CIC 建造業零碳天地

STEAMlab
Science | Technology | Engineering | Arts | Mathematics

EXPLORING STEAM THROUGH BAMBOO

Name:_____ Class:_____ Student No.: _____

Is bamboo a type of flower, grass, tree or wood?

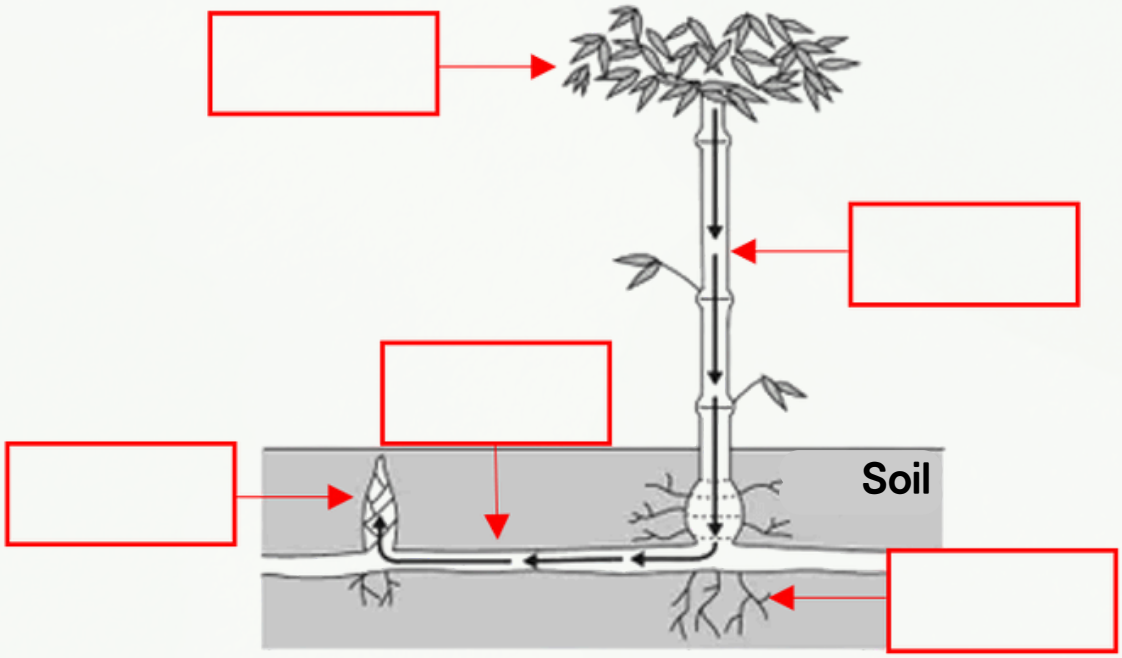
Bamboo is a type of (☐flower / ☐grass / ☐ tree / ☐ wood).
Although bamboo looks similar to trees, it actually belongs to the grass family. Bamboo grows incredibly fast — some species can grow more than 1 meter in a single day!

Bamboo stems are (☐hollow / ☐solid), and the roots are very dense, helping to prevent soil erosion.

Structure of bamboo

Fill in the blanks below with the correct names of bamboo parts.

Bamboo shoots Bamboo rhizome Bamboo roots
Bamboo leaves Bamboo culm



Bamboo shoots are young bamboo sprouts, which begin to grow after absorbing soil, water, and sunlight. During the growth process, the fibers inside the stem (bamboo culm) will become thicker, and the color will change from brown to green.

What are the functions of bamboo leaves?

1. Bamboo leaves contain (☐anthocyanin / ☐carotene / ☐chlorophyll), which enables photosynthesis.

2. It absorbs (☐oxygen / ☐carbon dioxide) and produces (☐oxygen / ☐carbon dioxide) and food.

2. What ecological roles does bamboo play in the ecosystem? Please tick the box below.

☐ Fixes soil	☐ Promotes water cycle	☐ Improves soil quality
☐ Maintains moisture	☐ Provides food for animals	☐ Provides shelter for animals
☐ Restores ecosystems	☐ Prevents desertification	☐ Regulates microclimate

Bamboo and architecture

1. Bamboo as a building material is not only environmentally friendly but also has diverse applications purpose. Which of the following reasons explain why bamboo is widely used in construction industry?

Growth rate	☐ Fast ☐ Slow	Carbon footprint	☐ High ☐ Low
Growth cycle	☐ Long ☐ Short	Tenacity	☐ Strong ☐ Weak
Strength	☐ Strong ☐ Weak	Seismic resistance	☐ High ☐ Low
Natural beauty	☐ Yes ☐ No	Flexibility	☐ High ☐ Low

With its_____growth cycle,_____growth rate, wide distribution, and abundant yield make it a sustainable and eco-friendly material today. ‘‘Green buildings’’ aim to reduce carbon emissions through building design and the use of environmentally friendly materials. In recent years, scientists have developed a new building material called ‘‘super bamboo’’ through scientific processing. This material is both low-cost and environmentally friendly, and it can be used as an alternative to steel a and concrete.

2. Arrange the steps for making super bamboo in the correct order, and write the corresponding letters in the boxes of the flow chart.

A	Heat Pressing: After 6–7 hours of processing, bamboo is heat-pressed into shape.
B	Slicing: Bamboo (e.g., Moso bamboo) is simply sliced into pieces.
C	Soaking and Boiling: Bamboo is soaked in an acidic solution and boiled at a high temperature to separate cellulose, lignin, and hemicellulose.