



Section 1: Key Vocabulary	
Key Word	Definition
Photosynthesis	A chemical reaction that takes place inside a plant, producing food and requires light
Palisade Cells	Plant cells where a majority of photosynthesis occurs
Chloroplast	Organelles in a plant cell that contains the green pigment chlorophyll
Chlorophyll	Green pigment that absorbs sunlight energy to perform photosynthesis
Epidermis	The outer layer of tissue in a plant
Waxy Cuticle	Thin layer at the top of a leaf that reduces the rate of water loss from the leaf surface
Stomata	Tiny openings or pores in plant tissue that allow for gas exchange
Guard Cells	Cells that surround a stomata, which swell in size to open and close the stomata
Iodine	An indicator used to test for starch
Insoluble	Something that will not dissolve
Wilt	When a plant becomes limp due to heat, water loss or disease
Fertiliser	Concentrated sources of plant nutrients
Deficiency	When there is a lack of a mineral available

Section 2: Quick Questions	
What organelles does a plant cell have that an animal cell does not?	Plant cells have chloroplasts, vacuoles and cell walls
What are the reactants of photosynthesis?	Carbon dioxide (from air) and water (from soil)
What are the products of photosynthesis?	Glucose (sugar) and oxygen
What is the symbol equation for photosynthesis?	$6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$
What are the different plant organs?	The roots, stem, leaves and flowers are the main plant organs
How do we test leaves for starch?	First the leaf is heated in boiling water before being added to ethanol - it is then cleaned and iodine is added to it
What do plants use glucose for?	A variety of purposes - for energy via respiration, storage as starch, in cell walls as cellulose, and added to nitrogen to form proteins
What minerals do plants need to be healthy?	Magnesium (in chlorophyll), phosphorus (in genes), nitrogen (in proteins and genes), potassium (in photosynthesis)

Section 3: Helpful Diagrams
<p>The diagram shows a cross-section of a leaf. At the top is a thin Waxy Cuticle layer. Below it is the Upper Epidermis. The main part of the leaf is the Mesophyll, consisting of Palisade Cells (columnar cells) and Spongy Mesophyll (spongy cells with air spaces). At the bottom is the Lower Epidermis, which contains Guard Cells that form Stomata (openings for gas exchange).</p>
<p>The diagram shows a single plant cell with a thick cell wall. Inside, there is a large central vacuole, a nucleus, cytoplasm, and several chloroplasts. The cell membrane is also visible.</p>
<p>The diagram shows a leaf with arrows pointing to different parts, indicating the uses of glucose: cellulose - to form cell walls; starch - food store; sucrose - stored in fruit; plus nitrogen; glucose - used in respiration; proteins - for growth and repair; and fats and oils - food store and growth.</p>
Section 4: Video Links