



# Upper Course - Landforms

Learning Objective:

- **Examine** the *formation* of landforms



## Learning Outcomes:

- **Recall** how rivers erode
- **Explain** how interlocking spurs and waterfalls can form
- **Suggest** what happens when a waterfall retreats

**Key features of this valley?**



# Match the key 'processes' terms:

Corrasion /Abrasion

A rivers' load crashing and rubbing into a rivers' banks and bed causing pieces to break off. Can be a sandpapering effect

Traction

Load crashing into each other in a river. This normally happens with suspended load.

Hydraulic action

Smaller pieces of load being carried in a rivers flow.

Saltation

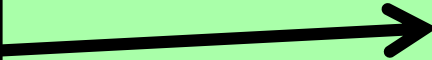
The process of load bouncing a long a river bed.

Suspension

The process of large pieces of load rolling along a river bed.

Attrition

Force of the water hitting the river bed and banks



Corrasion/abrasion



Attrition



C.A.S.H

Solution



Hydraulic action



**Interlocking spurs** – note the '**fingers**' of land that jut out. The river is *not powerful* enough to cut through the '**spurs**' of land so it flows around them.  
What would they look like if you were above them?











# Niagara Falls

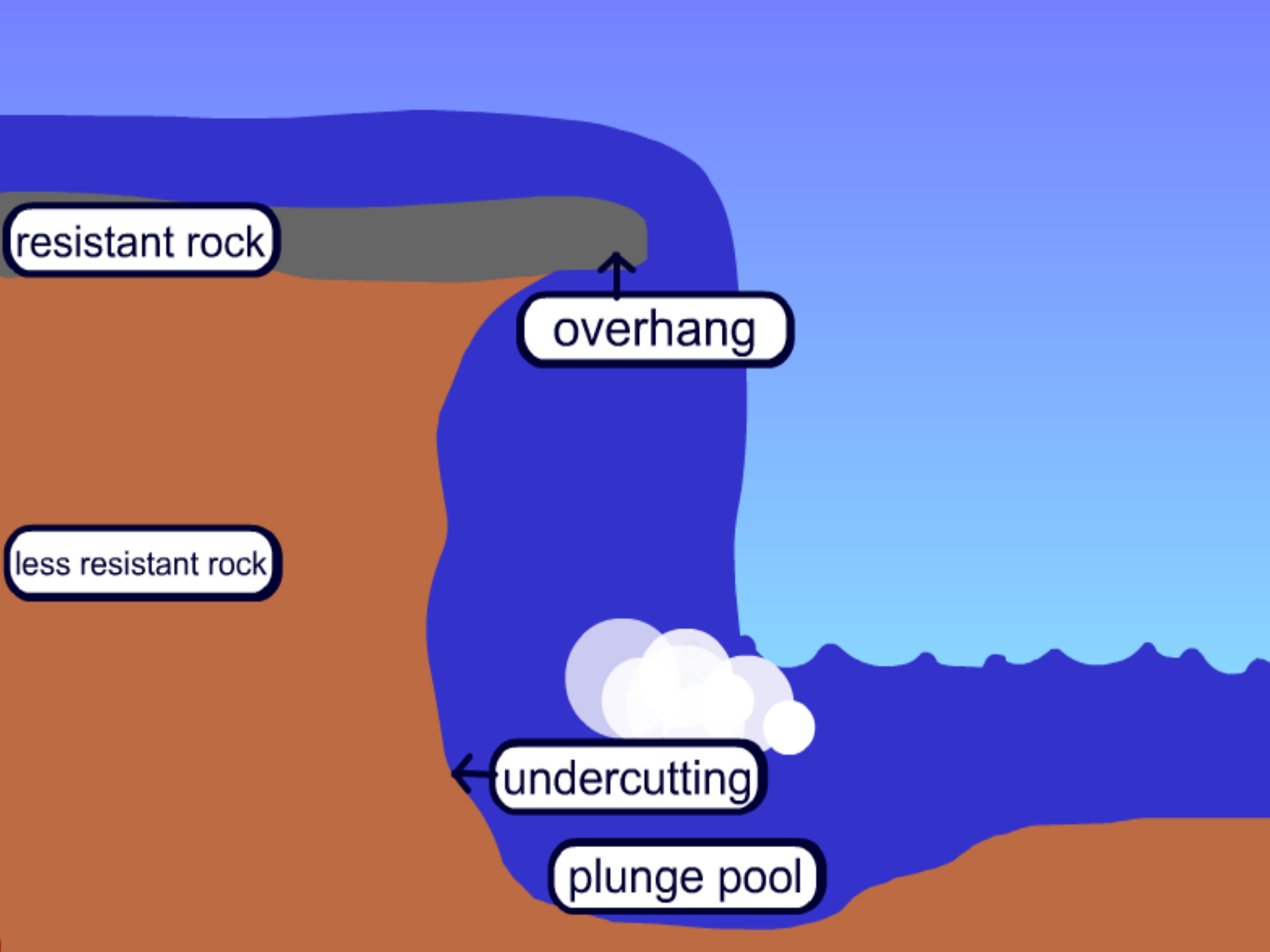


# Niagara Falls



Niagara Falls – turned off in 1969, why...?





resistant rock

overhang

less resistant rock

undercutting

plunge pool

# Draw 3 diagrams to illustrate the formation of a waterfall

1. Before any undercutting
2. During some undercutting
3. Once the overhang collapses

## Keywords:

softer rock, harder rock, weaker, resistant, turbulent water, overhang, collapse, undercutting, pebbles, stones, boulders, hydraulic action, corrasion, erosion, plunge pool,

# Explain the formation of a gorge.

(6 marks)

A gorge is formed from a retreating waterfall. First when there is a layer of hard rock above a layer of soft rock, water travels over the hard rock and falls. Pieces of sediment erode the soft rock through hydraulic action. This is the force of the water hitting the river bed and banks when the water is moving fast.

This causes the soft rock to undercut and the heavy hard rock becomes unstable as it is unsupported. Due to the force of gravity this will collapse and force the waterfall to retreat. As the waterfall retreats it leaves steep valley sides. This feature is the gorge.

# High Force Waterfall – River Tees



1.

Hard rock  
layer

6.

Gorge side

2.

Soft rock  
layer,  
shale.

3.

Plunge pool

4.

Undercutting

5.

Fallen hard rock