

EFFECTIVE MATHS

Year 2

Block 1

Time

UNIT OVERVIEW

The unit begins with revision of o'clock and half past times, which were introduced in Year 1. Children read times on a horizontal number line which is later represented as a circular number line (i.e. a clock face). They find times that are earlier or later than given o'clock or half past times and think about what they might be doing at these times.

Learning about quarter past comes next, again using a horizontal number line alongside a clock face. Instances where the minute hand is removed the clock face representation seek to focus children's attention on the exact position of the hour hand at o'clock, quarter past and half past times. Problem solving activities within the lesson include deciding where to draw the hour hand and minute hand on clocks, including clocks with no numerals representing the hours.

The next lesson introduces children to learning about quarter to the hour times. The same teaching approaches are used as in earlier lessons and children solve problems within the lesson including identifying which of a selection of three clocks will 'stop' first if the time is advanced by half, quarter or three-quarters of an hour. (The starter activity in this lesson revises key language introduced in Year 1: days of the week, months of the year and the seasons.)

Work on half past, quarter past and quarter to is then developed as children learn to express the same time in different ways: *half past two* or *two thirty*. Teaching focuses children's attention on whether we are reading the minute hand then hour hand (half past two) or the hour hand then minute hand (two thirty). This is followed by learning to tell the time to 5 minutes past/to the hour, expressing this in two different ways: *ten past three* or *three ten*.

The unit concludes with work on equivalent times and finding durations.

LESSONS

[1] O'clock and half past (revision)

[2] Quarter past

[3] Quarter past and quarter to ◊MQ

[4] Different ways of saying the time:
quarter past 3 = 3:15 ◊MQ

[5] 5 minutes past and different ways of
saying times ◊MQ

[6] Minutes, hours and days

[7] Finding durations of events

EFFECTIVE MATHS

Year 3

Block 1

Time

UNIT OVERVIEW

The unit begins by building on learning from Year 2: telling the time to 5 minutes past/to the hour and expressing this in two different ways: *ten past three* or *three ten*. This learning is developed further by learning about am and pm. In addition, children see times represented on analogue and digital clocks.

Children then learn to read times to 1 minute using analogue and digital clocks. Problems include calculating time differences that bridge the hour, for example 15 minutes later than 10:46 am. Teaching seeks to ensure that children understand 60 minutes is equal to a whole hour and they encounter misconceptions such as a character saying, “I’m playing basketball at 4:65 this afternoon.”

So far, children have learnt to read o’clock, half past, quarter past and quarter to times. They have also learnt to read times to the nearest minute by giving the hour hand first and then the minute hand, for example ‘five forty’.

They are now introduced to expressing time as the number of minutes *past* (to half past) and the number of minutes *to* (the hour). ‘Five forty’ is the same as ‘twenty to six’.

Learning about how the 24-hour clock works comes next. Children’s attention is directed to a train station departure board that has times with no *am* or *pm* on. From this, they explore how the 24-hour clock works, linking times written with *am* or *pm* to their 24-hour clock equivalents. They also look at non-examples, for example 25:30.

The unit concludes with work on equivalent times and finding durations.

LESSONS

[1] Telling the time to the nearest 5 minutes

[2] Telling time to nearest 1 minute ◊MQ

[3] Different ways of expressing time: 1:30pm; 1:30 in the afternoon; minutes past/minutes to

[4] 24-hour clocks ◊MQ

[5] Number of seconds in a minute

[6] The number of days in each month, year and leap year

[7] Finding and comparing durations of events

EFFECTIVE MATHS

Year 4

Block 1

Time

UNIT OVERVIEW

The unit begins by building on learning from Year 3: telling the time using the 24-hour clock. Children revise previous learning including exploring how the 24-hour clock works, linking times written with am or pm to their 24-hour clock equivalents. They also look at non-examples, for example 25:30. They then apply this to solve problems, including problems that require children to make links between analogue clocks and digital clocks.

Children then learn how to read times on a stop watch where the display is in minutes and seconds. They then learn how to convert times expressed in minutes and seconds to times in seconds and solve problems requiring this type of conversion. After this children learn to convert the other way: from times in seconds to times in minutes and seconds.

Understanding of how to convert from minutes and seconds to seconds (and vice versa) is then used to convert from hours and minutes to minutes (and from minutes to hours and minutes). Children solve problems requiring this type of conversion. For both these lessons on conversion, teaching should make explicit links with the $6 \times$ table and children's ability to scale number facts by ten.

The unit concludes with work on converting between years, months, weeks and days. Children draw on knowledge of the $12 \times$ table (month to years) and the $7 \times$ table (days to weeks). For days to months children need to learn the numbers of days in each month. This knowledge is applied in problem solving.

LESSONS

[1] Convert time between analogue and digital 12- and 24- hour clocks ◊MQ

[2] Convert between minutes and seconds ◊MQ

[3] Convert between hours and minutes ◊MQ

[4] Changing years to months and weeks to days

EFFECTIVE MATHS

Year 5

Block 1

Time

UNIT OVERVIEW

The unit begins with some revision of reading analogue clock faces, expressing the times shown in different ways (five past four, 4:05 pm, 16:05). Children also find times earlier than or later than a time shown and complete sequences that involve bridging the hour (13:46, 13:56, 14:06). Children then apply their knowledge of time to solve problems, including identifying times on analogue clocks that are fast and calculating durations using empty number lines.

Children then revisit converting between units of time: *minutes and seconds* to times in *seconds*; *hours and minutes* to *minutes* and finally conversions between years, months, weeks and days. Children's knowledge of conversion is applied in problem solving contexts.

Learning to read and interpret timetables comes next. Children encounter a range of timetables: swimming pool opening times, radio programmes, airport departures, school lesson timetables and a railway timetable. Problem solving work focuses on finding durations using empty number lines.

The unit concludes with a problem solving lesson. This involves solving problems involving analogue and digital clocks, finding mistakes (eg 1 hour 40 minutes later than 16:40 is 17:80) and solving word problems.

LESSONS

[1] Solving problems

[2] Converting between units of time ◊MQ

[3] Reading timetables ◊MQ

[4] Solving problems

EFFECTIVE MATHS

Year 6

Block 1

Time

UNIT OVERVIEW

The unit begins with some revision of reading analogue clock faces, expressing the times shown in different ways (eg 4:37 pm, 16:37, 23 minutes to 5 in the afternoon). Children also find times earlier than or later than a time shown. Problem solving includes identifying the time from looking at clock that is x mins fast and a clock that is x minutes slow. Children also solve word problems and identify missing times on a school timetable.

Children then revisit converting between units of time: *minutes and seconds* to times in *seconds*; *hours and minutes* to *minutes* and finally conversions between years, months, weeks and days. Children's knowledge of conversion is applied in problem solving contexts. Understanding about conversion is consolidated through working with time conversion graphs.

Children apply their knowledge about time to solve a range of problems. These include word problems about cooking times and word problems about the different times taken to do various activities (run a 100 m race, complete homework, play computer games). The latter problems are approached using comparative bar models.

The final lesson of the unit also involves solving problems about time. The entire lesson is rooted in the context of the Battersea Dogs and Cats Home. Children solve problems about times taken to complete a sponsored walk and the length of time the gift shop is open for. They convert the ages of various dogs from years and months to months. Finally they learn a little about the history of Battersea Dogs and Cats Home, from its North London founding in 1860 to the present day. They add these dates to a time line.

LESSONS

[1] Solving problems

[2] Converting between units of time ◊MQ

[3] Solving problems

[4] Solving problems ◊MQ