A38 Making potting mixes

Plants in pots and containers need special potting mixes to grow well. Soil on its own isn't enough as the small volume available is unable to provide the benefits it does to outdoor plants, such as disease suppression, balanced nutrient levels, etc. A potting mix takes over these roles by blending different materials. The main types are reviewed in this activity, together with useful recipes.

Resources

- Materials for potting mixes. Most are readily available (see next page).
- Pots, trays and containers, with appropriate plants, eg, herbs, vegetables, fruit trees and attractant flowering plants.

Top tip

Keep experimenting

Getting potting mixes just right can be difficult and results variable. Manufacturers spend years getting commercial products right, while head gardeners are famous for keeping their recipes a close secret. The trick is to start by making simple recipes and work up from there.

Activity

1. Use the instructions on the next page. Select a potting mix recipe that suits the plant's needs.
2. Prepare the necessary quantities of materials. One of the perks of making your own mixes is blending just the right quantities. It's generally best not to store homemade mixes as quality can decline.
3. Mix your materials thoroughly on a hard surface at a convenient height or on the ground for larger quantities. Use your hands, or a shovel for larger quantities. Materials should be slightly damp, but not wet.
4. Try out small quantities at first and monitor plant growth carefully.

Extended activity

Find out why organic gardeners don't use peat based potting mixes. What are the exceptions and alternatives? Tip: see the Organic Gardening Guidelines on the DVD.

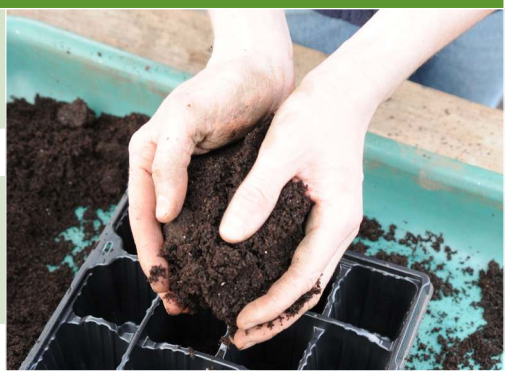
Health & Safety	Potting mix ingredients are safe to handle if the usual garden hygiene rules are followed. Keep cuts covered, wash hands and keep your tetanus vaccination up to date. Follow Manual Handling guidelines (SG1.3) when moving heavy loads. If using mechanical processes or equipment, eg loam pasteurisation, observe manufacturers' Health & Safety Advice and Guidelines on their use, particularly where heat is generated or electric power used. *See also Health and Safety Guidelines (Section SG1.2)*
Further information	S4.2 Using compost Organic Gardening Guidelines (see DVD)

Instructions for making potting mixes

Example recipes

Note: *The following recipes are mixed by VOLUME, not by weight, so you can use anything from a bucket to wheelbarrow to measure how much of each material you need, eg equal parts leafmould and loam.*

Seed sowing	
Requirements	Seeds contain their own nutrients to get going so germinate successfully in low nutrient material. Seedlings need potting on as they start growing.
Easy mix	Leafmould, two years old.
Good basic mix	One part loam; sieved and 'pasteurised' (see Top tip page 6). One part leafmould, composted bark, or coir. One part sharp sand or vermiculite.
Use	See A18 and 19 about sowing seeds.



Potting on	
Requirements	Transplants need more nutrients than seedlings to keep growing strongly, but must also grow sturdily, so don't need excessive nutrients.
Good basic mix	One part loam. One part leafmould. One part home-made compost.
High nutrient mix	One part worm compost or sieved, well rotted manure Three parts leafmould, composted bark or coir.
Use	See A21 about potting on.

Cuttings	
Requirements	Very good drainage so cuttings don't rot, plus some nutrients for early growth.
Mix	One part home-made compost, leafmould, composted bark or coir. One part horticultural grit, sharp sand, or vermiculite.
Use	See A58 about taking cuttings.

Herbs that need free draining mix	
Requirements	Good drainage so plants don't rot, eg those from Mediterranean regions, such as sage.
Mix	One part loam (sieved if needed, not 'pasteurised'). One part home-made compost, leafmould or composted bark. One part horticultural grit, sharp sand, or vermiculite.
Use	See S3.5 for other examples of herbs.

Large containers	
Requirements	Plants growing for a long time in the same container, eg fruit trees and bushes, need a good balance of slow-release nutrients.
Good basic mix	One part loam (sieved if needed, not pasteurised). One part home-made compost (substitute manure for compost for higher nutrients). Add general organic fertilisers (see manufacturers' instructions).
Use	See A11 about potting up containers.

Top tip

The ideal mix should

Provide the correct nutrients for the plant.

Retain moisture, but drain well.

Retain air, yet hold plant roots firmly.

Be uniform in consistency, eg no large lumps, etc.

Be free from pest, disease and weed seeds.

The ideal mix should not

Reduce in volume, leaving pots, trays and containers half empty.

'Slump', becoming compact and airless.

Become drained of nutrients very quickly or be too rich for young seedlings.

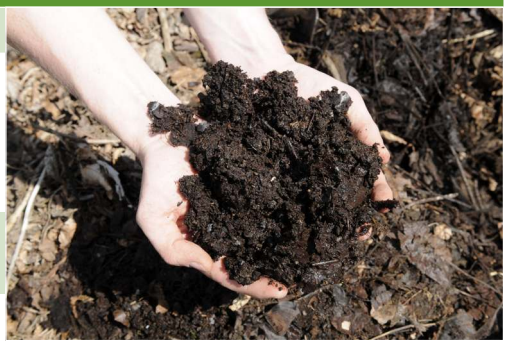
Sieving components for potting mixes, eg home-made compost, well rotted manure, etc.

Main components of potting mixes

Loam	
Uses	Seed sowing, potting on, larger containers.
Source	• Good quality garden soil. See A9 for example. • Buy bags from garden centres. • Make your own from rotting down grass turf. See A14 for technique.
Purpose	Bulk, nutrients, excellent buffer for slight nutrient imbalances, adds weight to help stop top heavy and taller plants toppling over, good moisture retention.
Conditions	Sieve before use. May contain weed seeds. Pasteurise before using for seed sowing and seedlings (see Top tip page 6).

Leafmould

Uses	Seed sowing, potting on, larger containers.
Source	Decomposed deciduous leaves. See A40 for technique. Suitable for potting mixes after two years. Use composted bark as substitute if leafmould not available.
Purpose	Bulk, low in nutrients, rich in micro-organisms helpful in suppressing diseases.
Conditions	May contain weed seeds and slug eggs.



Composted bark

Uses	Seed sowing, potting on, larger containers.
Source	Made from decomposed bark. Buy in bags from garden centres.
Purpose	Bulk that retains air well, low in nutrients, rich in micro-organisms helpful in suppressing diseases.
Conditions	May contain weed seeds. Sieve before use as can be coarse. Use only if fine and no visible lumps of wood remaining.

Home-made compost

Uses	Potting on, larger containers.
Source	Made from decomposed garden waste, vegetable peelings and paper waste. See list in B5.7.
Purpose	Bulk, nutrient rich, rich in micro-organisms.
Conditions	Consistency and nutrient levels may vary. May contain weed seeds and slug eggs.

Worm compost

Uses	Potting on, larger containers.
Source	Made mostly from decomposed vegetable peelings and paper waste using worms. See A53 for technique.
Purpose	Bulk, very nutrient rich, rich in micro-organisms.
Conditions	Nutrient levels are variable. Too nutrient rich to be used alone.

Well-rotted manure

Uses	Potting on, larger containers.
Source	Made from decomposed animal waste.
Purpose	Bulk, very nutrient rich, rich in micro-organisms.
Conditions	May contain weed seeds. Nutrient levels can vary. Too nutrient rich to be used alone. Use when fine textured and crumbly brown after 12-24 months rotting; sieve if needed. Be cautious of potential contamination with herbicides. See details in S4.2.

Horticultural grit, sharp sand, vermiculite

Uses	Seed sowing, potting on, larger containers.
Source	Natural materials, eg from quarrying.
Purpose	Improve drainage. Vermiculite is lightweight so pots are easier to move.
Conditions	Don't use softer builders'/play sand as this can make drainage worse and may affect pH levels.

Organic fertilisers

Uses	Potting on, larger containers.
Source	Nutrients derived from finely ground minerals and/or animal based products, seaweed, plants, etc.
Purpose	Slow release nutrients, eg bone meal high in phosphorous; hoof and horn high in nitrogen; rock potash high in potassium, seaweed high in trace elements, etc.
Conditions	Excess fertilisers can burn plant roots and 'overfeed', producing lush growth vulnerable to pest and disease attack.
See	www.organiccatalogue.com

Coir

Uses	Potting on, cuttings.
Source	Coarse natural fibre from the seed husks of the coconut palm.
Purpose	Adds bulk, eg aeration and water retention.
Conditions	Low in nutrients.
See	www.organiccatalogue.com

Top tip

Preparing loam for seed sowing and seedlings

You'll need to 'pasteurise' loam to kill pests, diseases and weed seeds, while retaining some essential micro-organisms. Only loam should be pasteurised, not other ingredients as their structure will be destroyed. There are three options as follows.

- Buy specialist soil pasteurising equipment.
- Put moist soil in loosely covered bowl in a microwave oven. Sieve first as it must not contain stones because these may explode. Allow two and half minutes for 900g of soil; seven minutes for 4.5kg. This process releases a strong smell. Spread out the soil on a tray and allow to cool.
- Place moist soil in shallow tray about 10cm deep. Cover with foil and put in preheated oven at no higher than 80°C for 30 minutes. This process releases a strong smell. Remove promptly and uncover. Leave to cool.

Important note: Check with school policy before pasteurising soil and choose your location carefully, eg science lab. Monitor carefully, ensuring adult supervision. Pasteurising soil is good practice, but don't worry if the facilities aren't available, as you can use an alternative material.