



Experiments about plant growth

Introduction

Unlike animals, plants do not have to feed on other organisms. They collect energy from the sun themselves and from this energy they build most substances needed for growth.

The process by which they do this is called photosynthesis and is one of the most important processes on earth. It is the basis of most food chains and maintains the gas balance in the atmosphere. Therefore a basic understanding of photosynthesis is important because all life on earth depends on this process.

Approaching photosynthesis merely as a biochemical reaction that transforms water and carbon dioxide into sugar and oxygen – although rather common - is mostly too difficult for young learners. Therefore we have chosen a different approach. Building upon children's daily observations and concepts concerning 'air' and 'plant growth', our resources provide authentic enquiries to question children's concepts.

Modules

Through a range of experiments, the first 5 modules introduce children to the idea that 'air' consists of different gases, the role of plants as oxygen producers and the ability of plants to absorb carbon dioxide. Children need to understand these concepts so that they can engage in current discussions about climate change or deforestation.

Modules 6-10 discuss photosynthesis in terms of plant growth as a visible result of photosynthesis. Understanding how plants collect energy from the sun and change it into organic substances is crucial in grasping the role of plants as food providers for most other organisms.

Sequence

The modules build upon each other. Therefore we recommend not changing the sequence of the modules. There are no time constraints, however we recommend doing the activities in autumn or late spring/summer when most plants carry leaves.

Most modules include activity sheets, which children can collate into a booklet specially dedicated to this project. Like the modules, these sheets build upon each other and as a whole will reflect how children's understanding of the topic developed during the course of the project.

We recommend taking pictures of the children conducting the experiments. These pictures can be used in module 10 where children's understanding of the topic will be assessed by creating a concept map.



Equipment

Most of the equipment needed can easily be found in a supermarket. If special equipment is needed (i.e. water plants, chemicals), sources are mentioned in the particular modules. Additionally a box with all the materials needed may be available at certain Botanic Gardens around Europe. Please contact your local Botanic Garden to ask whether it is able to help.

Health and Safety

Planning to use plants in lessons raises issues of Health and Safety (H&S) and Risk Assessment. Using chemicals in lessons raises yet more issues that must be addressed before children work with them. There is a section on the website and on the CD-Rom that outlines the appropriate actions teachers will need to take when teaching particular modules.

Photos and videos of the experiments can be found in the Media Gallery of the respective module on our homepage www.plantsafe.net or on the CD-Rom.