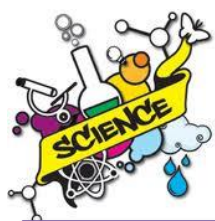


Lesson 3 -

Photosynthesis

Lesson	Resources	Context
3 - Photosynthesis	Practical equipment per pair or 3: 3 x petri dishes Cotton wool 30 seeds (mung beans are good) Marker pen	To complete practical. Set aside to review in following lessons.



Title: Photosynthesis

Homework: Research how plants in extreme conditions survive, eg adaptations to very hot or cold environments.


Level	Learning Objectives	Key Words	SPAG
Bronze	Identify what substances are needed for photosynthesis and state this in an equation.	Photosynthesis	• To be able to construct compound sentences using connectives
Silver	Describe the role of the plant leaf and how it is specialised for photosynthesis.	Stoma Chloroplast	
Gold	Explain why there may be a lack of growth in plants under certain conditions.	Chlorophyll	



Food for Thought

- We get our nutrients from eating foods and digesting them....
- Where do plants get their nutrients from?
- Can we feed plants?



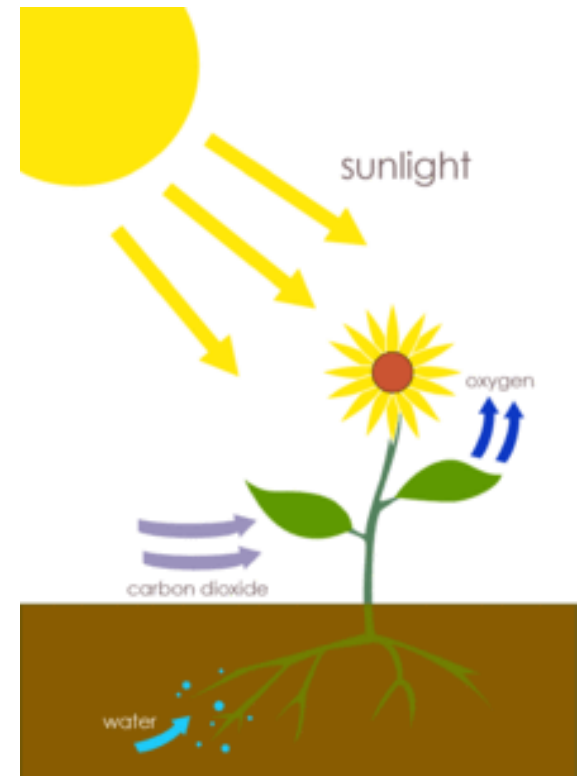
Think about the two questions above. Answer them in your books. Make sure you use full sentences to explain and develop your answers. 

Food for Thought

Plants make their own food by **PHOTOSYNTHESIS**.

Q. What are the conditions needed for a plant to grow?

Q. Which parts of the plant are used to collect these?



Discuss these two questions and try to think up answers. Be prepared to share them with the rest of the class.

Food for Thought

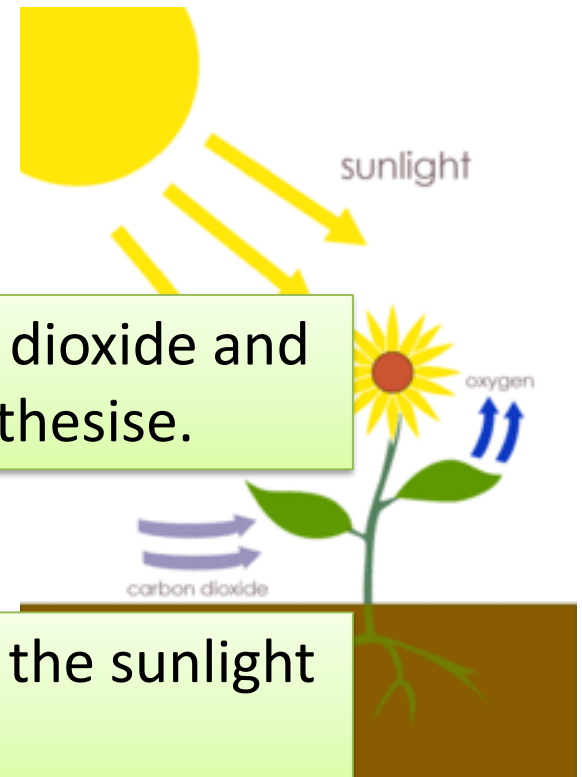
Plants make their own food by **PHOTOSYNTHESIS**.

Q. What do plants need in order to be able to photosynthesise?

Plants need sunlight, warmth, carbon dioxide and water in order to be able to photosynthesise.

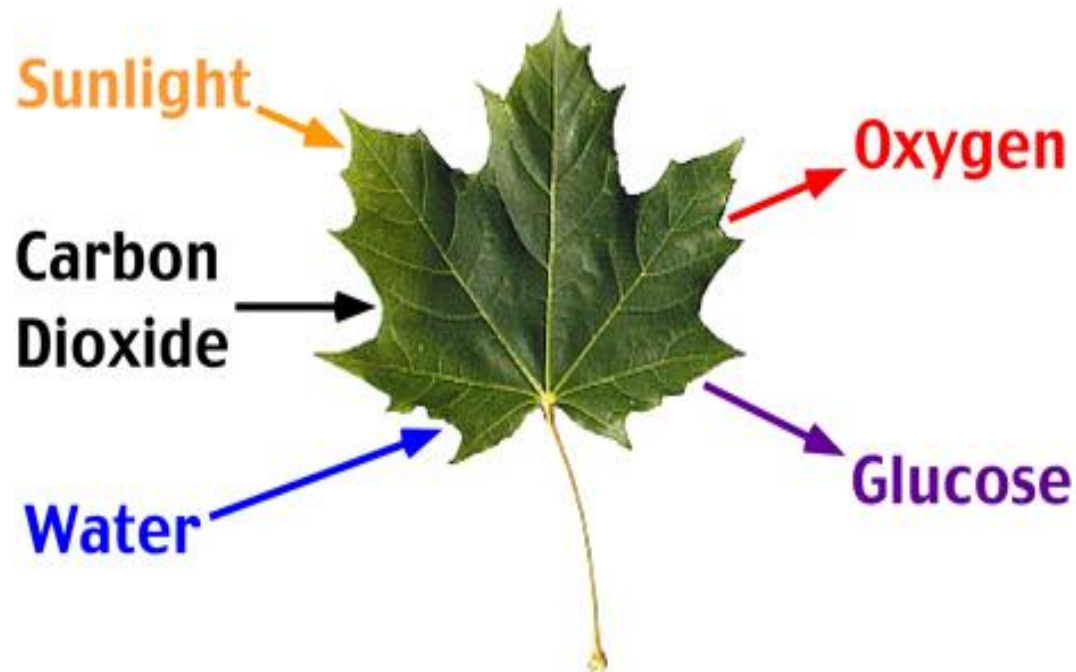
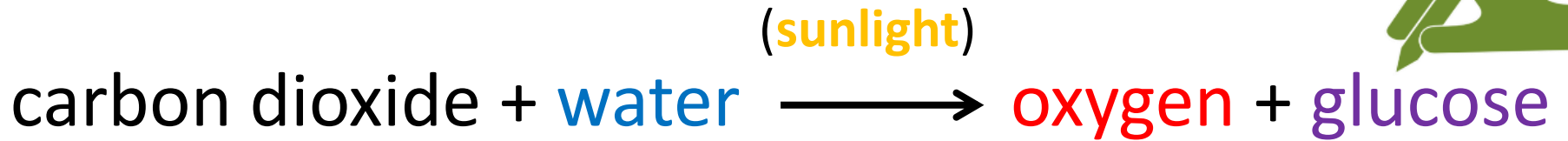
Q. What do plants use to collect these?

Roots collect water, the leaves collect the sunlight and the carbon dioxide.

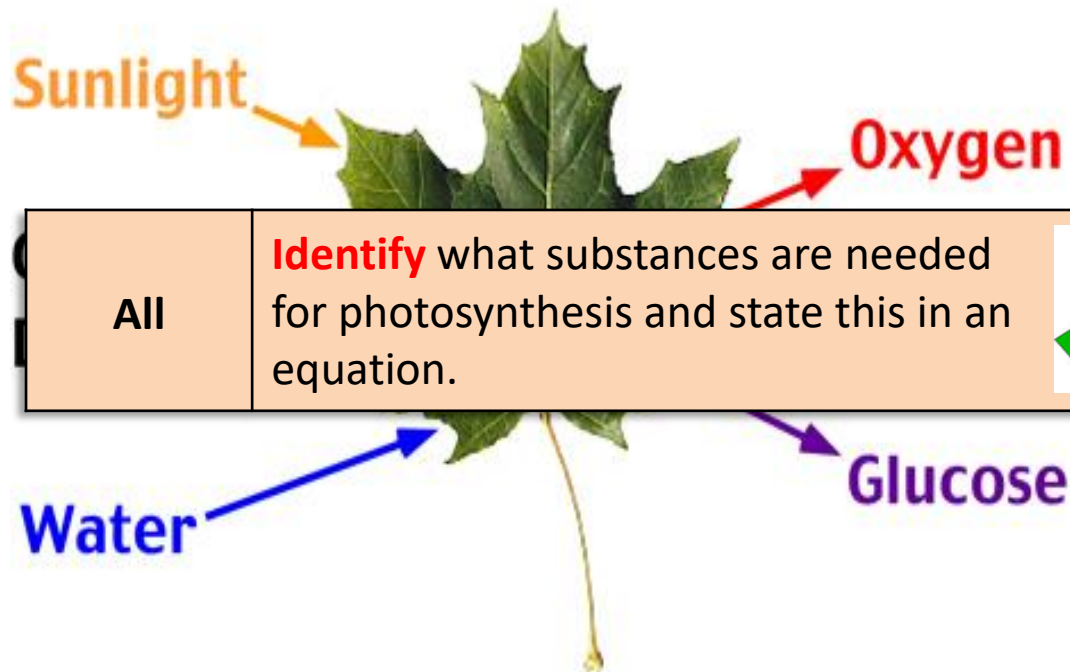
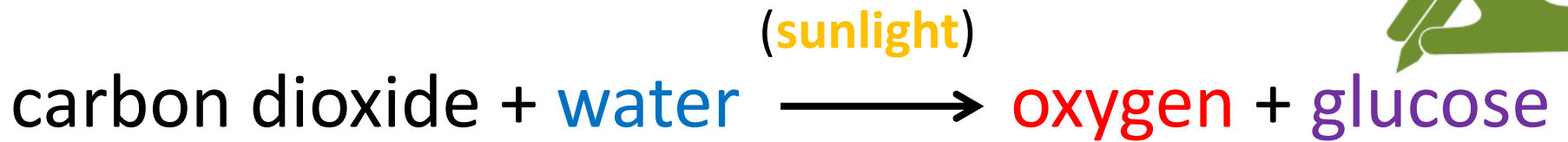


Discuss these two questions and try to think up answers. Be prepared to share them with the rest of the class.

Photosynthesis Equation



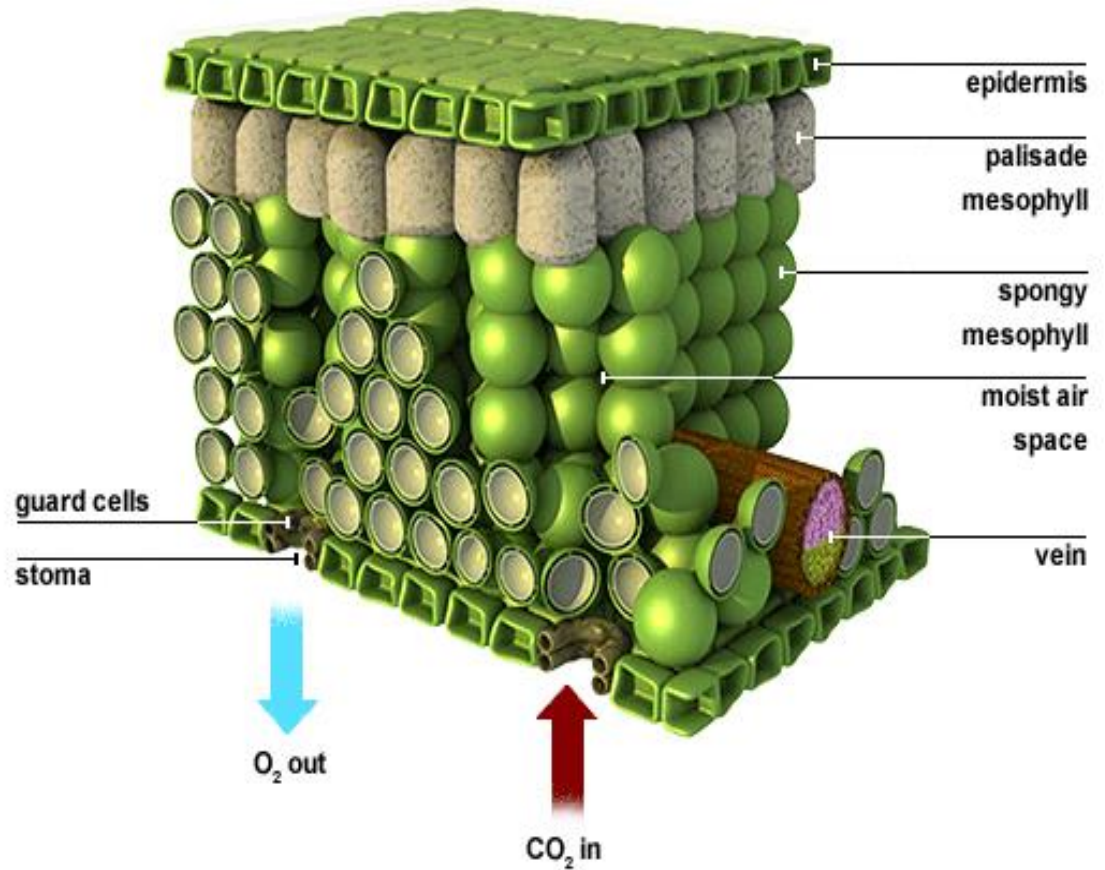
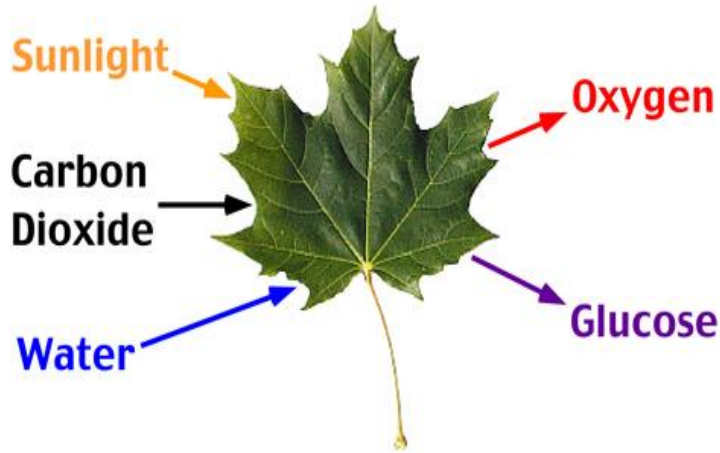
Photosynthesis Equation



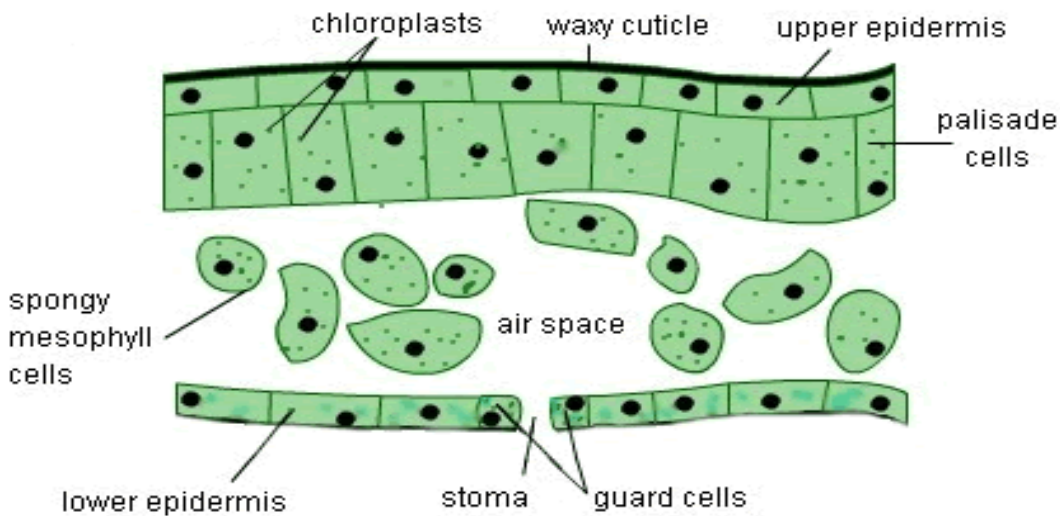
All	Identify what substances are needed for photosynthesis and state this in an equation.	
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Main Activity – Modelling

How do gases enter and leave a plant?



Main Activity – Modelling



Structure of the leaf

Complete the sentences to explain what the parts are used for:

The palisade cells contain many ...

The chloroplasts are used for ...

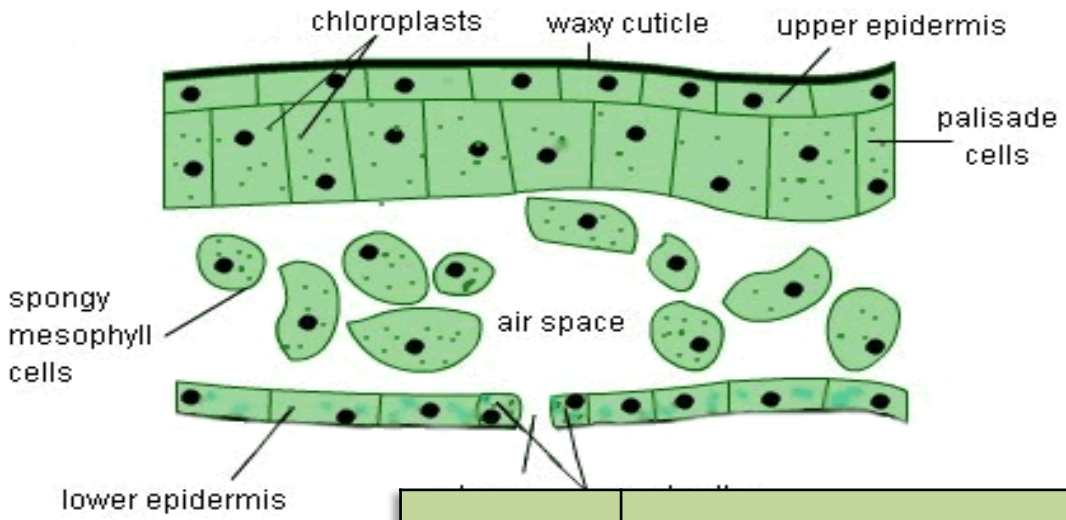
The stoma is to let ... in and out of the plant.

EXT: Why do you think plants have lots of palisade cells?



Main Activity – Modelling

Structure of the leaf



Most	Describe the role of the plant leaf and how it is specialised for photosynthesis.
------	--



are used



Complete the
for:

The palisade cells contain many ...

The chloroplasts are used for ...

The stoma is to let ... in and out of the plant.

EXT: Why do you think plants have lots of palisade cells?



Main Activity – Practical

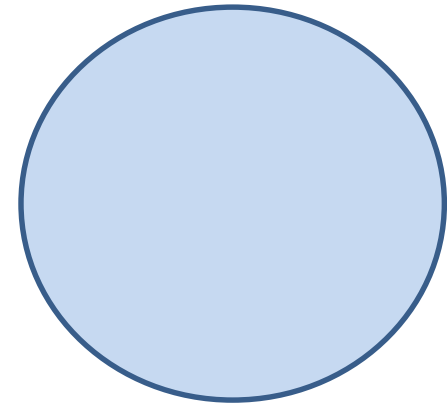
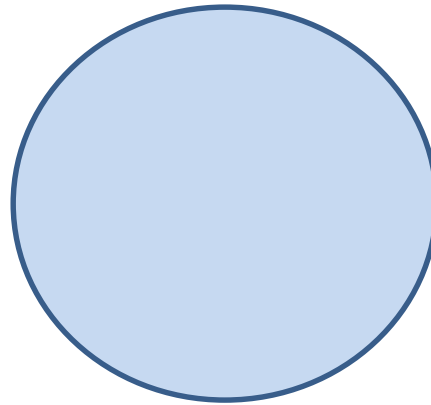
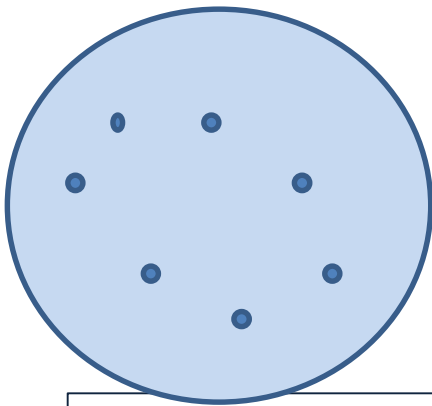
- You will set up cress seedlings under different conditions to monitor their growth

Cress seedlings plate	Condition	Prediction. Will the cress seedlings grow? Y or N.	Actual findings growth? Y or N.
1	In a dark cupboard (no sunlight)		
2	In the greenhouse (sunlight & water)		
3	In the greenhouse (no water)		



Practical

1. Take three Petri dishes
2. Add damp cotton wool to two of the plates and dry wool to the third



3. Count out the same number of seeds for each petri dish and place at equal distance apart on the cotton wool.
4. Label the petri dishes with your initials leave until next lesson.

Predict your findings

1. How will we know if the leaves have carried out photosynthesis?
2. Predict your findings for each experiment.
 - Seeds left in the dark.
 - Seeds left on the windowsill.
 - Seeds left on the windowsill with no water.
3. Use your predictions to describe how a plant's growth would be affected under these conditions. Think about what is needed for photosynthesis....
 - I think the seeds left in the dark will...
 - I think this because...



Confidence

Think	Think about what we have discussed so far in the lesson and practical.
Move	If you are not at the back of the room you have 2 minutes to go and discuss with someone who is going to try to help you understand.

Front - not confident

Middle - sort of confident

Back - confident



Partner Learning

Consider what your partner should have learnt today. Write down 3 things that you think they should have learnt.

Now discuss with them and decide what the top 3 things that both of you should have learnt and be prepared to share them.

