

# Bee hotel

Activity

## The Science

Most of us associate bees with insects that live in colonies (large groups). But did you know that most bee species are solitary? This means that they live on their own. A female solitary bee has a lot to do; she must find a safe location for her nest, lay her eggs, and then find food ready for her larvae to eat once they hatch.

Bees, including solitary bees, are important pollinators of wildflowers and the food we eat, but their numbers have been declining. Bee hotels are a great way to create habitats (homes) for solitary bees to help them find suitable nesting spaces and will allow you to observe their behaviour and life cycle. Guests to your hotel may also include wasps, another important group of insects.

Here are some instructions on how to build your bee hotel. Feel free to get creative!

## Safety Instructions

Remember! Bees and wasps are stinging insects, so always be careful around your bee hotel.

## Time

About 1 hour to make your bee hotel + as much time as you like observing visitors to your hotel

## Materials

- Large plastic water bottle with removable label (1.5-2 L size), or a medium plant pot or similar container, with a depth of about 15-20 cm
- Kitchen/garden string
- Secateurs/pruners
- Scissors
- Hollow bamboo canes/cardboard tubes (2-10mm diameter, about 15-20 cm in length)
- Forage – for example pinecones, different diameter twigs and sticks, dry leaves (feel free to get creative, but remember not to pick or damage any live plants)

## Instructions

1. If you are using a plastic bottle, start by removing the label and making sure it's clean and dry inside. Cut off the neck of the bottle, so that you are left with a cylinder. Ask an adult to help you with this.
2. Make a small hole in the rim at the base of the bottle. Ask an adult to help you with this. Place a piece of string through the hole at the base of the bottle and out through the top. Cut the string and tie it to form a loop, about 20 cm high. You will use this to hang your bottle.
3. If you are using a plant pot, make sure it is clean and use the base of a small plastic container (such as an old yoghurt pot or similar) to block any drainage holes.

4. Start filling your container with hollow canes. First bunch up the canes into groups of 5-6 and tie with kitchen/garden string. Place the bunches into your container, packing them tightly so that they cannot move.
5. Fill the gaps between canes with other forage such as sticks or pinecones. This will help keep the canes in place.
6. Ensure that the rim of the container overhangs the entrance to the tubes by 1-2 cm, to help keep rain out of your hotel.
7. Place your bee hotel off the ground, in a sunny spot that is sheltered from rain. This could be attached to a fence or shed if you have a garden, hanging from the ceiling of a balcony, or hanging from your window. Ask an adult to help you with this.

## Tips

- If you don't have access to hollow canes, you can make them by rolling paper into tubes of different diameters, or using paper straws. Aim for a diameter of 2-10 mm.
- Alternatively, if you have access to a drill, ask an adult to drill holes into larger sticks or pieces of wood, to make holes about 15 cm deep and 2-10 mm in diameter.
- You can paint or decorate your bee hotel any way you like!
- You can use similar instructions to build a bug hotel and observe lots of different types of insects, by placing your hotel on the ground.

## What next?

Building a bee hotel is just the beginning! Now you will be able to observe the behaviours of visitors to your hotel. The same observations will also work if you have built a bug hotel. You can record as often as you like, but a good starting point might be once a week, starting in the spring.

Keep a field diary and record when your bees or other insects are active, for example:

<b>Date</b>	<b>Time of Day (e.g., morning, afternoon, evening)</b>	<b>Weather (e.g., sunny, cloudy, light, rain, heavy rain)</b>	<b>Number/type of visitors to bee hotel</b>

You may notice that bees will seal up the entrance to a tube once they have laid their eggs in it. You can record how many tubes are sealed, and the material they have been sealed with, for example:

<b>Date</b>	<b>Number of tubes sealed</b>	<b>Seal materials (e.g. mud, leaves)</b>

Different species will seal their tubes with different materials. Find out which species (types) of solitary bee use which materials. Can you work out which species are using your bee hotel?

## Extra things to think about

1. Using your field diary, can you spot patterns between visitor activity and the weather? What are the effects of rain on visitor activity?
2. Are there changes in the species visiting your hotel across seasons? Does this map onto a change in materials used to seal tubes?
3. If you have access to a large balcony or garden, you could try placing your bee hotel in different locations. Which locations are best for visitor numbers? You could try full sun, shade, under a tree, on the ground. Does the location change the species (type) of visitors you see?

You can find more information about bee hotels, and identifying some of the visitors to them, using the following resources.

For more information on building a bee hotel check out [NHM how to make a bee hotel](#)

Further reading on solitary bees and additional things you might want to include in your bee hotel, as well as some information on [caring for your hotel](#) over the winter from Bumblebee Conservation Trust.

If you want to try something different, here's some information on [building a bug hotel from the RSPB](#)