	Blink
Swimming lesson	PE lesson	Tie your shoe laces

- 2 One hour = minutes One minute = seconds
 Two hours = minutes Three minutes = seconds
 Half an hour = minutes minutes = 240 seconds
- 3 Josh reads a chapter of his book in 5 minutes and 28 seconds.. Tom reads a chapter of his book in 300 seconds. Who reads their chapter the quickest?

Hours, Minutes & Seconds

Reasoning and Problem Solving

Harry takes part in a sponsored silence.

He says,



If I am silent for five hours at 10p per minute, I will raise 50 pounds.

Do you agree with Harry?
Explain why.

I don't agree with Harry. There are 60 minutes in an hour so
 $60 \times 10p = 600p$
 or £6
 $£6 \times 5 = £30$

Ria says,



To convert hours to minutes, I multiply the number of hours by 60

Is she correct? Can you explain why?

Ria is correct. For example
 1 hour = 60 minutes
 $1 \times 60 = 60$
 2 hours = 120 minutes
 $2 \times 60 = 120$

Five friends run a race.

Their times are shown in the table.

Name	Time
Megan	1 minute 18 seconds
Holly	102 seconds
Charlie	100 seconds
Ruby	1 minute 45 seconds
Joses	95 seconds

Can you work out the order the children finished in?

What was the difference between the fastest time and the slowest time?

First – Megan
 Second – Joses
 Third – Charlie
 Fourth – Holly
 Fifth – Ruby

Fastest time 78 seconds, slowest time 105 seconds.
 $105 - 78 = 27$ seconds

Years, Months, Days & Weeks

Notes and Guidance

Children recap the concept of a year, month, week and day from Year 3

They use this knowledge, along with their knowledge of addition, subtraction, multiplication and division to convert between the different units of time.

Mathematical Talk

How many days are there in a week? How many days are there in each month? How could we work out the number of days in a year?

How many weeks in a month/year?

How many days are there in ____ weeks? What calculation do we need to do to convert days to weeks/weeks to days?

How many months/weeks/days are there in ____ years?

Varied Fluency

- 1 Use a calendar to help you complete the sentences.

There are months in a year.

There are days in February..

months have 30 days, and months have 31 days.

There are days in a year and days in a leap year.

- 2 Complete the table.

Number of days	Number of weeks
	5
49	
	12

- 3 Sally is 7 years and 2 months old.
Macey is 85 months old.
Who is the oldest?
Explain your answer.

Years, Months, Days & Weeks

Reasoning and Problem Solving

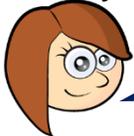
Raj, Lois and Seb describe when their birthdays are.

Raj says,



My birthday is in 96 hours.

Lois says,



My birthday is in exactly 2 months.

Seb says,



My birthday is in 35 days.

Use the clues to work out when their birthdays are if today is the 8th June.

Work out when your birthday is from the 8th June.

Raj – 96 hours is equal to 4 days so his birthday is 12th June.

Lois – 8th August

Seb – there are another 22 days left in June plus 13 in July, so his birthday is 13th July.

Always, sometimes, never.

There are 730 days in two years.

Sometimes – if both of the years are not leap years this is true. If one is a leap year then there will be 731 days in the 2 years.

True or false?

- 3 days is $>$ than 72 hours.
- $2\frac{1}{2}$ years = 29 months
- 11 weeks 4 days $<$ 10 weeks 14 days

FALSE – 3 days is equal to 72 hours
 FALSE – $2\frac{1}{2}$ years is greater than 29 months
 TRUE

Analogue to Digital – 12 hour

Notes and Guidance

Children convert between analogue and digital times using a 12 hour clock only. They use am and pm to distinguish between times in the morning and afternoon.

They understand that how many minutes past the hour determines the digital time.

It is important for children to recognise that the digital times need to be written in 4-digit format. For example, 09:30 not 9:30

Mathematical Talk

- What time is the analogue clock showing?
- How many minutes is it past the hour? How can you count the minutes efficiently?
- How do we record each time in digital format?
- What does am/pm mean?
- Can you order the activities starting with the earliest?
- What would the time look like on Alfie’s digital watch when he left home?

Varied Fluency

1



The time is past 10

This can also be written as minutes past 10

The digital time is :

Write each of these times in the digital format.



2

Record the time of each activity in digital format.

Netball		PM	
Football		AM	
Rock climbing		PM	
Roller disco		AM	

3

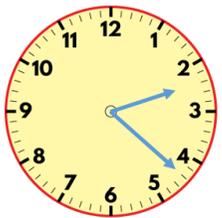
Alfie leaves home at the time shown. He arrives at school 47 minutes later. What will the time look like on Alfie’s digital watch?



Analogue to Digital – 12 hour

Reasoning and Problem Solving

Akeela converts the analogue time to digital format.
Here is her answer.



22 : 02

Explain what Akeela has done wrong.
What should the digital time be?

Investigate!

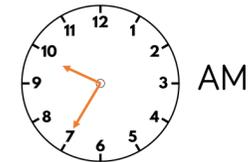
On a 12 hour digital clock, over 12 hours, how many times does the number 4 appear?

Akeela has recorded the minutes past the hour first instead of the hour.
The time should be 02 : 22

Children can work systematically to work this out. For example, 01:04, 01:40, 01:14, 01:24 etc.

Jack arrives at the train station at the time shown.

Which trains could he catch?



Destination	Departs
New Pudsey	09 : 25 AM
Bramley	09 : 42 AM
Leeds	10 : 03 AM
York	07 : 10 AM

How long will Jack have to wait for each train?

Jack could catch the train to Bramley or Leeds.

He would have to wait 7 minutes to go to Bramley and 28 minutes to go to Leeds.

Analogue to Digital – 24 hour

Notes and Guidance

Children now move on to convert between analogue and digital times using a 24 hour clock.

They use 12 and 24 hour digital clocks, and a number line to explore what happens after midday.

Mathematical Talk

What do you notice about the time 1 o'clock on a 24 hour digital clock?

What do you think the digital time will be for 3 o'clock in the morning/evening? How do you know?

What time is the analogue clock showing?

Why is it important to know if it is AM or PM?

Would Sally be more likely to leave school during AM or PM?

What time does she leave school on a 24 digital clock?

Varied Fluency

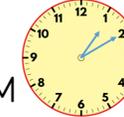
- 1 Explore an interactive 12 and 24 hour digital clock with the children. Compare what happens when the time reaches 1 o'clock in the afternoon. Move the 24 hour clock on to 2 o'clock. Plot the times above a 0-24 number line.

What do you notice?

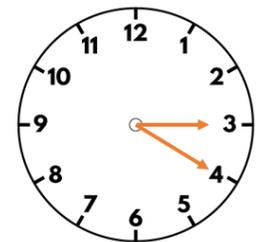
Record these times using 24 hour digital format.

4 pm 8 pm 11 pm

- 2 Match the analogue and digital times.

AM		PM		PM		AM	
	<input type="text" value="13:10"/>		<input type="text" value="07:10"/>		<input type="text" value="00:45"/>		<input type="text" value="21:20"/>

- 3 Sally leaves school at the time shown. She arrives at the swimming pool 40 minutes later and has a 1 hour swimming lesson. She arrives home 50 minutes later. Show what time Sally gets home in 24 hour digital format.



Analogue to Digital – 24 hour

Reasoning and Problem Solving

Three children are meeting in the park.

Beth says,



We are meeting at 14:10

Tim says,



We are meeting at 02:10 pm

Faye says,



We are meeting at ten to two.

Will all the children meet at the same time?

Convince me.

Not all of the children will meet at the same time. Beth and Tim will because 14:10 and 02:10 in the afternoon are the same time. If we convert Faye's time to 24 digital time, she will arrive at the park at either 01:50 or 13:50

Seb says,



To change any time after midday from 12 hours to 24 hours digital time just add 12 to the minutes.

True or false? Explain your thinking.

FALSE

You need to add 12 to the hour not the minutes.

Can you match the time dominoes together so that the adjoining times are the same?



Can you create your own version for your partner?

Children may find more than one way to solve this.