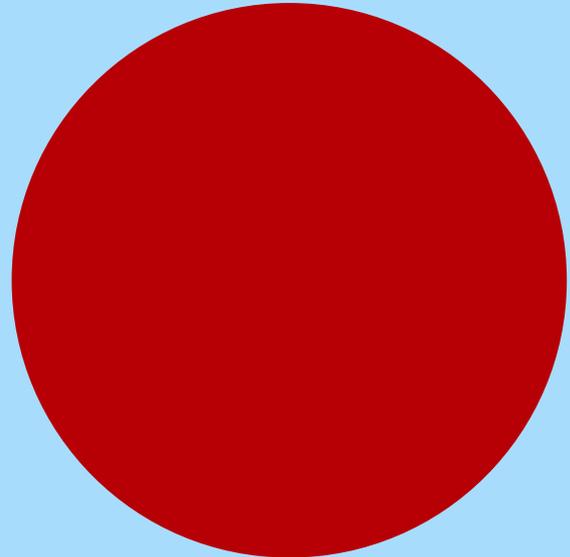


**Waterfalls**



# Waterfalls

A waterfall is an area of a river or stream where the water flows over a steep vertical drop, often landing in a plunge pool below.

Have a look at the two videos. The first is of a range of waterfalls around the world. The second shows you how waterfalls are created.

<https://www.youtube.com/watch?v=gOFrtOCNhbo>

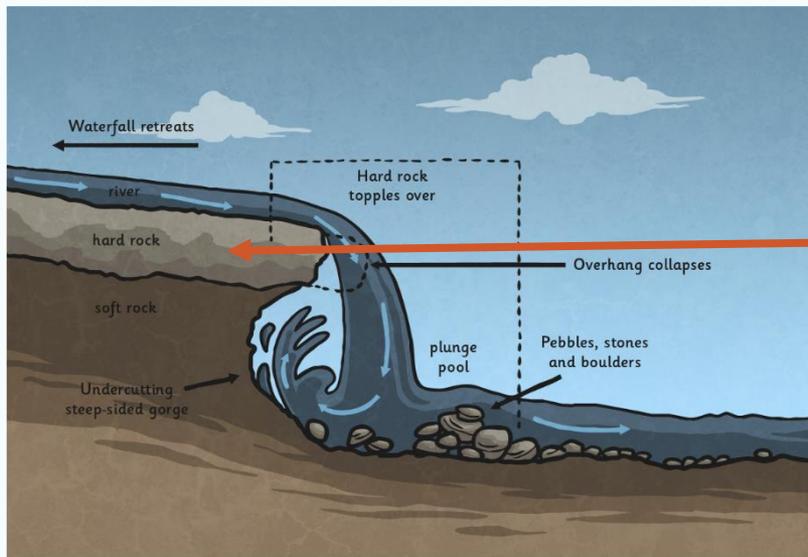
This video is 13 minutes long you might just want to watch part of the video.

How waterfalls are created.

<https://www.youtube.com/watch?v=fOI7aKvrFn4>

# What Is a Waterfall?

A waterfall is the part of a river or stream that falls over a steep drop. Sometimes, a plunge pool forms below.

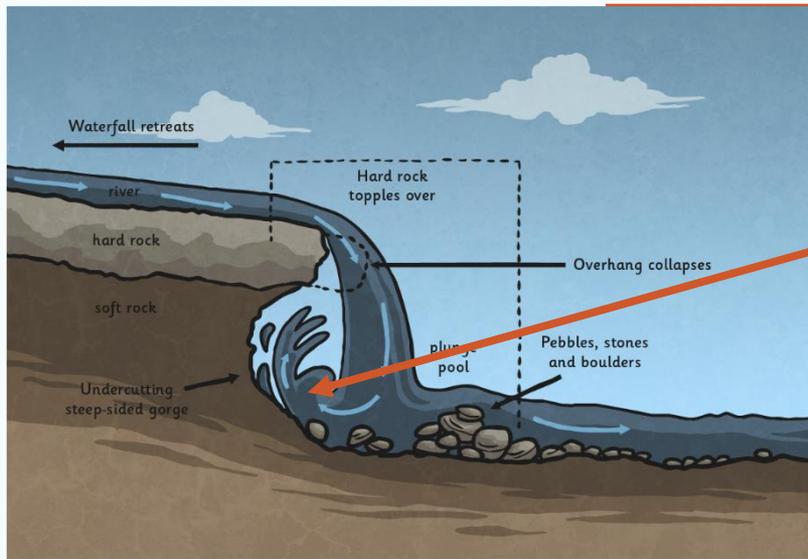


## Forming a Waterfall

Waterfalls often form where a layer of **soft rock** is found under **hard rock**.

# What Is a Waterfall?

A waterfall is the part of a river or stream that falls over a steep drop. Sometimes, a plunge pool forms below.

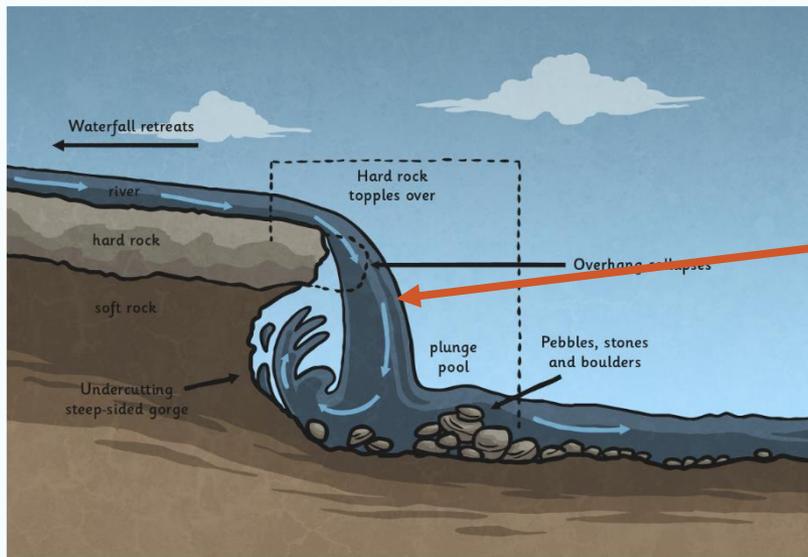


## Erosion

As the river or stream flows, it **erodes** or wears away the layer of soft rock.

# What Is a Waterfall?

A waterfall is the part of a river or stream that falls over a steep drop. Sometimes, a plunge pool forms below.

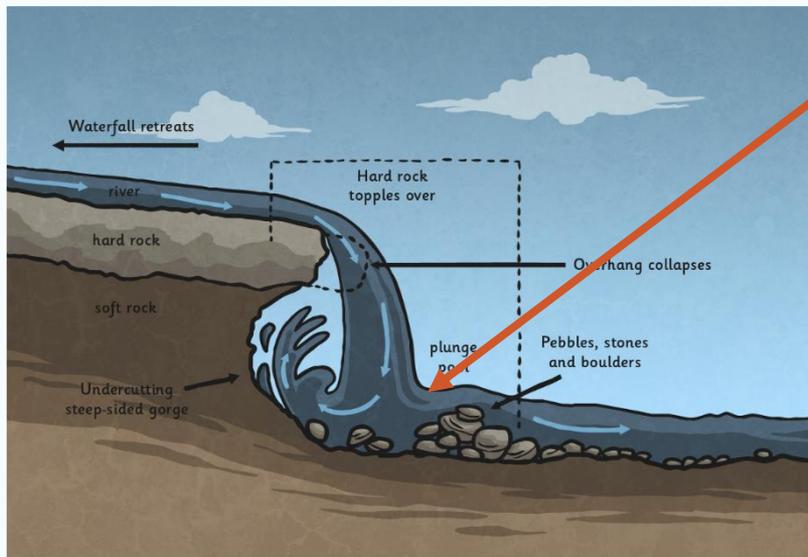


## Waterfall

The body of water tumbles over the ledge created by erosion.

# What Is a Waterfall?

A waterfall is the part of a river or stream that falls over a steep drop. Sometimes, a plunge pool forms below.



## Plunge Pool

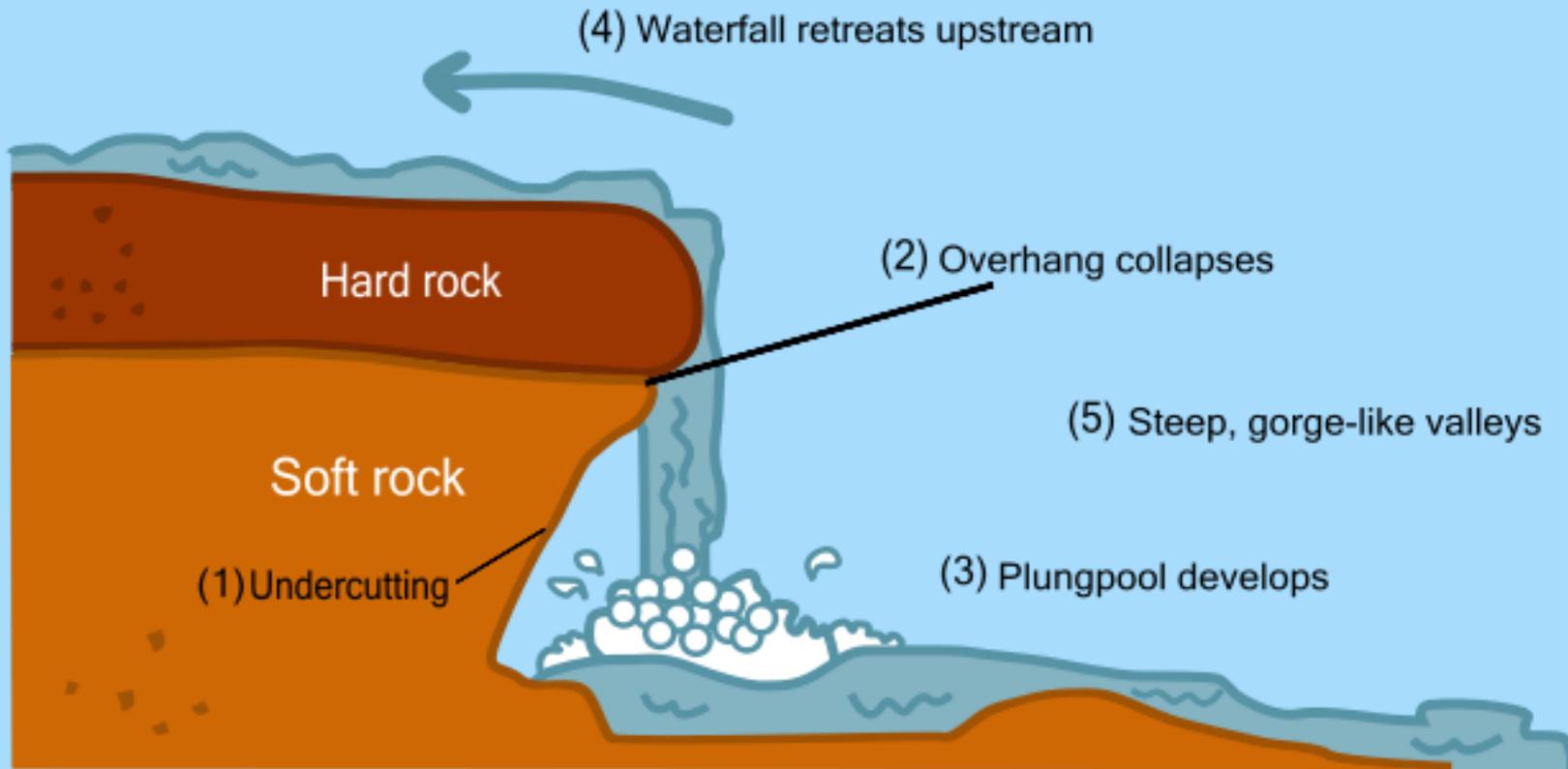
As the soft rock layer is worn away, it collapses to form a **plunge pool**.

The rocks in the plunge pool, together with the force of the water, increase the erosion. Sometimes, the hard rock layer collapses too which makes the waterfall retreat upstream. This can form a gorge or narrow valley.

# How Are Waterfalls Formed?

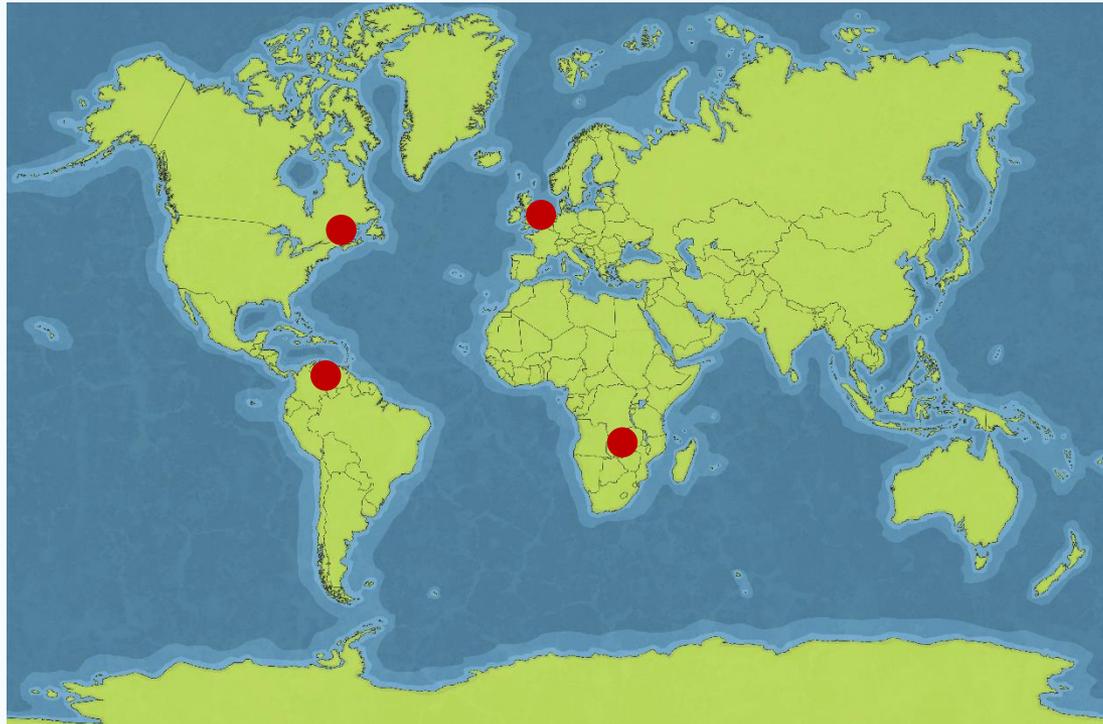
**Royal  
Geographical  
Society**  
with IBG

Advancing geography  
and geographical learning



# Wonderful Waterfalls

We're going to discover some of the waterfalls around the world.  
Can you find out about any more?

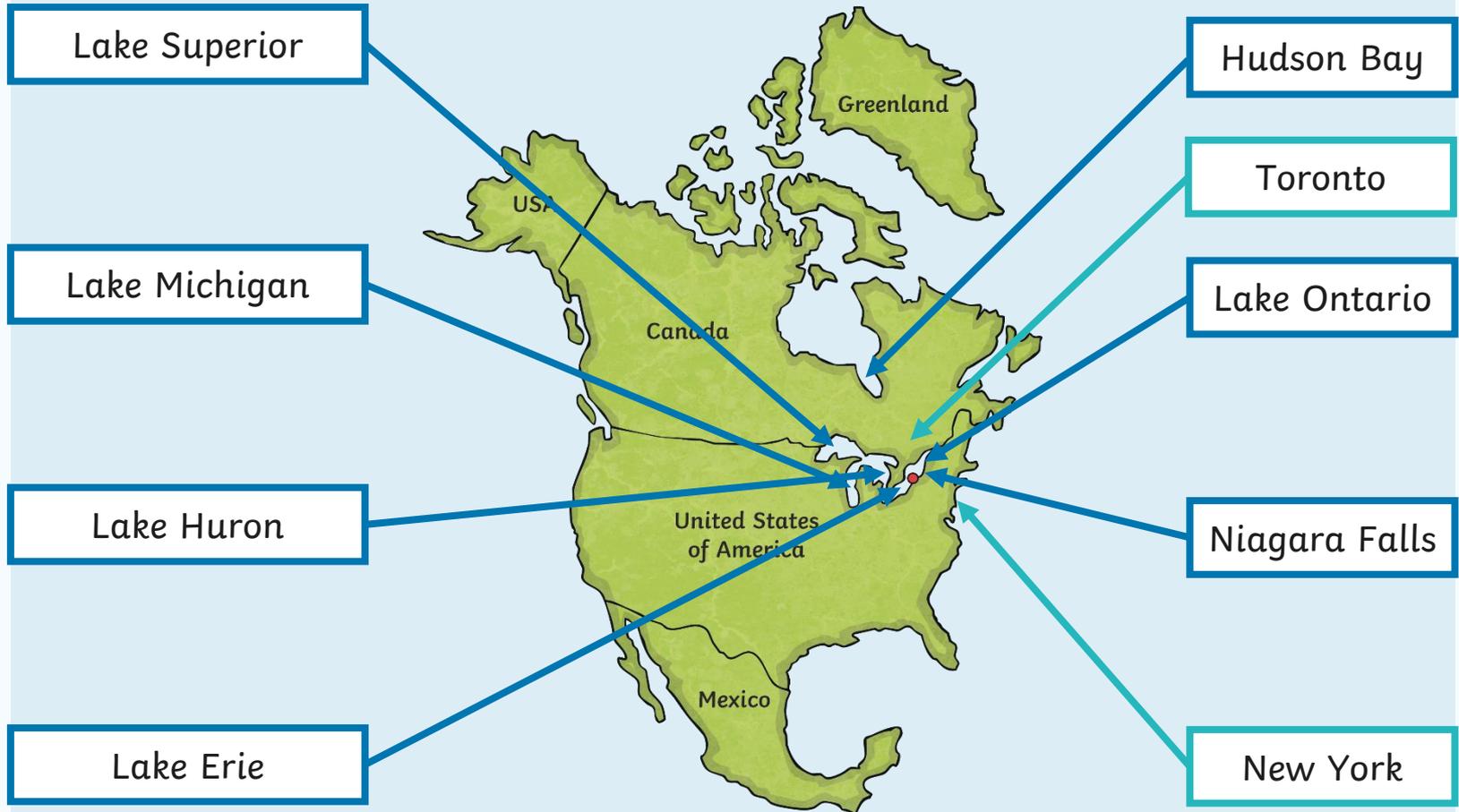


# Niagara Falls

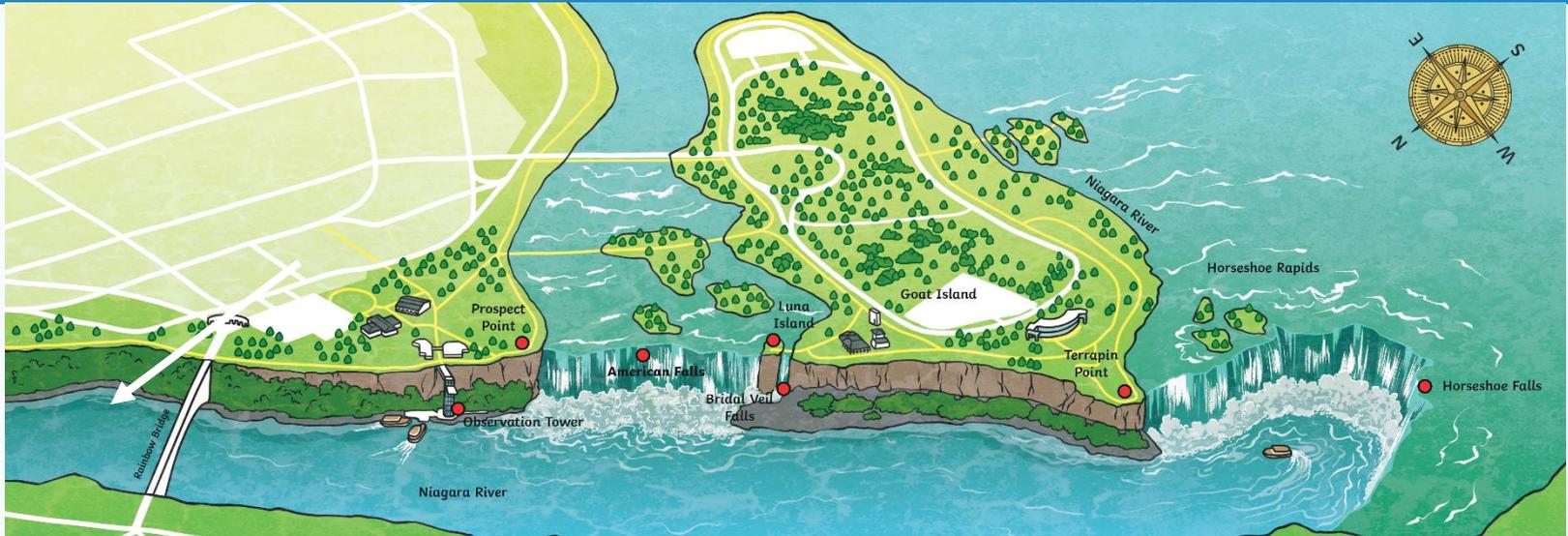
Niagara Falls is a city in Ontario, Canada, right on the border between Canada and the USA. It has a very famous set of three waterfalls, which together are also called Niagara Falls.



# The Niagara Falls Area



# The Three Waterfalls



American Falls and Bridal Veil Falls are on the American side, whereas Horseshoe Falls are on the Canadian Side. They are separated by Goat Island, which is part of New York State in the US.

# Seeing the Falls

Niagara Falls are an amazing sight and they can be observed from many different angles: by hot-air balloon, by helicopter, by boat and more. Key vantage points include Rainbow Bridge, Goat Island, Luna Island, Terrapin Point, Prospect Point and the Observation Tower.



# Water Power

It's not all tourism at Niagara Falls; power plants on both the Canadian and American sides of the falls generate electricity!

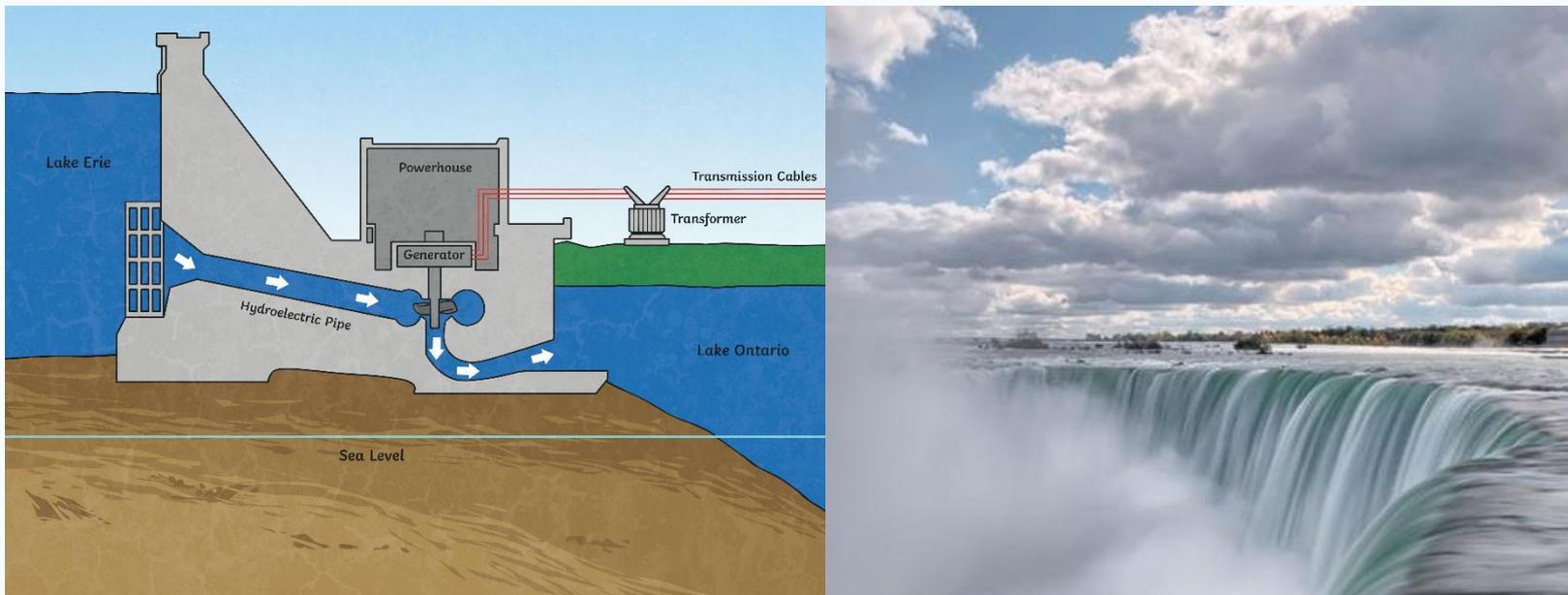
Generating electricity from the water and gravity is called hydropower.

In 1893, Nikola Tesla started developing the first hydropower plant at Niagara Falls. By 1895, many more people were involved and the plant was built, becoming the first of its kind in the world.



# How Hydropower Works

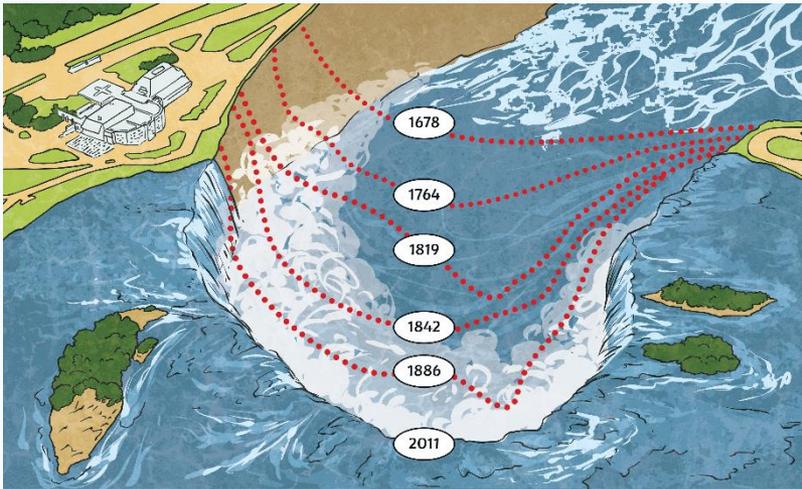
At Niagara Falls, water starts high up in Lake Erie, 174m above sea level. The water then falls down to Lake Ontario, just 75m above sea level.



Some water from the higher lake is piped off to fall to the lower level, passing through a turbine in order to generate the electricity.

# Erosion

The power of the water and the movement of rocks and other debris is slowly eroding the rock underneath the falls. In fact, Horseshoe Falls has moved backwards by seven miles over the last 12,000 years!



At this rate of erosion, the falls would disappear completely into Lake Erie in 23,000 years!

# Niagara Falls Facts

The volume of water that falls every second would fill one million baths!

It is illegal and extremely dangerous to go over the falls and there's a \$10,000 fine for anyone who tries.

The falls are around 12,000 years old.

The falls themselves reach speeds of around 68mph.

Niagara Falls is the largest producer of electricity in New York State.

# Task 1 for today

Your first task for today is to research a waterfall. You might decide to carry out research on one of the previous waterfalls mentioned or you might try and find a waterfall a bit closer to home. There are some very interesting UK waterfalls with some great facts like the Hardraw waterfall which is the largest single drop waterfall in the UK.

You can set out your work in anyway you wish. A poster, a power-point or even an information leaflet. The choice is yours.

Look at the next slide where there are some helpful questions you could answer about your waterfall.

# Helpful Questions

## Name

What is the name of the waterfall?  
Does the name have a meaning?  
Is it named after a person?  
Do local people call it by another name?

## Location

Which country is this waterfall located in?  
What is the flag of the country?  
What continent is it part of?  
What is the river that formed this waterfall?

## Size

How wide is it?  
How tall is it?



## Type

What type of waterfall is it?  
How was it formed?

## Activities

Can people visit this waterfall?  
What can visitors do there?

## Facts

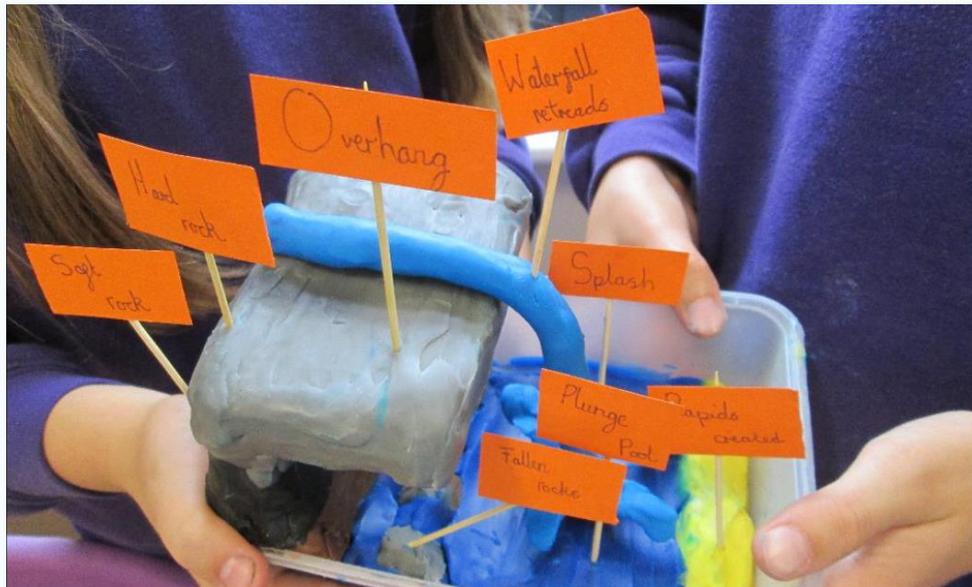
Any interesting facts about this waterfall?

## Features

What does the waterfall look like?  
Draw it or add an image.

# Optional task

Your task for today is to create a waterfall and label. You can either use the Pop-Up waterfall template provided or you might want to make the waterfall in another interesting way. The choice is yours!



# Make a Pop-Up Waterfall

## You will need:

- a waterfall template sheet
- scissors
- coloured pencils



## Wonderful Waterfalls

Make your own pop-up waterfall, using this template.

### You will need:

- A waterfall template sheet
- Scissors
- Coloured pencils



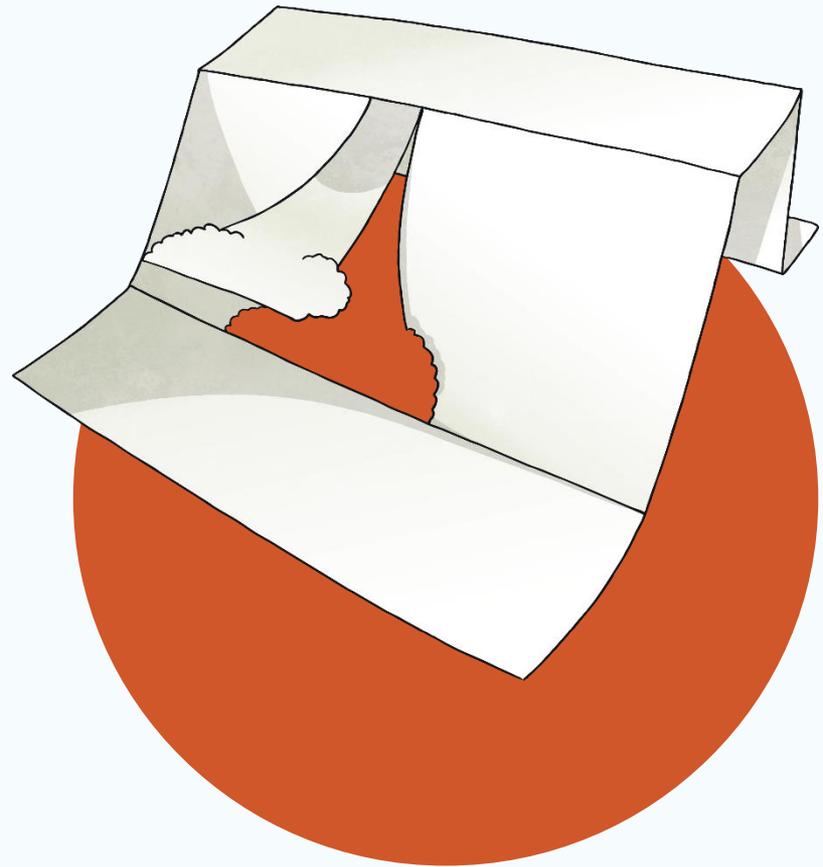
### Instructions

1. Fold along the lines on the waterfall template.
2. Placing the sheet flat on a surface, fold the top and bottom lines towards you and the middle line the opposite way.
3. You should be able to stand your 'waterfall' up now.
4. At the bottom of the template, beneath the waterfall drop, add rocks to show the plunge pool.
5. Cut out the section for the waterfall drop.
6. Laying the sheet flat again, colour in each part.
  - Use a different colour or shading technique to show the soft rock behind the waterfall and the hard rock on the top section of the waterfall.
  - Use darker colours for the rocks on the plunge pool.
7. Stick the bottom of the cut-out section to the end of the paper.
8. You can stick the top and bottom flap to a piece of paper or card to make it stand more securely. Or, stick it into your topic book by placing the pop-up waterfall over the centre of a double page. Glue the base to the right-hand side page and the back to the left. Open your book to reveal the pop-up waterfall!

# Make a Pop-Up Waterfall

## Instructions:

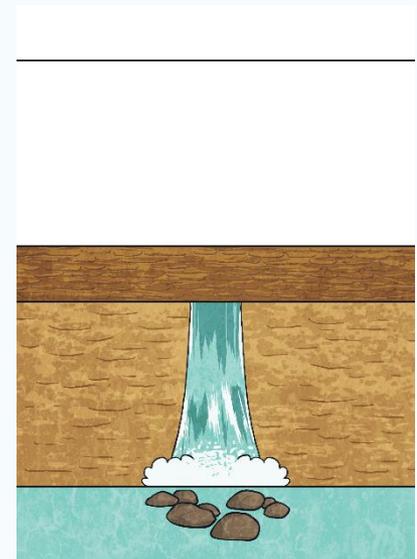
1. Fold along the lines on the waterfall template.
2. Placing the sheet flat on a surface, fold the top and bottom lines **towards** you and the middle lines the opposite way.
3. You should be able to stand your 'waterfall' up now.
4. At the bottom of the template, beneath the waterfall drop, add rocks to show the plunge pool.
5. Cut out the section for the waterfall drop.



# Make a Pop-Up Waterfall

## Instructions:

6. Laying the sheet flat again, colour in each part.
  - Use a different colour or shading technique to show the soft rock behind the waterfall and the hard rock on the top section of the waterfall.
  - Use darker colours for the rocks on the plunge pool.
7. Stick the bottom of the cut-out section to the end of the paper.
8. You can stick the top and bottom flap to a piece of paper or card to make it stand more securely. Or, stick it into your topic book by placing the pop-up waterfall over the centre of a double page. Glue the base to the right-hand side page and the back to the left. Open your book to reveal the pop-up waterfall!



# Challenge Yourself

Can you add the following points to your diagram?  
Use the Internet or information books to explain to someone in your household.

1. Hard rock
2. Waterfall
3. Soft rock
4. Fallen rocks
5. Plunge pool

