Science

Scientists and Inventors

Rachel Carson

Aim

- I can describe what Rachel Carson learnt about ocean habitats.
- I can investigate Rachel Carson's findings on water pollution.

Success Criteria

- I can give facts about Rachel Carson.
- I can describe a food chain in the habitat she studied.

- I can collect samples of water.
- I can record my results in pictures.
- I can note differences between the samples I have collected.
- I can explain my results.

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Who Was Rachel Carson?

Rachel Carson was an American scientist who studied the ocean and the environment. She was born in 1907 and died in 1964.

You are going to work with a partner to find out more about Rachel Carson.

You have a fact file about Rachel Carson. Your fact file is different from your partner's. You have facts about Rachel that they don't have, and they have facts about Rachel that you don't have.

Don't let your partner see your fact file!

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Who Was Rachel Carson?

Take it in turns to pretend to be Rachel Carson.

When you are pretending to be Rachel, your partner will ask you questions. Use your fact file to answer their questions. Your partner will fill in their fact file with your answers.

When your partner is pretending to be Rachel, you should ask them the questions on your fact file. They will answer, and you can complete your fact file.

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Ocean Habitats

In her book, 'The Sea Around Us', Rachel Carson described the habitats of the ocean.

She was a great scientist and studied the ocean all her life. She used her research to write her book.

Scientists today think her book was very important.

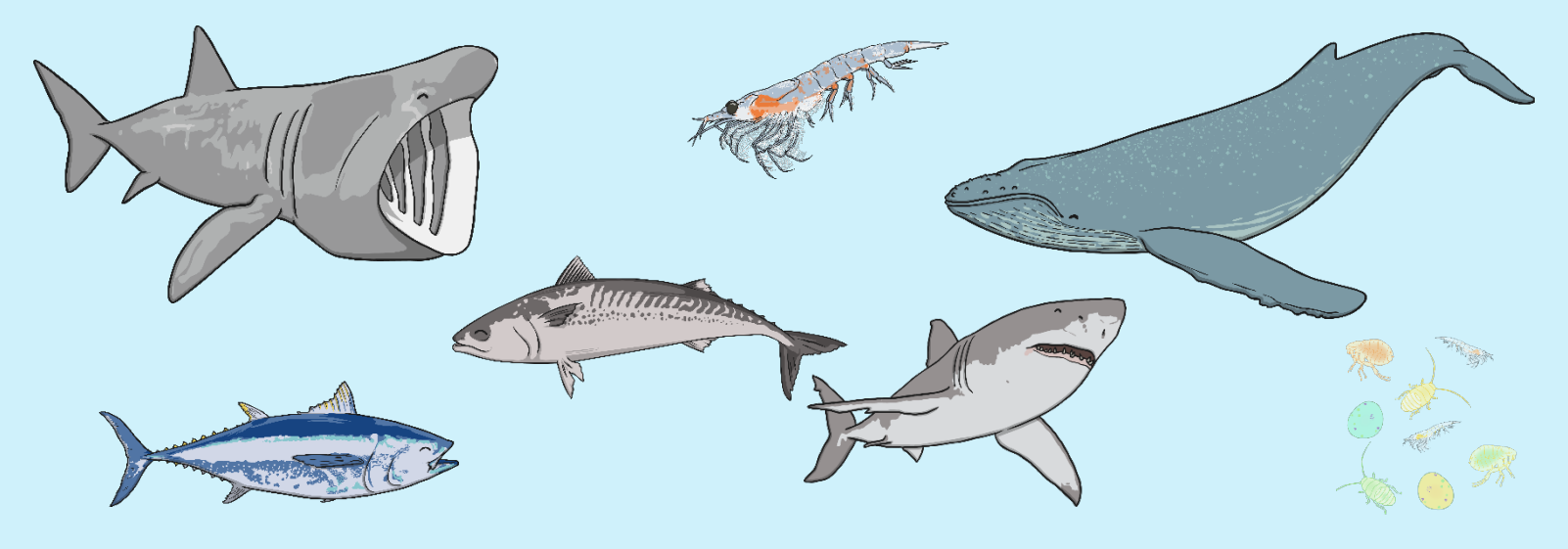
Rachel was one of the first people to use some of the words and phrases that we use to describe the plants and animals in habitats, like 'ecosystem' and 'food chain'.

The things she found out about life in the oceans were very exciting and interesting.

Ocean Habitats

Rachel Carson described an ocean food chain, starting with tiny plants and animals called plankton.

Many people had never heard of the idea of a food chain before, and were fascinated by the way the animals were connected.



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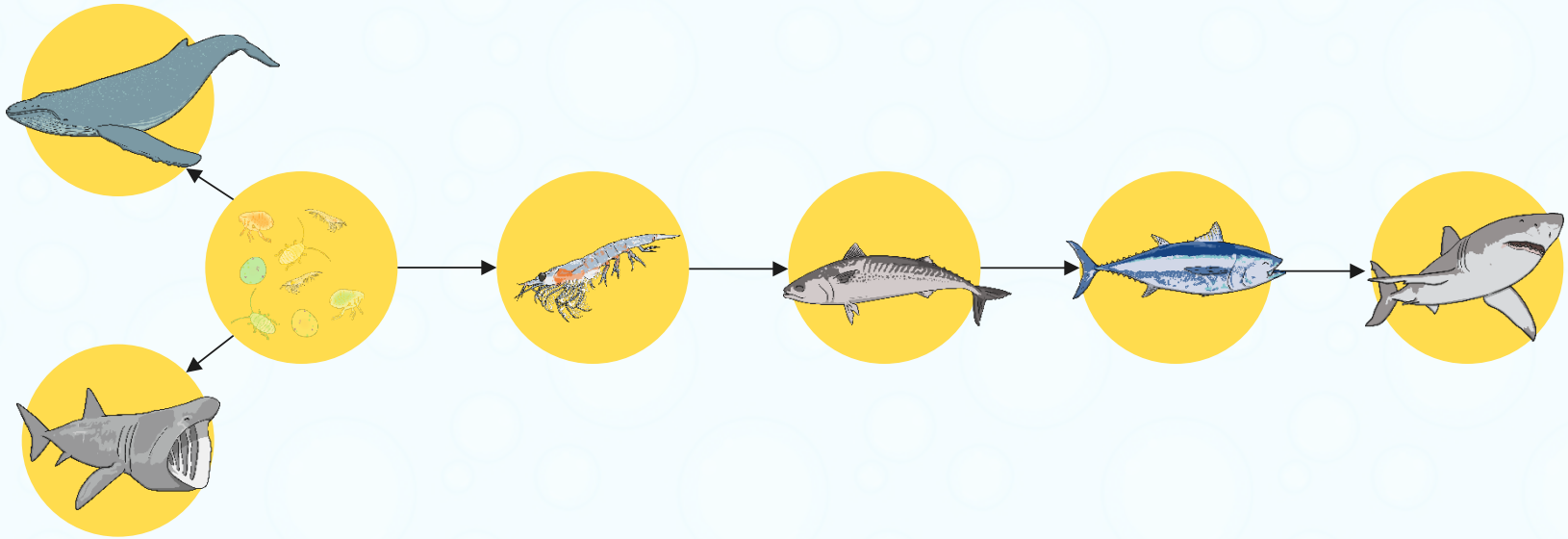
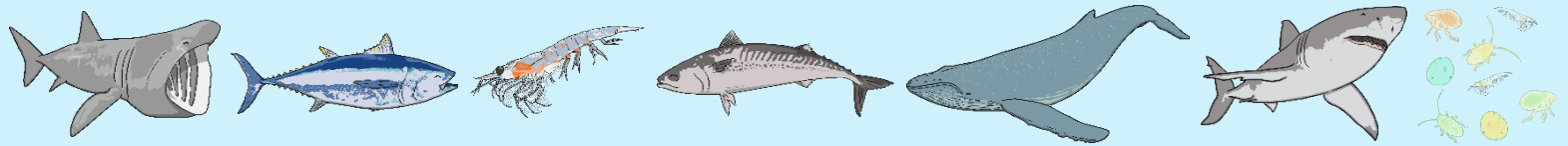
Ocean Food Chain

Can you order the ocean animals to show their food chain?





basking shark | tuna | krill | mackerel | blue whale | great white shark | plankton

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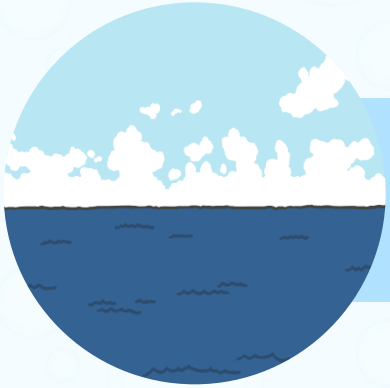
Rachel’s Research

As Rachel studied the food chain of the oceans, she found some problems.



She noticed that the water of the ocean had chemicals in it, and that the animals that lived in the ocean also had chemicals in their bodies.

Rachel started to research where these chemicals had come from. She found out that pesticides used to kill insects on farms and in gardens had got into the ocean.

She knew that these chemicals would be very harmful for the sea creatures.

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Rachel’s Research

Rachel decided to write another book about what she had found out. Her book was called 'Silent Spring'.

At first, some people didn't believe what Rachel had discovered. However, other scientists soon started to find the same things that she had found, and people agreed with her.

Her work led to better rules for the use of chemicals and pesticides, and the Environmental Protection Agency in the USA was set up to look at other dangers to the environment.

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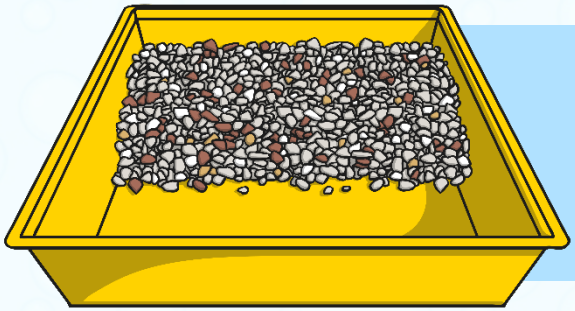
Water Pollution Experiment

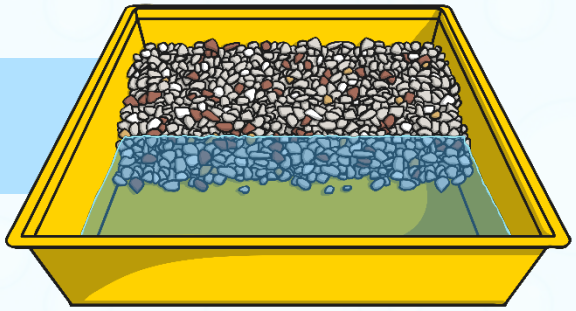
Rachel Carson found that chemicals sprayed on farms and gardens could get into the ocean.

You are going to do an experiment to prove how this happens.



First, you need to set up a small world in a tray. Use gravel for the ground and small toys for the farms and houses. Push the gravel up so that it makes a hill, with space at one side of the tray.

Then add some water to the tray. It will create an 'ocean' at one side of the tray.



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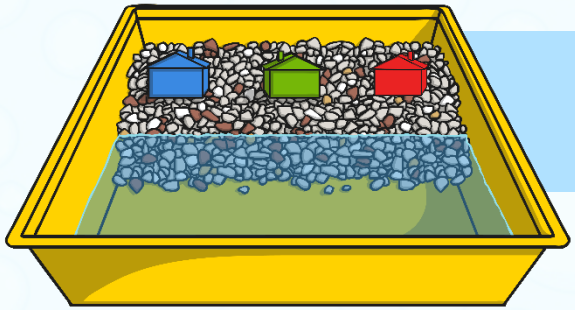
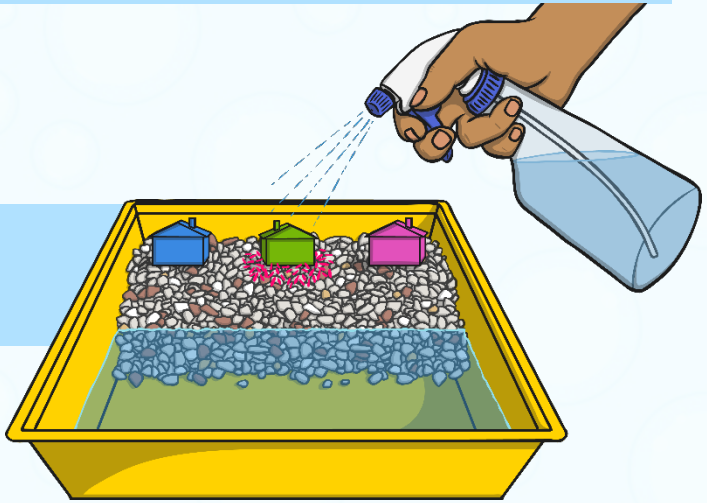
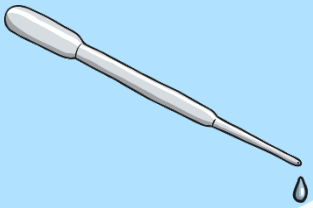
Water Pollution Experiment



Next, place three small toys on the gravel hill to represent houses or farms.



Use a spray bottle to make it rain on the small world!



Collect some fresh water from the ocean using a pipette. Keep this water sample in a clear container.

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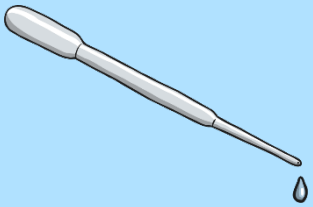
Water Pollution Experiment

Imagine that a farmer wants to spray his farm with a pesticide.

Shake one colour of sprinkles over his farm to represent pesticides.

Collect another water sample and place it in a clear container. What do you notice about this water sample?



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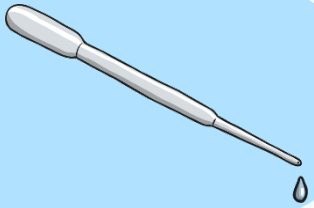
Water Pollution Experiment

Now imagine that another farmer wants to spray a different pesticide on her farm, and the homeowners want to spray fertiliser onto their grass.

Shake two more colours of sprinkles onto a farm and a house.

Make it rain again, and collect another water sample.

What do you notice about this water sample?



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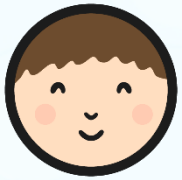
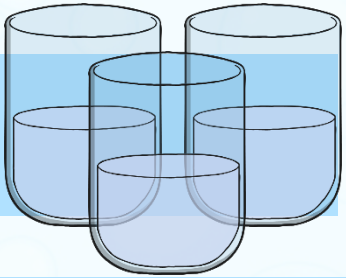
Describe Your Results

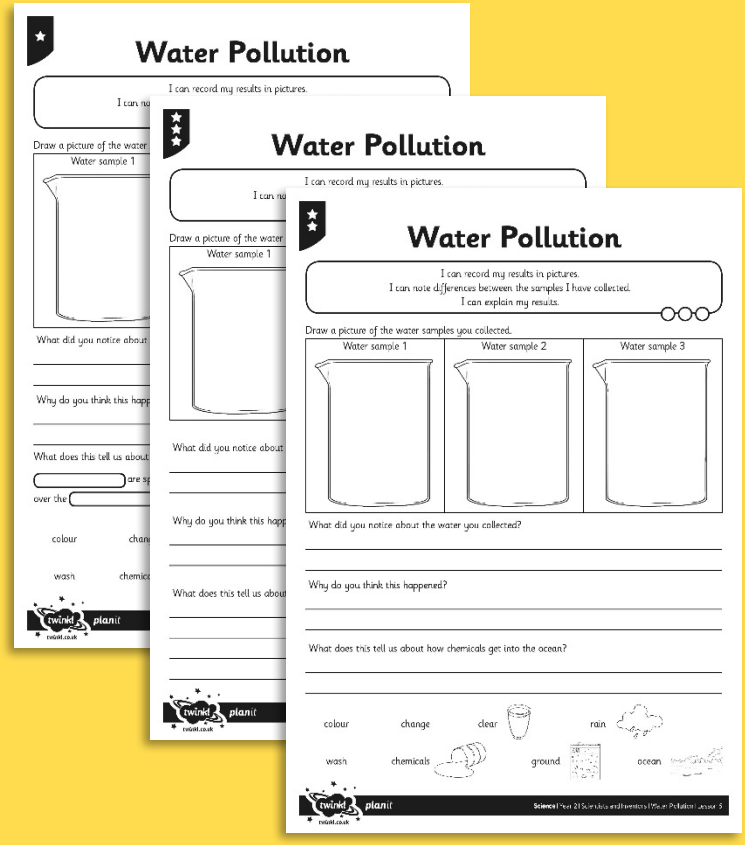


You have collected three water samples.



What do you notice about each one?

What does this show about how chemicals can get into the ocean?



Draw a picture to show your results, and explain what you noticed on your Water Pollution Activity Sheet.

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Protect Our Oceans

Your experiment shows that chemicals sprayed on the land can be washed into the ocean by the rain.

This is what Rachel Carson found out when she was studying the ocean habitat.

Why do you think it is important to protect the world's oceans and keep them clean?

Aim

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