LESSON PLAN: DO PLANTS NEED LIGHT TO GROW

Year Group: 3
Class Size: 10-40 students
Subject: Science
Duration: 1 hour

LESSON AIM:

- To investigate how light affects plant growth and understand the role of light in photosynthesis.

PRIOR KNOWLEDGE:

- Know the basic needs of plants (water, light, warmth, nutrients).
- Be able to name and label the parts of a plant (root, stem, leaf, flower).

LEARNING OBJECTIVES:

- Recognise that plants need light to grow well.
- Describe in simple terms what photosynthesis is.
- Predict what will happen to plants grown in light versus dark conditions.
- Set up and carry out a simple, fair test to observe how light affects plant growth.
- Identify and keep variables the same for a fair investigation.
- Record and compare changes in plant growth over time.
- Identify the key parts of a plant and recall their functions.
- Begin to reflect on their predictions and explain early conclusions.

SUCCESS CRITERIA:

- I can explain why plants need light to grow.
- I can make a sensible prediction about how light affects growth.
- I can follow instructions to set up a fair experiment.
- I can observe and record results in a table or by drawing.
- I can describe, in simple terms, how plants make their own food using light (photosynthesis).
- I can explain how the results help answer the investigation question.

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CURRICULUM REFERENCES:

- Year 2: Find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.
- Year 3: Explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow).
- Year 3: Identify and describe the functions of different parts of flowering plants.
- Working Scientifically (Lower KS2):
  - Setting up simple practical enquiries, comparative and fair tests.
  - Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions
  - Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
  - Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions

KEY VOCABULARY:

Photosynthesis, absorb, germinate, root, stem, leaf, flower, seed, carbon dioxide, oxygen, grow, nutrients, light, variables.

RESOURCES NEEDED:

- Bean seeds
- Clear plastic cups or jars
- Paper towels or cotton wool
- Water
- Sticky labels and pens
- Access to a dark cupboard or opaque container
- Rulers
- Observation worksheets
- Whiteboard and markers
- Lesson PowerPoint and worksheets
- Science exercise books

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LESSON

STRUCTURE:

Section	Teacher Activity	Student Activity
Starter **(10 mins)**	Show images of flowering plants. Ask pupils to label parts of a plant on a diagram and recall their functions. Ask students to recall what plants need to grow Introduce the investigation question: "Do plants need light to grow?", and gather student's thoughts	Label plant parts and match them to their functions. Think-pair-share answers about plant needs. Engage in class discussion about the investigation question.
Main Activity **(45 mins)**	Use a simple diagram to explain photosynthesis in accessible terms. Ask how the class can test whether plants grow without light. Facilitate class brainstorming to list the equipment, instructions, and variables. Ask how this will be they will ensure it is a fair test (seed type, amount of water, jar size, location temperature, etc.). Prompt students to write predictions and explain why they think that. Setup the bean seeds in jars with damp paper towels. One in bright light, one in low light, one in no light (cupboard).	Listen to the photosynthesis explanation and write notes in books Suggest how to investigate the idea. List what needs to stay the same for a fair test. Set up the experiment with guidance: prepare jars, plant bean seeds, and label. Write predictions and explain reasoning. Share ideas with class or in groups
Plenary **(5 mins)**	Recap quiz on content of the lesson Ask students to complete success criteria. Answer any remaining questions.	Answer quiz questions to check understanding. Complete self-assessment traffic light. Ask questions on anything they are unsure about

ASSESSMENT:

- Quiz questions during plenary.
- Prediction writing and participation in discussion.
- Observation sheet entries.
- Verbal explanation of experiment and conclusions.

DIFFERENTIATION:

- *Lower ability:*
  - Simplified instructions
  - Paired work
  - Provide matching activities in place of suggesting activities, provide multiple choice for quiz
- *SEN:*
  - Provide visual aids for instructions
  - Give extra time to complete tasks.
- *Higher ability:*
  - Explore more questions (e.g. do all plants need the same amount of light?).
  - Consider varied plant environments (underwater, forest floor etc).
  - Reflect on whether plants need light all the time.

HEALTH & SAFETY CONSIDERATIONS:

- Remind students not to ingest materials used during the session.
- Check for any known allergies to seeds, plants, or materials.

FOLLOW-UP ACTIVITIES:

- Pupils observe the beans daily or every few days and record changes (height, colour, shape).
- Create a class growth chart to compare results.
- Students to write a summary and conclusion on growing the plants at different light conditions

CROSS-CURRICULAR LINKS:

- *Geography*: climate variations
- *Maths*: measurements, and graphs of results
- *Art:* accurate drawing of observations
- *English:* Write reflections and conclusions; share verbally.