

9 A teacher is investigating how pupils travel to and from school each day. Pupils can either travel by bus, train, car, bicycle or walk.

The teacher decides to collect a sample of size 60 for the investigation.

(a) The teacher lives in a village 10 miles away from the school.

Explain how collecting a sample which just consists of pupils who live in the same village as the teacher might introduce bias. **[1]**

The table below shows how many students there are in each year.

Year 7	Year 8	Year 9	Year 10	Year 11
86	105	107	101	101

(b) The teacher decides to use the method of proportional stratified sampling.

Calculate the number of pupils in the sample who are in Year 9. **[2]**

The teacher generates a sample of 10 pupils from the 86 in Year 7 by listing them in alphabetical order and selecting the first name on the list and every ninth name thereafter.

(c) Explain whether this method will generate a simple random sample of the pupils who travel in Year 7. **[1]**