Exercise walk-through

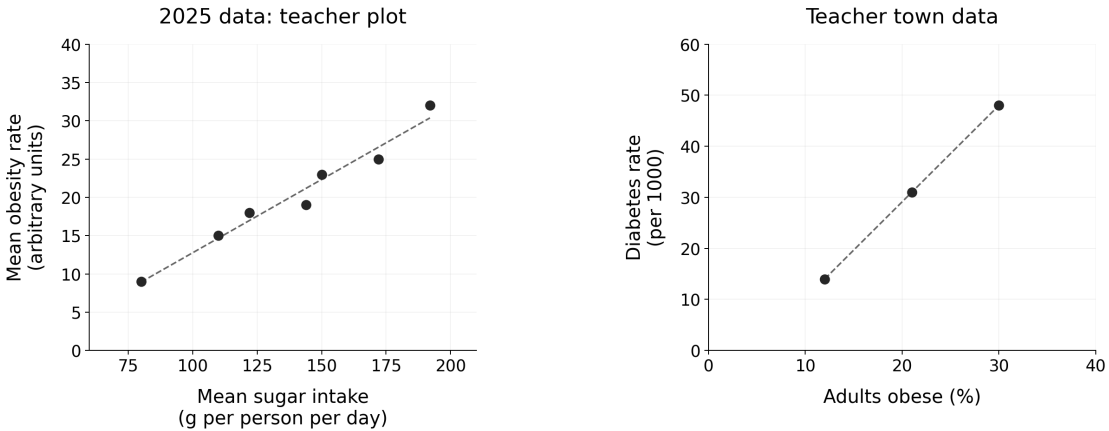
2.3
Health, lifestyle and cancer (4.2.2.5–4.2.2.7)

AQA · GCSE · Biology

Health, risk factors and cancer

- A **benign tumour** grows in one place, usually inside a membrane, and does not invade other parts of the body.
- A **malignant tumour** invades nearby **tissue** and its cells can spread in the blood to form secondary tumours elsewhere.

Figure: Health, risk factors and cancer



- Left: sugar intake and obesity in seven countries (arbitrary units, AQA June 2025 data); right: obesity and diabetes rate in towns A, B and C; dashed lines are lines of best fit
- Read the axes and units first.

Exercises 2.1·2.2

2.1 Which of these diseases are communicable? [2]

measles | lung cancer | influenza | type 2 diabetes

2.2 The diagrams show a benign tumour and a malignant tumour. Give **two** differences between them. [2]



Exercises 2.1·2.2

2.1 Which of these diseases are communicable? [2]

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2.1

- measles; influenza

2.2 The diagrams show a benign tumour and a malignant tumour. Give **two** differences between them. [2]

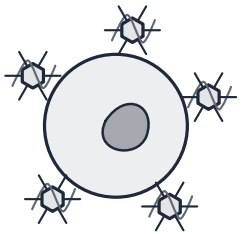


2.2

- a benign tumour stays in one place, usually inside a membrane; a malignant tumour invades nearby tissue
- malignant cells spread in the blood and form secondary tumours; benign cells do not

Exercise 3.1

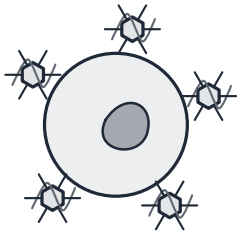
3.1 HIV damages the white blood cells. Explain why a person with HIV is more likely to get other diseases. [3]



white blood cell with HIV particles

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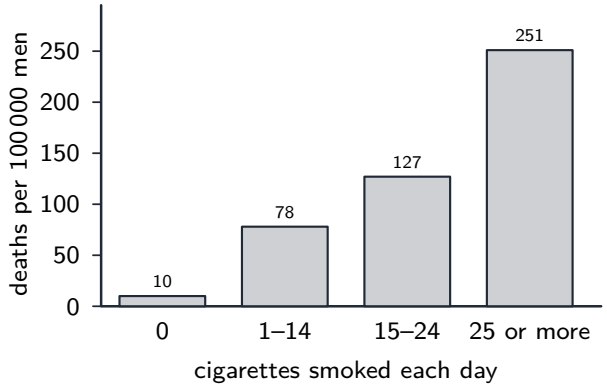
3.1

- HIV damages the immune system
- so the body cannot fight pathogens well (fewer antibodies are made, fewer pathogens are engulfed)
- so other communicable diseases (infections) develop more easily: diseases interact

Exercise 3.2 (a)

3.2 The bar chart shows the number of deaths from lung cancer each year for every 100 000 men, for men who smoke different numbers of cigarettes a day.

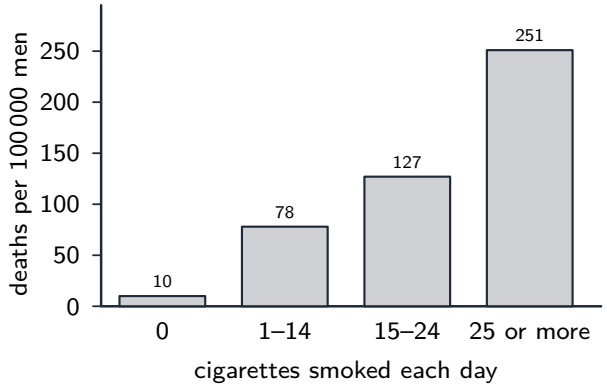
(a) Describe the relationship shown by the chart. [2]



Exercise 3.2 (a)

3.2 The bar chart shows the number of deaths from lung cancer each year for every 100 000 men, for men who smoke different numbers of cigarettes a day.

(a) Describe the relationship shown by the chart. [2]



(a) the more cigarettes smoked each day, the more deaths from lung cancer; with a figure, e.g. 251 for 25 or more against 10 for non-smokers, about 25 times as many

Exercise 3.2 (b)

3.2 The bar chart shows the number of deaths from lung cancer each year for every 100 000 men, for men who smoke different numbers of cigarettes a day.

(b) A city has 40 000 men who smoke 15–24 cigarettes a day. Estimate how many of them will die of lung cancer each year. [3]

Exercise 3.2 (b)

3.2 The bar chart shows the number of deaths from lung cancer each year for every 100 000 men, for men who smoke different numbers of cigarettes a day.

(b) A city has 40 000 men who smoke 15–24 cigarettes a day. Estimate how many of them will die of lung cancer each year. [3]

(b) $\frac{127}{100\,000}$; $\times 40\,000$; = about **51** men

Exercise 3.2 (c)

3.2 The bar chart shows the number of deaths from lung cancer each year for every 100 000 men, for men who smoke different numbers of cigarettes a day.

(c) The chart shows a correlation. Explain why scientists also needed other evidence before they said that smoking causes lung cancer. [2]

Exercise 3.2 (c)

3.2 The bar chart shows the number of deaths from lung cancer each year for every 100 000 men, for men who smoke different numbers of cigarettes a day.

(c) The chart shows a correlation. Explain why scientists also needed other evidence before they said that smoking causes lung cancer. [2]

(c) a correlation does not prove that one thing causes the other; another factor could be involved; they needed a mechanism, e.g. carcinogens in tar damage DNA in lung cells

Exercise 3.2 (d)

3.2 The bar chart shows the number of deaths from lung cancer each year for every 100 000 men, for men who smoke different numbers of cigarettes a day.

(d) Explain how smoking, diet, exercise and alcohol affect the risk of non-communicable diseases. [6]

Exercise 3.2 (d)

3.2 The bar chart shows the number of deaths from lung cancer each year for every 100 000 men, for men who smoke different numbers of cigarettes a day.

(d) Explain how smoking, diet, exercise and alcohol affect the risk of non-communicable diseases. [6]

(d) points to include:

- tar in cigarette smoke contains carcinogens, which cause lung cancer; smoke damages the lungs (bronchitis, emphysema)
- nicotine and carbon monoxide raise the risk of heart disease
- a diet high in fat and sugar leads to obesity, a risk factor for type 2 diabetes and heart disease
- regular exercise lowers blood cholesterol and body mass, so lowers the risk
- too much alcohol damages liver cells and brain cells
- a risk factor increases the chance of a disease; it does not mean the person will certainly get it

Levels: **5–6** a full, logical answer with correct biology and correct terms; **3–4** several correct points, partly linked; **1–2** one or two relevant points.