From the booklet: Living processes and what plants need to grow

*Teaching Notes*

**Growing geraniums (pelargoniums) from cuttings**

Geraniums (pelargoniums) are easy plants to keep and grow in the classroom. They flower from early summer to late autumn. Geraniums are easy to grow from cuttings taken from a mature plant. Three or four large mature plants can provide cuttings for 20 to 25 children, which they then plant and grow. It is usually recommended that cuttings are taken in late summer but they can be taken early in the spring term. This avoids the problem of looking after the plants through the winter. Cuttings taken in early spring should be in flower by July and are still likely to be in flower at the beginning of the autumn term.

The most important factors when growing plants from cuttings are:

* to prevent cuttings dying from lack of water due to water loss through the leaves (transpiration)
* to ensure the developing roots are in a well aerated growing medium. This allows them to have plenty of oxygen and also prevents them getting too wet and then rotting

***Resources***

For each child you need the following:

* *A small plastic pot (7cm diameter). If using margarine pots or yoghurt cartons make some holes in the bottom so they can drain freely*
* *A large plastic spoon or small trowel*
* *Half of a 1.5 litre lemonade bottle (cut in half across the middle) or a polythene bag large enough to enclose the pot*

You also need:

* *A 50:50 mixture of a peat-free compost and horticultural sand*
* *Plant labels*
* *Healthy mature geranium plants from which to take the cuttings*
* *A sharp knife (for use by the teacher)*

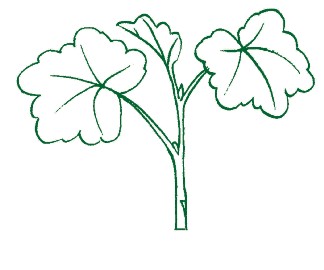
***Preparing the pots***

Let each child fill their pot with the soil mix, pressing it down gently. (Remember the soil needs to have plenty of air in it.) Place the pots in dishes of water until the surface becomes moist and then leave the pots to drain while the cuttings are being taken.

***Taking the cuttings***

This is best done by the teacher, ideally whilst the children are watching.

* Select a healthy shoot preferably without flowers (especially if using a scented geranium)



* Remove about 5cm of shoot cutting with a sharp knife just below a leaf joint

leaves removed

* Remove all except the uppermost pair of fully-developed leaves (this helps to reduce water loss through the leaves)
* As you are working, keep the cuttings moist by storing them in a wet polythene bag

**Figure 1.** Taking cuttings of a geranium.

**Planting the cuttings**

* Let each child push their cutting gently into the soil to just below the lowest leaf and firm it in by gently pressing on the soil around it.
* Cover the cuttings with a transparent cover. Half lemonade bottles are ideal. Polythene bags can be used but should be arranged so that they are not touching the cutting.
* Place the cuttings in a warm light place, preferably not in full sun. They do well under a light bank (see below for more information)
* After one week, water the pots by standing them in dishes of water. Repeat after about 10 days by which time the cuttings should have rooted and new leaves should have started to develop.

**Looking after the cuttings**

Keep the plants in a place where there is plenty of light. If kept indoors, trays filled with wet gravel keep them sufficiently moist. If you wish to keep the plants out of doors, either in pots or planted into beds or hanging baskets, they need to be hardened off. As long as there is no frost, put them outside during the daytime and bring them indoors at night (or at the end of the school day). After one to two weeks, they can be left outside permanently, providing there is no risk of night-time frosts.

Plants can be kept over winter somewhere with a dry atmosphere and where the temperature does not fall below 10 °C. Water sparingly about once a week.

***Using a light bank***

Plants need light for growth. They also require a reasonably warm temperature and do not respond well to extremes. Many classrooms do not have window sills. Even if present, window sills are often not an ideal place for carrying out investigations into plant growth because light, temperature and other environmental conditions are difficult to control. A successful alternative is to use a light bank. This provides the necessary light source, gives reasonable temperature control and isolates a small area of the classroom for children to focus on growing their plants. Relatively small portable versions are available. These can be placed on a trolley so they can be stored elsewhere when not in use.

The photograph below shows how a light bank can be used for several investigations at the same time. At other times, a range of attractive or interesting plants can be growing in the light bank, as a way of encouraging children to become interested in watching plants grow.

The film pots (and later the plants) should be placed approximately 10 cm away from the light source in the light bank. As the plants grow, they can be moved further away. Blocks of polystyrene, wood or other suitable objects can be used to adjust the height of the plants.

For the latest information about suppliers of light banks please see the SAPS website.

