Hands-On Beach Science: Explore, Experiment, and Learn by the Shore

Why Beach Science Matters

A day at the beach isn't just about splashing in the waves or building sandcastles it's a living classroom full of natural wonders. Children can explore key STEM concepts like erosion, buoyancy, and marine biology through hands-on activities.

Mission 1: Saltwater Density Jar

Objective: Understand how salt affects water's ability to support weight.

You'll Need: Two clear jars, water, table salt, spoon, raw egg.

Steps:

1. Fill both jars with water. Add 6 tbsp of salt to one and stir.
2. Place an egg in each jar. Observe which floats.

Extension: Add more salt and track results.

Mission 2: Sandcastle Erosion Test

Objective: Learn how erosion affects structures.

You'll Need: Buckets, wet sand, watering can, measuring tape.

Steps:

1. Build two sandcastles (tall/narrow and wide/flat).
2. Simulate waves with water.
3. Measure which one holds longer.

Extension: Use wind simulation.

Mission 3: Shell Sorting & Classification

Objective: Explore marine biology and taxonomy.

You'll Need: Shells, sorting trays, shell ID guide, magnifier.

Steps:

1. Sort shells by size, shape, or color.
2. Identify them using a guide.
3. Create a mini museum.

Extension: Label each shell.

Mission 4: Tidal Tracker

Objective: Observe and predict tide patterns.

You'll Need: Stick, notebook, timer.

Steps:

1. Place a stick at low tide.
2. Observe water movement every 30 min.
3. Record and compare with lunar phases.

Mission 5: Sun & UV Awareness

Objective: Measure sun strength and UV protection.

You'll Need: UV beads, sunscreen, plastic wrap.

Steps:

1. Place beads in sunlight.
2. Cover with sunscreen.
3. Observe color changes for different SPF.

Quick Variants

- DIY Beach in a Box
- Ice Block Excavation
- Shoreline Walk Challenge

Printables List

- Tide Tracker Log Sheet
- Shell Classification Chart
- UV Experiment Guide
- Saltwater Density Poster
- Junior Marine Scientist Certificate