

## Dens & Shelters

### Key Stage 1 and 2

This activity will help you learn how to build dens and shelters outside or in your home. You will get to know more about how triangles create a strong and supporting shelter. You will also look at why shelters are important for animals in the outdoors and how they might build them.

**Parents: supervision is required for younger den builders**

**What you will need:** You will need a safe space with a fairly flat surface to build on. This can be indoors or outdoors – you might want to check the weather forecast if you want to build outdoors.

Indoors: Chairs, blankets, cushions, broom handles, rope, string or wool

Outdoors: Sticks, twigs, poles, tarpaulin, old sheet, leaves, rope, string or wool

You might also need a pair of scissors and a pencil to draw your designs.

Make sure you ask permission from your adult before you start.

**Learning Outcomes** You will:

- Be able to identify three different types of triangles
- Understand why triangles are good load-bearing structures
- Learn how to make a tripod to build your own den or shelter
- Understand how some animals create their shelters to meet specific needs

## Activity 1: Tripods & Triangles

Before we can build a shelter, we will look at shapes we can use for a strong, supporting structure

KS1: Can you find any triangles in objects or patterns around your home?

KS2: Did you also know that triangles come in a variety of different forms? The length of their sides and the angles inside them defines different types of triangles. Here are some examples:



*Equilateral*: all three sides are the same length and all angles inside the triangle are the same size.



*Isosceles*: two sides are the same length and the two angles of these sides are the same size.



*Scalene*: none of the sides or angles are the same.



*Right-angled*: one corner of the triangle is a 90-degree right angle. The length of the sides can be different.

You might be able to find some triangles at home or outside (look at roofs, furniture or pylons). There are well-known high-rise buildings like the Shard in London, the Burj Khalifa in Dubai, or the Eiffel Tower in Paris all of which have triangular bases.

Look at the buildings below. They are all different in appearance but have one thing in common: they are based on the same kind of triangle. Can you work out which type of triangle it is? Drawing the triangle in the box beside the buildings might help you. You will need a pencil and a ruler.



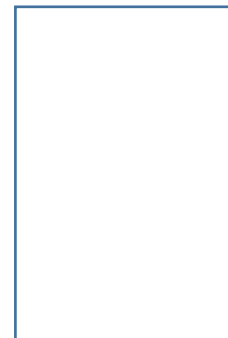
Burj Khalifa



The Shard



Eiffel Tower



Your triangle

Triangles are a great shape for building dens because their structure creates a strong *tripod*. A *tripod* is a triangular shaped stand with three legs, used to support things like cameras and phones. Tripods are usually *isosceles* triangle shapes because this makes them strong and sturdy, and they are less likely to fall over.



A camera tripod

## Activity 2: Shelters

### Let's look at examples of animal shelters

Shelter is a basic need of all animals (and humans) and can take many forms. Birds sit on their eggs to keep them warm in order for them to hatch. Their shelter is usually a nest – which prevents their eggs from rolling off and also protects the chicks when they hatch. Bears need to shelter from cold weather, because they spend several months hibernating during winter. *Hibernation* is when some animals spend the winter months asleep to save energy, keep warm and safe. Bears shelter in caves, because they are big and spacious and provide a safe place to look after their babies and to store food. There are lots of different kinds of shelters that animals across the world need to build as a safe place. Can you find some more examples?

Look at these pictures of animals and their shelters. Can you guess which shelter belongs to each animal? Draw a line connecting each animal to its shelter.



## Activity 3: Building a Den

### It's time to build your den

Before you start, decide who you are building a den for. Is it for a small creature that might visit your garden, a favourite toy, or is it for you? Your den can be big enough for you and someone else in your family, or small enough for a tiny mouse. Are you about to embark on an Amazon adventure, climb a mountain or camp out by a river?

**You will need** a safe space with a fairly flat surface to build on.

Indoors: Chairs, blankets, cushions, broom handles, rope, string or wool

Outdoors: Sticks, twigs, poles, tarpaulin, old sheet, leaves, rope, string or wool

*You will now go through step by step instructions for building a basic tripod den structure. If you get stuck with anything, ask an adult to help you.*



#### Step 1

Collect three sticks all the same length. You can use your body to measure each stick to equal lengths - they can be as tall as you or as short as your arm. Think about who needs to fit in your den and that will help you choose the right length of stick.

If you are inside you could use things like a broom handle, a mop and a loft pole, instead of sticks. Or, collect smaller sticks to make a small den for your favourite toy.



#### Step 2: Make a tripod

Cut a piece of string as long as your leg. Make a loop near the end of the string and hold this against the sticks with your thumb over the loop facing to the top. *Pic 1*

Next wrap the string around all three sticks covering most of the loop but leaving the top of the loop peeping out of the top. *Pic 2*

Take the end of the string and thread it through the loop, then take hold of each end of the string and pull tight. This will hold all your sticks together nice and firmly. *Pic 3*



Pic 1



Pic 2



Pic 3



### Step 3

Next, stand up your tripod of sticks and move the bottom ends of each stick (or leg) outwards to make a wider base. Look back at the picture of the camera tripod in Activity 1 if that helps.

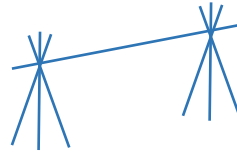


Now you have your first tripod, you can create a triangle-shaped den by covering the tripod with a sheet or branches and leaves.

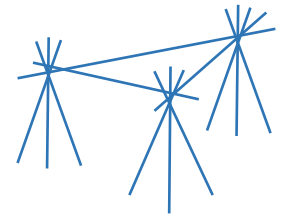
You might want to create a second tripod and join the two together by resting a long, straight pole or branch across the top of both tripods. This technique will create a tent structure. You can add more tripods to create a mega-den!



Basic Triangle Structure



Tent Structure



Mega-den



### Step 4

To complete your den, cover the structure with more branches, smaller sticks and leaves or a tarpaulin. You can also use an old sheet or blanket (but always check with your adult first).

**If you would like to learn more or get ideas on how to use your den, here some extra activities for you**

- ❖ If you have a tarpaulin or camping ground sheet you could use this to make your den waterproof. If you're brave, get inside it and ask someone to test it with a watering can. Will you get wet?
- ❖ Make a den outside for a tiny creature or insect, fill it with leaves, leave it for a few days and see who comes to visit.
- ❖ Sit quietly in your den and listen to all the sounds around you.
- ❖ Read a book, write a story or draw a picture in your new special space

**Parents Information**

Here are the curriculum links these activities will cover:

Maths	PSHE	Science
<p>KS1 Measuring, counting, estimating</p> <p>Describe and solve practical problems for lengths and heights [for example, long/short, longer/shorter, tall/short, double/half]</p> <p>Recognise and name common 2-D and 3-D shapes, including: rectangles, squares, circles &amp; triangles</p> <p>KS2</p> <p>Identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line</p> <p>Draw 2-D shapes and make 3-D shapes using modelling materials or building</p> <p>Recognise 3-D shapes in different orientations and describe them</p>	<p>Establish positive relationships</p> <p>Practice teamwork skills</p> <p>Develop resilience and problem solving</p>	<p>Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other</p> <p>Identify and name a variety of animals in their habitats, including micro-habitats</p> <p>KS2</p> <p>Identify and name a variety of living things in their local and wider environment</p>