



MODULE 5

My own oxygen consumption

TIMING

30 min

MATERIAL

String
Wooden sticks

KEYWORDS

Plants
Humans
Oxygen
Carbon dioxide
Rainforests
Seaweed
Atmosphere

CROSS CURRICULAR ACTIVITY

Mathematics

Overview

This module will demonstrate to children how much green space is needed to produce one person's oxygen consumption for a day.

Aims

To work out the relationship between our daily oxygen requirements and the quantity of plants necessary to produce this volume of oxygen.

To understand that all green plants produce oxygen.

To understand the importance of the rainforests and seaweed for the maintenance of the gas balance in the atmosphere

Teaching sequence

1. Walk with the children to a lawn or other green space outdoors. Ask children if they have any idea how much oxygen we consume every day.
2. Explain that studies have shown that a human needs, on average, 360 litres of oxygen per day.
3. Review what children have learnt so far on how plants produce oxygen (what a plant needs for photosynthesis). Emphasise that all green plants produce oxygen.
4. Children should guess how large a piece of lawn needs to be to provide enough oxygen for one human to live for one day. Let the children mark out their estimated area using the string.
5. Explain that an area of grass of about 3 square metres (m^2) provides the daily oxygen needs of one human. Each group should then mark out this area of grass to visualize the area of plants that each one of them needs to produce their daily intake of oxygen.
6. How big must the area be so that the whole class or the whole school has enough oxygen?
7. Discuss the following points:
 - Humans and animals live in cities where there is little green space but they still need to breathe. How can this happen?
 - Humans and animals live in cities where there are few green plants?
 - What happens in winter when many trees shed their leaves?
 - Why can we still breathe during the night if light is needed to produce oxygen?
 - The rainforests and seaweeds (algae) in the sea produce and release enough oxygen to maintain the gas balance in the atmosphere. Rainforests and seaweeds are the lungs of the earth so what would happen if the rainforests or seaweeds died because of pollution?