



HISTORIC
ROYAL
PALACES



TOWER OF LONDON
SUPERBLOOM
GARDEN MANUAL

SPACE TO STIR AND BE STIRRED

TOWER OF LONDON • HAMPTON COURT PALACE • BANQUETING HOUSE
KENSINGTON PALACE • KEW PALACE • HILLSBOROUGH CASTLE AND GARDENS

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LIST OF TERMS

Words printed in *blue italics* in this manual are listed here with their meanings.

<i>Deadheading</i>	The process of removing flowers as they transition to seed heads to promote further flowering.
<i>Dibber</i>	A tool to make holes for seeds and small plants.
<i>Going to seed</i>	A plant whose flower heads are transitioning to seed heads.
<i>Germination</i>	The sprouting (stem and root) of a seed due to cell rehydration and expansion.
<i>Hardening off</i>	The process of acclimatising plants that have been grown indoors ready for the outdoor environment.
<i>Kneeler</i>	A soft mat to kneel on whilst gardening to prevent injury and discomfort.
<i>Nematodes</i>	Parasitic roundworms that are used as an organic method to control slug populations.
<i>Perlite</i>	A volcanic mineral that can be mixed with soil to improve aeration and drainage, assisting germination and prevention of disease in tender plants.
<i>Planting out</i>	Transferring plants grown in pots or trays and placing them in an outdoor bed or border.
<i>Pricking out</i>	Taking seedlings from their original growing position and transferring them to a new position to provide additional nutrients and space for growth.
<i>Tamper</i>	A tool for levelling soil in a garden, tray or pot.
<i>Telomere</i>	A biological structure that protects DNA from degradation. Longer telomeres are linked to longer life and improved health during life.
<i>Tender</i>	A plant that is susceptible to damage and disease, requiring tender care.
<i>Therapeutic horticulture</i>	The use of horticulture for health and wellbeing through spending time and doing gardening activities.
<i>Thinning out</i>	Reducing the amount of plants that are close together to provide more room for healthier plants to thrive.

This manual has been created to support teachers with limited gardening knowledge, and to provide easy-read instructions (in large print) for printing out and using directly with students.

Some terms may be unfamiliar to you or your students, so we've provided the List of Terms with definitions.

THE SUPERBLOOM PROJECT

Thrive have championed the benefits of gardening and Social and Therapeutic Horticulture for over 40 years. We've developed a deep understanding of how to garden for health and wellbeing in many different settings. We have seen first-hand the transformative effect gardening can have on people's health and wellbeing.

The Superbloom project at the Tower of London, to celebrate the Queen's Platinum Jubilee in 2022, is an opportunity for Thrive to continue our mission to see society utilise the benefits of gardens and gardening to support people toward happier and healthier lives.

We hope that sharing our experience and expertise in this manual will make planting a Superbloom garden in your school for the Platinum Jubilee, and gardening in your school in the longer term, achievable, enjoyable and successful.

If children and young people develop a love of the natural world early on, the benefits will last them a lifetime.

WHY GARDENING IS GOOD FOR WELLBEING

Gardening is a national pastime, with around half the population of the UK gardening regularly. Most who garden say that they believe it to be supportive of their health and wellbeing. Gardening brings the twin benefits of being potentially good for people and good for the planet.

Most people who say that gardens and gardening are good for health do so without arranging their gardens to specifically support health. Within the *therapeutic horticulture* sector, where gardens are laid out to be beneficial to health, very specific social, emotional and physical wellbeing outcomes can be achieved.

Gardens are best for wellbeing when they provide good biodiversity. Attracting pollinators and other wildlife enhances a garden as a natural environment, which can provide better quality experiences and meaningful activity for both children and adults.

This Garden Manual is designed to help your school create a garden for wellbeing. The Superbloom in the Tower's moat includes flowers that are designed to attract pollinators, a key group of species important for the planet's and human health.

This manual details in simple student-friendly terms how to carry out core gardening tasks, to help you grow and maintain a wellbeing garden rich in pollinator and other insect life. Additionally, this manual provides advice to enable you to make important decisions about where to site your garden and what resources you can gather to support you. There are also links to additional information, if you want to take your garden project further.

Evidence tells us that just getting outside into a green space for five minutes is enough to boost our mood. Regular access to green environments amounting to two hours per week can have significant physical and mental health benefits. It can make a big difference to children's physical and mental health and development. For children and young people facing challenges in their lives, it has the potential to be transformative. Perhaps even more incredible is that, by supporting children to be outdoors and develop a healthy nature connectedness, we are extending *telomere* length and prolonging life.

Every school is different. Even if your school grounds are not particularly green, finding ways to increase time spent outdoors and making the most of the space you have for plants is a positive step for both people's and planetary health.

CREATING A SUPERBLOOM GARDEN

To get you started, first watch Thrive's audio PowerPoint presentation for teachers, which you'll find with the resources on the Superbloom project's webpages.

Then, to create your Superbloom garden, follow these steps while using this manual to guide you:

- Choose a suitable site
- Test the soil
- Sow your seeds
- Water, feed & weed

By adding some additional plants to the garden, you will extend the potential for class activities across the year. If this is an option for your school, choose plants with winter interest, such as evergreen leaves, berries or even flowers. A mix of annuals, perennials and herbaceous plants can also increase the range of activity options for your students beyond the summer.

Note for Superbloom Schools:

The full Superbloom seed pack you've been provided with will cover a planted area of 6m². This can be spread across more than one space and/or containers.

The seeds you've been provided with can be sown directly into your beds or containers outdoors. However, you may want to give students the learning experience of growing a few of the seeds indoors, using the advice provided in this manual.

02 CHOOSING A SUITABLE SITE

Most plants prefer sunny conditions in a sheltered spot, in soil that is rich in nutrients and drains excess water quickly. Access to water from an outside tap or water butt will be very helpful and make establishing your garden easier - take this into account when choosing where to site the garden.

Choosing where to create a new flowerbed in any garden requires taking into account a few different considerations. Within your school there may be some specific factors to consider in your decision of where to site it. School staff may already have enough knowledge to make a choice without a longer observation - a grounds manager may be able to give good advice.

You are looking for an area that is:

- generally sunny for most of the day
- without strong winds moving across the space
- generally good soil

The best approach to start this process is to find a schematic of the schools' grounds or use a satellite image from the internet to map out a simple sketch.

A. Shade out any areas that are not going to be suitable:

- For safety reasons such as it is too close to access roads or car parks
- Already used for sports or other activities
- Too far away or too close to classrooms
- Regularly visited by unwanted visitors (human or otherwise) who would severely damage your garden

B. Observe what roles the weather and environment play in your grounds over a few days.

It is best to observe on at least one sunny day between 9am-4pm, and on one windy day and one frosty morning between 10am-12pm.

Make notes about:

- How the sun moves across the grounds
- How wind moves across the grounds
- If there are any frost pockets

Sun

Go out every hour or so and note the areas in sun on the schematic. When making these observations in winter and early spring the sun is still low in our skies, so you must make some predictions about how the sun will move across the space in summer - imagine the sun higher. If you think it will be a sunny area in summer, mark it as a sunny spot on your schematic.

Wind

Wind can be more difficult to observe in a short timeframe as it will be windy in different spaces dependent on direction. However, note on the schematic where there is less wind or no strong gusts.

Frost

Sometimes, due to soil conditions or shade, frost can linger in an area. Frost leaves soil cold and less suitable for planting in. If, by 10 or 11am, when the rest of the grounds are clear of frost, you can still see areas with frost, shade them out on your schematic and avoid using that space for your garden.

C. The final step is to check the soil in these areas.

Use the soil test instructions in this manual to guide you. Preferably, you are looking for a loam soil which is a great mix of organic and mineral components perfect for most plants. Sandy soils are also OK but will benefit greatly from adding organic material such as compost or leaf mould. Clay is best avoided as it can be difficult to improve enough to provide good growing conditions quickly - you may be better off growing in raised beds or containers in that area.

Once you have finished your observations, you should have a few good spaces to choose from to start your garden.

03 CONTAINER GARDEN

It may be that the best way for your school to create a garden is to use containers. Growing your garden in containers will reduce weeding but will require more watering and feeding than a bed.

You can use either purpose-made garden containers or upcycle, for example:

- Old tyres
- Bathtub
- Plastic sand pit
- Wellington boots
- Drawers from a chest of drawers
- 2L plastic pop bottles

Superbloom Schools:

If using containers, remember that the Superbloom seed packets will cover a total area of 6m².

When choosing your containers, you need to consider depth. Plant roots grow down to provide good anchorage and to seek out nutrients.

The minimum depth suitable is 15cm, although 30cm or deeper is better.

Buying soil can be expensive, so it is best to fill the bottom of very deep containers with inexpensive or free materials like large stones, broken bricks, or similar building materials.

Planting shop-bought seeds?

Check the instructions on each plant's seed packet to help you choose the right depth for each container. The seed packets will also tell you the final height of each plant type. Use the rule of thumb approach and plant the taller varieties in the deeper containers. The spread of plants given on the seed packets will also guide you - choose wider containers for the plants that will spread the most.

To prepare containers for planting:

- Ensure there are holes at the bottom for drainage. Where possible, raising the containers on bricks with drainage holes exposed will be best, particularly if using upcycled containers that won't have been designed with drainage in mind.
- Fill 1/10th of the container's depth with smaller stones for drainage (if you have put larger stones or such as described above, for very deep containers smaller stones won't be necessary)
- Mix compost with at least 1/6th the amount of soil from another established garden or flowerbed and place into the container (you can use just compost, but compost is sterile, whereas garden soil contains microbiology important to plant growth)

Your containers will be very heavy when full, so it is best to complete the steps above in their final growing location!

Raised beds

Raised beds can be a good choice. A raise of 15cm or 30cm can support good growth in plants, although their value to accessible gardening can sometimes be overstated.

If you are considering raised beds for access reasons, or to make starting the garden easier, please follow this weblink for further guidance:

www.carryongardening.org.uk/raised-beds.aspx

04 TESTING SOIL



Knowing your soil type is very important. It will help you choose the best plants for your garden. Different types of plants like different types of soil.

YOU WILL NEED:



Area of soil



Kneeler or mat

INSTRUCTIONS:



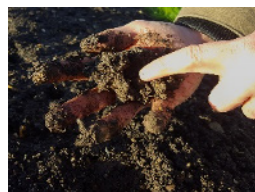
1. Grab a handful of moist (not wet) soil.



2. Gently squeeze the soil in your palm using just one hand.



3. Open your hand.



4. Gently poke the soil with one finger.

What's it like?	Which type of soil is it?
Soil falls apart before being poked	SANDY
Soil crumbles after being poked	LOAMY
Soil holds together after being poked	CLAY

These instructions are also available to download in Large Print format from the project's learning resources webpage. Print them off and laminate them to share with your students as they create their garden.

05 PLANNER

This manual provides instructions and advice for each stage of creating and maintaining your garden. Use the information in the relevant chapter alongside this planner to complete each stage at the right time.

The planner shows average months for different gardening stages. With gardening, we always have to make some adjustments depending on our garden's aspect and weather conditions! Depending on where you're located in the UK, spring and summer may start slightly earlier or later than given in the planner

Activity	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct
Clear and prepare beds/containers									
Sow seeds to raise indoors (not required for Superbloom seed mixes)									
Sow seeds direct (suitable for Superbloom seed mixes)									
Care for seed tray and seedlings indoors (not required for Superbloom seed mixes)									
Prick out seedlings from trays into pots (not required for Superbloom seed mixes)									
Pot up potted plants into larger pots (not required for Superbloom seed mixes)									
Plant out (not required for Superbloom seed mixes)									
Weed									
Water and feed									
Deadhead flowers									
Harvest									
Collect seeds for use next year									

This planner is also available to download in Large Print format from the project's learning resources webpage. Print it off to share with your students as they create their garden.

Every gardener appreciates how the right tools can make tending plants a joy. Perhaps you can find some budget for garden equipment within the school, seek funding from PTAs or local businesses like supermarkets, or invite donations of equipment by DIY stores and friends of the school.

How many students will access the garden at any one time? As a minimum, for every 4 students it would be good to have one tool to carry out a task. Sharing tools can be positive experience whereas not getting a turn can lead to some students missing out on learning and feeling left out.

EQUIPMENT NEEDED FOR EACH STAGE:

Preparing a bed

- **Ruler or tape measure** – to measure out bed size
- **Garden line, string or rope** – to mark out bed
- **Spade** – to turn over soil if starting a new bed from a grassed area
- **Long-handled fork and hand fork** – to loosen soil and remove weeds and roots
- **Rake** – to create an even surface and remove larger stones
- **Bucket** – to collect weeds and stones

Sowing

- **Seed trays** – these can be upcycled from plastic food trays. Make drainage holes from inside the container, not from outside, to allow drainage rather than preventing it
- **Perlite granules** – to create an optimum balance of air and water in your compost, which makes water logging almost impossible. It speeds up root growth and reduces the risk of fungal diseases
- **Compost suitable for seed sowing** – shop-bought compost will indicate its uses on the bag
- **Sieve/colander** – for loosening up the soil to a finer consistency and getting rid of large stones
- **Dibber** – to make holes in the compost for seeds to go in (or use a pencil or an upturned glue spreader)
- **Wooden tamper** – a stiff board to level and compress compost in the seed tray (or stiff cardboard can be used to level, and tapping pots on a desk can then be enough to compress compost)

- **Sowing grid** – optional, to help mark out holes evenly
- **Labels** – can be made from lolly sticks or cut plastic, or you can write on the seed tray, but label each container before you start sowing
- **Watering trays** – you could use plastic tea trays or a wipe-clean tablecloth bunched up to keep the water in (use strong tape to cover any holes)
- **Covering for seed trays to stand on indoors** – anything that will protect surfaces from water damage and staining

To sow direct

- **Long-handled fork and hand fork** – to prepare the soil and remove weeds
- **Rake** – to clear the right depth of soil, to cover the seeds (this could also be done with hand fork or trowel)
- **Labels** – can be made from lolly sticks or cut plastic, but label each section of the bed or each container before you start sowing

Pricking out and potting on

- **Pricking out tool** – you can use an old cutlery fork, pencil, or glue spreader
- **9cm pots** – or recycle plastic food containers of a similar size
- **Compost** – compost comes in several types with different nutrients so use compost specifically designed for this stage (check on the bag)
- **Labels** – can be made from lolly sticks or cut plastic, or you can write on the new pot
- **Watering trays** – you could use plastic tea trays or a wipe-clean tablecloth bunched up to keep the water in (use strong tape to cover any holes)

Planting out

- **Trowel** – to dig holes in the bed or final container for the potted plants to go into (some students may find it easier to use a handheld bulb planter)
- **Dibber** – to make holes in the compost for young plants from seed trays, you can use marker pens or sturdy sticks of a similar size
- **Watering can with fine rose** – to water in plants as soon as they are planted out (watering cans are heavy when full, so choose the right size for your students)

Maintenance

- **Watering can** – for watering and feeding. Once your plants are well established, a medium-sized rose will speed up watering without risk of damaging plants, or use a hose with a spray nozzle for efficiency
- **Hand fork and trowel** – to weed
- **Bucket** – to collect pulled weeds
- **Kneeling pads** – optional, to make kneeling more comfortable
- **Scissors or secateurs** – for deadheading (secateurs are very sharp, so best used by adults)

Harvesting

- **Scissors or secateurs** – for removing flowers and seed heads

MANAGING YOUR EQUIPMENT

Count out and count back in all tools to ensure none remains in the garden where they might be a hazard, go rusty or get lost. Print off the check list below to help you manage your garden equipment.

GROUP SIZES FOR TASKS

To enable 30 students to garden at once, you may need to rotate who is doing what across the lesson/gardening time.

Whilst one group does the tending, another could be doing something experiential like surveying pollinators, while another group is sketching or constructing stories using the garden as inspiration.

In a scenario of 6-10 students tending the garden at one time, it would be sensible to have 3 or 4 sets of tools for them to share, to keep all students fully engaged.

If your school develops a garden large enough for a class of 30 students to be gardening at the same time, then one set of tools between two students would likely be needed.

Some of the tools listed above can be dangerous if used incorrectly - appropriate supervision is needed.

When using tools for digging (particularly long-handled forks and spades) it is best for students to be a minimum of 2 metres apart. If they can touch each other, they are too close.

GARDEN EQUIPMENT CHECK LIST

Resource	Number of each
Metre rulers or tape measures	
Garden line or rope	
Spades	
Long-handled forks	
Hand forks	
Rakes	
Buckets	
Seed trays	
Compost suitable for seed sowing	
Perlite granules	
Sieve/colander	
Dibber or something to make holes for seeds to go in	
Wooden tamper	
Plant labels	
Watering tray	
Surface coverings	
Trowels	
Hoes	
Pricking out tools	
9cm pots	
Compost suitable for potting on	
Watering can with fine rose	
Plant feed	
Kneeling pads	
Scissors or secateurs	

This check list is also available to download in Large Print format from the project's learning resources webpage. Print them off and laminate them to share with your students as they create their garden.

07 SOWING SEEDS DIRECT

Superbloom Schools:

The Superbloom seeds you've been provided with are intended to be sown directly into your beds or containers outdoors. However, you may want to give students the learning experience of growing a few of the seeds indoors, using the advice provided in this manual.

SOWING TIMES AND CONDITIONS

When?

Sowing during March to May always gives the most reliable results. If you can't sow before early June, you can still get a good result but expect a much later flowering.

Superbloom Schools:

To ensure that your school's Superbloom garden mirrors the flowering time and colour changes taking place in the Tower of London's moat during the Queen's Platinum Jubilee, the seeds you've been provided with must be sown during March.

Where?

An open, sunny location not overshadowed by trees or buildings is best for annuals. If sown in shade, growth will be patchy and your flowers will be smaller. They will grow happily in an average, free-draining garden.

Refer to the advice provided in this manual for choosing the best site for your garden and for testing your soil.

If you're planning to sow your garden in pots, they will need to be watered more regularly through the spring because pots don't retain moisture as well as the soil in a bed does.

GROUND PREPARATION

Clearing weeds

Make sure you have a very clean seed bed or container before sowing. This means removing all visible weeds, especially grass.

Preparing the soil

For flowerbeds, the ground needs cultivating (breaking up). Keep this cultivation as shallow as possible, rake just enough to get a surface texture that is level and looks a bit like breadcrumbs. Sow your seeds as soon as you can once the ground is ready – if you wait too long weed seeds will move in before your flowers do!

Sowing the seed mix

Most seeds can be sown quite successfully and quickly by hand, either one seed at a time in plotted rows or patterns (good for container planting), or by scattering.

Scatter method:

1. Mix your seeds thoroughly with a dry bulking material, such as clean dry sand.
2. Divide the whole amount into two or three separate pots or buckets.
3. One portion of the mixed seed and spreader is then hand scattered over the whole area.
4. Then take the next portion and repeat but walking in a different direction. This allows you to put a little more or a little less on areas which need it.
5. If this is the first time you have ever done this then the last portion allows you to make good any obvious gaps.
6. Firm the seeds down. Do not rake the seed into the ground as this will stop many species from germinating. Instead use the back of a spade, or even the bottom of your shoes, to firm the seeds into the soil after sowing.
7. Water in the seeds.

The seedbed should not need watering before seedlings show, if you sowed them in March. If you sowed really late, or there is a prolonged dry period just after sowing, then a couple of thorough soakings can speed things up.

In normal weather conditions, you should see the first signs of *germination* in 7-10 days. Growth can be very fast after this - your flowers may start appearing as early as 6 weeks after sowing!

SOWING SEEDS DIRECT - SCATTER METHOD



YOU WILL NEED:



Suitable seeds



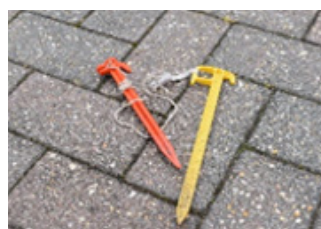
Plant labels + pencil



Hoe



Watering can



Gardening line

INSTRUCTIONS:



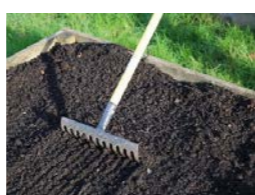
1. Weed and level the soil ready for sowing.



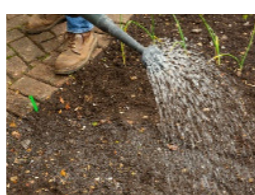
2. If necessary, mark out the planting area using a gardening line or hoe.



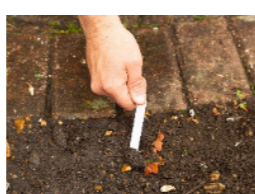
3. Sow the seeds liberally or according to the instructions on the packet.



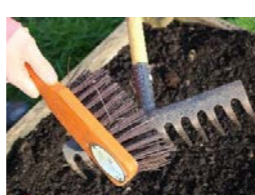
4. Rake over the area to lightly cover the seeds.



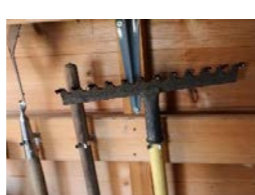
5. Water in the seeds.



6. Label the area in which seeds sown.



7. Clean the tools.



8. Put the tools away.

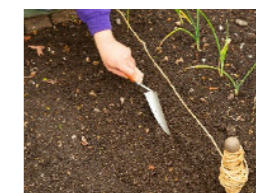
SOWING SEEDS DIRECT - ROW METHOD



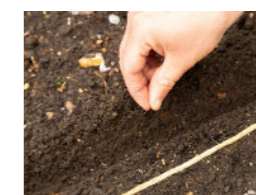
INSTRUCTIONS:



1. Create a line using gardening line.



2. Make a shallow trench with a hoe or trowel.



3. Place the seeds in a line along the trench (check the seed packet for spacing).



4. Lightly cover the seeds with soil.



5. Water in the seeds.



6. Put a label at the end of each line of seeds with the plant name on.



7. *Thin out* seedlings when growth shows.

YOU WILL NEED:



Seeds



Trowel



Kneeler



Plant labels + pencil



Gardening line



Watering can



Hoe

This Photo by Unknown Author is licensed under CC BY



Small seeds and large seeds are sown in different ways to make sure they germinate and grow well.

Superbloom Schools:

The Superbloom seeds you've been provided with can be sown directly into your beds or containers outdoors. However, you may want to give students the learning experience of growing a few of the seeds indoors, using the advice provided in this manual.

YOU WILL NEED:



Small seeds



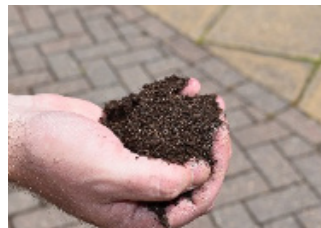
Watering tray



Seed tray



Plant labels + pencil



Compost



Sieve/colander



Perlite



Watering can



Wooden *tamper*



Sowing grid (optional)

INSTRUCTIONS:



1. Mix the compost with a handful of perlite.



2. Overfill the seed tray with the compost/ perlite mix.



3. Level off using the wooden tamper.



4. Use the tamper to gently flatten down the compost.



5. Sow seeds evenly over the top of the compost (use a sowing grid if you have one).



6. Lightly cover the seeds by sprinkling compost over them (use a sieve or colander if you have one).



7. Write the name of the plant on the label and insert into the seed tray.



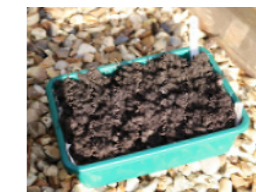
8. Place the label at one end of the seed tray.



9. Place the seed tray in 1cm of water.



10. Remove the seed tray from the water once it feels heavy.



11. Place the seed tray in a sunny spot.



12. Take the seed trays indoors if the risk of frost has not passed.

These instructions are also available to download in Large Print format from the project's learning resources webpage. Print them off and laminate them to share with your students as they create their garden.



Small seeds and large seeds are sown in different ways to make sure they germinate and grow well.

Superbloom Schools:

The Superbloom seeds you've been provided with can be sown directly into your beds or containers outdoors. However, you may want to give students the learning experience of growing a few of the seeds indoors, using the advice provided in this manual.

YOU WILL NEED:



Large seeds



Watering tray



9cm pots



Plant labels + pencil



Compost



Watering can

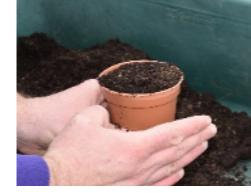


Dibber

INSTRUCTIONS:



1. Fill the pot with compost.



2. Gently tap the pot to level the compost.



3. Make a hole in the middle of the compost.



4. Place a seed in the hole and cover it with compost.



5. Write the name of the plant on a label and insert into the pot.



6. Place the pot in a watering tray and water from above.



7. Place the pot in sunlight.



8. Take pots indoors if the risk of frost has not passed.

Growing seedlings indoors can be challenging and easy to get wrong. This section will help you to grow your seedlings into robust plants, ready for the garden or containers outdoors.

Always read the information on seed packets to help you to choose the best method for getting your seeds off to a strong start.

Superbloom Schools:

The Superbloom seeds you've been provided with can be sown directly into your beds or containers outdoors. However, you may want to give students the learning experience of growing a few of the seeds indoors, using the advice provided in this manual.

CHOOSE A GOOD LOCATION FOR YOUR SEEDLINGS TO GROW

Some seeds require good light to germinate, but light near a window can be strong and can dry out seed trays, harming the *germination* process. It can be helpful to place planted seed trays away from direct sunlight before germination, moving them to more direct light once the seedlings start to show.

Seedlings need a lot of light to grow into sturdy, healthy plants. One area of the school or even one specific classroom may have the best light conditions. Find a large south-facing window to encourage your seedlings to grow.

Seedlings are also affected by air flow, especially when very young. Avoid placing them near open windows at the early stages of growth and always avoid strong drafts.

If seedlings start to get 'leggy' (long and straggly), it's because they are reaching for more light. You will need to find a lighter location or add artificial light. Leave lights on or place a lamp nearby. LED lighting is better as it won't get hot and scorch the plant. You can buy special growing lights, but they are expensive - the classic tube lighting often found in schools is fine.

COMMON PROBLEMS

Applying too much or too little water

The amount of water you apply can make or break seedling growth. Watering the right way is one of the most challenging aspects of seed starting. Seedlings are very delicate – too much or too little watering can have a big impact on success. You want the compost in your seed trays to be moist, not wet.

Tips for watering:

- Create a mini greenhouse to keep soil moist: cover the container with clingfilm or a carrier bag until the seeds germinate. Then, using lolly sticks or broken bamboo skewers, you can create a structure over the seed tray and slide it inside a suitably sized food bag to maintain moisture
- Water from the bottom to enable the seedlings' roots to soak up water through the tray's drainage holes. There is less chance of over-watering when you use this approach. Stand the seed tray on a larger tray. Add water slowly to the bottom tray for 10 to 30 minutes, using your finger to touch the top of the soil in the seed tray to feel when moisture has reached the top. The soil should feel moist, not wet!
- Check soil moisture at least once a day by touching it with a finger

Starting seeds too soon

Many seeds and seedlings do not tolerate cold temperatures and exposing them to chilly air or cold soil will stress them out. If your seed packet's instructions suggest planting seedlings out after the last frost of the spring, plan for this stage by working backwards from June in the planner (see the Planner provided in this manual). Most seeds will take about 4-6 weeks from sowing through pricking out and potting on before they go outside (northern areas of the UK will need to adjust to a bit later).

It is very easy to get carried away by warm days in February. Wait until at least the middle of March before sowing any seeds that need frost-free conditions. For seeds that don't need frost-free conditions it may be possible to sow earlier but bear in mind how cold your school gets at night when making this decision.

Planting seeds too deeply

Use the seed pack information for guidance on sowing depth. However, it is very easy for enthusiastic students to plant seeds too deeply. Give students something to help them get this right - maybe get them to use a ruler to mark the right depth on the *dibber* or on whatever they are using to make holes in the compost for the seeds. If sowing seeds that don't have depth information on the packet, the rule of thumb is to plant them two to three times as deep as the seeds are wide. Better to plant seeds slightly too shallow than too deep.

Check soil moisture at least once a day by touching it with a finger.

Moving seedlings outdoors too soon

When your seedlings are large enough to plant outdoors, you need to prepare them for the transition by *hardening off*. Hardening off gradually prepares them for outdoor conditions like wind, rain, and sun.

- On the first day of hardening off, place your seedlings outdoors for one hour, and then bring them back indoors
- Gradually increase the amount of outdoor time every day for 6 to 10 days
- You will need to make some judgment calls based on the outdoor temperature and the fragility of your seedlings. If it is a particularly cool day, or very rainy, you will want to decrease the time of that day's hardening-off session
- In this manual we suggest moving air across the plants by gentle fanning as an alternative to moving them outdoors. Similarly, increase the amount of time they are exposed to airflow gradually

Sowing too many seeds in one tray

When sowing seeds, remember that in the future you will have to take them out carefully. Too many seeds too close together will result in entangled roots, which can harm growth after successful germination. You can divide seeds up onto individual saucers or into cups to manage how many seeds each student can sow in each tray.

Failing to label seeds

To be able to identify seedlings as they grow and to know when they will be ready for transplanting, you should label the seed containers as you are sowing. For every type of seed sown, use labels and permanent ink pens to record the plant name and date sown. Insert the plant labels into the soil near the edge of the container or tray.

Giving up too soon

The seed packet will tell you how long germination will take, but it is possible that even minor imperfections in the environment, unseasonal weather conditions or the location of the school can delay this. If possible, allow twice as long for seedlings to emerge.



If you've sown your seedlings in trays, the next stage is to give each seedling more room to grow. This is known as *pricking out*.

YOU WILL NEED:



Tray of seedlings



Plant labels + pencil



Pots



Dibber



Compost



Watering can



Watering tray

INSTRUCTIONS:



1. Fill the pot with compost.



2. Gently tap the pot to level the compost.



3. Use the dibber to make holes in the centre of the pots.



4. Use the dibber or a small spoon to remove the seedlings from the seed tray.



5. Gently separate the seedlings.



6. Place the seedling in a plug tray or pot.



7. Gently firm the roots by patting down.



8. Place the pot in a watering tray and water from above.



9. Place the pot in sunlight.



Potting on provides more room for your seedlings' roots to grow and fresh nutrients with new compost. Follow seed packet instructions to identify which plants will benefit from potting on before they are planted in a bed or containers.

YOU WILL NEED:



Plants in pots



Watering tray



Same size pot



Plant labels + pencil



Larger pot

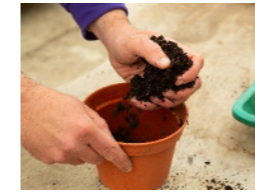


Watering can



Compost

INSTRUCTIONS:



1. Put a handful of fresh compost in the larger pot.



2. Put the smaller pot inside the larger pot. Check that the tops of both pots are level.



3. Fill the gap between the pots with fresh compost.



4. Remove the small pot from inside the large pot.



5. Gently remove the plant from its pot.



6. Place the plant in the hole in the larger pot.



7. Gently firm in the roots by patting down.



8. Push a name label into the larger pot.



9. Stand the pot in a watering tray and water it from above.



10. Place the pot in sunlight.



11. Take the plant inside before night if frost is still possible or if the plants have not been hardened off.

13 HARDENING OFF



Hardening off plants is a process that prepares them for the outdoor environment. It is an important step as you may lose plants if they are still *tender* when planted outdoors. As well as the changes in temperature, we are preparing the plants to cope with the wind.



YOU WILL NEED:
Plants in pots

INSTRUCTIONS:



1. Wait until late spring to avoid frost.



2. If needed, water the plants before placing them outside.



3. Put the plants outside during the day in a sunny location that isn't windy.



4. Bring the plants inside after a time outside (even an hour outside will help make them stronger).

ALTERNATIVE HARDENING OFF:

This method recreates wind indoors.



1. Wait until late spring to avoid frost.



2. Fan the plants indoors with paper to create airflow and to gently move them about.

14 PLANTING OUT



YOU WILL NEED:



Plants



Spade



Kneeler



Fork



Trowel



Watering can



Hand fork



Wheelbarrow (optional)



Trugg/bucket

INSTRUCTIONS:



1. Put the plants where you want to plant them.



2. Press the bottom of each pot lightly into ground to leave a circle.



3. Dig a hole in the ground where the circle mark is.



4. Check if the hole is deep enough for the pot to fit in it.



5. Remove the plant from its pot.



6. Place the plant in the hole.



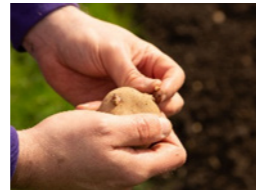
7. Firm the plant into the hole very gently - don't break the stem.



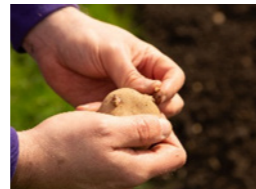
8. Repeat the process with the other plants.



9. Water the plants.



10. Clean the tools.



11. Put the tools away.

15 WATERING INDOORS

Watering seedlings and young plants is best done from underneath the pot or tray. This encourages deeper root growth. Roots anchor the plant as well as feeding it with nutrients, water and air from the soil.

YOU WILL NEED:



Watering tray



Watering can



Plants

INSTRUCTIONS:



1. Place the plant in the watering tray.



2. Fill the watering tray with the watering can.



3. Stop and remove any excess water from the tray once the plant feels heavy to lift.



Watering is particularly important when establishing new plants. Try to water the plants and not the surrounding soil to reduce the emergence of weeds. The watering can's rose is very important. It stops you damaging soil and plants with heavy flows of water.



YOU WILL NEED:
Watering can

INSTRUCTIONS:



1. Fill the watering can from the tap.



2. Water the plants near the roots.

These instructions are also available to download in Large Print format from the project's learning resources webpage. Print them off and laminate them to share with your students as they create their garden.



Feeding plants with special plant food during the watering process encourages healthy growth. Feed the plants once a week throughout the growing season (spring and summer) by adding the food to the water in the watering can.

You'll probably prefer to buy liquid or powder plant feed and just measure doses into your watering can. If you're feeling adventurous, here is a guide on how to make your own natural feed from plants:

www.thrive.org.uk/how-we-help/gardening-advice/gardening-tips/natural-feeds

YOU WILL NEED:



Watering can



Plant feed

INSTRUCTIONS:



1. Fill the watering can from the tap.



2. Add plant feed according to the instructions on the bottle or box. Gently shake the watering can to mix.



2. Water the plants near the roots.

IMPORTANT

Superbloom Schools:

The Superbloom seeds you've been provided with should **NOT** be given plant food. Just give them water as required.

These instructions are also available to download in Large Print format from the project's learning resources webpage. Print them off and laminate them to share with your students as they create their garden.



Weeding, or removing plants you do not want, leaves more sunlight, water and nutrients for the plants you do want. Weeding using a long-handled fork is efficient when preparing a plant bed ready for planting.

YOU WILL NEED:



Fork



Rake



Trugg/bucket



Wheelbarrow (optional)

INSTRUCTIONS:



1. Place the fork in the ground next to the weed.



2. Push the handle of the fork down towards your feet until the weed lifts up from the soil.



3. Take out the weed.



4. Shake the soil off the weed's roots.



5. Place the weed in a trugg/bucket.



6. Rake over the weeded area.



7. Clean the tools and put them away.



Choosing which tool to weed with depends on how much room you have. If a long-handled fork is too big to work with in your plant bed, use a hand fork instead.

YOU WILL NEED:



Kneeler



Trugg/bucket



Hand fork

INSTRUCTIONS:



1. Position the kneeler and find a comfortable position.



2. Place the hand fork in the ground next to the weed.



3. Push the handle of the hand fork down until the weed lifts up.



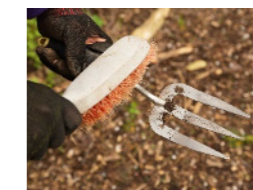
4. Take out the weed.



5. Shake the soil off the weed's roots.



6. Place the weed in a trugg/bucket.



7. Clean the tools.

20 WEEDING WITH A HOE

Weeding with a hoe is more common in vegetable gardens when plants are planted in rows. It can also be a good tool to help clear weeds from a bed before *planting out* if there's enough room.

YOU WILL NEED:



Hoe



Trugg/bucket

INSTRUCTIONS:



1. Hold the hoe like a broom.



2. Put the hoe on top of the soil.



3. Push forward, cutting down small weeds.



4. Place the weeds in a trugg/bucket.

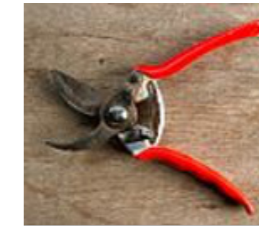


5. Clean and put away the tools.

21 DEADHEADING



Deadheading stops the flower *going to seed*. The plant will grow more flowers to try to make more seeds. Where you cut the flower off is really important for helping more flowers to grow.



YOU WILL NEED:

Scissors or secateurs

INSTRUCTIONS:



1. Find dead flowers.



2. Look down the flower's stem and find the first set of leaves.



3. Cut the stem just above the first set of leaves to remove the flower.

A pest is essentially a creature we choose to exclude from the garden. Detering pests can conflict with some approaches to environmentalism as they can be an important part of the ecosystem. Think carefully before you decide that a particular species is one that you don't want in your garden.

Wild animals

For larger animals such as deer, or determined and ingenious animals like rabbits, foxes and badgers, tall fencing dug under the ground to a depth of up to 30cm may be required to stop them getting to your plants.

A scarecrow, or a scarer made with old CD discs on strings that swing about and glitter in the breeze, can deter crows and pigeons.

Cats

Cats' faeces are a potential health risk to plants and students. If you have cats using the garden as a toilet, they are one of the more important visitors to deter.

This weblink provides a list of deterrents for cats:

www.gardenersworld.com/how-to/solve-problems/how-to-deter-cats-from-your-garden

Little critters

Smaller pests such as slugs and blackfly can consume and damage plants in the garden. However, learning to live with these species is often a better approach, and they seldom devastate a whole garden, plus they are a food source for birds.

There are some more organic approaches you can take to try to keep the right balance of wildlife, so that you can accommodate pests and their predators. *Nematodes* can be deployed to control slugs.

DISEASE

Watch your plants for the early signs of ill health. Weakened stems, shrivelled or rusty brown leaves and different coloured foams and residues are just some of the signs that your plants are not feeling well. Most problems are remedied with extra water and feed. If your plants are still not improving, the internet is awash with treatment advice for less experienced gardeners.

COMPANION PLANTING

Companion planting can be a very successful way to encourage balance, the idea being that particular plant varieties planted next to each other as friends will provide mutual support against pests.

This weblink provides guidance and instruction for companion planting:

www.thrive.org.uk/how-we-help/gardening-advice/gardening-tips/companion-planting



