



# Empowering future change-makers: Curiosity at the Coast

## EYFS: Understanding the World

Helen Baines and Dr Marina Bazhydai

Sandcastles Nursery and Beach School, Morecambe

### Specialist knowledge for teachers

This resource is rooted in evidence-based research in developmental psychology and early years education, specifically play-based and curiosity-driven active learning pedagogies and nature- and place-based approaches. Preschool children are avid learners when they feel curious and can relate their learning to something in their lives. They are keen to ask questions to find out more about new phenomena and actively come up with solutions to problems, envisioning them independently if they cannot obtain answers from reliable sources. In preschool years, they also start reasoning about cause and effect and gain an understanding of timescales and change.

The resource aims to target children's natural curiosity and sense of wonder as a way to achieve learning, as well as impact well-being and build resilience in times of change. Through simple hands-on activities, the resource builds a sense of relationship and connectedness to a place, whilst advancing knowledge of the local coastline and offering knowledge - and nature-based solutions. By spending time learning within the Morecambe Bay beach environment, children will form a connection to it. By being connected to the environment they will be empowered to value and protect it in years to come. Through the activities in this resource, children will receive new abstract and hands-on knowledge, engage in practical activities, use observation skills, and reflect on these experiences.

This resource focuses on the topic of coastal erosion and introduces children to different types of sea defences. Children will learn to notice changes

related to coastal erosion, distinguish types of sea defences, learn foundational vocabulary and concepts, and establish place-based emotional connections. Children will be developing skills across prime areas of learning (communication and language, PSED and PD) as well as specific areas of learning. These skills will provide a basis for future more complex skills acquisition.

Coastal defences are engineered structures and natural, managed systems designed to protect coastlines from erosion, tidal energy, and flooding. They are crucial for protecting developed land, homes, and infrastructure from sea-level rise. Strategies include hard engineering (e.g., seawalls, groynes) and soft engineering (e.g., beach nourishment, dune management). There are four types of sea defences which children will learn about.

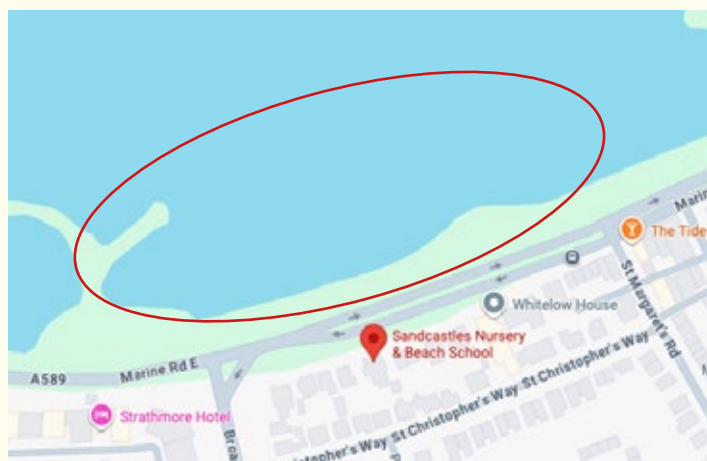
1. **Saltmarshes** are intertidal areas of coastal wetland where the vegetation is continually flooded and drained by the tides. Seen from above, they can represent a mosaic of land and sea.
2. **Seawalls** are structures or embankments, built to protect the shoreline from erosion or to act as a breakwater.
3. **Rip-rap boulders** are angular rocks, positioned to provide protection for shorelines and roads. They are also known as rock armour.
4. **Fish-tail groynes** are coastal defence structures which stem from the shore and widen into a Y-shape. They are used to slow coastal erosion, reduce wave energy and encourage sediment deposition. ▶



▶ To learn about the topic of coastal erosion and different types of sea defences, children will be engaged in a series of visits to the target area of the beach in Morecambe.

This space features all four key types of sea defences (saltmarsh, seawall, rip-rap boulders, fish-tail groynes) and thus presents a unique opportunity to learn about all of them even on a single visit. Children will be gaining place-based knowledge and understanding of erosion and sea defence systems specific to their local area and over time can work as scientists to help map and track changes.

**Target Location:** the promenade and beach across from the Sandcastles Nursery & Beach School on Marine Rd E, LA4 6AA



## Curriculum aims and objectives

**Key stage:** Early Years: 3–4-year-olds

**Targeted EYFS areas of learning:**

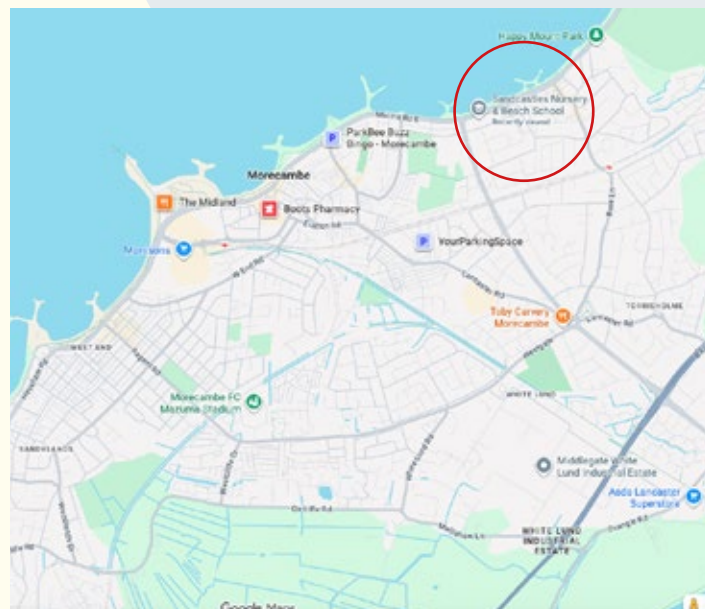
**Core:** Understanding the world (building experience and understanding, building vocabulary, seasons, weather); **Maths** (map reading, spatial awareness, directional language, time); **Literacy** (repetitive refrains, story recall); **Communication and Language** (prepositions, vocabulary)

**Additional:** Physical, Personal, Social and Emotional Development (active learning, balance, stamina, understanding effects of physical activity on the body, resilience, connection to local area/people); Expressive arts and design

**Sustainable Development Goals:**

- SDG 3 Good health and well being
- SDG 4 Quality education
- SDG 10 Reduce inequalities
- SDG 13 Climate action
- SDG 14 Life below water
- SDG 15 Life on land

**Preparation:** No prior knowledge, reading age or specific school context is required to partake in the proposed activity, but the preschool would need to arrange at least a single visit to the location (ideally 3–5 visits in total over a span of a year).



## Head

Children will:

- Learn about, name and be able to recognise four key different types of sea defences.
- Learn and use new vocabulary: salt marsh, seawall, rip-rap boulders, fish-tail groynes, sand dunes, eelgrass, kelp, coastline erosion, glasswort etc.
- Learn about maps and how we use them
- Notice and understand the changes and dynamics of the coast across different timescales e.g. daily tides and long-term changes due to human activity, such as coastal erosion

## Heart

Children will:

- Make personal connections to their local coastal areas
- Be empowered to value and protect their local coastline
- Be encouraged to invite other members of their family to visit the coast and teach them what they have learnt
- Invite their families to an exhibition to further share their learning

## Hands

Children will:

- Explore different types of sea defences both in situ and through photos or custom-made resources
- Develop basic skills in mapping their local coastal area
- Take photos of the same area on the beach on multiple occasions to monitor the changes and dynamics of the coast, introducing the notion of timescales, e.g., daily tides and long-term changes due to human activity, such as coastal erosion
- Partake in a school photo exhibition at the end of the series of lessons aimed at documenting the changes and inviting families to reflect on the topic of coastal erosion and sea defences

# Examples in practice

Indoor	Outdoor
Book reading: "We're Going on a Bear Hunt" by Michael Rosen as a provocation (see Lesson 1).	Mapping exercise: viewing the physical area from the vantage point on Morecambe promenade and comparing what is visually available to the representations on the map (see Lessons 2&3).
Map making and map understanding (see Lesson 3).	Visit to the target beach area to identify and explore the different types of sea defences (see Lesson 2).
Lesson on coastal erosion, coastal management and types of coastal defences created to "hold the line" – supplemented by playful engineering activities in a sandpit to create models of the saltmarsh, build the seawall and boulders out of clay and fishtail groynes out of pebbles (See Lesson 2).	"Mini-citizen science": visiting the same area to monitor the changes over several occasions. For example, there is a tiny area of salt marsh which may change over time, either grow or shrink, or children could note any changes in the species of vegetation in the saltmarsh (See Lesson 4).
Host an in-person photo exhibit for children and their families at the end of the school year, displaying photos taken at the beach documenting changes (See Lesson 4).	Taking a photo each month at the same spot, e.g., the saltmarsh patch, to track the changes, both seasonal and environmental (see Lesson 4).



## Saltmarsh

**What to say:** "A soft, muddy place by the sea where grass and little plants grow, and the ground can get wet and squishy when spikey grass gets flooded".

**Key idea:** Nature helps protect the land

**Visual exploration:** Observe tidal changes when saltmarsh is covered by water; take photos of changes and size of the saltmarsh

**Good prompt:** "Can you see how the little plants stop the water moving fast?"



## Seawall

**What to say:** "A big, strong wall that blocks the sea."

**Key idea:** Built by people for protection

**Link to experience:** "Have you seen a big wall by the beach?"

## Rip-rap boulders

**What to say:** "Big rocks that break the waves so they are not too strong and keep the houses and roads on the coast safe."

**Action idea:** Children can pretend to be waves hitting "rocks" (soft play blocks)

**Extension:** Think about how people could bring all these boulders to the beach (using big machines)

## Fish-tail groynes

**What to say:** "Wooden or stone shapes in the sand that hold the sand in place and look a bit like a fish's tail."

**Key idea:** Keeping sand from washing away

**Ask:** "Is this structure built by people or by nature?"

**Simple analogy:** "Like using your hands to stop sand slipping away."

## Adaptations to extend impact

### Adapted for schools around the Morecambe Bay

The sample lessons provide opportunities to mix and match different activities and learning opportunities, some taking place inside, others outside, and are designed to be flexible regarding the number of required trips to the beach. Core resources can be adapted to different locations around the Morecambe Bay (e.g. Hest Bank, South Walney island), provided there is a subsample of sea defences that can be accessed by the school.

### Adapted for KS1 and beyond

Key activities (use of maps, learning about coastal defences, exploring the local coastal area) can be easily adapted for children in primary schools by using more complex language, further details about key content, and building on greater understanding of the coastal environment.

### Adapted for at-home family activities

To embed and extend learning and also give children the opportunity to share their knowledge with family members, a take home bag can be offered, containing, for example:

- We are Going on a Bear Hunt book by Michael Rosen
- Laminated cards with images of local environmental features and sea defences
- Local map(s)
- Sea defences guide
- Treasure hunt guide
- Postcards from the Morecambe Bay

