Botany Unit

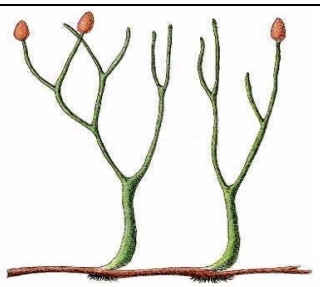
Name:_____

Due:_____

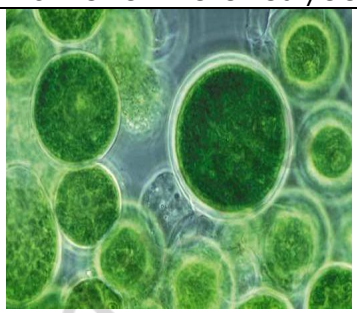
Please respond intelligently to the comment from the angry student below.

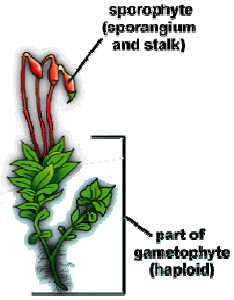
What is Algae? Is it a plant? Why is Algae so important to our world?
Draw algae here

Please place the following pictures in the correct order 1-7 according to their evolutionary history. 1 is the earliest, 7 is the latest. Provide a name for the ones you know underneath.



(First Vascular Plants)





Moss is a ____-vascular plant.

(First Seed Plants)

Draw a hornwort in the space below.

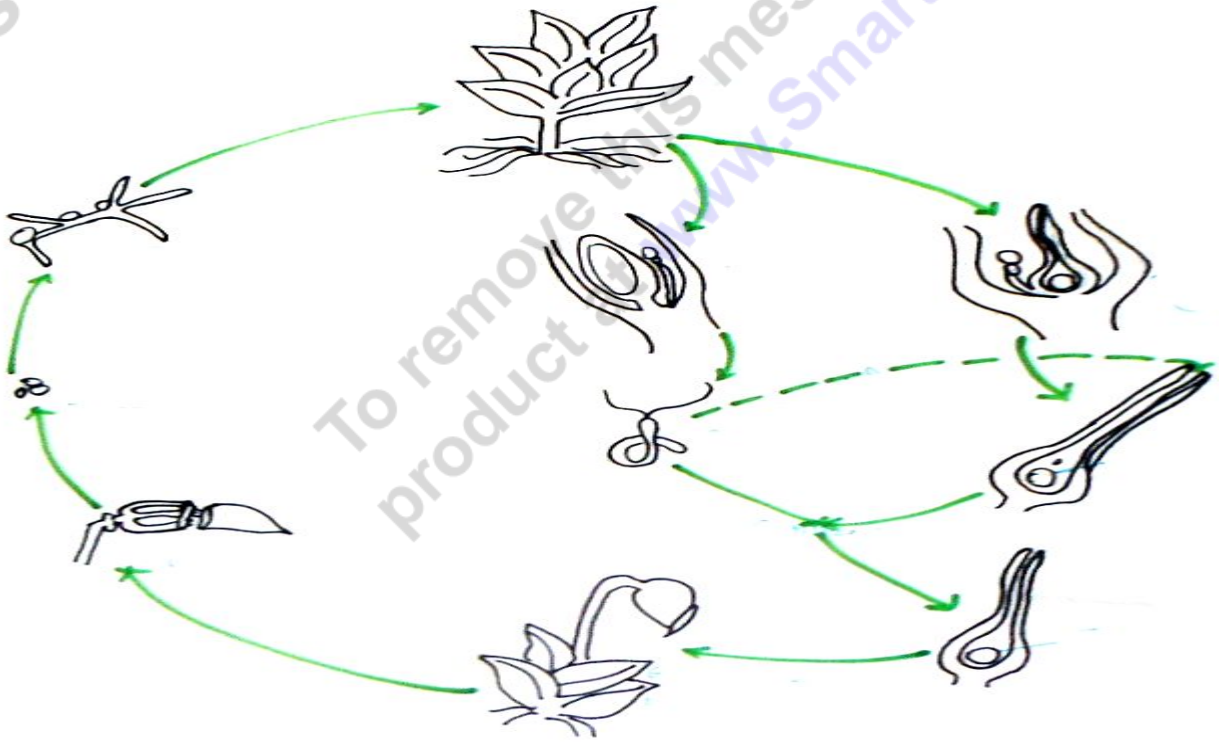
What is a lichen? Is it a plant? How does a lichen represent a mutualism between two species? Can you name the types of lichen below?

Why do most bryophytes live close to the ground and in moist environments?	Please identify, and then label the bryophyte below?
	

Please correctly name the type of non-vascular plant in the boxes under the picture.

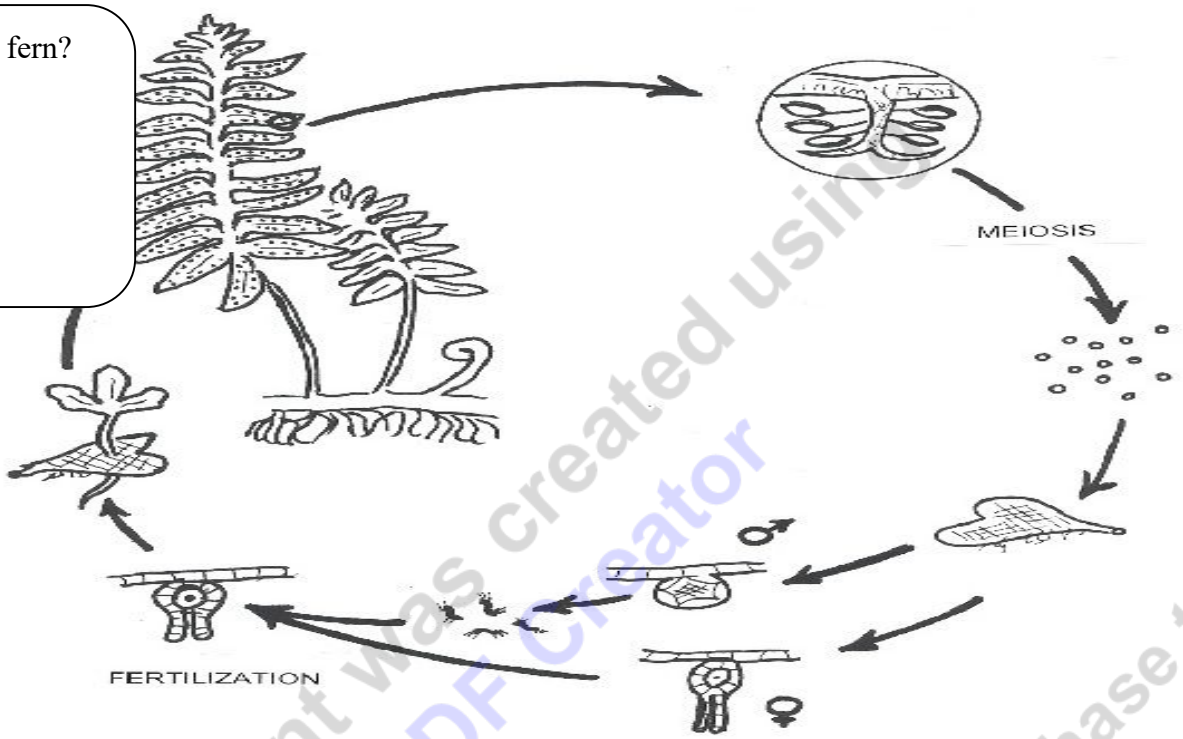
		

Please provide some terminology to the diagram below about the life cycle of a Bryophyte.



Please provide some terminology about the life cycle of a seedless vascular plant.

What is a fern?



Please check off the box when each is covered below.

◊ What does the picture below represent? -Provide a description.
◊ What are some of the parts to the picture below? - Label them.
◊ What are some ways to break its dormancy? – Provide them.

_____
_____
_____
_____
_____
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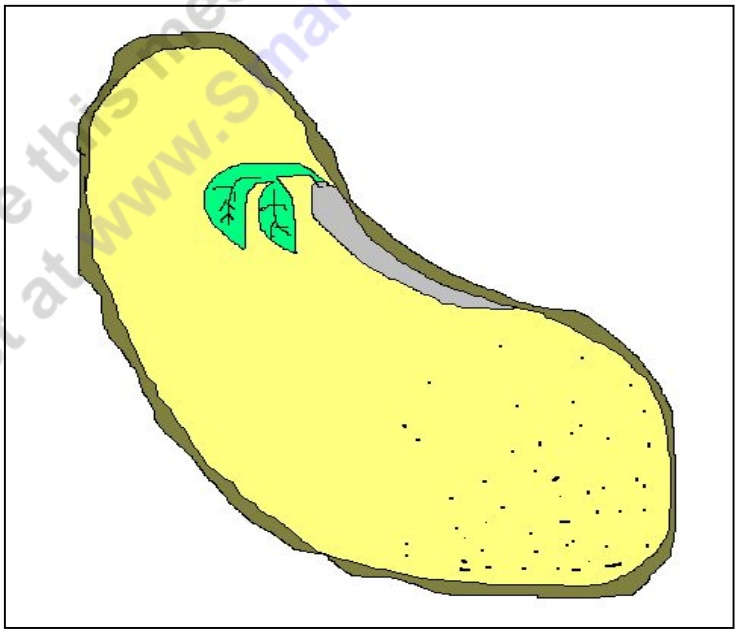
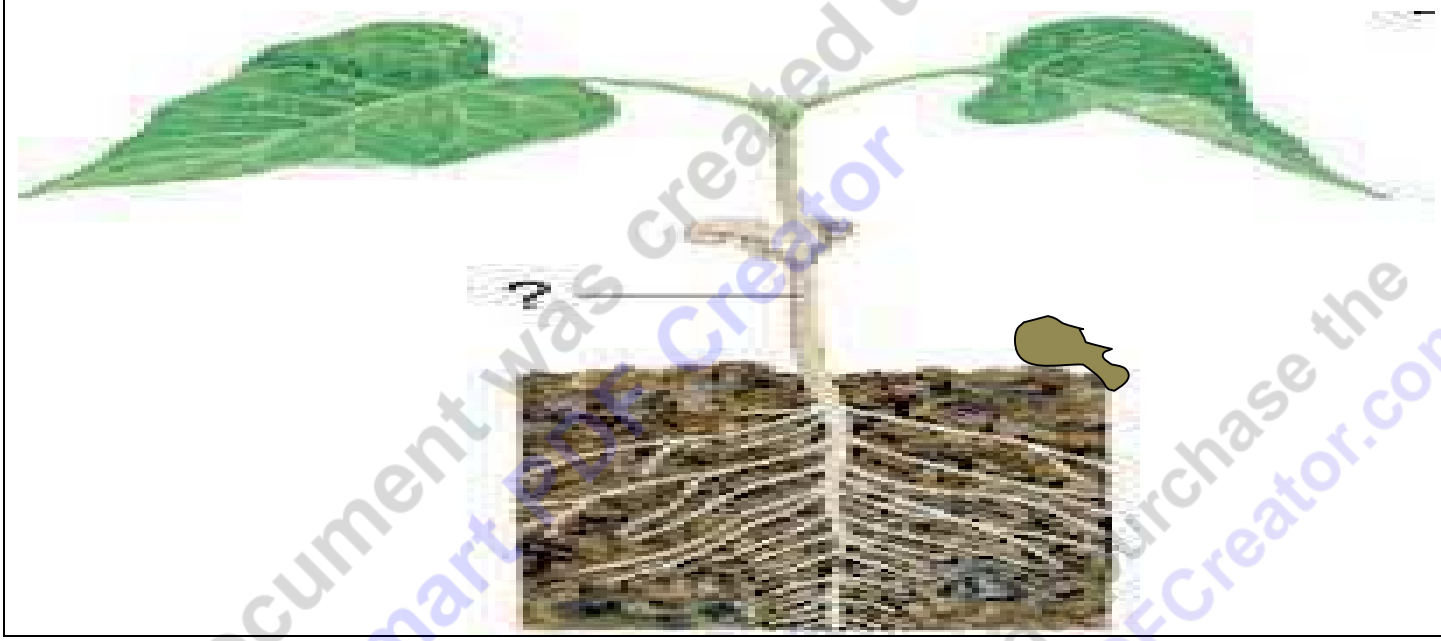
_____



Please label and provide a brief description of the following terms associated with a young plant. Check off each term after you have described and labeled them. Make sure your arrow accurately points to that plant feature.

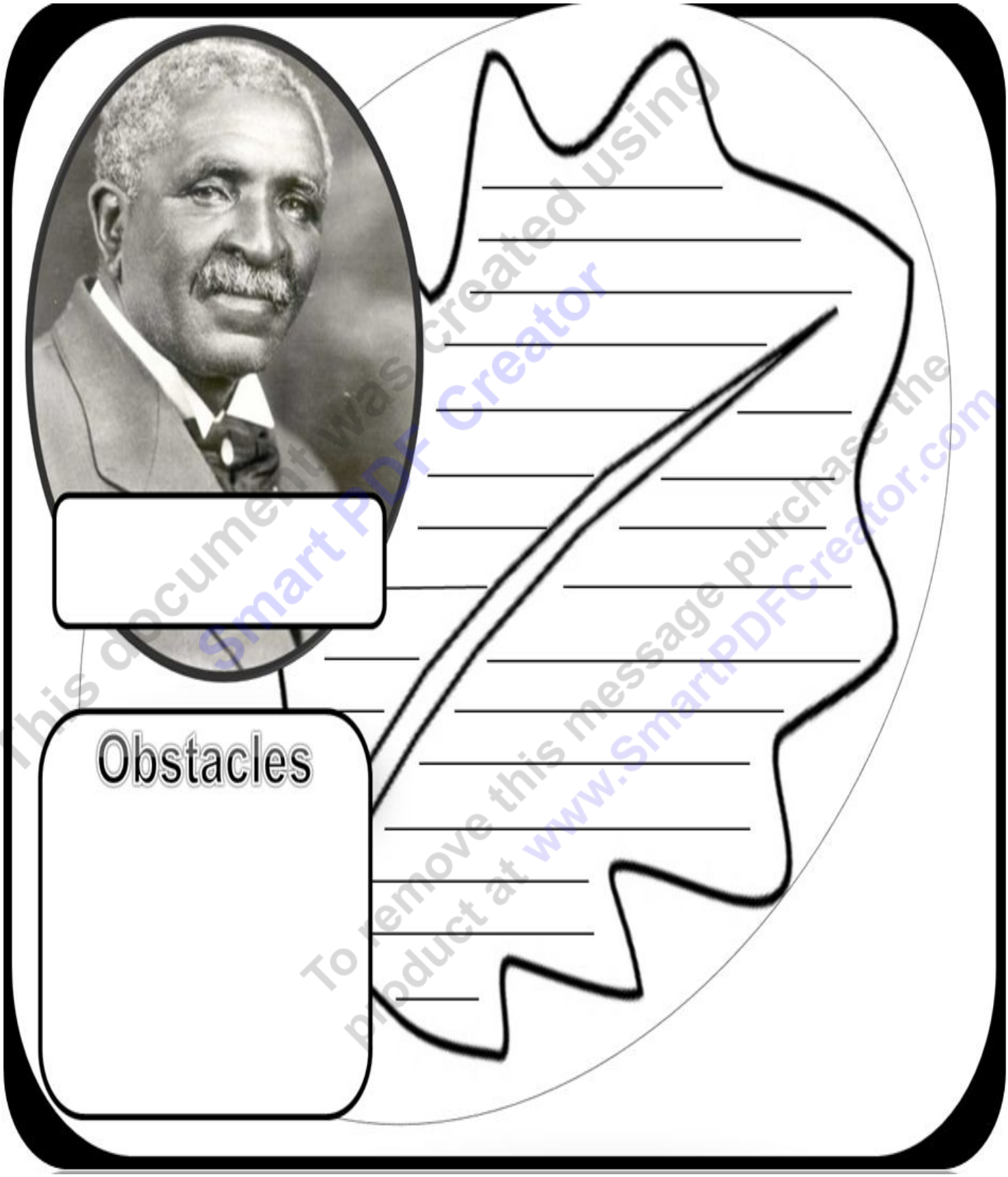
◊ True Leaves ◊ Cotyledons ◊ Epicotyl ◊ Hypocotyl ◊ Radicle ◊ Seed Coat



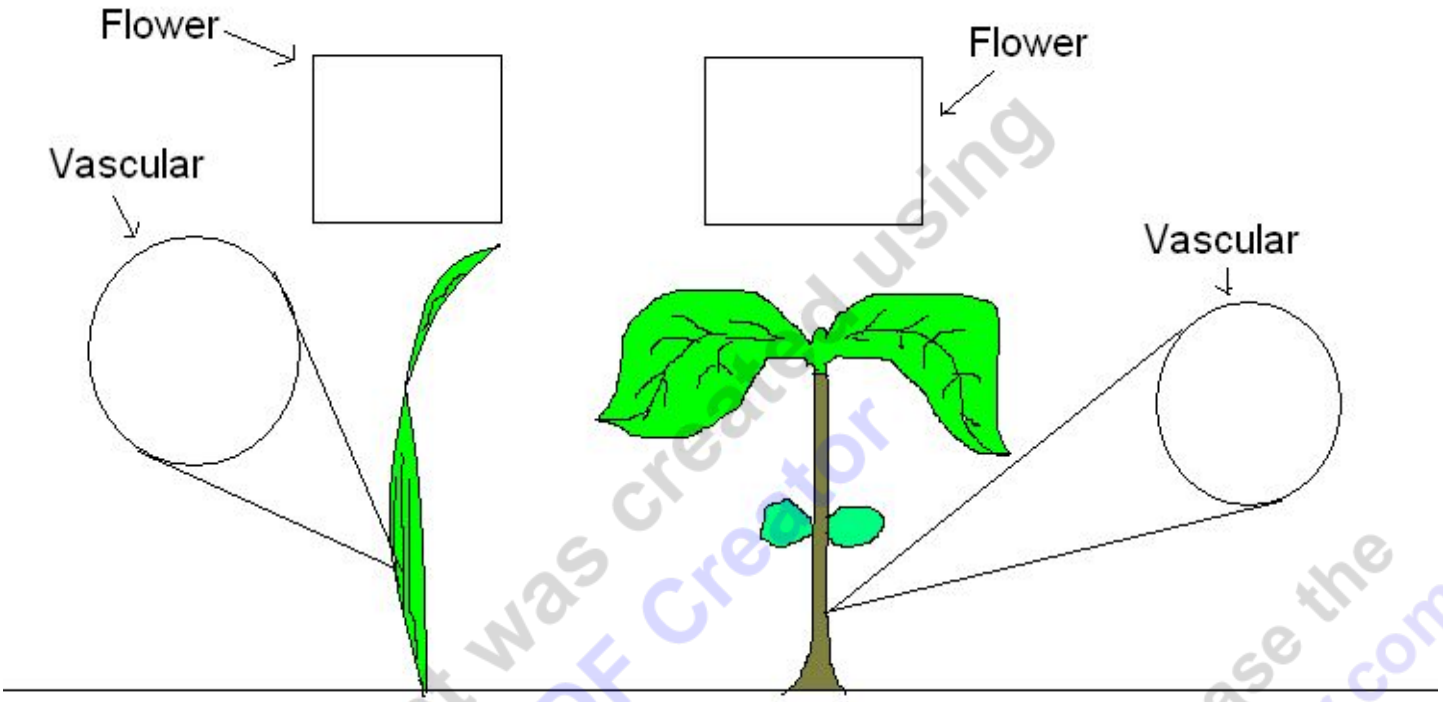
Please accurately label the parts of a stem on the picture below. Please check off each box after you have used the term.

◊ Node ◊ Internode ◊ Petiole ◊ Stem

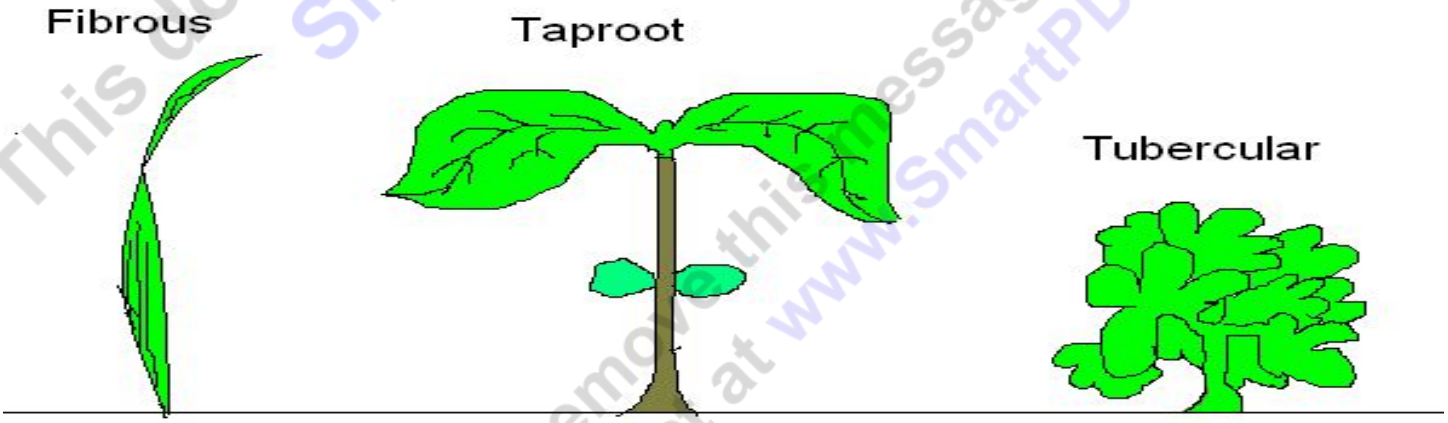
Who is this person? Explain using some information provided in the readings, videos, and from the classroom lesson. What obstacles did he overcome?

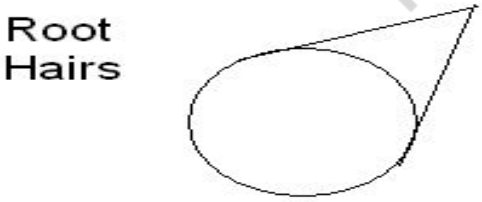


Which plant below is a dicotyledon, and which is a monocotyledon? Explain using the pictures, boxes, and circles to describe the differences between the two.

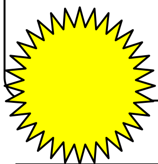


Please draw the root type below the surface.

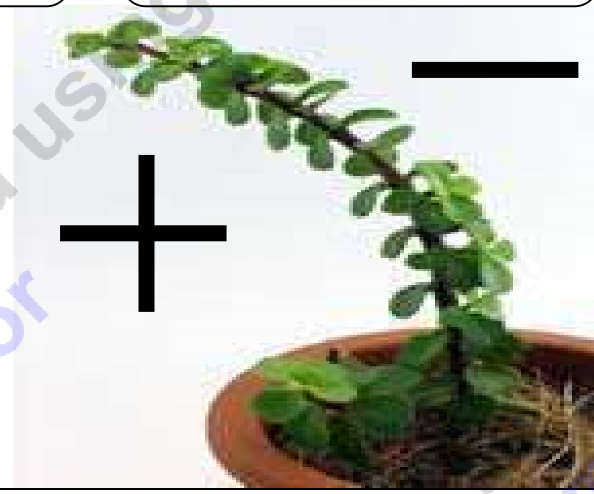




Name at least three plant tropisms in the boxes below.

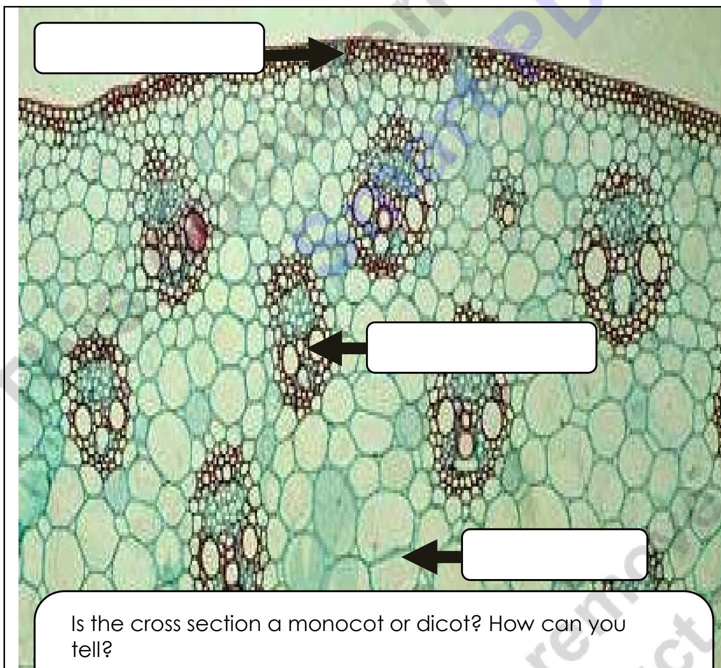


_____: Promotes stem elongation and bud dormancy. +/- Photo_____
Gibberellins: Make _____ longer.
_____: Promotes cell division. They are produced in growing areas like the tips.
_____ Acid: Opens and closes stomata, has role in seed dormancy.

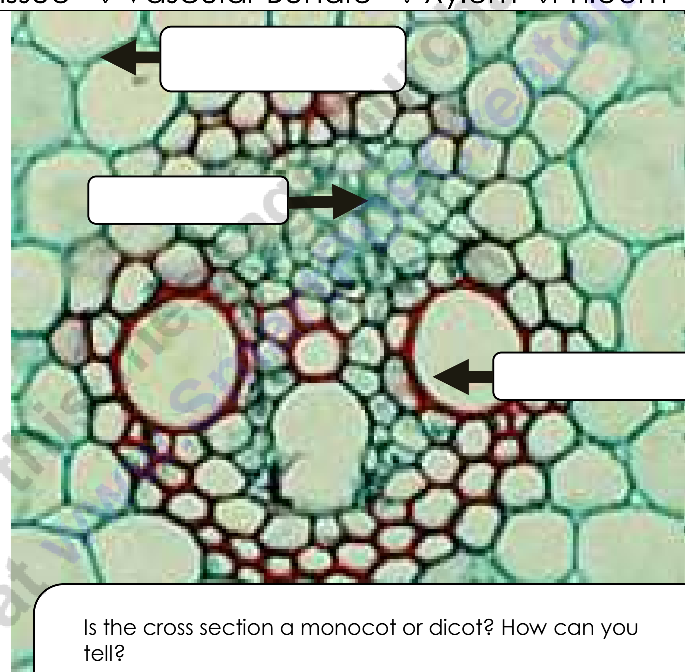


Please label the cross section below with the following terms.

◊ Ground Tissue ◊ Dermal Tissue ◊ Vascular Tissue ◊ Vascular Bundle ◊ Xylem ◊Phloem



Is the cross section a monocot or dicot? How can you tell?

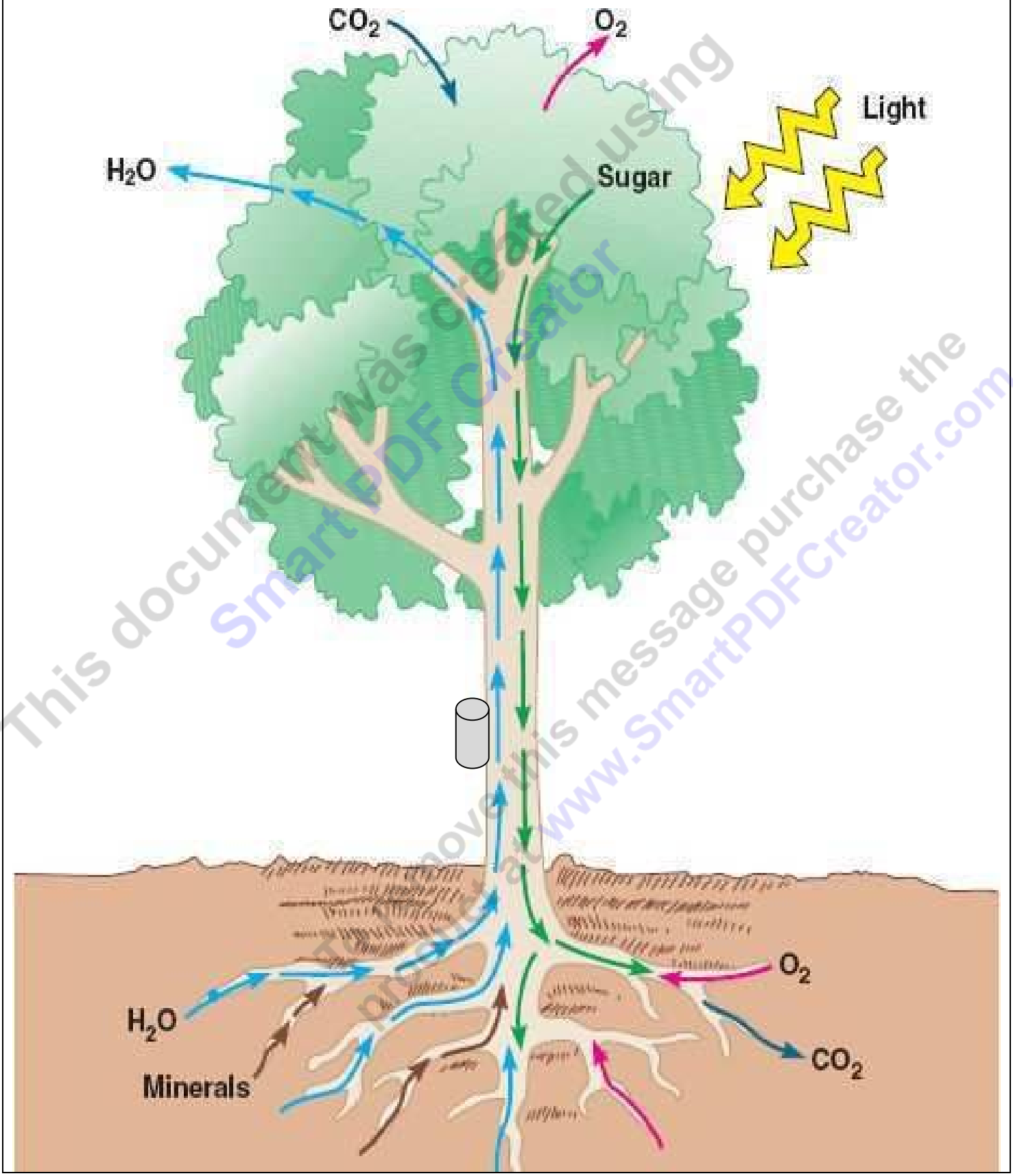


Is the cross section a monocot or dicot? How can you tell?

Which of the following is not a reason why plants need water?

1 A) Water is needed for photosynthesis.
2 B) Keeps plants rigid and not wilted.
3 C) Water cools the plant down during warm weather.
4 D) Water carries dissolved nutrients and minerals throughout plant.
5 E) Water needs to travel from the leaves to the roots

Please describe the roles of xylem and phloem using the picture below. Don't forget to discuss the bucket hanging off of the tree.



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

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

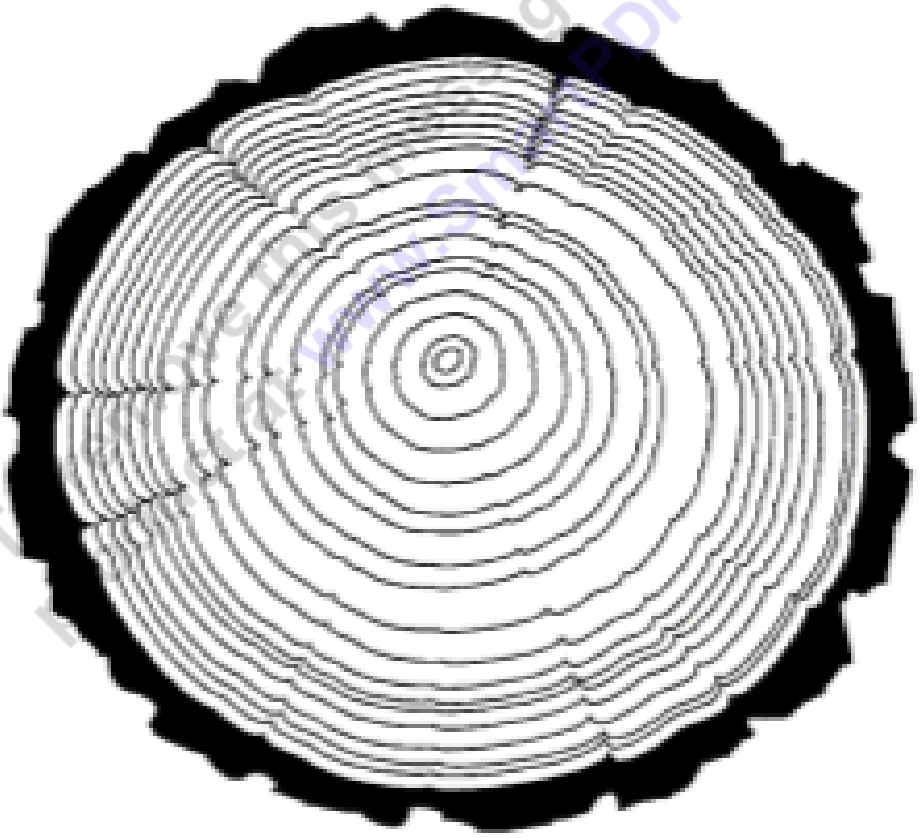
◊ Please calculate the trees age by adding the years from the outside in. The tree was just cut.

◊ Assume the tree was just cut, What year showed the most growth _____

◊ Assume the tree was just cut, What year showed the least growth _____

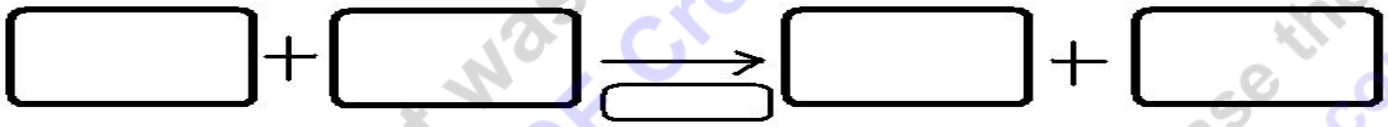
◊ What is the science of dating past events by using annual tree rings called?

_____



◊ Describe photosynthesis in the space below. What goes in and out of the leaf?
◊ A strong answer will provide parts of the photosynthesis equation (check below leaf)
◊ Make a reference to the process of transpiration.

Please write out the equation for **photosynthesis** in the boxes below.

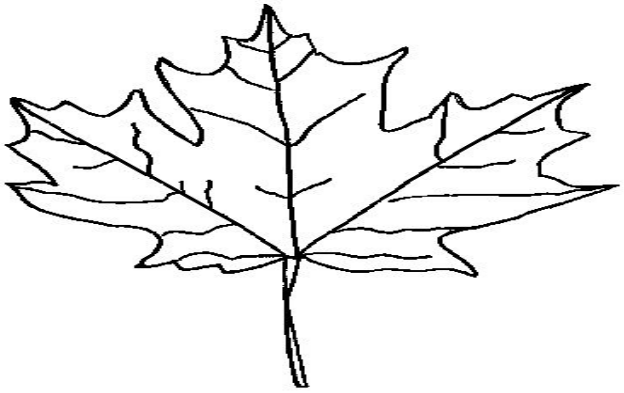


Which of the following is the correct equation for photosynthesis?

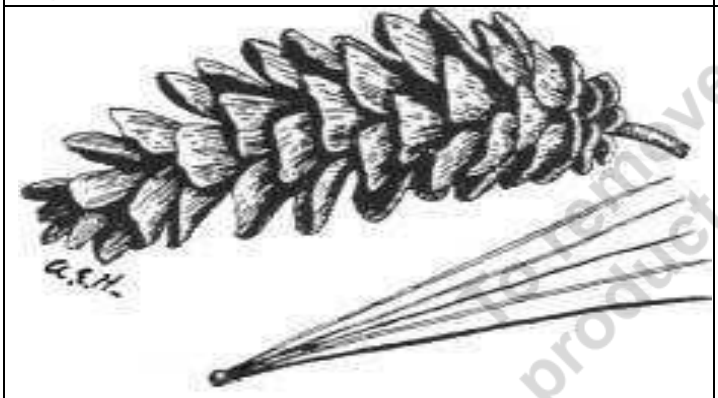
1. **A) $6O_2 + 6H_2O$ + light energy = $C_{12}H_6O_6 + 6O_2$**
2. **B) $6CO_2 + 6H_2O$ + sugar = $C_6H_{12}O_6 + 6O_2$**
3. **C) $6CO_2 + 6O_2$ + light energy = $C_6H_{12}O_6 + 6H_2O$**
4. **D) $6CO_2 + 6H_2O$ + light energy = $C_6H_{12}O_6 + 6H_2O$**
5. **E) $6CO_2 + 6H_2O$ + light energy = $C_6H_{12}O_6 + 6O_2$**

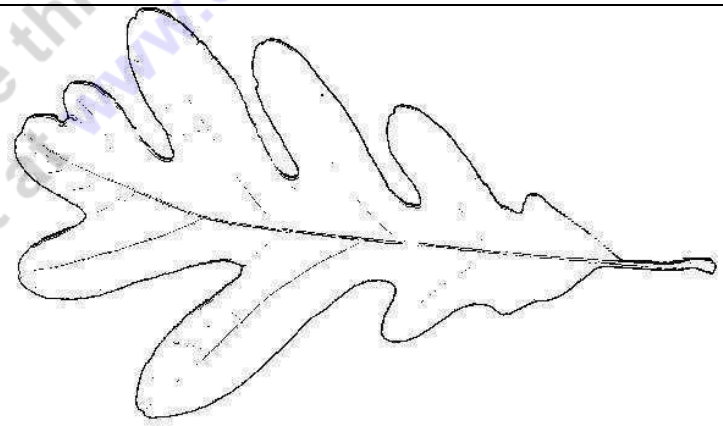
Find a leaf or more and create a rubbing in the space below using a crayon. Define a leaf in or around the rubbing? Once we learn about leaf identification can you describe some identifiable leaf structures / name the tree this leaf came from?

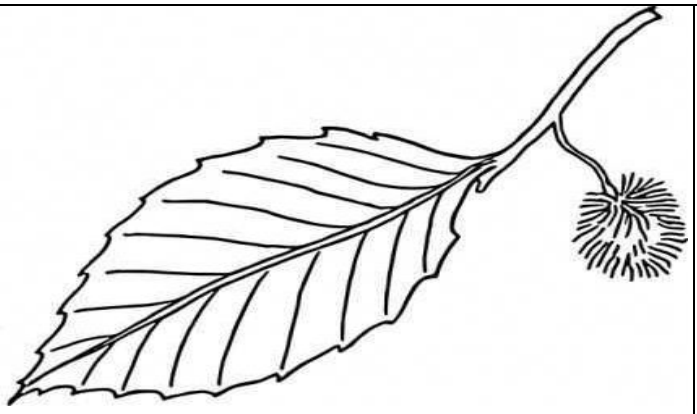
Please identify the tree based on the leaves/needles below. Sizes are not to scale!

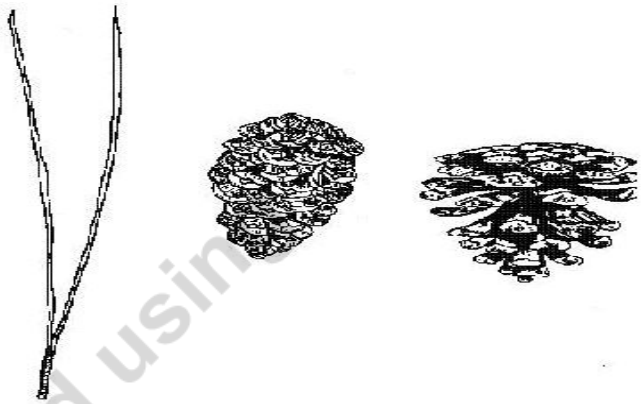


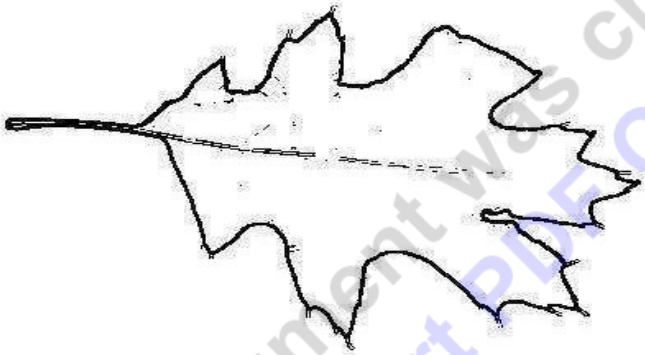
2 lines visible





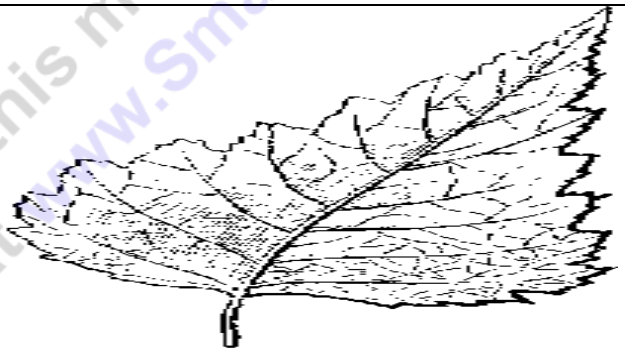




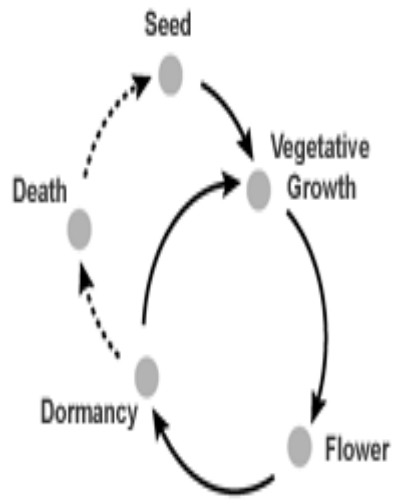


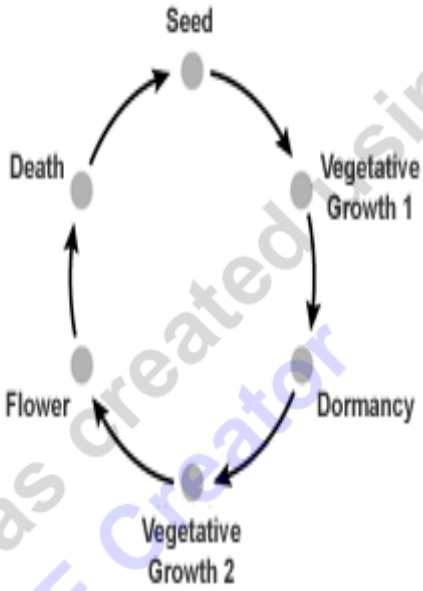
Friendly to the touch

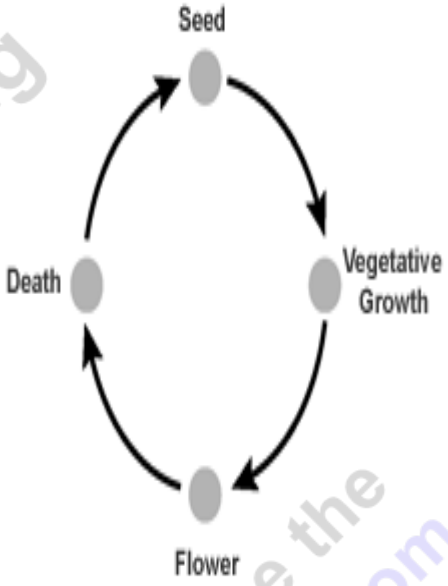
Spiky to the touch



Please label the life cycles below. Which picture is an annual, biennial, and perennial?

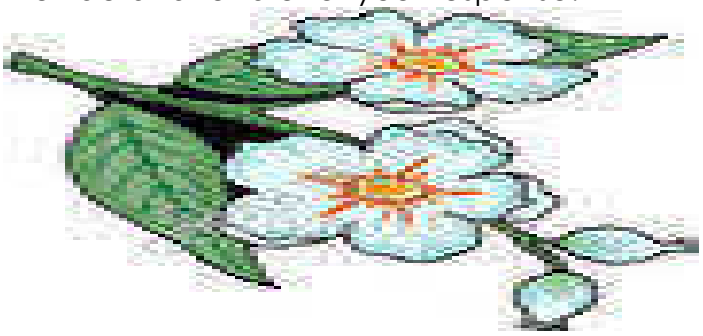




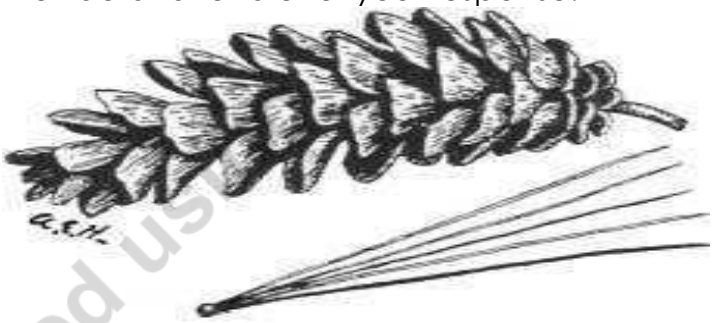


Draw and label a fruit of your choice in this box. What type of fruit is it?	Draw and label a vegetable of your choice in this box.
What type of life cycle from above is this fruit?	What type of life cycle from above is this vegetable (You may need to research)?

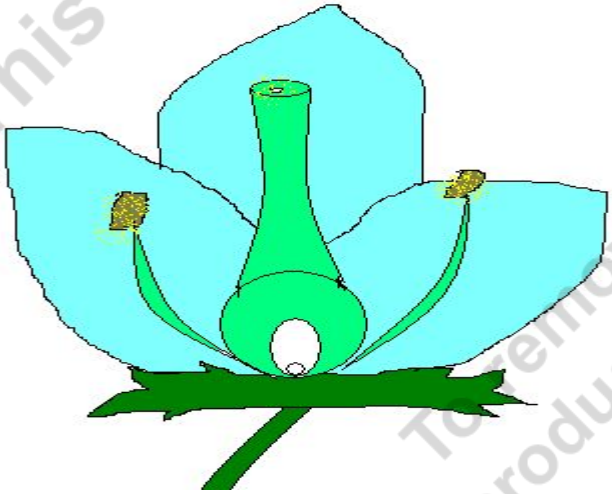
Am I an Angiosperm or a Gymnosperm? Provide a rationale for your response.



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



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

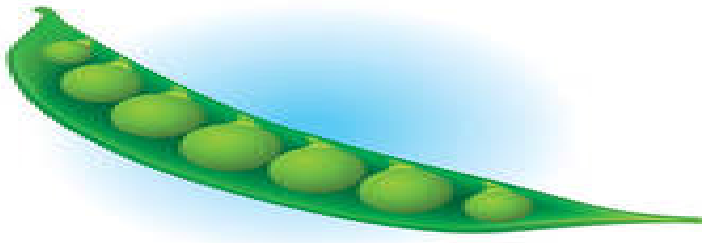


Please label the parts of the fruit using the picture below.

◊ Endocarp
◊ Mesocarp
◊ Exocarp

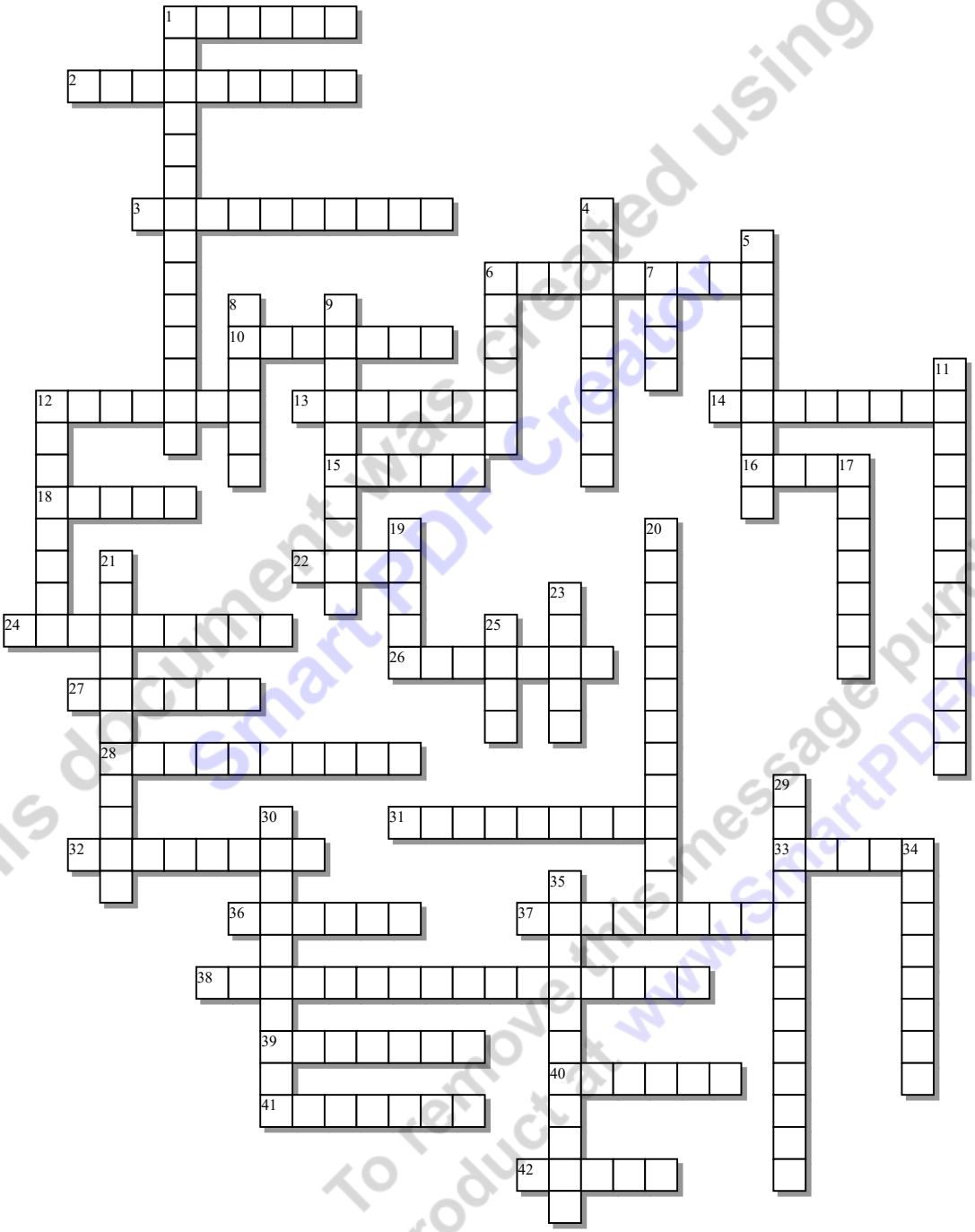
◊ What type of fruit is this apple? Why?

What type of fruit is this?



Botany Unit Crossword

Name:_____



Possible Answers: Aggregate, Algae, Angiosperm, Annuals, Biennials, Bryophytes, Cambium, Coat, Cotyledon, Crustose, Dendrochronology, Dermal, Dicotyledon, Epicotyl, Fern, Fibrous, Flower, Foliose, Fruticose, Germination, Gravitrophism, Gymnosperm, Hairs, Heartwood, Hormones, Hypocotyl, Inner, Leaf, Lichen,

Monocotyledon, Perennials, Phloem, Photosynthesis, Pistil, Pith, Radicle, Roots, Sapwood, Stamen, Stoma, Taproot, Transpiration, vascular, Vegetable, Xylem

Across:

1 - Tubes in the plant that food (sugar) moves through.
2 - Part of the plant between the radicle and cotyledons
3 - Type of non-flowering plant, seeds usually arranged on a cone
6 - Branch type of Lichen
10 - Main root with roots that branch off.
12 - Area just inside bark that makes new tissues. Adds girth which allows the plant to grow tall.
13 - Leafy type of Lichen
14 - These types of plants lacks tubes to bring water and food up and down the plant. non-_____ plants
15 - Root _____. Extensions of root to absorb water and nutrients
16 - This is a plant organ, that is photosynthetic, contains chloroplasts, and is usually thin so light can penetrate
18 - Openings in leaf (_____) controlled by guard cells that allow gases in and out of leaf
22 - Flowerless and seedless vascular plant, having true roots from a rhizome, and reproduces with bisexual spores.
24 - Older, Darker, and harder non-living central portion of the tree.
26 - Lower embryo and root
27 - Female part of flower (egg).
28 - Type of flowering plant, covered seed, produce seeds enclosed in a fruit /ovary.
31 - Type of fruit that develop from flowers with many pistils
32 - Plant _____ are chemicals that affect aspects of the plants life
33 - Most primitive members of Plant Kingdom
36 - Outside layer of plant, protects, interacts with outside. _____ Tissue
37 - Plant lives through first winter and produces seed before dying
38 - The dating of past events through study of tree ring growth.
39 - Seed germinates, grows, and produces new seed, before dying
40 - Algae and fungus growing together in a symbiotic relationship
41 - Living wood, lighter in color, conducts water with xylem.
42 - The usually underground portion of a plant that lacks buds, leaves, or nodes and serves as support, draws minerals and water from the surrounding soil, and sometimes stores food

Down:

1 - Process whereby plants make sugar from sunlight
4 - First leaves on the plant (Full of energy).
5 - Edible part of a plant that is not a sweet fruit or seed. Stalk, leaves, root, etc.
6 - The reproductive organ of a plant that makes the seed
7 - Protects seed from drying out, aids in seed dispersal, opens when conditions are right. Seed _____
8 - Male part of flower (sperm), made of filament and anther.
9 - Mosses. Liverworts, Hornworts are all...
11 - Response of a plant in relation to gravity. Roots go down, shoots go up
12 - Crusty type of Lichen
17 - Type of root with many branches
19 - _____ bark. Area just inside the bark, made of living tissue and contains the phloem
20 - Seedling has one cotyledon, Veins in leaf are parallel, Flower petals are in 3's, Never woody.
21 - The process whereby growth emerges from a period of dormancy
23 - Vascular Tissue: _____ and Phloem.
25 - The soft spongy substance in the center of the stems of many plants and trees. Wood formation begins here
29 - The evaporation of water from plants
30 - Plants that live for many years producing seeds each year.
34 - The stem of a seedling or embryo located between the cotyledons and the first true leaves
35 - Veins on leaf are branched. Flower parts are groups of 4 to 5. Secondary growth can be woody. Vascular bundles are in a ring.