Time problems

Learning area
Mathematics
(Measurement)

Objectives
- Converts from 12- to 24-hour time and 24- to 12-hour time.
- Calculates the time in different time zones.

Resources
- examples of 12- and 24-hour, analogue and digital clocks
- world globe
- Internet access

Websites
There are many sites dedicated to the world time zones; for example:

http://aa.usno.navy.mil/faq/docs/daylight_time.html

http://www.fgtravels.com/travel-kit/time-difference-chart.html

http://www.timezoneconverter.com

Lesson plan and organisation
- Revise telling the time on a 12-hour analogue clock, explaining that am (ante meridiem) are the hours from midnight to noon and pm (post meridiem) are the hours from noon to midnight. Revise how times on a 12-hour clock convert to the 24-hour clock. Use a 24-hour, analogue clock if available.
- Revise telling the time on 12- and 24-hour digital clocks.
- Discuss and list situations where a 24-hour clock is used; e.g. transport timetables. Suggest reasons why the 24-hour clock is preferable to the 12-hour.
- Pupils research World Time Zones on the Internet. Explain how GMT is used to set world time.
- Using the globe, locate the cities on the worksheet.
- Pupils complete the first section of the worksheet, Universal Time Coordinated at 0° and the International Date Line at 180°.
- Pupils complete the worksheet. This may be checked as soon as all pupils have finished and any problems corrected.

Additional activities
- Pupils research the origins of GMT and UTC.
- Pupils research timepieces throughout the ages and present as a project.
- Pupils complete science experiments about a candle clock, a water clock and a sundial.

Answers
1. (a) 1300 hrs (b) 0330 hrs (c) 0600 hrs
   (d) 1625 hrs (e) 2345 hrs (f) 1010 hrs
2. (a) 8.40 am (b) 1.45 pm (c) 11.25 am
   (d) 3.35 am (e) 6.30 pm (f) 10.45 pm
3. (a) Greenwich Mean Time
   (b) Universal Time Coordinated
4. (a) 6 pm (b) 7 pm (c) 8 pm (d) 1 am
   (e) 3 am (f) 5 am (g) 7 am (h) 10 am
   (i) 12 noon
5. +8 hours

Curriculum links

Country	Subject	Level	Objectives
England	Maths	KS 2	• Read time from 12- and 24-hour clocks.
Northern Ireland	Maths and numeracy	KS 2	• Understand the relationship between the 12- and 24-hour clocks.
Republic of Ireland	Maths	5th/6th Class	• Read and interpret the 24-hour clock, convert between times in 12- and 24-hour format and explore international time zones.
Scotland	Maths	Level D	• Use 24-hour times and equate with 12-hour times.
Wales	Maths	KS 2	• Recognise the equivalence between 12- and 24-hour clock times.