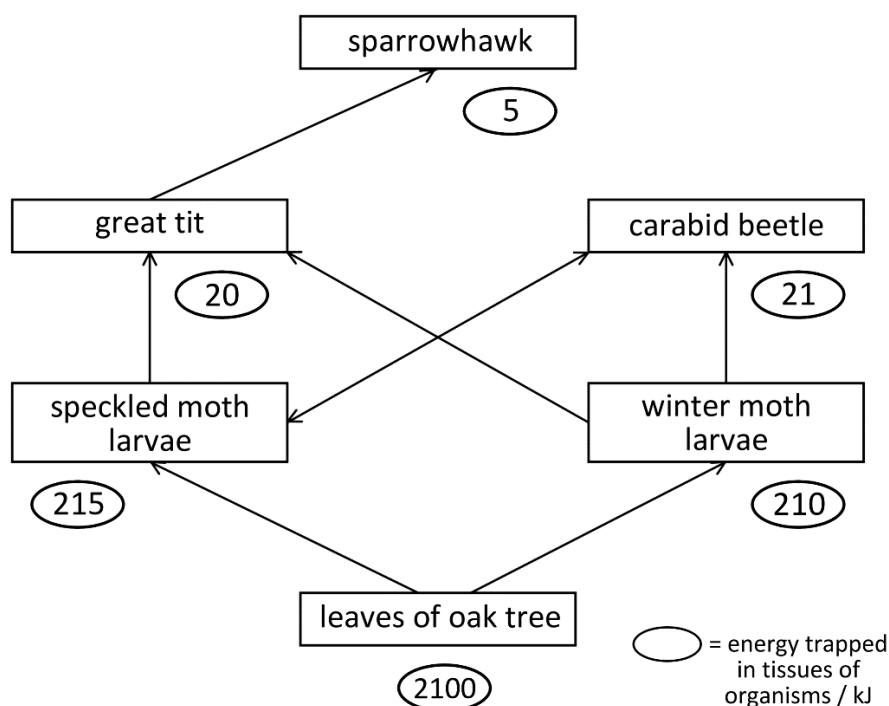


Name:

Class:



- i. Calculate the percentage efficiency of the energy transfer from the winter moth larvae to the carabid beetle. Give your answer to **two** significant figures.

$$\text{Efficiency} = (\text{Energy transferred to next level} \div \text{Energy available at previous level}) \times 100$$

$$\text{Efficiency} = (21 \div 210) \times 100$$

$$\text{Efficiency} = 0.1 \times 100 = \mathbf{10\%}$$

- ii. The food web shows that not all energy is transferred to the next trophic level. Give **two** reasons why energy is lost between the speckled moth larvae and the great tit.

Any **two** from:

- Energy is used for movement / life processes (respiration).
- Energy is lost as heat to the surroundings.
- Not all parts of the speckled moth larvae are eaten by the great tit.
- Energy is lost in waste products (e.g., faeces/egestion).

Using the information above name:

A producer: **Leaves of oak tree or oak.**

An organism that feeds on consumers.

Any **one** of the following:

- Great tit.
- Carabid beetle.

Name the two secondary consumers in this food web.

1. Carabid beetle.
2. Great tit.

State the five factors that affect the rate of diffusion.

Concentration gradient. Temperature. Surface area. Diffusion distance. Size of particles.

Accept any order of the five factors above.