

# Make yourself at home – plant adaptations around the world

## KS3 RHS Wisley lesson plan

**QCA:** 'Organisms, their behaviour and the environment' – different organisms being found in different habitats because of differences in environmental factors, making cuttings to introduce concept of clones.

**Every Child Matters:** *Stay Safe* 2.3; 2.4 *Enjoy & achieve* 3:6 *Make a positive contribution* 4.2; 4.3; 4.4



<b><i>Learning Objectives</i></b>	<b><i>Structure</i></b>	<b><i>Plenary</i></b>
<p>Students should learn that:</p> <ul style="list-style-type: none"> <li>• different habitats have different features.</li> <li>• different habitats support different types of plants.</li> <li>• that the types of plants in different habitats are affected by environmental factors, <i>e.g. light, nutrients or water availability.</i></li> <li>• that green plants do not absorb 'food' from the soil.</li> </ul>	<p><b>Introduction</b> Introduction to plant adaptations using PowerPoint 'Carnivorous Plants'. Establish by means of questions relating to the PowerPoint environmental factors needed for photosynthesis and food production. Role of leaves (water loss from leaves). Role of roots and minerals. Link to bog and carnivorous plants. Using a few demonstration plants, discuss environmental factors in tropical and desert habitats. Discussion to be brief with just the main facts not to give away too much as students need to think adaptations through for themselves.</p> <p><b>Activities</b> Students divided into groups of 3. Each group with a worksheet 'Plant Adaptations'. In the Glasshouse, use clipboard, pencil and help sheet with photographs of plants to be found. Groups to explore the Glasshouse, find the plants and write down the adaptations the plants have to the tropical and desert habitats.</p> <p>Discussion of findings. Using plants from demonstration, establish the general adaptations to tropical and desert habitats. Establish what the special adaptations of the carnivorous plants are and why the adaptations are needed. Have two mystery plants for the students to guess the habitats the plants may have come from using ideas gained from the activity.</p>	<p>Describe how the plant adaptations in two habitats differ.</p>

<ul style="list-style-type: none"> <li>• <b>Assessment questions</b></li> <li>• Describe the physical features of each habitat and identify major. Environmental factors, <i>e.g. light intensity, carbon dioxide availability, temperature range, water availability, humidity.</i></li> <li>• Describe adaptations to life in a variety of habitats pick out appropriate adaptations and explain clearly their significance.</li> </ul>	<p><b>Growing lab</b> Students take cuttings of succulent plants. Students guess which habitat the succulents may thrive in. Students to point out adaptations. Discuss conditions needed for healthy growth. Discuss the care of their succulents.</p> <div> <p><b>Key vocabulary:</b> Habitat, environment, physical factors, light intensity, humidity, photosynthesis, adaptations, tropical, arid, surface area, absorption of light, stomata/pores Leaf and stem cuttings, clones</p> </div> <div> <p><b>Differentiation:</b> <b>All students</b> can state which factors are needed for photosynthesis. Can state which may be the most important factor in, tropical and desert environments. Be able to give some adaptations of plants to a particular habitat studied. <b>Most students</b> Give the key factor in the habitats studied which could reduce the rate of photosynthesis. Link adaptations of plants in the habitats studied to some of the physical factors present. <b>Some students</b> describe adaptations to life in a variety of habitats pick out appropriate adaptations and explain clearly their significance. Be able to explain the particular adaptations of the carnivorous plants in relation to its habitat and the lack of minerals in the habitat.</p> </div>	<div> <p><b>Resources:</b> Projector for PowerPoint</p> <p>Worksheet 'Plant Adaptations in the Glasshouse' - quiz Picture cards of plants in quiz/help sheet Clip boards, pencils</p> <p>Growing Lab – compost, plastic pots, labels etc, succulent plants for cuttings</p> <p>Demonstration plants: Venus fly trap, sundews,</p> </div>
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