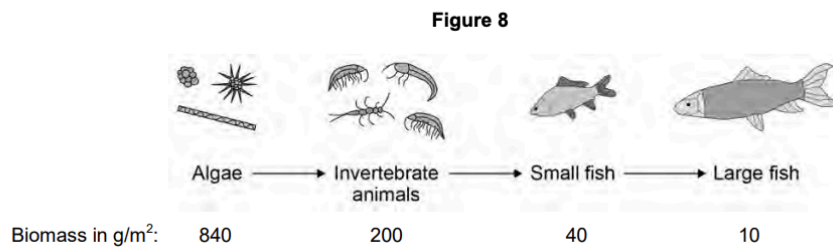


(Trophic levels in an ecosystem (pyramids of biomass, biomass transfer) – Higher has calculations)

Q1.a)(2018)

Figure 8 shows:

- a food chain for organisms in a river
- the biomass of the organisms at each trophic level.



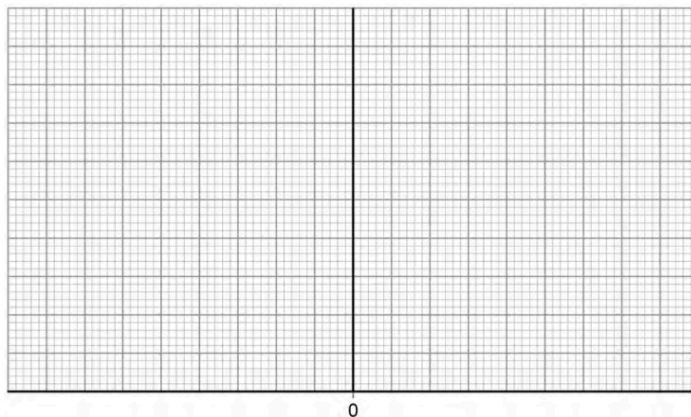
Draw a pyramid of biomass for the food chain in **Figure 8** on **Figure 9**.

You should:

- use a suitable scale
- label the x-axis
- label each trophic level.

[4 marks]

Figure 9



Q1.b)(2018)

Ecology

<http://www.pcfgstudy.com>

Calculate the percentage of the biomass lost between the algae and the large fish.

Give your answer to 2 significant figures.

[3 marks]

Percentage loss = _____

Q1.c)(2018)

Give **one** way that biomass is lost between trophic levels.

[1 mark]

Q1.d)(2018)

A large amount of untreated sewage entered the river. Many fish died.

Untreated sewage contains organic matter and bacteria.

Explain why many fish died.

[5 marks]

Q2.(2020)

A new dog food has been developed that does **not** contain meat from cows, sheep or chickens.

The new dog food contains insects.

The insects in the dog food factory are fed on waste vegetables.

Sketch the pyramid of biomass for the food chain that produces food for dogs from insects.

Label the pyramid.

[2 marks]

Q3.(2020)

Describe **two** reasons why the biomass of the insects eaten by dogs does **not** all become biomass of the dogs.

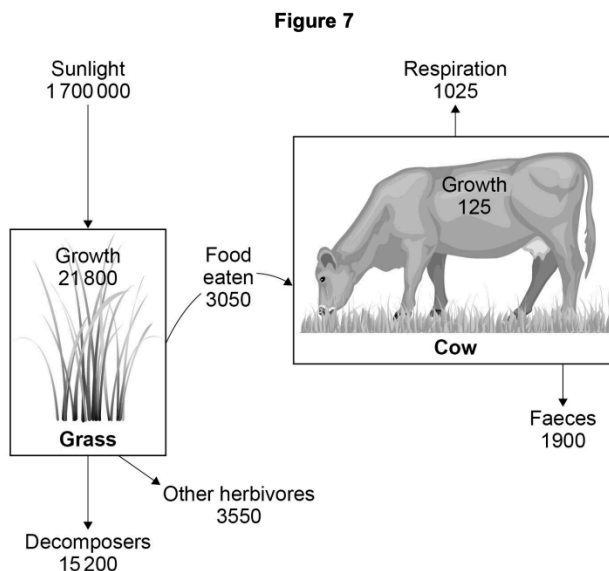
[2 marks]

- 1 _____
- 2 _____

Q4.a)(2022)

Figure 7 shows the flow of energy through a food chain.

The numbers are in kilojoules/m²/year.



Ecology

<http://www.pcfgstudy.com>

The cow is more efficient than the grass at converting energy.

The energy conversion efficiency of the cow is 4.098%.

Calculate how many times more efficient the cow is at converting energy than the grass.

The equation for energy conversion efficiency is:

$$\text{energy conversion efficiency} = \frac{\text{energy used for growth}}{\text{energy input}} \times 100$$

Give your answer to 3 significant figures.

[5 marks]

Number of times (3 significant figures) = _____

Q4.b)(2022)

It is more energy-efficient to rear cows indoors than to rear cows outdoors.

Give **two** reasons why.

[2 marks]

1 _____

2 _____

Q4.c)(2022)

Suggest **two** possible disadvantages of rearing cows indoors.

[2 marks]

1 _____

2 _____
