Collecting data

- Selecting an appropriate class interval for grouping continuous data
- Preparing grouped frequency tables from lists of data

Keywords

You should know

explanation 1a   explanation 1b

1 These are the weights in grams of 24 eggs.

65.3   75.4   59.6   58.7   65.0   57.5   68.2   52.4   74.7   57.4   63.4   52.4

46.7   52.9   76.3   52.5   71.1   48.0   62.4   81.2   53.1   69.8   49.6   50.5

a Copy and complete the grouped frequency table.

Egg weight in grams	Frequency
$43 \le w < 53$	
$53 \le w < 63$	
$63 \le w < 73$	
$73 \le w < 83$	

b The sizes of eggs in the EU have been defined using the following table.

Size	Mass per egg
Very large	73 g and over
Large	63–73 g
Medium	53–63 g
Small	53 g and under

Describe one difficulty in using this table.

2 These are the times in seconds taken by the 14 finalists at a sports day to sprint 100 m.

12.24   12.36   12.65   13.00   12.50   14.27   13.78
13.02   13.00   13.78   12.92   13.50   13.05   12.56

Copy and complete the grouped frequency table for this set of data.

Time	Frequency
$12.0 \leq t < 12.5$	
$12.5 \leq t < 13.0$	
$13.0 \leq t < 13.5$	
$13.5 \leq t < 14.0$	
$14.0 \leq t < 14.5$	

3 Complete a grouped frequency table for each set of data.

a The hand spans in centimetres of 14 pupils in one class.

Use class intervals of 2 cm for this data.

12.5   9.5   12.0   12.3   18.9   13.5   14.7
15.1   17.6   15.3   15.7   18.1   13.8   16.7

b The height in centimetres of sixteen 11-year-olds.
Use class intervals of 5 cm for this data.

160.91   150.12   159.77   163.02   166.79   162.49   152.89   159.31
152.31   160.55   151.46   152.07   148.08   173.88   152.90   158.63

c The weight in milligrams of twelve 10 mg tablets.

10.043   9.945   9.976   10.029   9.874   9.995
10.015   10.056   9.917   10.082   9.989   9.965

4 Here are the birth weights in grams of 16 pupils.

3340   3780   2450   3780   3400   940   3050   3590
4020   3640   3670   3540   3450   1500   3540   3340

a Complete a grouped frequency table for these weights.

b A baby who weighs less than 2500 g at birth is classified as having a low birth weight.
What percentage of the pupils had a low birth weight?
Give your answer to 1 decimal place.

5 This table shows the median household income in dollars for 25 states in the US in 2005.

   a Construct a grouped frequency table for household income in the United States in 2005.

   b Approximately what percentage of households earn less than the median salary in each state?

   c Why does the table give the median salary in each state rather than the mean salary?

State	Income ($)
Alabama	36,936
Arizona	44,402
Arkansas	35,041
California	53,627
Hawaii	56,133
Idaho	41,269
Indiana	44,051
Kansas	42,861
Kentucky	37,377
Louisiana	36,547
Massachusetts	57,176
Michigan	46,072
Minnesota	52,048
Mississippi	33,090
New Jersey	61,694
New York	49,365
North Carolina	40,781
North Dakota	40,818
Oklahoma	37,020
Pennsylvania	44,545
Tennessee	38,947
Texas	42,165
Utah	48,155
Washington	49,372
West Virginia	33,466