THE MIGHTY PLANTOFE

(Opportunity for Excellence)

Name:_____

Due:_____

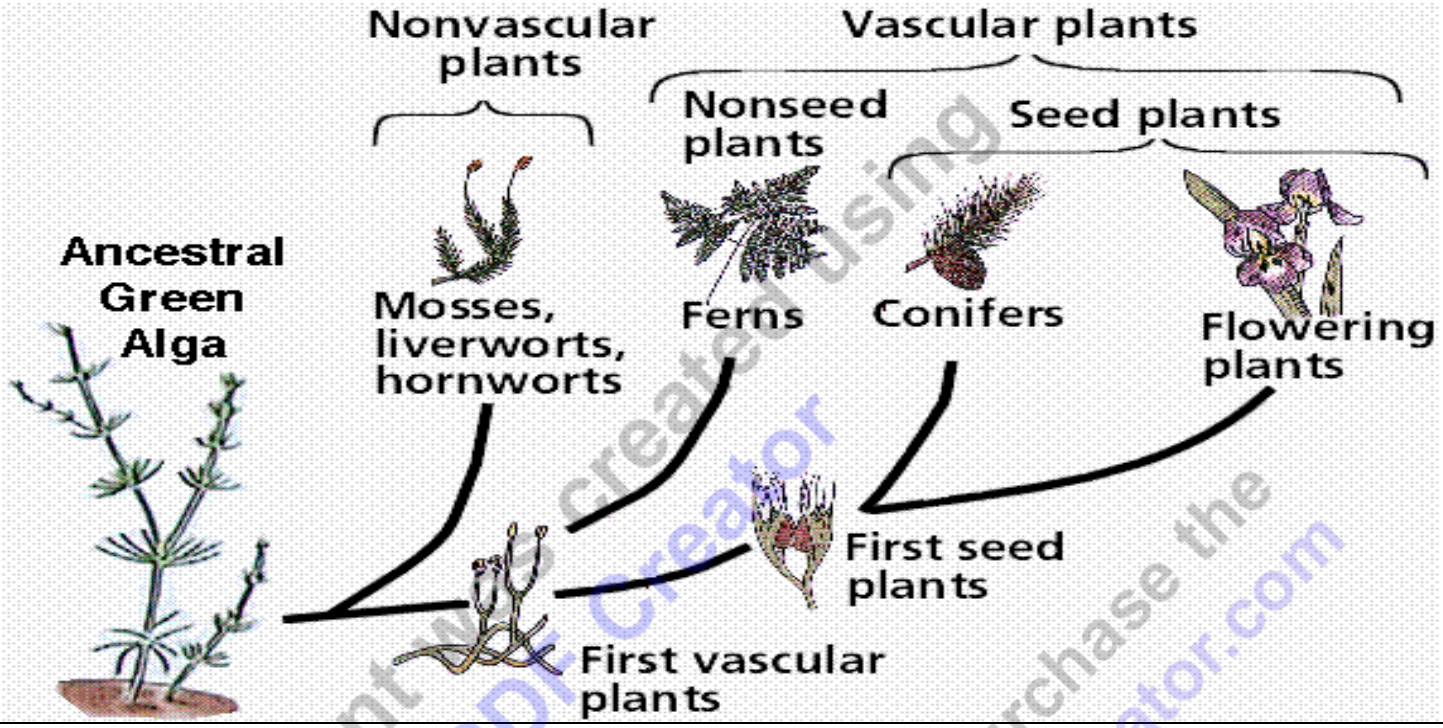
Please respond intelligently to the comment from the angry student below.

Plants are very important because…

- The energy flow of life occurs from plants as they get energy from the sun. We eat plants
- Plants provide oxygen to breathe
- Many important things are made of plants
- Any wood / fossil fuels
- Any fiber / other than metals.
- Plastics (most are oil based).
- Chemicals (most are from plants).

Plants are important to our lives

Please fill in the boxes with the correct term from the notes.



What is Algae? Why is Algae so important to our world?
Draw algae here

Strings of green work for algae or circles
Algae can be brown or red but is usually green.

- Algae produce more than 71% of the Earth's oxygen.
- Algae remove huge amounts of Carbon Dioxide from the air. Carbon Dioxide causes global warming, so algae is one of our most important allies in the fight against climate change.
- They are the basis of most food chains in the ocean and in fresh water. No algae, no fish.
- Algae may become the next fuel of the future.

A form of bio-diesel gasoline.

What is a lichen? Name the lichens below.

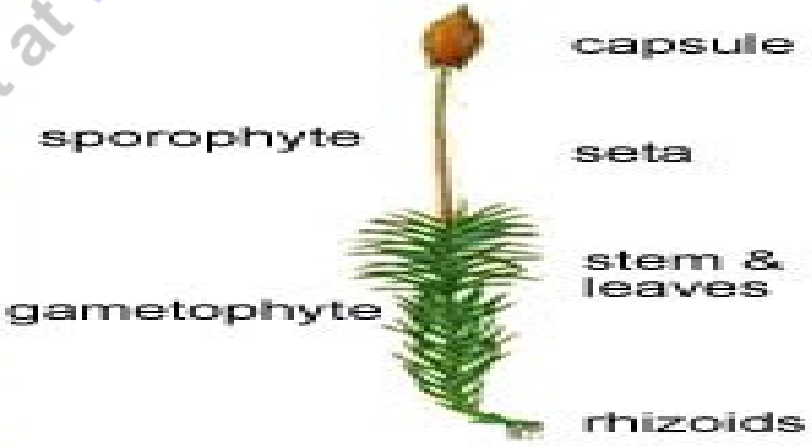
- Lichen: Algae and fungus growing together in a symbiotic relationship.

- The fungi extract food from the environment, while the algae are photosynthetic. This is mutualistic symbiosis.

Leafy	Crusty	Branchy
		
Foliose - Leafy	Crustose - Crusty	Fruticose

Please identify, and then label the bryophyte below?

Moss

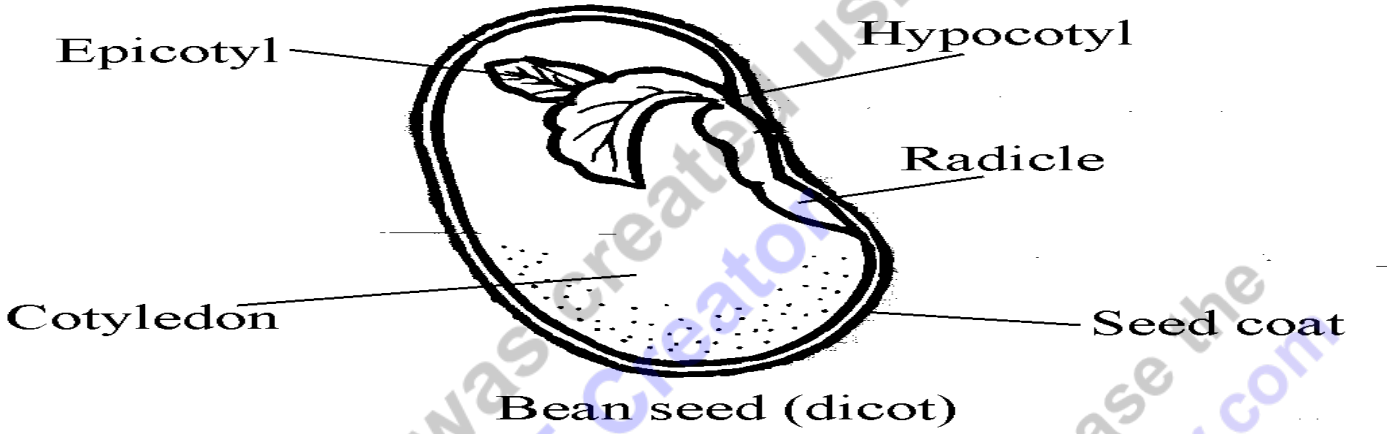


Draw a seedless vascular plant. (Fern) Make sure to include spores under the leaves.

- Ferns: Flowerless and seedless vascular plant, having true roots from a rhizome, and fronds that uncurl upwards; and reproduces with bisexual spores.

Please check off the box when each is covered below.

◊ What are some of the parts to the picture below? - Label them.



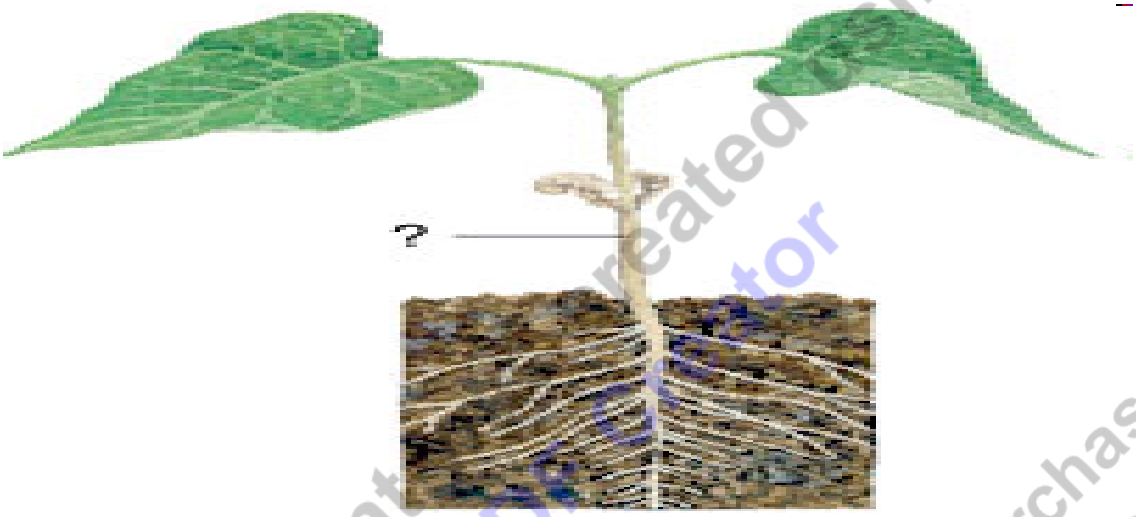
Bean seed (dicot)

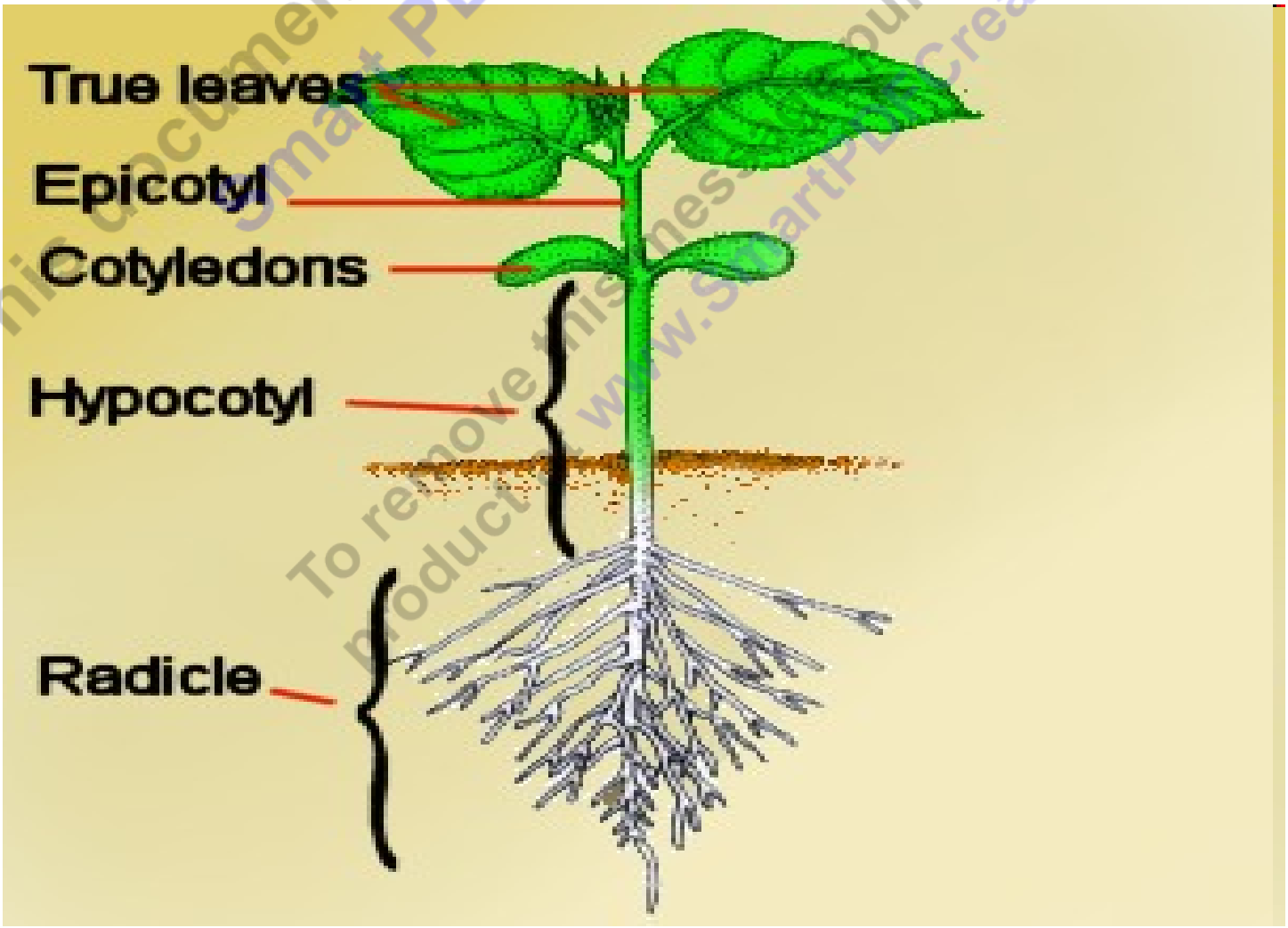
◊ What do you know about the person below? – Provide information.

George Washington Carver -As an agricultural chemist, Carver discovered three hundred uses for peanuts and hundreds more uses for soybeans, pecans and sweet potatoes. Among the listed items that he suggested to southern farmers to help them economically were his recipes and improvements to/for: adhesives, axle grease, bleach, buttermilk, chili sauce, fuel briquettes, ink, instant coffee, linoleum, mayonnaise, meat tenderizer, metal polish, paper, plastic, pavement, shaving cream, shoe polish, synthetic rubber, talcum powder and wood stain.

Please draw an arrow to the correct part of the plant from the term.

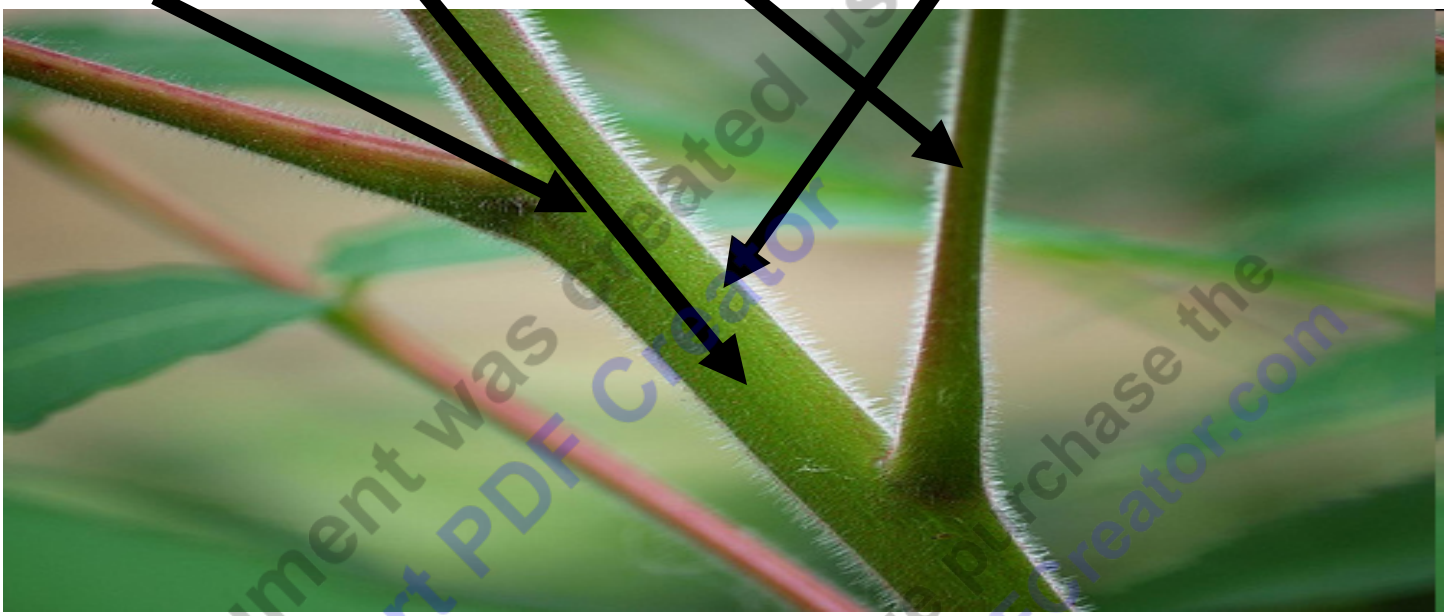
◊ True Leaves ◊ Cotyledons ◊ Epicotyl ◊ Hypocotyl ◊ Radicle ◊ Seed Coat





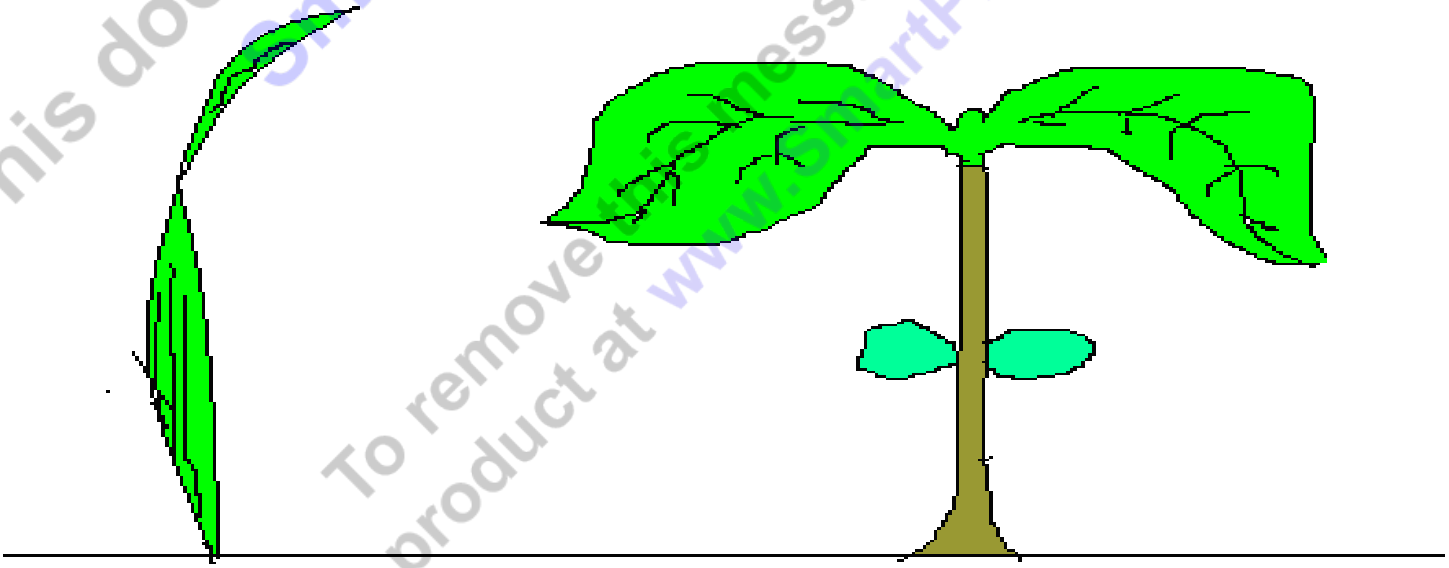
Please accurately label the parts of a stem on the picture below. Please check off each box after you have used the term.

◊ Node ◊ Internode ◊ Petiole ◊ Stem

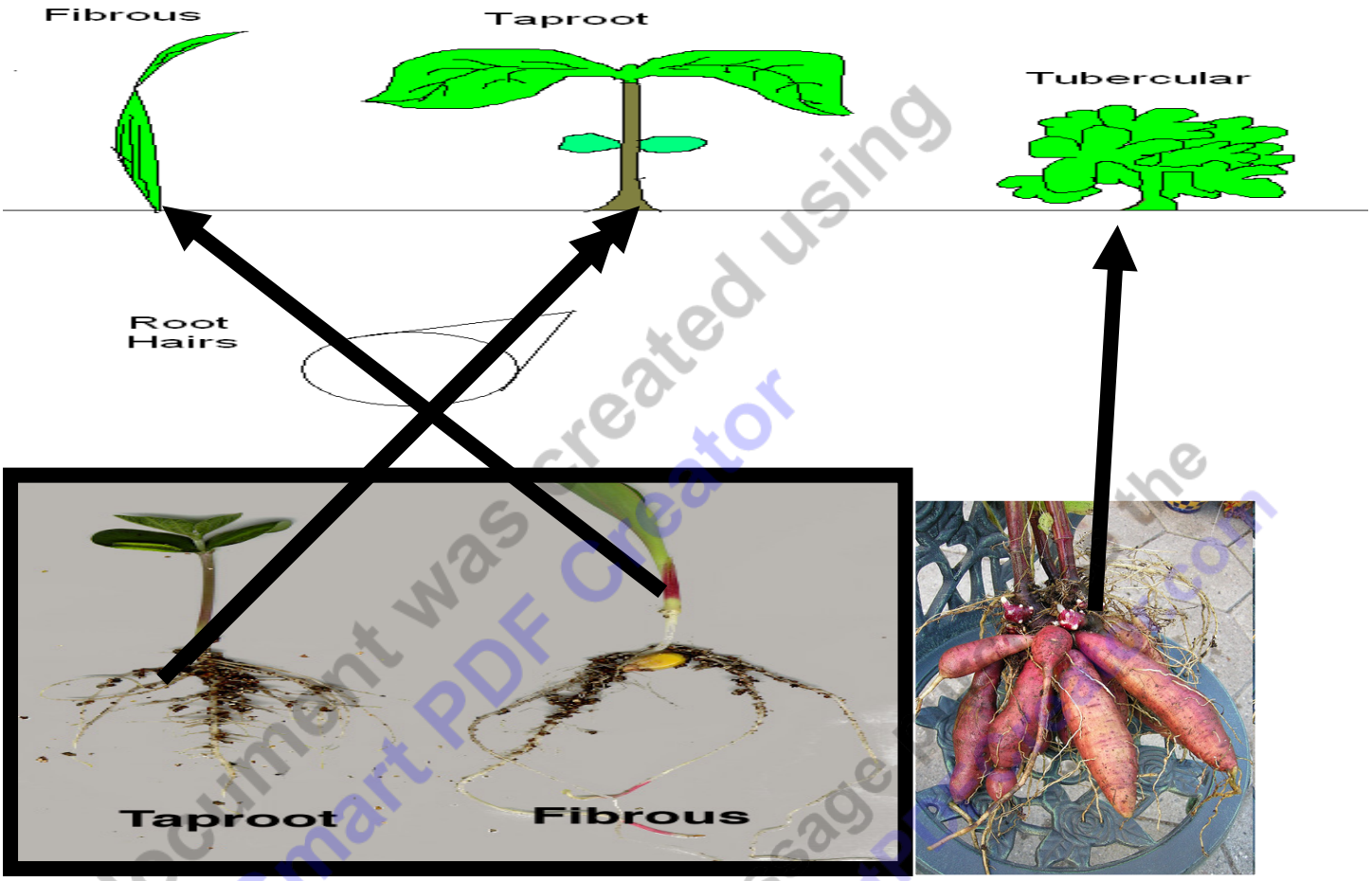


Which plant below is a dicotyledon (two seed leaves), and which is a monocotyledon (one seed leaf)? Explain using the pictures,

This is a monocotyledon because…	This is a dicotyledon…
Seedling has one cotyledon ● Veins in leaf are parallel. ● Flower petals are in 3's. ● Never woody. ● Vascular bundles are scattered.	Veins on leaf are branched. ● Flower parts are groups of 4 to 5. ● Secondary growth can be woody. ● Vascular bundles are in a ring.



Please draw the root type below the surface.



Please provide information about one plant hormone below.

- Plant hormones are chemicals that affect flowering; aging; root growth; distortion, killing of leaves, stems, and other parts; prevention or promotion of stem elongation; color enhancement of fruit; prevention of leafing and/or leaf fall; and many other conditions.

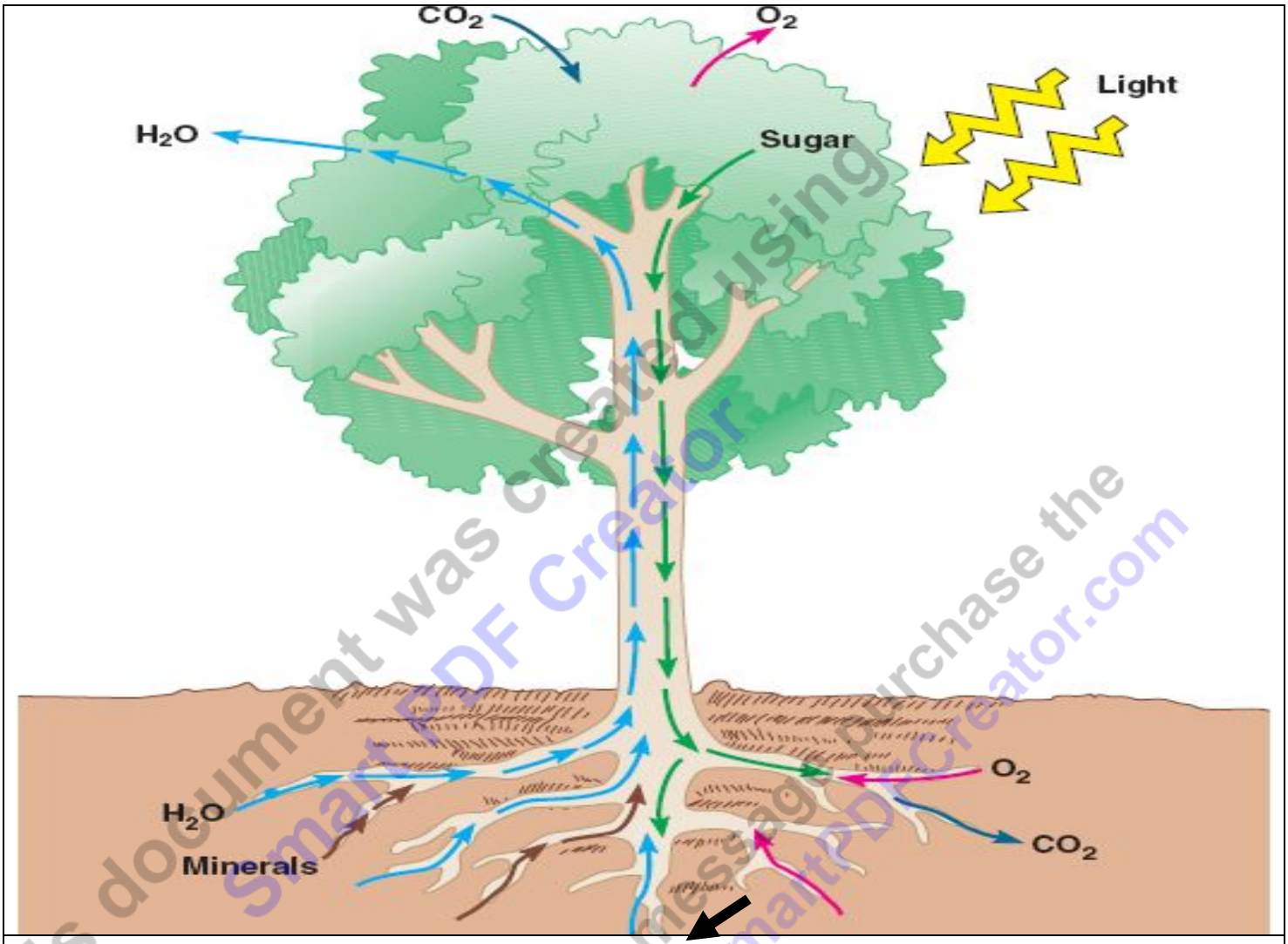
Some plant hormones.

- Auxin: Promotes stem elongation and bud dormancy.
  - Phototropism: When plants grow toward a light source.
- Gibberellins: Make stems longer.
- Cytokinins: Promotes cell division. They are produced in

growing areas like the tips.
- Abscisic Acid: Opens and closes stomata, has role in seed dormancy.
- Ethelyene: A gas that promotes fruit ripening.

Which box is xylem and which box is phloem? How do you know? Can you name any other parts of this picture?

The box with the arrow traveling up is Xylem because that is water, and the box with the arrows traveling down is phloem because sugars are made in the leaves and travel to the roots.

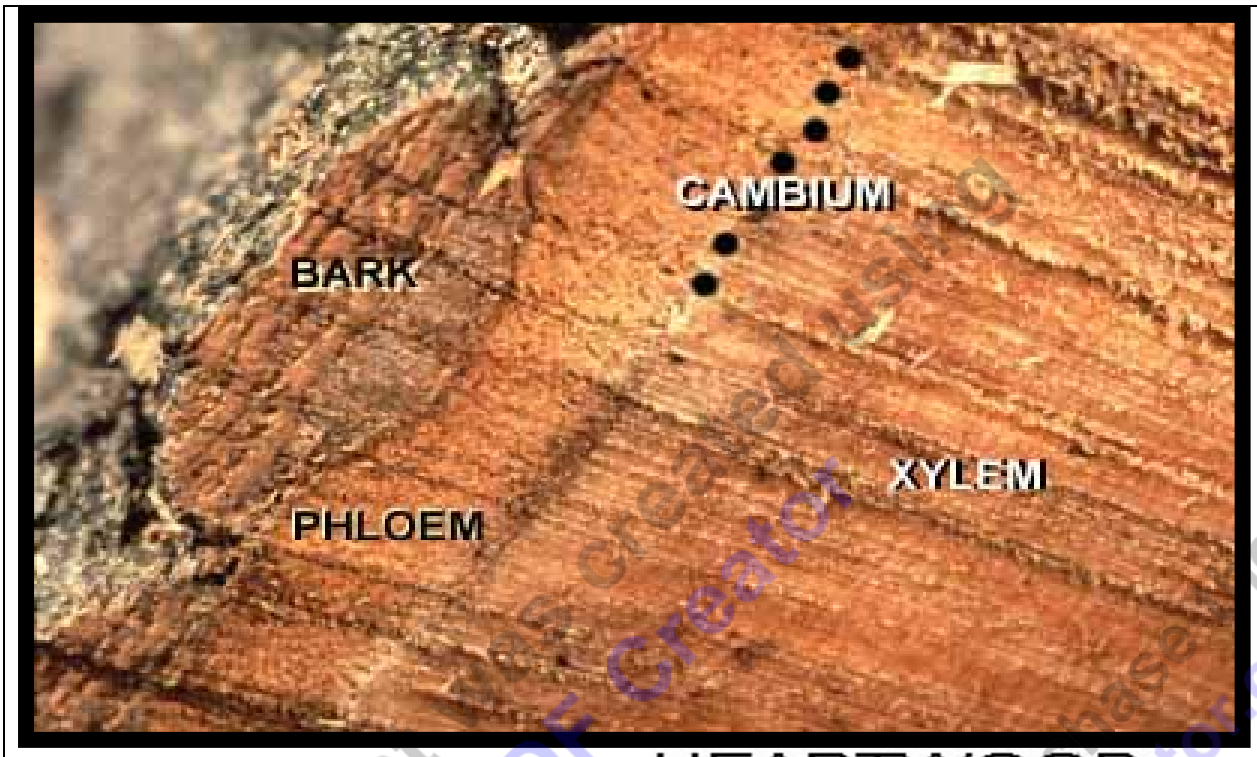


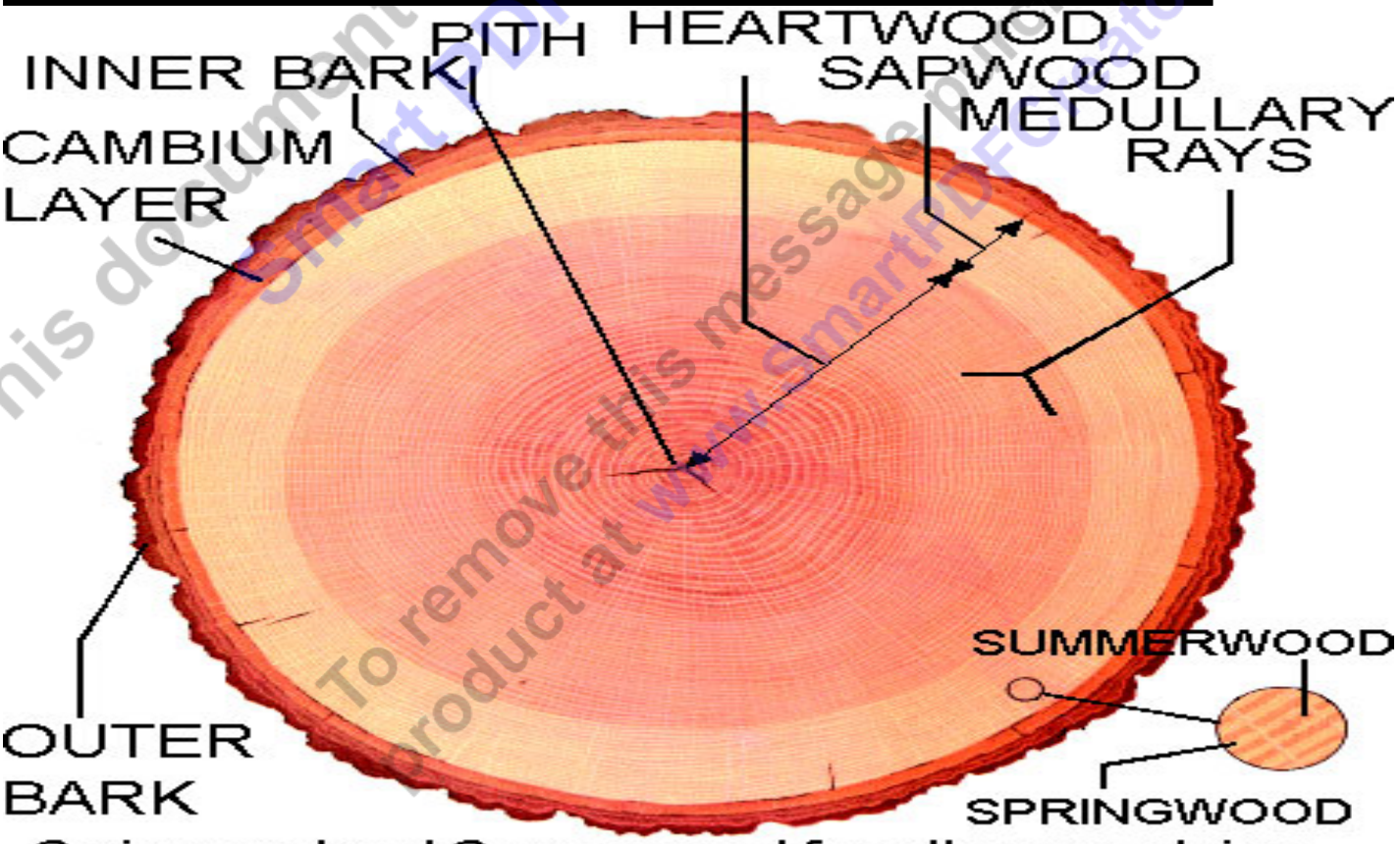
Please cross off each diamond after that questions has been answered.

◊ Please label the cross-section of the tree below with the correct terms.

◊ Cambium ◊ Pith ◊ Sapwood
◊Heartwood ◊ Inner bark ◊ Outer bark

◊ How old is this tree? Can you count the rings? _12_____ years old.

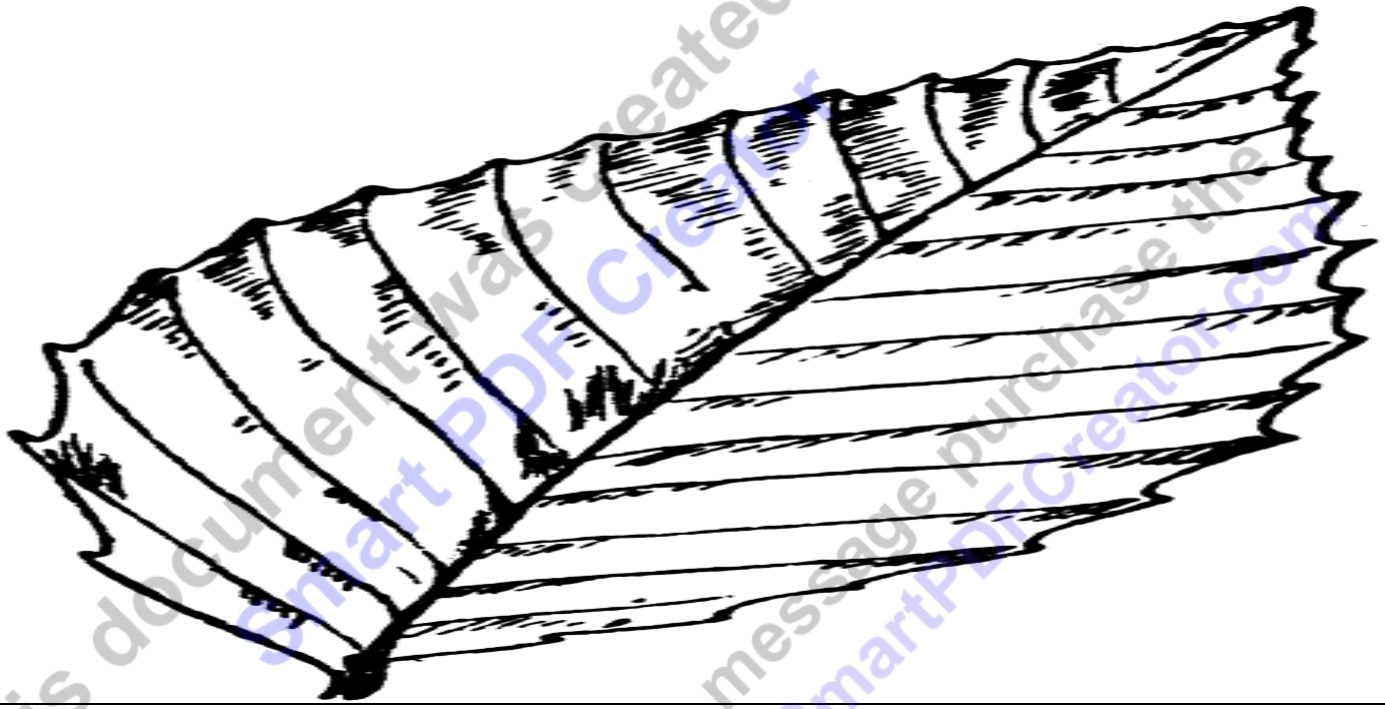




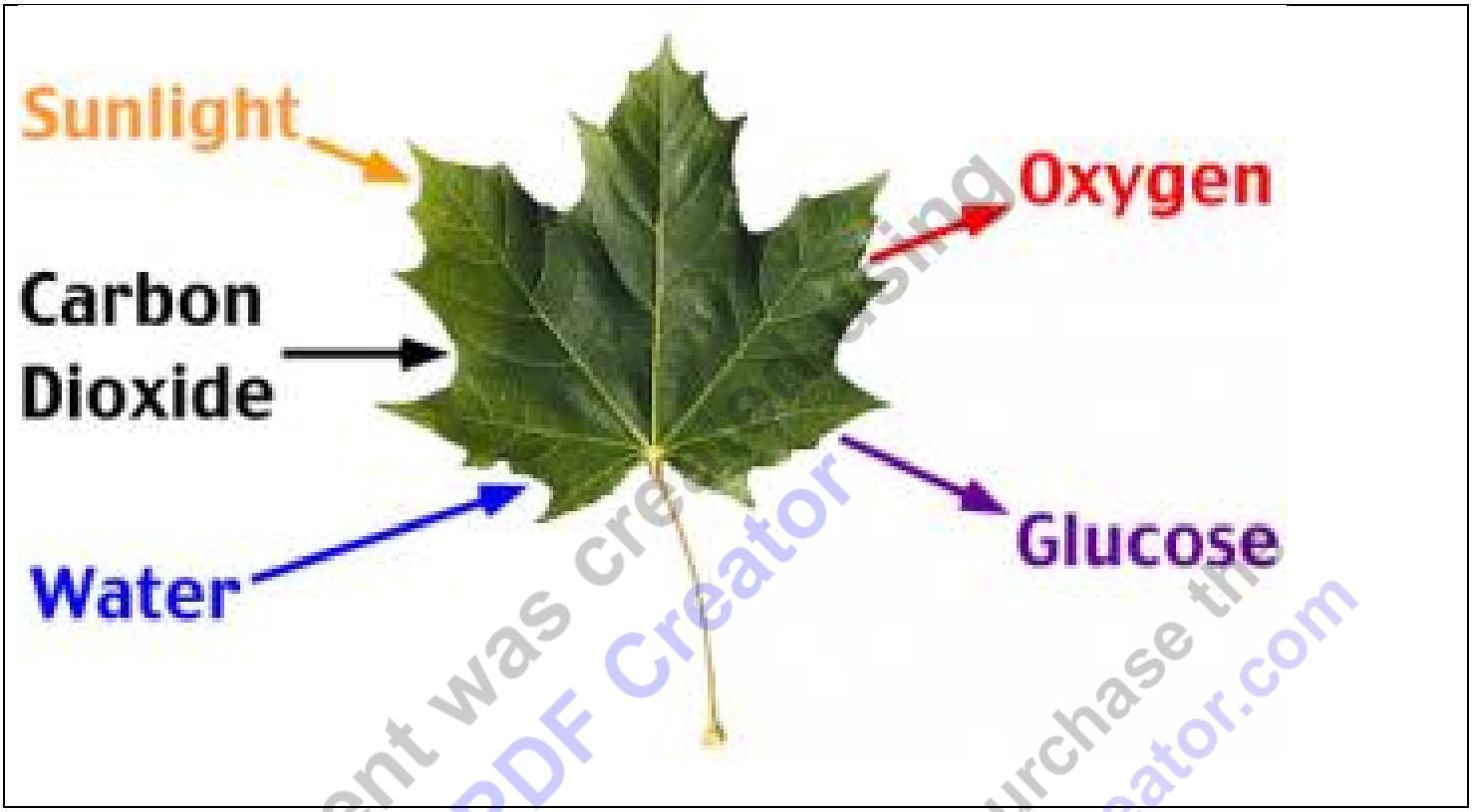
Springwood and Summerwood from the annual ring

Define a leaf in the space below. You are allowed to write on the leaves veins if you want.

A leaf is a plant organ, that is photosynthetic, contains chloroplasts, and is usually thin so light can penetrate.



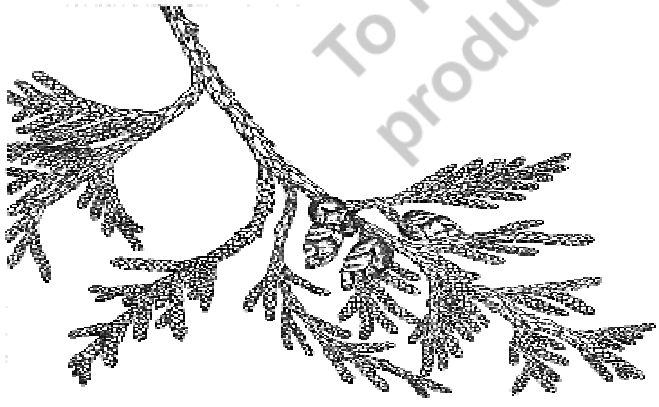
Please add the correct terms next to the arrows to show what goes into and out of a plant when it does photosynthesis.



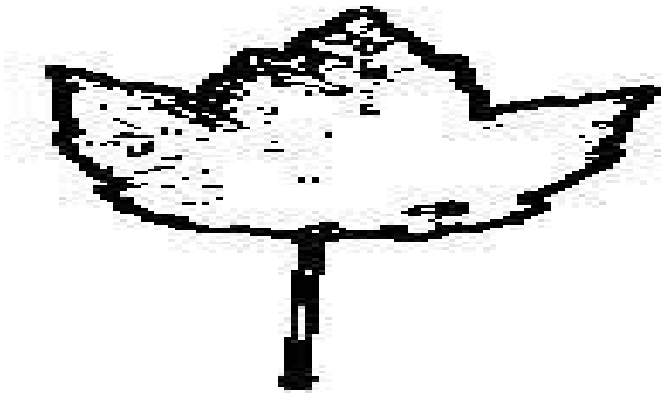
Please identify the tree based on the leaves/needles below. Sizes are not to scale!

Sugar Maple

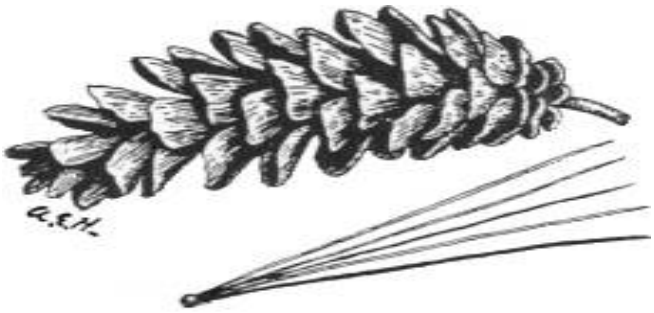
2 white lines Hemlock



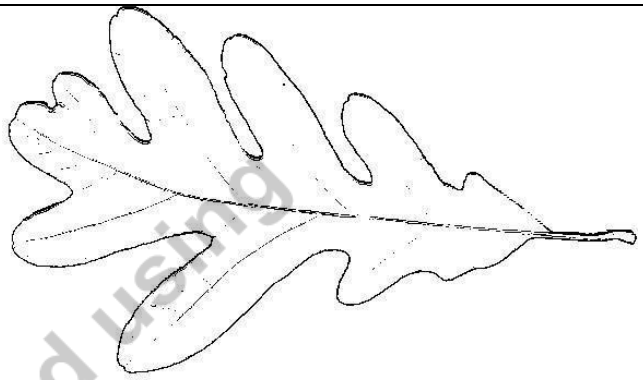
Cedar



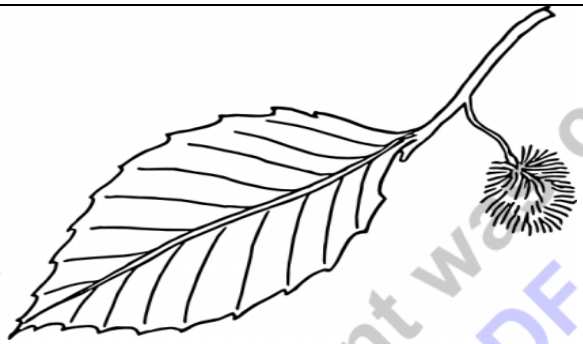
Red Maple



5 needles White Pine

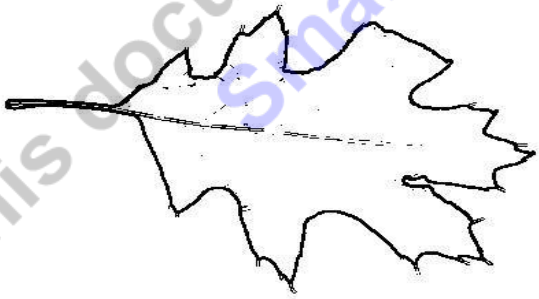


White Oak



Beech Tree

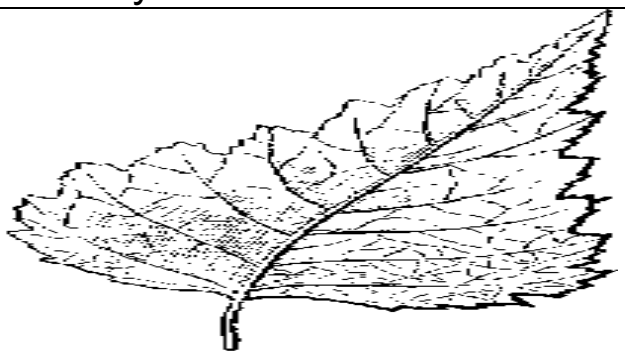
Red Pine



Red Oak

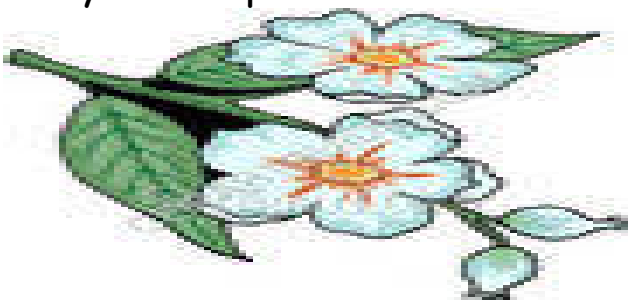
Friendly to the touch Fir

Spiky to the touch Spruce



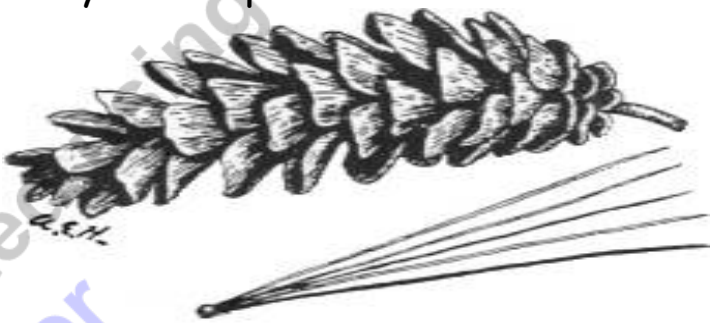
Birch

Am I an Angiosperm or a Gymnosperm? Provide a rationale for your response.



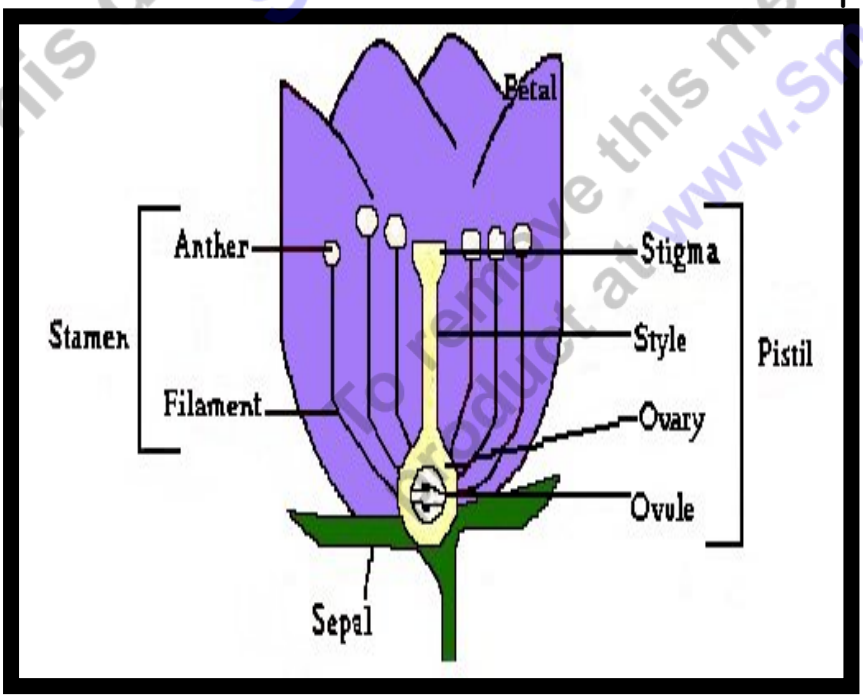
Angiosperm: Flowering, covered seed, produce seeds enclosed in a fruit /ovary.

Am I an Angiosperm or a Gymnosperm? Provide a rationale for your response.



Gymnosperm: Non-flowering, seeds usually arranged on a cone.

Please label the following parts of a flower using the template below. Make a reference to the male and female portions of the flower.



Please label the parts of the fruit using the picture below.

◊ Endocarp
◊ Mesocarp
◊ Exocarp
◊ What type of fruit is this apple? Why?

GREAT WORK! THIS WAS A DIFFICULT OFE. DO NOT LOSE! PUT IN A SAFE PLACE!