GCSE FOUNDATION · REVISION MAT 3

# Sampling

**1** A factory makes 5000 light bulbs a day. 100 are tested.

(a) What is the population?

(b) What is the sample?

**2** A factory makes 5000 light bulbs a day. They tests the first 100 bulbs made.

Explain why this sample may be biased.

**3** A factory makes 5000 light bulbs a day. 100 are tested.

Explain why a larger sample would give more reliable results.

**4** A factory makes 5000 light bulbs a day. 100 are tested.

3 out of the 100 in the sample are faulty.

Show that this suggests about 150 of the bulbs are faulty.

**5** A survey includes this question:

"Do you think our bulbs are excellent?"

Give one criticism of the question.

**6** Two samples of 100 are taken from the 5000 bulbs made.
In the first, 3 are faulty. In the second, 5 are faulty.

Use both samples to estimate how many of the 5000 bulbs made are faulty.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 3

# Sampling

**1** (a) **5000 bulbs made**

(b) **100 bulbs tested**

**2** Faults later in the day would be missed; the sample is not random.

**3** A larger sample is more likely to represent the whole population.

Results from small samples vary more by chance.

**4** 3 ÷ 100 × 5 000 = **150** ✓

**5** It is leading and has no options for other opinions.

**6** Combined: 8 out of 200

8 ÷ 200 × 5 000 = **200**