

## **EDUCATOR NOTES:**

### [Making a large wicking bed](#)

#### **Learning and Engagement Approach**

This activity is designed to engage young learners aged from 7 – 13 years.

The activity is intended to:

- provide instructions about making a large wicking bed
- demonstrate how materials can be upcycled
- make a productive vegetable garden bed
- increase awareness of water use
- apply principles of science, sustainability and design and technology.

#### **Safety Considerations**

- Check the weather before conducting any outdoors activity. If there is going to be extreme temperatures, storms or high wind, postpone the activity.
- Ensure that everyone is wearing closed shoes, hats and sunscreen and has a water bottle handy.
- Keep any allergy plan information at hand and any associated allergy medication.
- Minimise the risk of inhalation of airborne microorganisms by wetting the soil or potting mix prior to use. Use an approved dust mask when doing this.
- The IBC tank and some materials will need to be cut. Always use proper cutting equipment that you are trained to use, or seek help from a professional.
- When you trim the fabric with a craft blade ensure that you cut away from yourself.
- Implement manual handling procedures when lifting soil, gravel, etc.

#### **Materials and References**

A vessel such as an old bath, IBC tank or even an old fridge can be repurposed to make a wicking bed. We have featured IBC tanks because they are a popular choice for making wicking beds, they are watertight and easy to find.

- IBC tanks can be found online, through wholesalers and material recyclers. Ensure that the previous contents of the tank were non-toxic if you are purchasing a used tank.
- If you need to collect the IBC tank ensure you have a suitable vehicle/trailer and straps to secure your load.
- The remainder of the materials can be sourced from your local hardware/garden supply shop.

### Site Suggestions

#### Choosing a location for your large wicking bed

- Vegetable crops need good sun. Position your wicking bed in a sunny spot.
- Your wicking bed will be very heavy once it has been made, so make sure you build it in its final location.

### Educator Tips

#### Building your wicking bed



Source: [ABC Gardening Australia](#)

There are many valid designs and ideas for wicking beds. Our wicking beds are designed with simplicity in mind to encourage more people to try wicking beds. We have attempted to make our wicking bed as simple as possible. Our Junior Landcare [video](#) demonstrates the process in an easy to follow format.

So your wicking bed works efficiently there are a couple of important points to follow:

- The water reservoir should be about 150-200 mm in depth
- Soil of no more than 250-300mm in depth
- The overflow should be at the same level as the geotextile barrier and covered by the fabric, so that it does not become blocked with soil
- The scoria or gravel should be 7mm or ¼ grade
- Use a good quality soil/compost blend, as this will help the wicking process to occur.

If you would like more detailed instructions, this [clip from Gardening Australia](#) is an excellent overview of transforming an IBC tank into a wicking bed.

**Before you start**

- 1) Assemble your materials at the wicking bed's location
- 2) Check that the IBC has been cut to the appropriate depth and the drainage hole installed
- 3) Ensure you have the right amount of materials to complete the build
- 4) Run through the step-by-step process with the team.

**Step by step build instructions using a pre-prepared IBC tank.**

Step number 1: Add the pipe to the bottom of the vessel. This pipe is like a big underground tunnel that can fill up with water. The top of the pipe is like the roof of a tank and it holds the soil up above it.



Step number 2: Leave some pipe sticking up, vertically in a corner (see picture below, with pipe in bottom-right corner). This will be the filling pipe. This piece of pipe is like a snorkel, it allows air to go in all the time but you can use it to top up the water reservoir so the water is always in there.



Step number 3: Add some gravel around and the pipe. The gravel is used to fill the gaps around the pipe so that the soil layer can sit nice and evenly on the top of the pipe and get wet. You will need to use scoria, less than 7mm or ¼ minus gravel for effective capillary action.



Step number 4: Use 20mm PVC pipe or garden hose as your overflow pipe. Insert the overflow pipe into the vessel horizontally at the same level as the top of the gravel. The overflow should be at the same level as the top of your reservoir.



Step number 5: Add the fabric. This is a layer that separates the soil from the water but it is porous, so it when it is wet it will allow the water to wick or move through and then wet the soil. Make sure the fabric also covers the overflow tube. It is best to have enough fabric to overhang as it will be trimmed back after the soil goes in.



Step number 6: Add the soil. The soil is where we grow the plants. Use a good quality, porous soil mix with plenty of organic material. This will help the wicking action to occur. Put the soil in just like filling a pot. Make sure you don't put any behind the fabric. **Make a note of how much soil was used, for the activity sheet later.**



Step number 7: Trim the edges. Now that the soil is in and the fabric has been set in place to the very bottom, it is time to cut the overhang so that the top of the wicking bed looks neat and tidy.



### ***Planting your wicking bed***

Leafy vegetables are an ideal crop to plant in wicking beds. Beans, peas, and other legumes also do well, as will tomatoes, capsicums and other fruiting crops. Some root crops, such as garlic and carrots are not as suited to growing in wicking beds, as they may be more prone to rot and the moisture and soil level can affect the root growth.

Remember to surface-water your crop once it has been planted. You will need to do this for about the first week or two until they become established.

### **Aligning this Activity**

- [Creating a beneficial garden: planting](#)
- [Making a small wicking bed](#)
- [Creating a food garden](#) sequence

### **Extension Activities**

#### ***Extension 1***

Plant comparison – investigate just how much better the wicking bed is by also planting some of the plants in the ground nearby. What do we observe? How do their water requirements differ?

#### ***Extension 2***

Water level diary: Using a ruler or dowel as a dip-stick, monitor the water level via the filling tube. Record this information in a diary, noting the water level, weather conditions and recent rainfall.

### **Community Engagement**

Use [The National Landcare Directory](#) to find a community environmental ‘care’ group near you. Landcare groups have experience in understanding plants and caring for them, we encourage you to connect with them.

Look to the [Junior Landcare Community Page](#) for organisations to contact to help support growing plants.

Use this [Australian City Farms and Community Gardens Network map](#) to find a City Farm or Community Garden near you to get some ideas for your gardening project.

## Curriculum and Framework Links

### MATHEMATICS

Year 2: [ACMMG037](#)

Year 3: [ACMMG061](#)

Year 4: [ACMMG290](#)

Year 5: [ACMMG108](#)

Year 6: [ACMMG136](#)

Year 7: [ACMMG160](#)

Year 8: [ACMMG195](#)

### SCIENCE

Year 2: [ACSSU030](#), [ACSHE035](#)

Year 3: [ACSSU044](#), [ACSIS054](#)

Year 4: [ACSHE062](#), [ACSIS064](#)

Year 5: [ACSHE083](#)

Year 6: [ACSSU094](#), [ACSHE100](#)

Year 7: [ACSHE120](#)

Year 8: [ACSHE135](#)

### DESIGN AND TECHNOLOGIES

Year 2: [ACTDEK003](#)

Year 3 & 4: [ACTDEP017](#)

Year 5 & 6: [ACTDEP019](#)

Year 7 & 8: [ACTDEK032](#)

### HEALTH AND PHYSICAL EDUCATION

Year 2: [ACPPS018](#), [ACPPS022](#), [ACPPS023](#)

Year 3 & 4: [ACPPS036](#), [ACPPS040](#), [ACPPS041](#)

Year 5 & 6: [ACPPS054](#), [ACPPS059](#)

Year 7 & 8: [ACPPS073](#), [ACPPS078](#)

### HUMANITIES AND SOCIAL SCIENCES

Year 2: [ACHASSI042](#)

Year 3: [ACHASSI052](#), [ACHASSI059](#), [ACHASSI060](#)

Year 4: [ACHASSI080](#), [ACHASSK088](#), [ACHASSK090](#)

Year 5: [ACHASSI102](#), [ACHASSK120](#)

Year 6: [ACHASSI122](#), [ACHASSI130](#)

### GENERAL CAPABILITIES

[Critical and Creative Thinking](#)

[Intercultural Understanding](#)

### ETHICAL UNDERSTANDING

[Exploring values, rights and responsibilities.](#)

### PERSONAL AND SOCIAL CAPABILITY

[Social awareness](#)

**CURRICULUM CONNECTIONS**

[Outdoor Learning](#)

**CROSS CURRICULUM PRIORITY**

[Sustainability](#)

**MY TIME, OUR PLACE: FRAMEWORK FOR SCHOOL AGE CARE**

[Outcome 2 and 4](#)