

# YEAR 3: SPRING 2 – WATER, WATER EVERYWHERE

## GEOGRAPHY: PHYSICAL – COASTAL EROSION & HUMAN – COASTAL MANAGEMENT

### UNDERSTAND, DESCRIBE AND EXPLAIN: COASTAL EROSION AND PREVENTION

Physical Geography: Understanding the physical (natural) impact on coasts over time	<i>Erosion</i>	<i>Beach</i>	<i>Bay</i>	<i>Headland</i>	<i>Coast</i>	<i>Coastal Features</i>	<i>Crack</i>	<i>Cave</i>	<i>Arch</i>	<i>Stack</i>	<i>Stump</i>
	<i>Sediment</i>	<i>Stones</i>	<i>Sand</i>	<i>Organic Matter</i>	<i>Deposit/ Deposition</i>	<i>Erode/Erosion</i>	<i>Abrade/ Abrasion</i>		<i>Attrite/ Attrition</i>		
	<i>Coastal management</i>		<i>Groynes</i>		<i>Gabions</i>		<i>Beach nourishment</i>		<i>Sea walls</i>		<i>Erosion prevention</i>

**Re-visit and revise learning from Autumn 1:**

**Key concepts:** Locational knowledge of the world, the UK and Poole, tourism and land-use.

**Key vocabulary:** Locality, region, county, town, city, coastline, beach, land-use, tourism, economy, coastal, settlement.

<b>Learning links:</b>
<b>Geography:</b>
Y5: Rivers Erosion/Abrasion/ Attrition/Deposition
<b>Learning links:</b>
<b>Science:</b>
Y3: Rocks Erosion/Abrasion/ Attrition/Hardness/ Sedimentary

**Erosion, abrasion and attrition:**

**Coastlines** are made up of different types of rock and material (*sediment*) and this varies in *hardness*.

- Coastal **erosion** happens when **waves continuously batter (erode)** the **cliffs** against the sediment and rock.
- Coastal **abrasion** occurs when rocks are picked up by the waves and smashed in to the **cliffs**; aiding **erosion**.
- **Attrition** occurs when small rocks are smashed against each other; breaking in to smaller pieces.



An example of an arch and bay at Durdle door, Dorset

**THINKING POINT:**

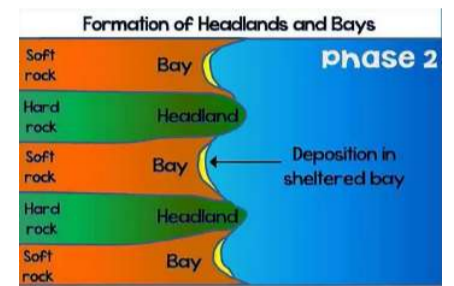
What is the difference between erosion, abrasion and attrition?



**Coastal features:**

The **hardness** of the sediment and rock determines **how quickly** erosion takes place.

- Where rock and sediment is **softer**, this **erodes** more **quickly** forming a **bay**.
- Where rock and sediment is **harder**, **erosion** takes **longer** and this forms a **headland** (sticks out).

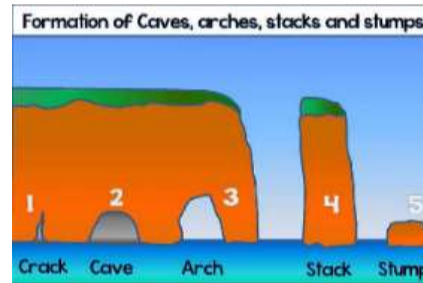


The bits of rock and sediment (**stones/sand/organic matter**), which have been knocked away from the coastline, pile up (**deposit**) and form **beaches**. If the water is relatively calm, the smaller **bits of rock, sediment and sand** will **settle/deposit** and **form a beach (deposition)**.

If the water is very rough (**strong waves and currents**), the smaller **deposits** of rock, sediment and sand will **not be able to settle**.

**Erosion and abrasion** can also create other **coastal features** such as:

- **Cracks**
- **Caves**
- **Arches**
- **Stacks**
- **Stumps**



An example of stacks at Old Harry Rocks, Dorset

The **constant erosion** and **abrasion** of a **cliff or headland**, over long periods of time, form **cracks** in the weakest part of the rock.

Over long periods of time of constant **erosion** and **abrasion**, these **cracks** grow wider and deeper; forming a **cave**.

The **cave** will continue to widen and deepen until it becomes an **arch**.

Further **erosion, abrasion** and **weathering** will force the **arch** to **collapse** creating a **stack**.

This will continue and these stacks will eventually form **stumps** before being completely **eroded** in to millions of small deposits – large rocks, small rocks, stones, pebbles and sand.

**THINKING POINT:**

Name the eight coastal features caused by erosion, abrasion and attrition.



Explain how a crack in the headland, through constant erosion, will eventually become a stump.

**Coastal Management and Erosion Prevention:**

If left **unmaintained**, our **coastlines** would be very different: **Erosion** would occur at a much faster pace.

To **prevent** the loss of our **coastlines** and maintain the usability of our coasts (**settlement, trade and tourism**), humans have designed ways of **preventing** or slowing coastal erosion (**Coastal management**).

- **Groynes** are wooden or stone structures built to **stop sand and stones** being **carried/moved** by the sea and **deposited in different areas**. This is to **maintain the shape** of the coastline.
- **Gabions** are **metal cages filled with large stones** to act as a **barrier** between the sea and the cliff to **slow down erosion** and **abrasion**.
- **Sea walls** are concrete structures built to act as a **barrier** between the sea and the cliff to **slow down erosion** and **abrasion**.
- **Beach nourishment** is when humans replenish/add more sand to the beaches to maintain the shape of the coastline.



**THINKING POINT:**

Name four types of erosion prevention.



Why is erosion prevention and coastal management important?

**EXIT QUESTIONS:**

**EXS:**

1. Can you describe how the coasts of Poole and Dorset are changing and explain why this happening?

**GDS:**

1. Why is it important for humans to intervene with the process of erosion and manage the coastlines?

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## GEOGRAPHY: PHYSICAL – THE WATER CYCLE

### UNDERSTAND, DESCRIBE AND EXPLAIN: THE WATER CYCLE

Physical Geography:	The Water Cycle	Atmosphere	Evaporation	Water Vapour	Condensation	Precipitation	Rain/Sleet/Snow/Hail	Collection
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Understanding the water cycle

<b>Learning links:</b>
<b>Geography:</b>
<b>Y5: Water Cycle</b> All areas of learning
<b>Y5: Rivers</b> Throughflow/ Surface run-off

<b>Learning links:</b>
<b>Science:</b>
<b>Y4: States of Matter</b> Evaporation/ Condensation/Solid/ Liquid/Gas
<b>Y5: Properties of materials</b> Evaporation/ Condensation/ Temperature/Solid/ Liquid/Gas

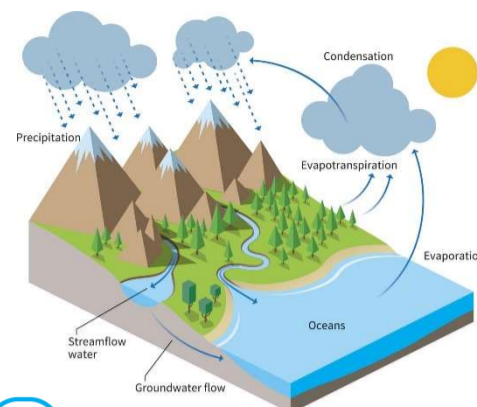
**Re-visit and revise:**

**Key concepts:** KS1 geographical learning, prior understanding of the water cycle, seasonal and daily weather patterns in the United Kingdom  
**Key vocabulary:** hill, mountain, sea, ocean, river, soil, valley, vegetation, season and weather, farm, port, harbour

**The Water Cycle:**

*Earth* has been **recycling** water for over **4 billion years!**

The world's water moves between **lakes, rivers, oceans**, the **atmosphere** and the **land** in an **ongoing cycle** called the **water cycle**. As it goes through this **continuous system**, it can be a **liquid** (water), a **gas** (vapour) or a **solid** (ice). There are **4 stages** of the **water cycle** which **continuously repeats**:



**Evaporation:**

**Energy** from the **Sun heats up** the surface of the **Earth**, causing the **temperature** of the **water** in our rivers, lakes and oceans to **rise**. When this happens, some of the water **evaporates** into the **air/atmosphere**, turning into a **gas** called **vapour**.

**THINKING POINT:**

Summarise the process of evaporation in as few words as possible.



**Condensation:**

As **water vapour rises up** high into the sky, it **cools** and turns back into a **liquid**, forming **clouds**. This process is called **condensation**. **Air currents** high up in the air **move** these **clouds** around the globe.

Depending on the **temperature** and how **quickly** the **vapour condenses** or sometimes **freezes**, the vapour can turn to **rain, sleet, hail or snow**.

**THINKING POINT:**

What is the word used to describe when the water vapour cools back in to liquid and forms clouds?



**Precipitation:**

When **too much** water has **condensed**, the **water droplets** in the clouds become too **big and heavy** for the air to hold them. They **fall back down** to **Earth** as rain, snow, hail or sleet, a process known as **precipitation**.

**THINKING POINT:**

Name the four different forms of precipitation. What do you think determines which is formed in the clouds?



**Collection:**

The fallen **precipitation** is then **collected** in bodies of water – such as **rivers, lakes and oceans** – from where it will eventually **evaporate** back into the air, **beginning the cycle all over again**. How it is **collected**, depends on **where it lands**:

- Some will **fall directly** into **lakes, rivers or the sea**.
- If the water falls on **plants**, it may **evaporate** from leaves back into the air, or **trickle down into the ground to be absorbed by the plant**.
- In **cold climates**, the **precipitation** may build up on land as **snow, ice or glaciers**.
- Water that **reaches land directly** may flow **across the ground** and **collect in the oceans, rivers or lakes**.

**THINKING POINT:**

Why is this process called the water cycle?



### EXIT QUESTIONS:

<b>EXS:</b>	<b>GDS:</b>
1. Using the given diagrams and key vocabulary, describe and explain the four stages of the water cycle.	1. Why is the water cycle called a 'cycle' and why is this so important to life on earth?