Activity C 1: Demonstrating coastal processes

Coastlines change shape as a result of the processes of coastal erosion, transportation and deposition. If the coast is not close enough to your location to visit easily, use this classroom activity to demonstrate and allow pupils to investigate coastal processes. (This is also a good activity to carry out before a school visit to the coast to help pupils gain a better understanding of different coastal processes)

Equipment:
Large, deep, plastic tray (e.g. seed tray or a cat litter tray)
Washed, coarse builder's sand
Rocks and pebbles of various sizes.
Pieces of wood (25cm x 12cm x 1cm)
Thin strips of wood (10cm x 2cm x 2mm). (These strips will represent groynes)
Model houses (Monopoly houses work well as do small wooden blocks)
Water
Camera or camcorder (optional)

Method:
Optional – set up a camera or camcorder to film the results of this activity.

1. Prop the tray up on a piece of wood so the tray is at an angle of about 5° and fix the tray in place.
2. Place enough damp sand in the tray to cover up to a third of the area, to a depth of about 6cm. The sand can be shaped into cliffs or beaches of various gradients.
3. Pour water to a depth of 2-3 cm into the clear part of the tray.
4. Use the piece of wood to create waves coming in parallel to the shore (sand) and observe and record the results.
5. Vary the angle the waves come in to the shore. Observe and record the results.
6. Encourage pupils to work in small groups to decide which type of shoreline and wave angle to test first and then to work through several scenarios. (Coastal regimes that could be create include: steep beach, shallow beach, cliff and estuary)
7. With the sand made into a cliff, ask pupils to: observe:
   - which part of the cliff is eroded the fastest
   - decide how can cliffs be protected
   - use the rocks/ pebbles to build coastal defences and see what difference they make
   - place model houses on the cliff top to further demonstrate the dangers of coastal erosion.