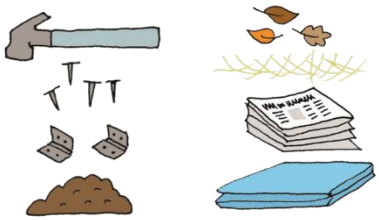
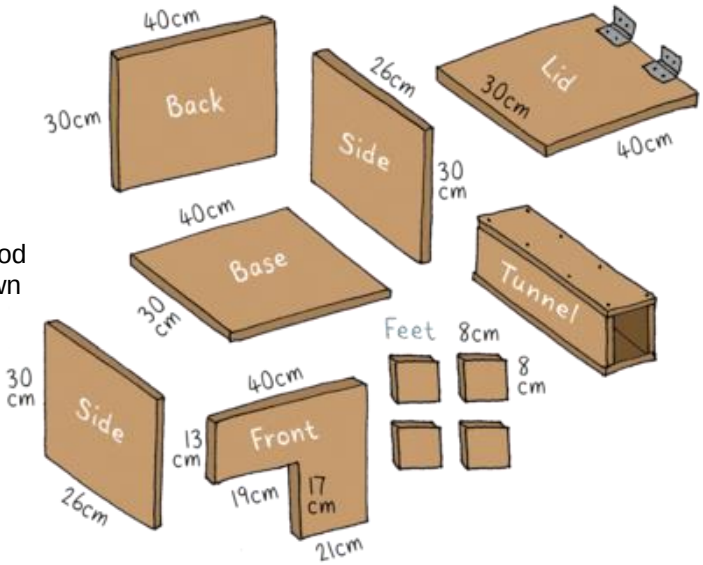
Design and Technology

Building a hedgehog home

Summary:	Building a hedgehog home using a range of materials and resources
Learning outcomes:	By the end of this lesson, students will be able to: • Explain the importance of providing a safe habitat for hedgehogs. • Describe the basic needs of hedgehogs. • Design and construct a hedgehog home using suitable materials. • Understand the role of humans in protecting wildlife.
National curriculum links:	Design and technology: • select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately. • select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities.
Materials:	• Pencil and ruler • Hammer and nails • Hacksaw and vice • 2 metal hinges • Soil • Straw or dry leaves • Polythene sheeting • 20mm untreated FSC plywood boards cut to the sizes shown  
Introduction:	Sadly the number of hedgehogs in the UK has plummeted over recent years. While there were estimated to be around 1.5 million in 1995, today there is believed to be less than 500,000. Hedgehogs need homes just like humans, so making one for them is a great way to encourage them into your garden. Hedgehogs are becoming increasingly reliant on urban and suburban gardens. Urban populations of hedgehogs have increased by up to a third, while rural populations have halved. This decline is likely caused by the loss and degradation of our habitats due to pressures such as development, agricultural intensification and climate change. Begin the lesson by providing context for the activity and ask your students to research hedgehogs and ways to help them. Suitable links are provided below: • Learn more about hedgehogs • Help an injured hedgehog • Hedgehog highways • What hedgehogs eat • Make a hedgehog house • Hedgehog Close video This activity can be completed in pairs or groups. If time permits, have children present their findings to the class in the form of a poster or a presentation. If time is a limiting factor, complete this activity as a class group, facilitated by the teacher.

Main activity:	**Design:** A basic hedgehog home design has been provided in the appendix, along with guideline measurements as listed above. Whilst it would be good to encourage students to create their own designs, it is important that some features are maintained: • The dimensions for the tunnel are large enough for a hedgehog to fit through but not large enough for predators such as foxes and badgers. The length of the tunnel is also important as it means predator paws aren't able to reach in. • The internal chamber is large enough for 1-2 hedgehogs or a small family. Too small and a family wouldn't fit; too large and it could become too cold. • A hinged lid is important as this allows the box to be cleaned out each year. • Feet are also important features as they raise the box off from the cold damp floor whilst also giving a slight incline to the tunnel, meaning water won't flood into the box when it rains. Working in pairs or groups, allow students to create their own hedgehog home designs. These can be in the forms of annotated sketches, exploded diagrams, cross-sectional designs or even CAD (computer-aided design). Ensure students' plans are annotated with measurements and the resources they will be using. Before building in wood, have children create a prototype using paper or cardboard to check that their chosen dimensions work. When building the prototype, students should be actively thinking about amendments and improvements that can be made to their final design, and annotating these onto their plans.
	Make: Cutting: • Begin by measuring the wood to the dimensions in the students' plans (or use the dimensions listed in this plan). Encourage children to be as accurate as possible in their measurements and to use the correct resources for measuring and marking (pencil and ruler). • **Adult supervision required** Begin by securing the timber in a vice or clamp. Having already demonstrated safe use of a saw, allow students to cut the timber to the correct dimensions. Repeat for all sections of timber. • Before joining, ask children to work in pairs/groups to assemble their components (a temporary adhesive like blu-tac could be used here to keep parts together). Do the components fit together as they should? Do any changes/amendments need to be made? • Once groups are happy that their boxes fit together correctly, it is advisable to mark on where they will be adding the nails and other fixings. Joining: • Whilst most hot glue is non-toxic and therefore safe to use for wildlife, it does not hold up well in damp or wet conditions, so to create a hedgehog home that will last for years, we recommend using hammer and nails. • It is best to assemble the tunnel and main chamber separately; attaching the feet and the hinge flap before putting the box together will also make things a little easier. • **Adult supervision required** Using the vice/clamp, secure the timber and begin to nail the sides and base together. Care must be taken not to hit thumbs/fingers with the hammer. Encourage students to start gently to secure the tip of the nail and only use heavier taps with the hammer once the nail is already secured in the wood and fingers can be moved out of the way. • Repeat until all sections of the main chamber and tunnel are fixed together. The main chamber and the tunnel are not to be fixed with nails, but simply slotted together. • As an additional feature, a hole can be drilled into the top of the main chamber and a hosepipe attached to add some extra ventilation. Having completed the building of the hedgehog home, students can start getting the home ready for hedgehog occupation and think about suitable locations within the school grounds. Start by putting straw as bedding into the main compartment along with some dry leaves (this will need to be cleaned out annually). Next, pick a shady spot to put the hedgehog house - ensure the tunnel is facing south (hedgehogs' instinctive behaviour will drive them to choose south-facing locations due to the temperature regulatory effects of the sun). Cover with polythene sheeting (making sure it's still accessible for cleaning later on), and pack soil and dead leaves around the outside, leaving the entrance and air pipe free of debris.

	Evaluate: Having completed their build, have children consider the following evaluation points. These could be written into books or could be discussed in groups or as a class. **Aim of the project?** • What was the aim of this project? What were you trying to achieve? Did you meet this aim? **What went well?** • What went well with the project? What do you like most about your final piece? When tested, did it work as expected? **Next time?** • What would you change about your design next time? How would you change this? How could you make these adjustments? **Skills?** • What skills have you learnt in this project? What tools did you use? How did these skills help you make your final piece? What other projects will these skills be useful for? **Challenges you faced?** • What unexpected obstacles did you need to overcome? What didn't go to plan? **Overcoming challenges?** • How did you overcome these challenges? How did you adjust?
Extension activities:	**Habitat Research and Report:** Have students research and create a report on hedgehog habitats in the local area. They can use books, websites, and interviews with people to gather information. **Hedgehog Life Cycle Study:** Explore the life cycle of hedgehogs. Students can create posters, diagrams, or even a mini-book illustrating the different stages of a hedgehog's life. **Hedgehog Art and Illustration**: Encourage students to create artwork or illustrations related to hedgehogs, their habitats, or the hedgehog home project. They can use various mediums, such as pencils, paints, or digital tools.
Health & Safety:	Consider the following when creating your Health and Safety risk assessment: **Training and Supervision:** • Ensure students are trained in safe tool use through demonstrations. • Encourage controlled movements. • Always supervise students when using tools. **Safety Equipment:** • Require students to wear appropriate PPE, such as safety goggles and gloves. • Ensure PPE fits properly and is in good condition. **Workspace Safety:** • Maintain a clean, organised workspace, removing trip hazards such as cables, chair legs and bags. • Ensure good lighting, ventilation, and minimal distractions – ensure adequate behaviour management strategies are in place. **Hazard Identification:** • Teach students to identify potential tool-related hazards. • Discuss common risks, such as sharp edges and flying debris. **Emergency Procedures:** • Ensure students know what to do in case of an accident or injury. • Maintain a first aid kit in the workspace.

Make a deluxe hedgehog house

Wildlife Watch

You will need

Birch is ideal

- 20mm FSC plywood boards cut to the sizes shown
- Hammer and nails

- 2 metal hinges

- Soil

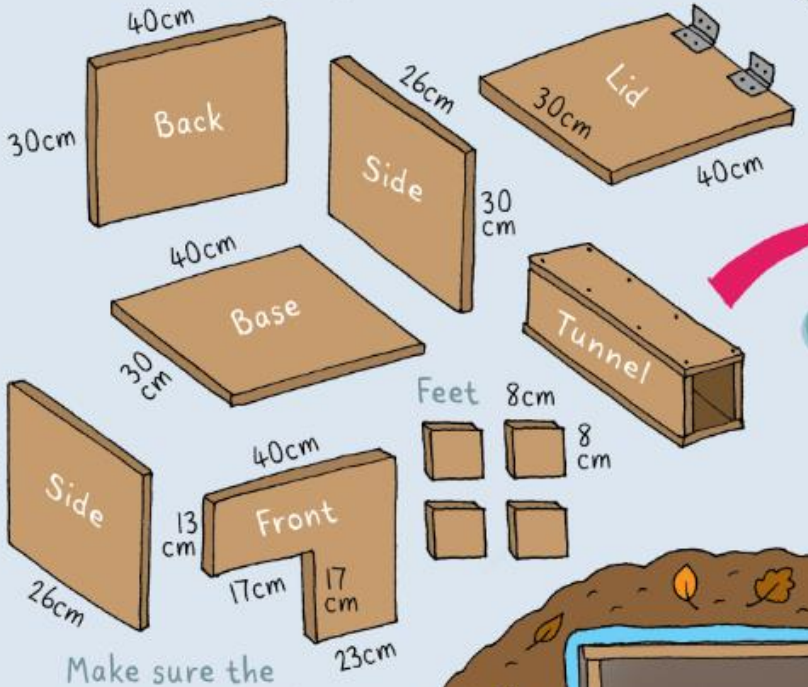
- Dry leaves

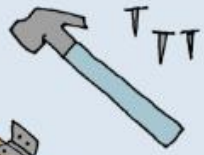
- Pet straw

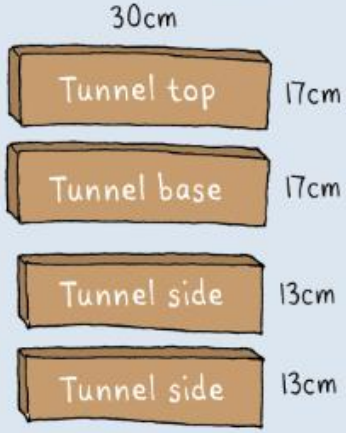
- Polythene sheeting

Do not creosote or treat the wood

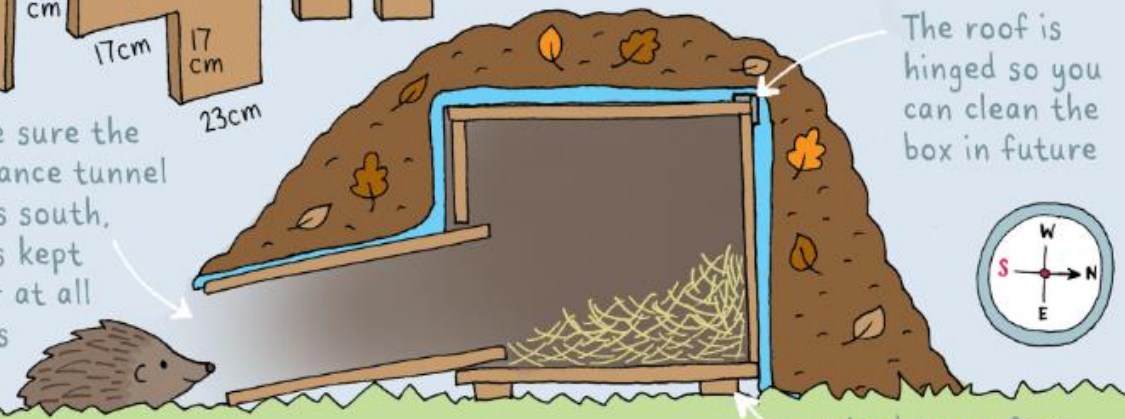
1. Construct the hedgehog house from the following diagram and dimensions.







2. Put the pet straw inside, cover the house with polythene sheeting, then pack soil and dead leaves around the outside.



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