



# Knowledge Organiser: Yr 9; Geography ; Extreme weather - USA

## Extreme Weather – USA

Key Words	
<b>Extreme weather</b>	When a weather event is significantly different from the average or usual weather pattern.
<b>Researcher</b>	A person who carries out academic or scientific research
<b>Topography</b>	The study of shapes and features on land
<b>Wild fire</b>	An uncontrolled fire in an area of combustible vegetation
<b>Hurricane</b>	A large rotating storm which high speed winds over 74mph that form over warm waters in tropical areas
<b>Mitigate</b>	Make something less severe
<b>Prediction</b>	To give a statement about a future event
<b>Water transfer</b>	The movement of water from one place to another through various methods

**Location of the USA**

Use CLOCC to describe location

Continent Latitude Ocean Compass Country

**Causes of wildfires**

- Natural causes
  - Dry weather
  - Droughts
  - Strong winds
  - Lightening
- Human causes
  - Bonfires
  - BBQ
  - Arson
  - Downed power line
  - Cigarette

**2018 'Camp fire' in Paradise, California**

On November 8<sup>th</sup> 2018 a devastating fire started due to a faulty overhead wire, it very quickly travelled east towards the town of Paradise. Helicopters could not fly due to the smoke and wind speed. The fire was 100% contained on the 25<sup>th</sup> November after the first winter rainstorm occurred.

**Impacts -**

- It was the most expensive natural disaster in the world in 2018 due to the loss of homes and damage. \$26.5 billion of damage caused
- 86 fatalities
- 18,000 buildings destroyed
- Widespread air pollution
- 4,600 acres of land were destroyed an hour
- The warning system didn't work, which meant that people were not given enough time to evacuate

**Climate zones of America**

The USA has eleven different climate zones. The reason the USA has so many different climate zones is due to the size of the area covered. Generally speaking the further north you go in the USA the colder it gets. For example, Florida in the south east has a humid subtropical climate and Alaska in the far north, has cold climates like Tundra.

**Hurricane formation and hurricane Irma – September 2017**

**Key**

- A The warm ocean heats the air above
- B Rising warm air evaporates and starts to spin
- C The air then cools and condenses to form a towering cumulonimbus cloud
- D Intense low pressure sucks in air, causing very strong winds

The hurricane developed on 30<sup>th</sup> August near Cape Verde Islands. The hurricane first made landfall on 6<sup>th</sup> September along the northern coast of Barbuda with wind speeds of up to 282kph (175mph). It travelled north along the east coast of the Caribbean as a category five hurricane. The hurricane reached Florida on 10<sup>th</sup> September as a category four hurricane with sustained winds of 209KPH (130mph).

Primary effects	Secondary effects
<ul style="list-style-type: none"> <li>134 deaths</li> <li>95% of houses on Saint Maarten were damaged</li> <li>3m storm surge</li> <li>26 million people affected</li> <li>\$65 billion in damages</li> </ul>	<ul style="list-style-type: none"> <li>£57 million of funding was given from the UK</li> <li>6 months after the hurricane electricity in Puerto Rico hadn't been established</li> <li>Tourists were reluctant to visit the Caribbean</li> </ul>



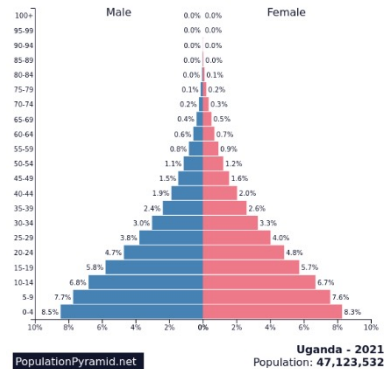
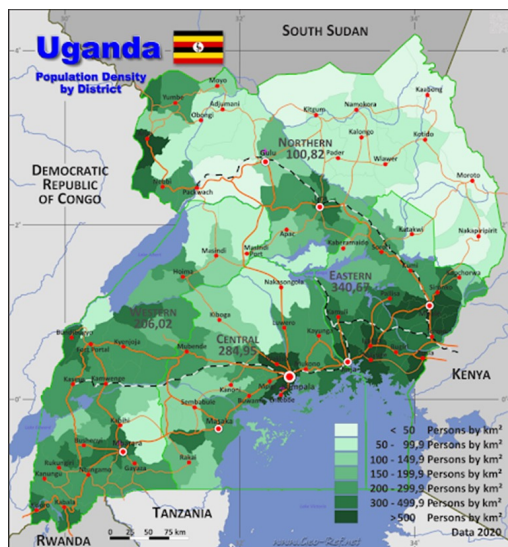
# Knowledge Organiser: Year 9 Geography

## Uganda quality of life

### Location of Uganda



### Population of Uganda



Most people in Uganda live in the south east of the country. They live surrounding Lake Victoria, which was an important water source in the past, but now provides food, and some trade access to other countries. Living in the northern parts of Uganda is hard due to the terrain.

The population of Uganda is youthful, most people are young, and very few live to be old. This is due to lack of healthcare and education. We can see this in the population pyramid. The wide base means there are lots of babies, and the narrow top means that there are fewer old people.

### Factors affecting development

#### Physical Causes

Landlocked countries do not have access to the sea so they cannot develop sea trade.

Tropical Africa, South America and Asia have diseases and pests. This stops people from being able to be healthy to work.

#### Economic Causes

Poverty causes poverty. People cannot work and it makes economic development hard to achieve.

Most world trade happens between richer countries.

#### Historical Causes

Rich countries have had lots of time and money to develop their infrastructure.

Colonial powers mean a lot of natural resources were exploited from countries who are now still poor.

### How is climate affecting development in Uganda and what is being done to stop it?

Effects	Mitigation strategies
Heavy rainfall falling after droughts causing flooding	Clean cooking supply – reducing the need to cut down the trees
Droughts and flooding is leading to crop loss	Climate smart agriculture – planting seeds and crops that can cope in an drought environment. They are also adapting their animals species so that they can cope too.
Increases the spread of diseases including malaria	

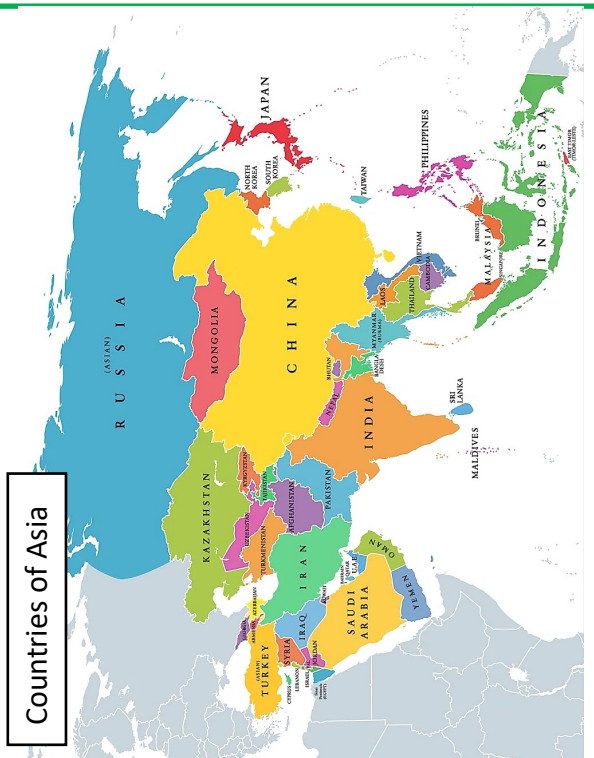




# Knowledge Organiser: Yr 9; Geography; Around the World

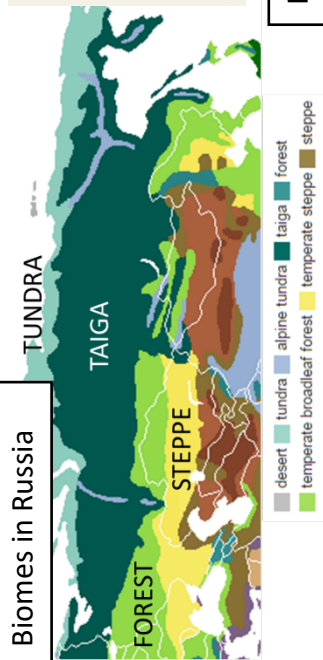


Regions of Asia

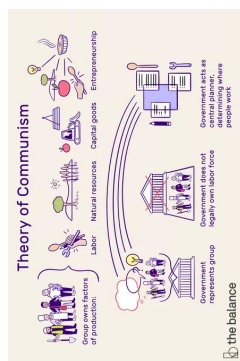


Countries of Asia

*A Superpower is a large country with a large population, strong economy, great military power, and great political and cultural influence.*



Biomes in Russia



Push and pull factors



## One Child policy in China

The consequences of the one child policy have been very severe. Although it was successful in reducing the number of babies born, 300 million births have been prevented, there were three unintended consequences.

### "Little Emperors Syndrome"

As families only had one child, this child had all the attention of the parents and grandparents. It meant that parents would spend more money on that child and allow them to have their own way. As such they were considered spoiled as they so used to having their own way.

However, children at this time now say that they were very lonely, and it was stressful trying to keep to the family's high expectations.

### Too few girls

In Chinese culture, once you are married the wife moves into the husband's family home to look after his parents in their old age.

Because of this, parents opted to abort female foetuses, or gave them up for adoption shortly after birth. This had led to a skewed gender balance, with far more men, and far fewer women.

### A top heavy population pyramid

This means that there are now many old people. Old people need additional healthcare, and to be looked after. They no longer pay tax, which means that the government do not receive any money from them.

### Task:

1. Which of the three consequences do you think was worse, and why?

Aspirational task: We need to be resilient to be successful in life. Explain why the Chinese might lack this character habit



# Knowledge Organiser: Yr 9; Geography; Around the World

## Biomes of Russia



There are 6 main biomes in Russia, but the largest is the coniferous forest. The Tundra is the hardest biome to live in.

**Big Question:** How is climate change impacting peoples lives?

Ice is melting, which means that cannot cross the herds to feeding pastures

Arctic is warming at twice the rate of the planet as a whole

Nenets cannot travel their traditional routes

If the herders do not move the reindeer could starve to death

Wild reindeer numbers are declining

Wild reindeer are competing with the domestic herds of reindeer

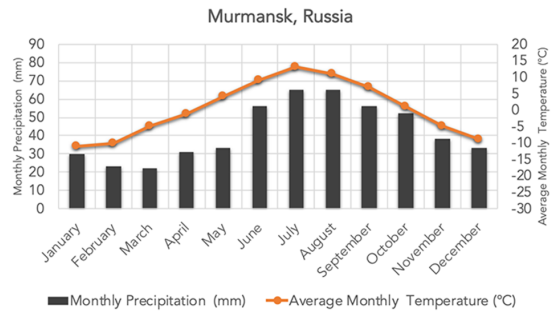
Climate change and its impact on the Nenets

If climate change continues then their way of life could become extinct

Keywords

Climate change – A change in global or regional climate patterns because of global warming  
Nenets – A nomadic tribe in Siberia

## Climate in the Tundra



Climate graphs show the temperature and rainfall in a location. The bars show the rainfall, while the line shows temperature.

- Found in northern Russia.
- Very low temperatures – below 0°C most of the year.
- Permafrost – permanently frozen ground.
- Little precipitation (usually snow).
- Vegetation is small and low e.g. grasses, lichen and moss.
- Animals must be able to survive the extreme conditions of the tundra. They include polar bears, wolverines, arctic foxes and hares.

## Big Question: Why is gas so important?

Task:

1. Read through the facts about oil in Russia
2. Use this to explain why gas is an important resource in Russia



- Oil and natural gas are **fossil fuels** that have formed from plant remains over 100s of millions of years
- Fossil fuels are **non-renewable** meaning we cannot make new supplies
- Fossil fuels are **unevenly distributed**. Some countries have plentiful supplies, others do not
- Russia has enormous supplies of natural gas. It is the world's **number one** exporter
- Fuel sales provide Russia with wealth and influence, helping to make it a global **superpower**

Keywords

Climate change – A change in global or regional climate patterns because of global warming  
Energy Security – Where a country has enough energy to meet demand





# Knowledge Organiser: Yr 9;

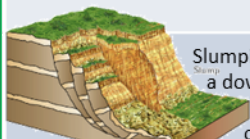
## Geography; Coasts

### Mass Movement

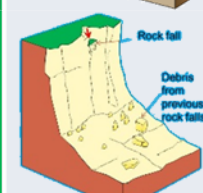
A large movement of soil and rock debris that moves down slopes in response to the pull of gravity in a vertical direction.



Rock slides occur when there is a failure along the bedding plane.



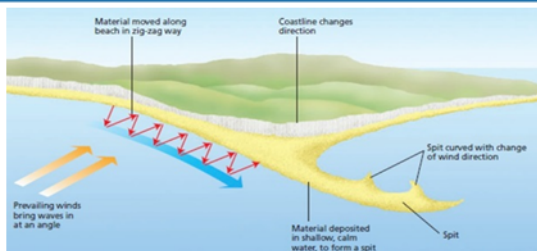
Slumping occurs when there is a downward rotation of sections of cliff. Often occur after heavy rain.



Rockfall is the rapid free fall of rock from a steep cliff face because of gravity.

### Formation of Coastal Spits - Deposition

Example:  
Spurn Head,  
Holderness Coast.



- 1) Swash moves up the beach at the angle of the prevailing wind.
- 2) Backwash moves down the beach at 90° to coastline, due to gravity.
- 3) Zigzag movement (Longshore Drift) transports material along beach.
- 4) Deposition causes beach to extend, until reaching a river estuary.
- 5) Change in prevailing wind direction forms a hook.
- 6) Sheltered area behind spit encourages deposition, salt marsh forms.

### Mechanical Weathering Example: Freeze-thaw weathering

#### Stage One

Water seeps into cracks and fractures in the rock.



#### Stage Two

When the water freezes, it expands about 9%. This wedges apart the rock.



#### Stage Three

With repeated freeze-thaw cycles, the rock breaks off.

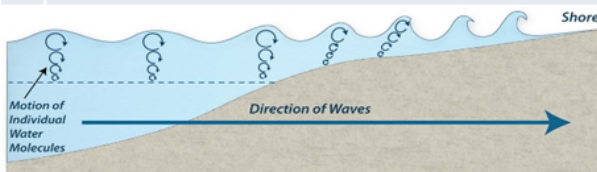


### How do waves form?

Waves are created by wind blowing over the surface of the sea. As the wind blows over the sea, friction is created - producing a swell in the water.

### Why do waves break?

- 1 Waves start out at sea.
- 2 As waves approach the shore, friction slows the base.
- 3 This causes the orbit to become elliptical.
- 4 Until the top of the wave breaks over.

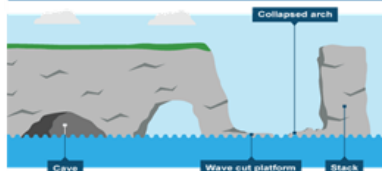


### Formation of Bays and Headlands



- 1) Waves attack the coastline.
- 2) Softer rock is eroded by the sea quicker forming a bay, calm area causes deposition.
- 3) More resistant rock is left jutting out into the sea. This is a headland and is now more vulnerable to erosion.

### Formation of Coastal Stack



Example:  
Old Harry  
Rocks,  
Dorset

- 1) Hydraulic action widens cracks in the cliff face over time.
- 2) Abrasion forms a wave cut notch between high tide and low tide.
- 3) Further abrasion widens the wave cut notch to form a cave.
- 4) Caves from both sides of the headland break through to form an arch.
- 5) Weather above/erosion below - arch collapses leaving stack.
- 6) Further weathering and erosion leaves a stump.

#### Types of Erosion

The break down and transport of rocks - smooth, round and sorted.

Attrition	Rocks that bash together to become smooth/smaller.
Solution	A chemical reaction that dissolves rocks.
Abrasion	Rocks hurled at the base of a cliff to break pieces apart or scraped against the banks and bed of a river.
Hydraulic Action	Water enters cracks in the cliff, or river bank, air compresses, causing the crack to expand.

#### Types of Transportation

A natural process by which eroded material is carried/transported.

Solution	Minerals dissolve in water and are carried along.
Suspension	Sediment is carried along in the flow of the water.
Saltation	Pebbles that bounce along the sea/river bed.
Traction	Boulders that roll along a river/sea bed by the force of the flowing water.

#### Types of Weathering

Weathering is the breakdown of rocks where they are.

Biological	Breakdown of rock by plants and animals e.g. roots pushing rocks apart.
Mechanical	Breakdown of rock without changing its chemical composition e.g. freeze thaw

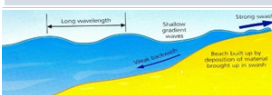
#### What is Deposition?

When the sea or river loses energy, it drops the sand, rock particles and pebbles it has been carrying. This is called deposition. Heaviest material is deposited first.

#### Types of Waves

##### Constructive Waves

This wave has a **swash** that is **stronger** than the backwash. This therefore builds up the coast.



##### Destructive Waves

This wave has a **backwash** that is **stronger** than the swash. This therefore erodes the coast.





# Knowledge Organiser: Yr 9;

## Geography; Wild Water

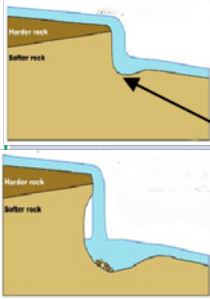
### Water Cycle Key Terms

Precipitation	Moisture falling from clouds as rain, snow or hail.
Interception	Vegetation prevents water reaching the ground.
Surface Runoff	Water flowing over the surface of the land into rivers
Infiltration	Water absorbed into the soil from the ground.
Transpiration	Water lost through leaves of plants.

### Physical and Human Causes of Flooding.

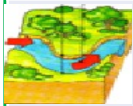

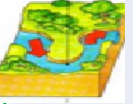

Physical: Prolong & heavy rainfall Long periods of rain causes soil to become saturated leading runoff.	Physical: Geology Impermeable rocks causes surface runoff to increase river discharge.
Physical: Relief Steep-sided valleys channels water to flow quickly into rivers causing greater discharge.	Human: Land Use Tarmac and concrete are impermeable. This prevents infiltration & causes surface runoff.

### Formation of a Waterfall



- 1) River flows over alternative types of rocks.
- 2) River erodes soft rock faster creating a step.
- 3) Further hydraulic action and abrasion form a plunge pool beneath.
- 4) Hard rock above is undercut leaving cap rock which collapses providing more material for erosion.
- 5) Waterfall retreats leaving steep sided gorge.

### Formation of Ox-bow Lakes

Step 1	Step 2
	
Step 3	Step 4
	

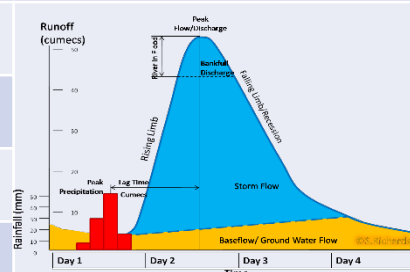
### River Management Schemes

Soft Engineering	Hard Engineering
Afforestation – plant trees to soak up rainwater, reduces flood risk. Demountable Flood Barriers put in place when warning raised. Managed Flooding – naturally let areas flood, protect settlements.	Straightening Channel – increases velocity to remove flood water. Artificial Levees – heightens river so flood water is contained. Deepening or widening river to increase capacity for a flood.

### Hydrographs and River Discharge

River discharge is the volume of water that flows in a river. Hydrographs show discharge at a certain point in a river changes over time in relation to rainfall

1. Peak discharge is the discharge in a period of time.
2. Lag time is the delay between peak rainfall and peak discharge.
3. Rising limb is the increase in river discharge.
4. Falling limb is the decrease in river discharge to normal level.



### Upper Course of a River

Near the source, the river flows over steep gradient from the hill/mountains. This gives the river a lot of energy, so it will erode the riverbed vertically to form narrow valleys.

### Middle Course of a River

Here the gradient gets gentler, so the water has less energy and moves more slowly. The river will begin to erode laterally making the river wider.

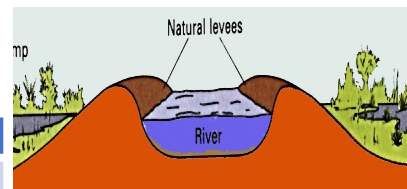
### Lower Course of a River

Near the river's mouth, the river widens further and becomes flatter. Material transported is deposited.

### Formation of Floodplains and Levees

When a river floods, fine silt/alluvium is deposited on the valley floor. Closer to the river's banks, the heavier materials build up to form natural levees.

- ✓ Nutrient rich soil makes it ideal for farming.
- ✓ Flat land for building houses.



### Case Study: The River Tees

**Location and Background**  
Located in the North of England and flows 137km from the Pennines to the North Sea at Red Car.

**Geomorphic Processes**  
Upper – Features include V-Shaped valley, rapids and waterfalls. Highforce Waterfall drops 21m and is made from harder Whinstone and softer limestone rocks. Gradually a gorge has been formed.  
Middle – Features include meanders and ox-bow lakes. The meander near Yarm encloses the town.  
Lower – Greater lateral erosion creates features such as floodplains & levees. Mudflats at the river's estuary.

