



A lot of people enjoy outdoor gigs.

In this activity you will use weather records to consider which would be the best month to hold an outdoor gig.



Information sheet

The table below shows how many hours of sunshine there were in each month from January 2001 to December 2010.

Total monthly hours of sunshine for the years 2001–2010

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2001	74.5	86.7	90.2	134.6	226.2	192.7	190.0	177.8	113.8	103.6	65.8	75.4
2002	41.2	75.3	112.4	189.4	180.2	163.5	163.9	158.3	154.6	93.4	55.3	34.3
2003	70.5	95.3	165.2	191.3	189.9	209.4	172.5	207.6	166.0	130.3	67.4	52.1
2004	49.5	88.3	108.2	133.3	204.6	198.2	166.0	173.8	155.7	95.9	47.9	52.1
2005	56.4	72.0	79.5	146.9	216.6	190.8	178.4	210.6	150.6	81.1	90.8	57.0
2006	51.0	68.3	97.4	160.4	173.1	229.7	287.6	151.4	157.5	95.6	93.1	45.8
2007	60.5	70.4	153.9	216.5	167.1	149.8	179.7	198.1	149.3	109.4	71.2	51.2
2008	47.8	118.2	120.0	153.9	193.0	199.3	184.9	112.8	114.6	122.5	56.6	66.4
2009	56.9	55.6	153.2	170.3	212.7	202.0	177.1	173.5	142.8	90.2	65.7	62.2
2010	60.9	60.1	125.8	201.8	204.8	238.8	152.1	148.8	138.8	120.3	71.5	53.8

Think about...

Why is it difficult to see which is the sunniest month?
Which months are obviously not the sunniest?

It is a good idea to use just one figure, an average, to represent each month?

To find the mean number of hours of sunshine for July

The **mean** is the sum of all the data items divided by the number of data items.

First add up all the hours of sunshine in July:

$$190.0 + 163.9 + 172.5 + 166.0 + 178.4 + 287.6 + 179.7 + 184.9 + 177.1 + 152.1 \\ = 1852.2 \text{ hours}$$

Think about...

How many years of data were added?

To divide by ten, move the figures one place to the right past the decimal point.

Mean for July = $1852.2 \div 10 = 185.22 = 185.2$ hours, correct to one decimal place.

Try this

Find the mean number of hours of sunshine for May, June and August.

To find the range of the number of hours of sunshine in July

The **range** is the largest figure – smallest figure.

It measures how variable a set of figures are.

Look back at the table on page 1.

The sunniest July was in 2006 with 287.6 hours of sunshine.

The dullest July was in 2010 with only 152.1 hours of sunshine.

$$\text{Range} = 287.6 - 152.1 \\ = 135.5 \text{ hours of sunshine.}$$

This tells us that the amount of sunshine in July varied a lot in the 10 year period.

Try this

Find the range of the total number of hours of sunshine for May, June and August.

Think about...

The table gives the mean and range for the total number of hours of sunshine for May, June, July and August:

	May	June	July	August
Mean	196.8 hours	197.4 hours	185.2 hours	171.3 hours
Range	59.1 hours	89.0 hours	135.5 hours	97.8 hours

- What do these results tell you about the amount of sunshine?

Try this

Investigate which would be the best month to hold an outdoor gig.

Use your calculator to find means and ranges for rainfall and temperature.

Write a brief report using your results to back up your recommendation.

You will have to decide for yourself which are the most important weather factors!

At the end of the activity

- How do you work out the mean?
- Why is it a good representative value?
- How do you work out the range?
- What is measured by the range?
- Can you predict next year's weather reliably from previous data?
- If you use data for 20 years, is there an easy way to divide by 20 without using a calculator?
If you use data for 50 years, is there an easy way to divide by 50 without using a calculator?

Extension

Include statistical charts or graphs in your report to illustrate some of the data. Describe what they show, and how they help you to decide when to have the outdoor gig.