What are Rapid-cycling Brassicas?

Rapid-cycling brassicas are so called because they complete their life cycle in just five weeks. These were selectively bred and cross-pollinated with plants bearing other desirable characters. They have many advantages for schools, such as small size, high fertility, rapid seed maturation and short life cycle (together with their potential for genetics investigations and tissue culture). A number of seed kits are available to enable you to grow these plants. They also need a light bank to support their growth (some grants are available to support schools wishing to build a light bank). For more information see the SAPS website : http://www-saps.plantsci.cam.ac.uk/

Curriculum Links

The Lifecycle of plants (Unit 5C in NC) Primary topic.
Making new cells and cell division (Unit 7A in NC).
Producing new varieties of plants, fertilisation and pollination (Unit 9A in NC).
There are other links such as adaptation in plants and animals.

Resource Sheets included

These have been adapted from worksheets on the SAPS website. Even if you do not get to grow your own plants, these resources could be used independently as activities relating to the different parts of flowers.
The original versions of the digital photographs from the sequencing activity can be found in the resources section of the SAPS website. The pictures could be cut up and laminated, converted into an overhead transparency or used for data interpretation.

Real flowers should be examined using hand lenses. Magnifying cameras linked to television screens can serve as a focus for group discussion, ensuring that the students are identifying the right features.

The model Brassica flower could be made and used as a teaching aid, or some groups of students could try making this for themselves.

Other Ideas

These are a number of suggestions to assist all students to participate in the planting and growing of these plants. Some relate to follow up activities which reinforce the dependance we have on the products we eat that have come from plants and the oils they produce. Most of these suggestions are from Sue Stalley at Alexandra School in South Harrow.

Use of MDF bases and film pots to grow the plants

The MDF base has a circular hole drilled all the way through, which the film container fits inside. A small hole is made in the base of the film pot, which has a wick put through.
Use of MDF increases stability of the pots and is easily handled by the students. The film pots are also strong and re useable.
The students can work independently when doing the planting work (except perhaps for pushing the wicks through). Once planted the pots can be placed in a tray and they can stand in water.

Visiting oil seed rape growing in fields

Students react to the bright colours and the intensity of all the yellow flowers. The insects and bugs that were very noticeable and buzzing around – these can link up with the pollination perfomed in the classroom asking questions like “What do you think attracts all these insects here?” , “What job are they doing and how are they helping the flowers?”

Visiting a supermarket to look at products which use rape seed and sunflower oil

By walking around a supermarket with the students, different food products could be examined, finding out which ones contained sunflower oil or other oil based products. They could then make the connection that all those “buzzing insects” had helped to make these food products by assisting with the pollination.
If it is not feasible to visit a supermarket, a sorting activity sheet could be produced “Which of the following use sunflower oil or other oil based products?” using pictures (including the ingredients) or a selection of products.

Using a bee finger puppet for pollination

Some students can use a paintbrush to do the pollination for their plants. To make it more fun and to make a clearer connection with insects, a bee finger puppet can be used. This can have a fury yellow collar which the pollen could stick to and be transferred to another plant.

Making “camp donuts”

In preparation for the Summer camp, why not try some camp cooking with the class. Camp donuts are basically a white bread sandwich that has been spread with margarine and then soaked in an egg mixture. This is then fried in vegetable oil and coated in sugar – the results (so I’m told) taste very much like a donut.
The use of both margarine from rape seed oil and frying them in vegetable oil illustrates the use of products that relate to the plants they have grown.

Sequencing

Take digital photographs of the different stages for planting the seeds. Print these out and make them into a revision sequencing activity.