

Lesson 5 - Too much water



Before you start this session, please:

- Get an adult to help you check your water meter again and record your results.
- Print out Session Information sheets
- Print out Activity sheet 5:1
- Make sure you have access to the internet so that you can watch video clips on YouTube;
- Or print Supporting Information sheets 5:1 and 5:2
- Collect together the following items to help you complete the experiment and activities in this lesson.
 - Paper and coloured pens/pencils
 - Junk materials and glue (you may need to design your house before you decide what you need).

Too much water

Let's get started

We know that we all need clean drinking water to survive, but as we discovered in the last session, our world is undergoing many changes, and this is having an impact on the water we have available to use each day. One of the biggest impacts is coming from climate change, which is happening because of global warming.



Floods and droughts

We know that weather can change from one day to the next, raining one day then dry the next. Normally when it rains, the water can either fall into a place that already holds water, like a river or a lake, or it can soak into the ground like water on a sponge. But what happens if you keep pouring water onto a sponge? After a while the sponge can't hold any more water and all the surrounding area fills up with water.

If too much rain falls too quickly a similar thing happens with the ground - there is too much water for the ground to soak up, so puddles get bigger and bigger until they cover huge areas. Rivers can also get too full and overflow causing a flood.



But the opposite can happen too - no rain for long periods of time is called a drought, which can lead to a shortage of water. Less water in our rivers and lakes and less water for growing crops.

Due to climate change our weather patterns are changing and weather events are becoming more extreme - more severe storms and more droughts.

Too much water



In the 1900s there were 7 severe droughts but since the year 2000 there have already been 4.

The images below are of Anglian Water's biggest reservoirs (the place where we store water, so it can be cleaned) during recent droughts - not a lot of water left!



In the 1960s there were 4 major storms in the UK, in the 1990s there were 14. Last year there were 9 in just 1 year!

Storms often cause flooding which can be devastating for a community.

Watch the video [Flood](#) on the Education Playlist to see the damage these flooding events can cause.

Too much water

Why does this matter?

You might think that heavy rainfall is a good thing as it would mean that there is more water for us to clean but that is not usually the case.

Flooding events usually come either before or after a drought so the amount of water available ends up being the same.

We have already thought about how to become more water efficient which will help us in times of drought in earlier sessions but what about floods?



Why is flooding such a threat?

As our climate changes, the UK is expected to have more extreme rainstorms which can cause flash flooding, damaging property and crops.

Extreme rainstorms can lead to rivers and streams breaking their banks, and on the coast, erosion and high tides can cause flooding.

There are more people needing extra houses, shops and factories which means a loss of green spaces, so rainwater is prevented from soaking away into the ground, overwhelming our drainage systems - another cause of floods. Losing green spaces also reduces the habitats available for wildlife.



So, what does this mean for you and me?

Well, the more of these events we have, the more likely we all are to be affected by a major flood - and we saw earlier the damage this can cause.

What can we do?

Before we build more homes to meet the growing population, we should look at ways to redesign the way we live.

We also need to work with nature to create natural areas where rain can soak back into the ground and return to the natural water course. This will help reduce the need for it to drain back into the sewer system and reduces the risk of sewers being overwhelmed and causing flooding. We call these solutions 'Sustainable Drainage Systems' (SuDS).



Too much water

Let's investigate:

Become an architect

Design a flood protected home.

How can we redesign homes and communities to withstand a major flooding event? Lots of countries are working on this problem.

Have a look at the Supporting Information sheet 5:1 to look at different house designs from around the world and then draw your own design of a house that will withstand a major flooding event.

Label all the features you use and say how they will protect the house.



Become an engineer

Are there any SuDS near your home? What do they look like? Take a look at the Supporting Information sheet 5:2 to find out. Once you know - challenge yourself to spot some in your area?

You could make a mini water butt to use straight away. Look at and complete Activity sheet 5.1. This mini water butt will collect the water in your garden, just like bigger water butts do and the water can be stored and used.

SuDS do this but on a much larger scale, storing rainwater until it can be used or released slowly back into the environment, reducing the risk of flooding.



Challenges:
Now have a
go at some
of these:

1. Make a model of the house that you have designed using anything you have available - junk modelling, clay, cardboard, Lego, etc.
2. Now pitch your design idea to your family. They could record you and share it with us at education@anglianwater.co.uk

Too much water

Make a mini water butt

You will need:

Essential equipment

- A large plastic milk bottle and lid
- Scissors
- Strong garden twine or cable ties

Optional equipment

- Outdoor paint
- Paint brushes
- Decorations

What to do

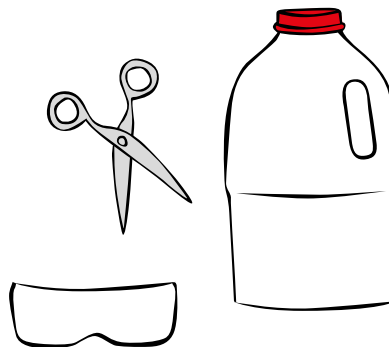
Step one

- Clean and dry the milk bottle and remove the label.



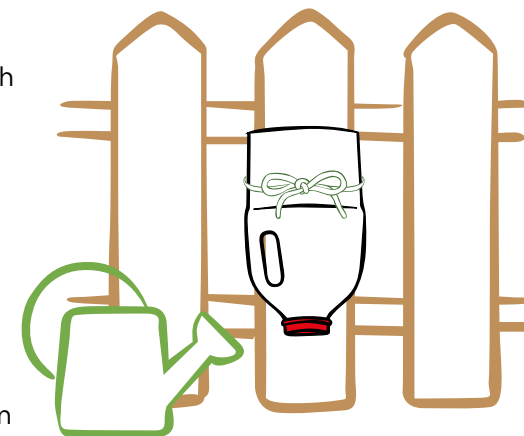
Step two

- Carefully cut the base from the bottle (close to the bottom).
- Ask an adult to help you with this.



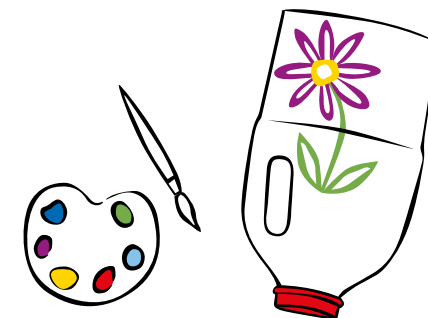
Step three

- Use the twine or cable ties to attach your mini water butt to a fence.
- When it rains, rainwater will collect in your mini water butt. Remember to unscrew the lid of your mini water butt every so often to let the rainwater flow into a watering can for when you need to use it.



Optional

- If you want to decorate your water butt you can decorate with outdoor paint before Step 3.

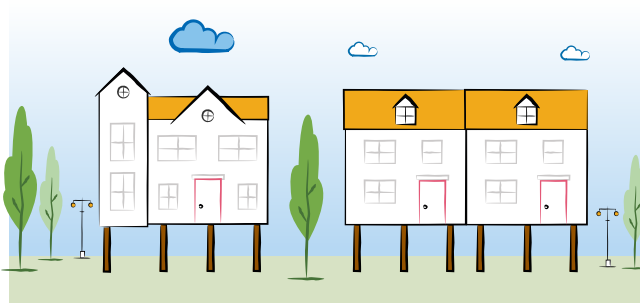


Too much water

Homes that can withstand flooding

Different countries have different ways to protect homes from flooding. Many new ideas are being developed to deal with the impacts of climate change across our world.

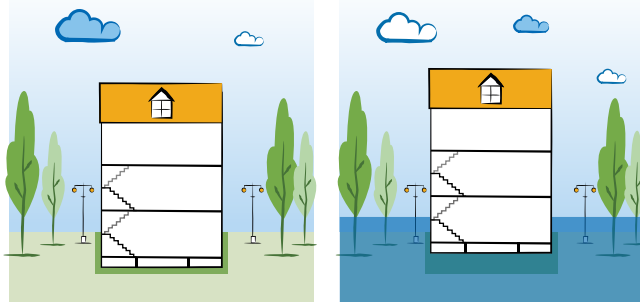
Houses on stilts - an old idea, being refreshed.



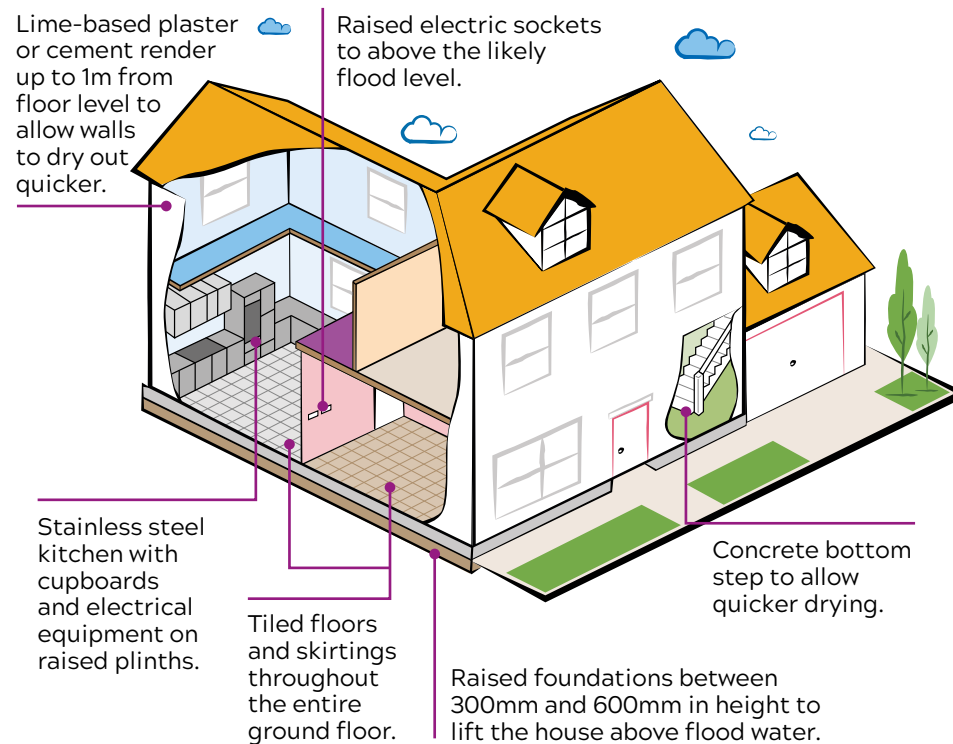
Floating homes - how about that?

Resting position

Flood event



Waterproof homes - Protect your home inside and out.



Island home - make sure flood water doesn't get near your home.



There are lots of different ways to protect your home.

Too much water

Become a SuDS spotter

SuDS can help to reduce the likelihood of flooding and are environmentally friendly.

Types of SuDS. How many can you spot on your walk?



Swales are shallow ditches often planted with grass.



Ponds and wetlands store large amounts of water.



Green roofs or walls enable surface water to filter through the vegetation.



Silva Cells are underground modular blocks with a large volume of soil on top. The soil allows large trees to be grown on top. The tree roots soak up water while the soil absorbs water.



Detention basins fill with water and become lakes during heavy rain.



Rain gardens enable surface water to filter through the vegetation.