

Name: Class:



The food chain shows the energy transferred between organisms.

oak tree $\xrightarrow{7760 \text{ kJ}}$ caterpillars $\xrightarrow{620 \text{ kJ}}$ blue tits $\xrightarrow{50 \text{ kJ}}$ sparrowhawk

The energy available in the oak tree that could be transferred to the caterpillars was 97000kJ. Calculate the percentage loss of energy between the oak tree and the caterpillars.

Method 1:

$$7760 \div 97000 = 0.08$$

$$0.08 \times 100 = 8.00$$

$$100 - 8.00 = 92.00 \%$$

Method 2:

$$97000 - 7760 = 89240$$

$$89240/97000 = 0.92 \times 100 = 92(\%)$$

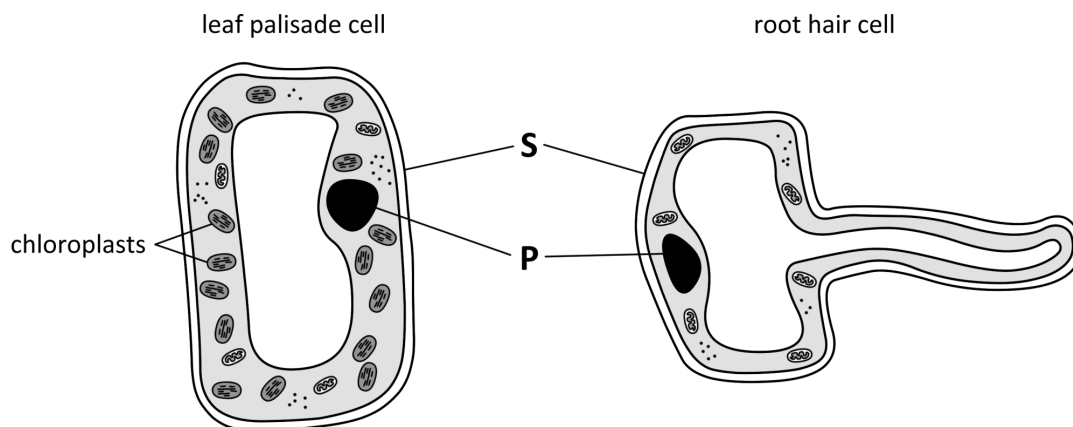
$$\% = 92$$

Suggest **two** ways in which energy is lost between trophic levels in this food chain.

Any **two** of the following:

- Not all of the organisms are consumed.
- Indigestible / egestion.
- Excretion.
- Movement.
- Heat / respiration.
- Reproduction.

The figure below shows two cells. Identify the structures labelled S and P.



S = **Cell wall.**

P = **Nucleus.**

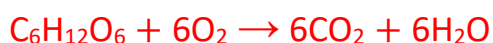
What is the role of the organelle p?

Contains the cell's DNA and controls the activities of the cell.

State the function of a root hair cell.

Absorbs water and minerals from the soil.

Give the balanced symbol equation for aerobic respiration.



Give the function of a ribosome.

The site of protein synthesis.

Give the function of a chloroplast.

Site of photosynthesis.