



Why do we need packaging?

Explanatory video transcript

(0:10) Why do we need packaging? There are many reasons why we need and use packaging. It provides protection for objects. It can help preserve objects and allows objects to be transported around the world. Packaging can be very useful, but it is important we consider if it is necessary and what happens to it when it is no longer needed.

(0:34) Unfortunately, many examples of packaging contain single use plastic and of the 7 billion tons of plastic waste generated so far, only 10% has been recycled. The effects caused by our plastic waste are fatal. We urgently need to change something. Lilo wonders how this situation can be changed.

(0:55) Ah, here comes an idea. Nature can often help us with our problems. Maybe it can help us with this problem too. Let's discover together.

(1:05) Let's think about what is nature's most important asset that it protects. Yes, of course, in nature, seeds are protected. Seeds of most plants are the very means of survival of the species. Therefore, they need protection to help them survive the next growing season.

(1:23) Nature has many ways to protect its seeds. Coconuts have a spongy fibrous outer shell to protect the fruit and enable it to be dispersed by water and conkers have spiky shells to protect them. What other examples can you think of where seeds are protected in nature?

(1:40) Eggs are a special example of nature's protection. Inside the egg is the yolk ball which must be protected so that a chick can grow. To do this the egg has a hard shell that consists mainly of calcium carbonate. The egg white or albumen which is inside the eggshell, also protects the yolk.

(2:00) Additional protection is also provided by the bird's nest, which is normally packed with dried leaves and feathers to protect the shell and help incubate it. This way the egg is perfectly protected.

(2:12) However, sometimes eggs can fall out of the nest. What difference do you think it makes whether the egg falls on its top and bottom compared to on its side?

(2:23) Even though egg shells are fragile, the dome shape of the shells provide strength so a bird can sit on it to keep it warm without breaking it as the weight spreads along the curve of the egg, similar to some bridges in architecture.

(2:37) Let's do an experiment to find out how we could protect the eggs so that if it falls out of the nest, it won't break, helping us answer the question, 'why do we need packaging?'

(2:49) For this experiment we will show how natural materials can be used to protect a delicate object. We will use an egg because an egg is like a seed. For us, we want to protect the egg like nature protects the seed.

(3:02) This experiment shows how you can use natural packaging materials to protect a delicate object such as an egg or a water bomb. You can choose your preferred type of container or adapt the experiment to test the strength of different shapes.



(3:18) The key to this experiment is using packaging that absorbs the shock of the impact and materials that won't absorb the shock of the impact to compare results.

(3:28) Which material will help protect our egg? Let's find out.

(3:49) Place a metre stick against the wall and drop each box from this height.

(4:00) What will happen next? Now open each box to see if the eggs are intact. Which packaging works the best? What if you dropped the eggs from a bigger height? What if you used different packaging?

(4:13) What else could you explore? Earlier we mentioned how packaging can also help preserve an object. What experiments could you do to see what is the best natural material to preserve an object? Food has at least ten times the environmental waste as packaging waste, so this is a very important factor to consider when thinking about natural packaging.

(4:35) How much plastic and packaging do you throw away in a day or a week? Could this be recycled? What would be the best natural material to use for packaging instead of plastic? Why? Would it preserve the food?

