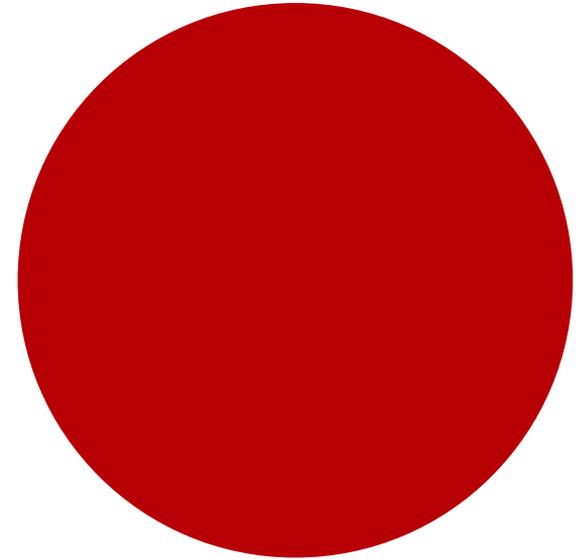
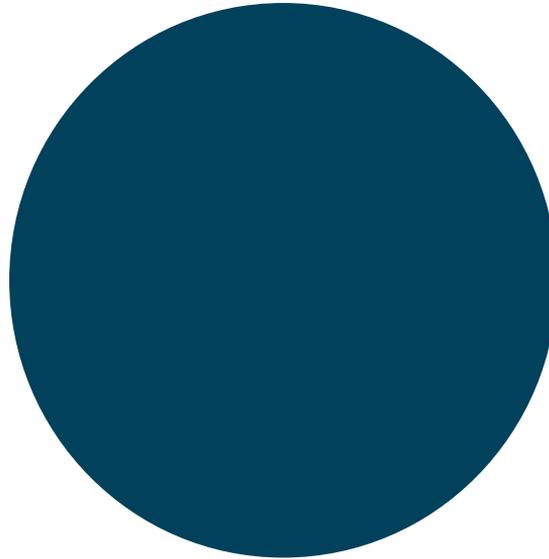
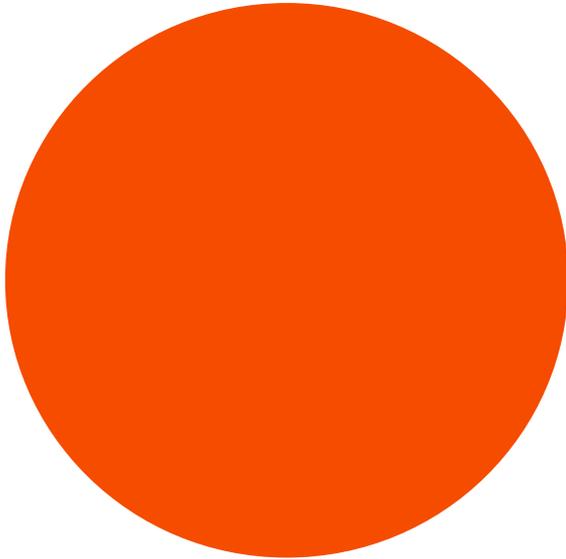
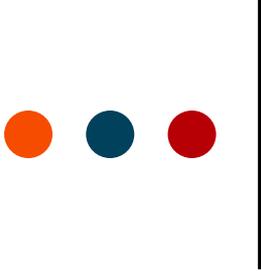


Lesson Four: L.O. To understand different waterfalls formations around the world

**Royal
Geographical
Society**
with IBG

Advancing geography
and geographical learning





Activate

**Royal
Geographical
Society**

with IBG

Advancing geography
and geographical learning

Recap from lesson 1: In lesson 1 we learnt about how waterfalls begin. Answer the question below using the key vocabulary to help you.

How are waterfalls formed?

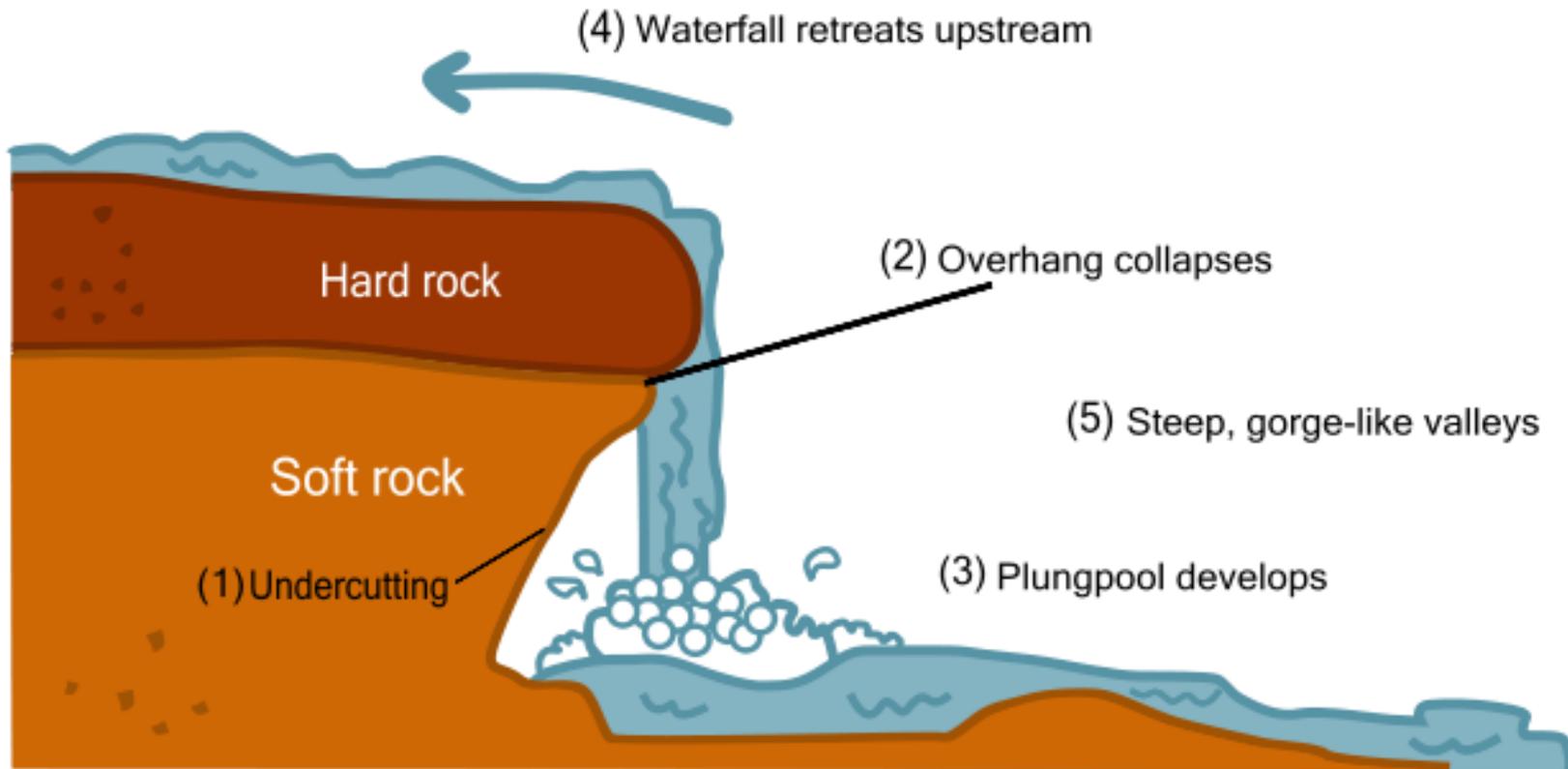
Key vocabulary

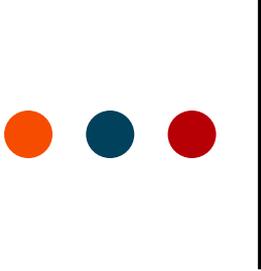
Soft Rock

Hard Rock

Erosion

How Are Waterfalls Formed?





High Force Waterfall

**Royal
Geographical
Society**

with IBG

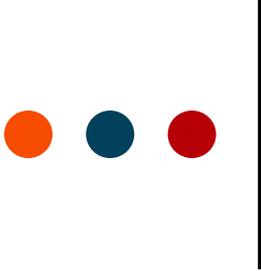
Advancing geography
and geographical learning

High Force

The High Force waterfall is located on the River Tees, in the Yorkshire Pennines. The waterfall drops 21 metres into the plunge pool below. The gorge left by the retreating waterfall is 700 metres long. Every year the waterfall retreats by five to six mm. To view a video clip of High Force in action go to the BBC website

<http://www.bbc.co.uk/education/clips/z63qxnbn>

Play the first half of the clip only.

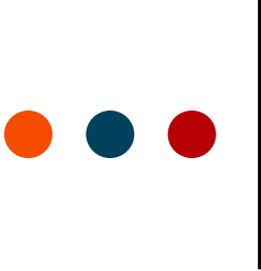


Gorge Formation at High Force Waterfall

**Royal
Geographical
Society**
with IBG

Advancing geography
and geographical learning





Famous Waterfalls

**Royal
Geographical
Society**

with IBG

Advancing geography
and geographical learning

Niagara Falls

One of the most famous waterfalls in the world is Niagara falls which is located in Lake Erie (USA) and Lake Ontario (Canada) and is part of the Niagara River

Click onto the next slide to see its location on a map.



Niagara Falls: Location

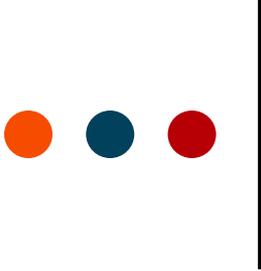
**Royal
Geographical
Society**
with IBG

Advancing geography
and geographical learning



North America





Niagara Falls

**Royal
Geographical
Society**

with IBG

Advancing geography
and geographical learning

The Niagara Falls is comprises* three waterfalls that mark the border between the United States of America and Canada. The largest, at 670 meters wide is the Horseshoe Falls, which lie in Canada. The other waterfalls are located on the US side: the American Falls and the Bridal Veil Falls with a combined width of 208 meters.

*comprises – made up of

Niagara Falls

**Royal
Geographical
Society**
with IBG

Advancing geography
and geographical learning



Niagara Falls: The First Daredevil

**Royal
Geographical
Society**

with IBG

Advancing geography
and geographical learning



Annie Taylor posing next to her barrel © Wikipedia Commons



Niagara Falls: The First Daredevil

Annie Edson Taylor (1838-1921)

On October 24th 1901, Annie Edson Taylor, a 63 year old school teacher, was the first person ever to ride down Niagara Falls in a barrel. The *Waterfalls* PowerPoint presentation (see downloadable resources) includes an image of Annie Edson Taylor and the barrel. Her motive was to garner fame and fortune; her husband had died many years previously and she struggled financially. She chose the Horseshoe Falls, Canada, for her stunt, hiring a manager to promote it and several thousand people came to watch.

The large oak barrel she used was heavily padded and weighted down at the bottom with a blacksmith's anvil to keep the barrel floating up right. The lid of the barrel was screwed on with ordinary wood screws and air was pumped into the barrel using a bicycle pump. Rather than doing the feat alone, some reports of the event state that Annie took her pet kitten with her.

The barrel rode through the upper rapids, before plunging over the Horseshoe Falls and disappearing into the swirling water below. It was several minutes before the barrel bobbed to the surface and 20 minutes more before it floated near enough to the Canadian shore for rescuers to reach it.



Niagara Falls: The First Daredevil

**Royal
Geographical
Society**

with IBG

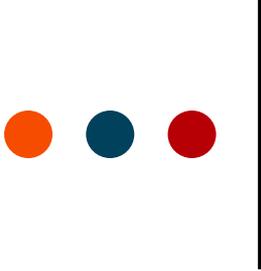
Advancing geography
and geographical learning

Other Niagara daredevils: Since Annie Edson Taylor's barrel stunt, 14 people have gone over the falls in, or on a device: while some have survived, others have been severely injured or have drowned. It is now illegal, on both sides of the border, to attempt to go over the falls.

In 2012, Nik Wallenda, a high wire artist became the first person to walk across the falls in 116 years, having received special permission from both governments. His tightrope was 550m long. He carried his passport on his trip and was required to present it upon arrival on the Canadian side of the Falls.

In January 2015, Will Gadd became the first person to climb up Niagara Falls. He climbed a frozen section of the Horseshoe Falls. There are many clips available on line of Gadd's feat. To see a short report, go to the BBC website

<http://www.bbc.co.uk/newsround/31060065>



Hydro-electric Power

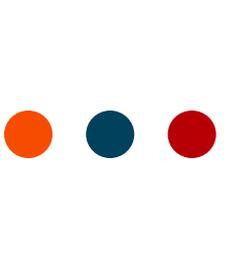
**Royal
Geographical
Society**

with IBG

Advancing geography
and geographical learning

Using the water from Niagara: The water from the Niagara River is used by over 1 million people in USA and Canada. Some of the water is used for drinking; however the majority of the water is used to produce hydro-electric power. On the USA side, the Robert Moses Niagara Hydroelectric Power Station and the Lewiston Pump Generating Plant produce enough power to light 24 million 100 watt light bulbs. In Canada the Sir Adam Beck Stations 1 and 2 are the largest of several plants that harness the water from the River Niagara.

The **1950 Niagara Treaty** stipulates the amount of water that can be diverted. From April to September (the peak tourist season) less water can be diverted for hydro-electric power, ensuring that visitors to the Falls have a spectacular view!



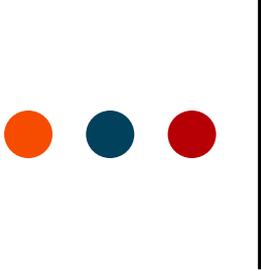
Hydro-electric Power

**Royal
Geographical
Society**
with IBG

Advancing geography
and geographical learning



Sir Adam Beck
Hydroelectric
Generating Stations
and Robert Moses
Niagara Power Plant ©
Alexander Synaptic,
Flickr



The Highest Waterfall in the world

**Royal
Geographical
Society**

with IBG

Advancing geography
and geographical learning

The Angel Falls is the highest waterfall in the world, falling 979 metres from the flat-topped plateau, Auyán-Tepuí or Devils Mountain. It is located in the Canaima National Park (a UNESCO World Heritage Site) on the Churun River, south east Venezuela. The Canaima National Park is 30,000km². The waterfall is best seen during the rainy season between June and December.



Angel Falls

**Royal
Geographical
Society**
with IBG

Advancing geography
and geographical learning



South America



Map of Venezuela ©
Wikipedia Commons



Angel Falls

**Royal
Geographical
Society**
with IBG

Advancing geography
and geographical learning





Angel Falls

**Royal
Geographical
Society**

with IBG

Advancing geography
and geographical learning



The Angel Falls is called Salto Ángel in Spanish and Kerepakupai Vená – “waterfall of the deepest place” in the indigenous Pemon language. The falls were named after James Angel, an American adventurer who, in 1939, crash-landed his plane nearby.

To see the Angel Falls requires a plane journey into the Canaima National Park, followed by a four hour boat trip along the Churun River and finally an hour’s hike through dense forest.

Under certain conditions, a visitor can feel small water drops from 1 km away.



Task

**Royal
Geographical
Society**
with IBG

Advancing geography
and geographical learning

Today's task is research based

Can you research the highest waterfall in the United Kingdom and create a fact file containing key information such a location (can you include a map), its high, what river it is part of (where the source and mouth of the river are) and any other information you believe to be relevant.

Click to the next slide for an example based on Niagara Falls

Can you find any unusual or interesting facts to include?



Example

**Royal
Geographical
Society**

with IBG

Advancing geography
and geographical learning

Name: Niagara Falls

Location: The Niagara Falls are located on the Niagara River, which drains Lake Erie (USA) into Lake Ontario (Canada). The Niagara River is 58km in length.

Height: There are approximately 500 waterfalls in the world that are higher than the Niagara Falls. Measured from the top of the Falls to the river below, the height of Niagara is at a maximum 57 meters (the Horseshoe Falls being slightly shorter than the American Falls).

Flow: Some of the higher falls have very little water flowing over them. In contrast, at its peak during the summer tourist season, more than 2,800 cubic meters of water per second flows over the overhang of Niagara Falls. Out of season, more water is diverted to two hydroelectric power stations, so the flow is less, at 1400 cubic meters per second.

Speed: The rapids above the Niagara Falls reach a maximum speed of 40 km per hour (25mph). As the water flows over the overhang, it plunges at 109km per hour (68mph).

Erosion: Niagara Falls has retreated 11km (7 miles) in 12,500 years. Its current rate of erosion is approximately 30cm per year. In 50,000 years, at the present rate of erosion, the remaining 32km (20 miles) to Lake Erie will have been undercut and Niagara Falls will no longer exist- replaced by a river channel with a series of rapids.