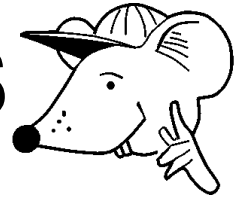


MATHEMATICS



N.S. Yr. 4 P.98

**Vocabulary of time.
Estimating and measuring time.**

Equipment

Pencil, paper, clocks and stopwatches.

MathSphere

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Concepts

Children should understand and be able to use the following vocabulary:

Sunday to Saturday, January to December, Spring to Winter.

Day, week, fortnight, month, season, year, leap year, century, millennium, morning, afternoon, evening, night, midnight, noon, hour, minute, second, today, yesterday, tomorrow, weekend, a.m., p.m., how long ago, how long will it be to, arrive, depart, faster, fastest, slower, slowest, takes less time, earliest, latest.

Children should know the main units of time and how they relate to other units:

1 millennium	= 1 000 years
1 century	= 100 years
1 year	= 12 months or 52 weeks
1 week	= 7 days
1 day	= 24 hours
1 hour	= 60 minutes
1 minute	= 60 seconds

They should know and be able to apply the rhyme:

30 days hath September
April, June and November.
All the rest have 31,
Except February alone,
Which has but 28 days clear
And 29 in each leap year.

They should know their own date of birth.

Children should be able to suggest suitable units to measure everyday events such as seconds to measure the time for ten breaths.

They should be able to choose a suitable timing device such as a stop watch for timing the boiling of an egg.

They should then be able to take simple measurements of a range of times.

Lastly, they should be able to give a reasonable estimate of times.

1. Practise saying the following rhyme until you know it well:

***30 days hath September
April, June and November.
All the rest have 31,
Except February alone,
Which has but 28 days clear
And 29 in each leap year.***

2. Now you should be able to answer the following questions:

- a. How many days are there in October?
- b. How many days are there in May?
- c. How many days are there in September?
- d. How many days are there in June?
- e. How many days are there in February in a normal year?
- f. How many days are there in February in a leap year?
- g. Which months have exactly 30 days?
- h. Which months have exactly 31 days?

3. Eight boys and girls took part in a cycle race.

Here are their starting times and the time they took for the race:

Name	Starting Time	Cycling Time
Jennifer	2.30 p.m.	1 hour 20 mins
Farzin	2.40 p.m.	1 hour 12 mins
Peter	2.10 p.m.	1 hour 19 mins
Michelle	2.50 p.m.	1 hour 22 mins
Terry	2.20 p.m.	1 hour 31 mins
Jemima	3.00 p.m.	1 hour 41 mins
Dieter	2.00 p.m.	1 hour 37 mins
Natasha	3.10 p.m.	1 hour 26 mins

- a. Who was the fastest cyclist? Who was the slowest?
- b. Who departed first? Who departed last?
- c. Which cyclists took longer than Michelle?
- d. Jennifer set off at 2.30 p.m. How much longer was it before Natasha set off?
- e. Dieter had his last drink at 3.30 p.m. How much longer did he have to go in the race?

1. What are the four seasons of the year, in order?
2. How many days are there in a week?
3. How many days are there in a fortnight?
4. Which days are weekend days and which are weekdays?
5. Name the twelve months in order.
6. Which months come between April and August?
7. In which month is Christmas Day?
8. What is the date of Valentine's Day?
9. Which century are we living in now?
10. A train departs from a station at 3.40 p.m. and takes 3 hours for its journey.
At what time does it arrive at the end of its journey?
11. Which is the earliest time in the day?

6.40 a.m., 3.45 a.m., 2.35 p.m., 12 noon, 6.00 p.m.

12. Which is the latest time in the day?

7.40 p.m., 5.20 a.m., 3.45 p.m., 8.23 a.m.

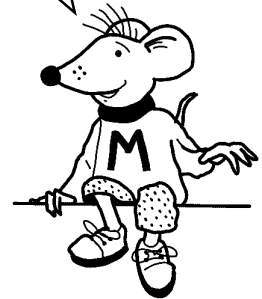
13. Which is the earliest day of the year?

February 23rd, January 16th, May 8th, February 12th, January 18th

14. Which is the latest day of the year?

September 5th, October 16th, November 22nd, September 17th

You will need to think carefully to answer all these questions!



1. How many years are there in one millennium?
2. How many years are there in three millennia?
3. John takes nine days to travel across Egypt. Is this longer or shorter than a week?
4. Jenny takes 55 minutes to get ready for school. Is this longer or shorter than one hour?
5. How many hours are there in three days?
6. Tom wants to find out how long a million seconds is.
He uses his calculator to work out how many minutes this is. He divides one million by 60.
Next he divides by 60 again to find out hours this is.
Lastly, he divides by 24 to find out how many days this is.

Try it yourself to see how many days there are in one million seconds.

7. Michael starts a new job. The job is to last 110 weeks. Is this more than a year?
Is it more than two years? Is it more than three years?
8. Use a calculator to work out how many seconds there are in one hour.
9. Amanda has a clock that gains ten seconds every day.

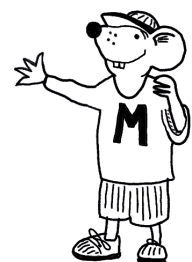
How fast is her clock after two weeks?

10. Divvy runs for 50 seconds, walks for 75 seconds
and then cycles for 55 seconds.
How many minutes is this altogether?
11. What is your date of birth. Give the day, month and year.

Write down the dates of birth of some of your family members.

That's a long question!

That's nothing.
Mine gains 25
seconds every day!



Measuring

1. Which of these would you measure in hours:

A train journey from Birmingham to London (100 miles).

The time it takes to boil an egg.

The time it takes to say your five times table.

The length of your school day.

The time it takes the Earth to go around the Sun.

Taking a photograph.

2. Write down an estimate for each of these: Say which units you are using.

The time it takes to have your breakfast.

The time it takes to get to school.

The time it takes for a ball to drop to the floor.

The time it takes to build a house.

The time it takes to iron a shirt.

The time it takes to become an adult.

3. Ask your friends how much television they watch each day and fill in this table.

Name of friend	Time watching TV

4. Which of your friends watch more television than you?

Which of your friends watch less television than you?

Measuring

1. Here are some things to do outdoors.

Choose a nice day!

Take a stopwatch and time yourself and some friends doing these activities.

Put your friends' names in these top boxes.



Event	Me			
Run 100m				
Hop 30 times				
Walk backwards				
Skip 40m				
Dribble a ball 30 m				
10 breaths after hard running				

Put in this table who was quickest and who was slowest in each event.

Event	Quickest	Slowest
Run 100m		
Hop 30 times		
Walk backwards		
Skip 40m		
Dribble a ball 30 m		
10 breaths after hard running		

Here are some tricky puzzles to try.

1. Have you lived more or less than 3 000 days?
2. How many weeks is it since January 1st 1990 ?
3. How many weeks are there in a millennium?
4. Line your class up across your school field or down a quiet pavement (make sure an adult is with you if you use the road).

Everybody closes their eyes except one person.

The person at one end bangs two pieces of wood together and everybody else puts up their hand when they hear the bang.

The person with their eyes still open times how long the sound takes to travel along the class.

You will need a distance of over 100m to get a good result.



Just put your hand up,
Addy!!!!!!

5. Find out how long it takes to fly to different places around the world from one of the London airports. Put your results in this table:

Place	Flight time

Answers

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2. a. 31 b. 31 c. 30 d. 30 e. 28 f. 29 g. April, June, September, November
h. January, March, May, July, August, October, December

3. a. Fastest: Farzin. Slowest: Jemima
b. First: Dieter Last: Natasha
c. Terry, Jemima, Dieter, Natasha
d. 40 minutes
e. 7 minutes

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1. Spring, summer, autumn, winter
2. 7
3. 14
4. Weekend: Saturday, Sunday. Week: Monday, Tuesday, Wednesday, Thursday, Friday.
5. January, February, March, April, May, June, July, August, September, October, November, December
6. May, June, July
7. December
8. 14th February
9. 21st Century
10. 6.40 p.m.
11. 3.45 a.m.
12. 7.40 p.m.
13. January 16th
14. November 22nd

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1. 1 000 years
2. 3 000 years
3. Longer
4. Shorter
5. 72 hours
6. Just over 11 days. (11.574073 to be more exact).
7. More than two years, less than three years.
8. 3 600 seconds in one hour.
9. 140 seconds fast (2 mins 20 secs)
10. 3 minutes.
11. Depends on individual circumstances.

Answers (Contd)

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1. Train journey, length of school day.
2. Depends on circumstances. Make sure units are correct.
3. and 4. Depends on circumstances.

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1. Could be either. Eight years old is 2 922 days. Nine years old is 3 287.
3 000 days is approx. 8 years, 2 months, 17 days, depending on particular months and leap years.
2. This depends on the date on which you calculate the answer.
3. 52 000 neglecting odd days.
4. The further the pupils are apart, the better this works.
5. You could use the internet to find this information