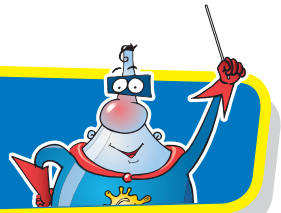
Fact file 10

Protecting our natural environment



Lots of our rivers and coastlines are cleaner now than they have ever been. This is because our wastewater is cleaned before it is returned to the water cycle.

Anglian Water treats wastewater from our homes and businesses at one of our 1,106 wastewater treatment works. This helps to protect both our natural environment and wildlife.

What is pollution?

Think about some of the nasty things that flow into the drains from the sinks and toilets in our homes.

Businesses and industry also create wastewater that can contain polluting chemicals. If these were allowed to flow into our rivers, the environment would be damaged and wildlife would be badly affected. This is called pollution.

The Great Stink

In Victorian times (1837–1901) our rivers were badly polluted with waste from our homes and businesses.

Fortunately, in 1876 the River Pollution Act was passed by the government. This was one of the first laws in the country designed to control pollution. When it was passed, it became illegal to put wastewater into rivers and streams without cleaning it first.

In 1858, the water in the River Thames in London became so dirty that the stench was almost unbearable. Politicians could not even stand to be in the Houses of Parliament next to the river!

Wicked wastewater!

Wastewater is actually 99.9% dirty water, but it also contains paper, solids, dirt, human waste, disease-carrying microbes and chemicals, such as:

Fertiliser: Farmers use fertiliser to help grow crops. Some of the chemicals can be washed into the streams and rivers.

Pesticides and weedkillers: These can seep into water supplies deep underground.

Salt: Road salt used in icy conditions often washes into the sewers.

Detergents: These are from our soaps, washing powders and cleaning products.

Oil: This washes into the sewers from roads through drains.

Industrial waste: Anglian Water also has to deal with the chemicals and waste products from factories that make our everyday items.

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Accidents do happen

Despite many laws that stop factories polluting rivers, accidents happen. It may be something simple like hot water flowing into a cold river, or a disastrous chemical spill.

Working to improve the environment

In the Anglian Water region there are more than 3,000 kilometres of rivers that support important wildlife and provide a valuable tourism resource.

We are always looking for ways to care for this environment and even improve it. For example, Anglian Water has been part of a successful project to establish the first breeding ospreys in England for 150 years. The osprey is a large bird of prey that had become extinct in England because of hunting. They are now established at Rutland Water, one of Anglian Water's biggest reservoirs.

Anglian Water has also helped pool frogs make their first hop to recovery! The pool frog species became extinct in the UK in the 1990s, but scientists searched for the closest living relative to the frog and transported some to a secret site in Norfolk where they will hopefully breed and spread around the region.

Anglian Water reservoirs are a haven for wildlife

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Activity 10

Protecting our natural environment

Not all substances mix with water. Some substances can actually cause damage to the water supply because their molecules do not blend with or break up in water. This means that chemical and oil spills can be difficult to clean up and very harmful to the environment.

Learning objective:
To know that when solids do not dissolve or react with water, they can be separated by filtration.

You will need:
- A clear bowl half-full of water
- Cooking oil
- A spoon
- Three jam jars or other clear containers
- Washing-up liquid
- Sawdust
- Sand

Chemical clean-up

The next experiment can help you understand the properties of different substances.

When oil is spilled, it can be moved in different ways, depending on the type of oil and situation. It can be:

- Separated and kept confined in one place.
- Mopped up using another substance which makes the oil solid, so it can be lifted off the surface.
- Absorbed by a substance which acts like a sponge.
- Scooped off the surface.

Oil spills at sea cause massive damage to our coastline

What to do

1. First, pour two spoonfuls of the oil into the bowl of water.
2. Fill the three containers about half-full with water. Add the same amount of oil to each one.
3. Then, add a little washing-up liquid to one jar and put the lid on.
4. Add sand to another jar and put the lid on.
5. Add sawdust to the last jar and put the lid on.

Now think about this

1 Observe what happens when you add oil to the water. Can you explain why?

2 Which of the substances has been most effective in cleaning up the 'spilled' oil?

3 Why do you think it was best?

4 What other materials do you think would be good at soaking up the oil?

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