



their own lives; and reflexive, including children, practitioners and parents in reflecting on meanings and addressing the question of interpretation. A framework for listening is embedded into practice, which has the potential to be used both as an evaluative tool and a teaching method.

Children's leadership skills and ability to deal with failure, and the transformation of their confidence levels, are the most noticeable developmental changes arising from beach school. Overcoming fears and exhibiting more confidence in taking risks (like jumping, climbing rocks), a willingness to contribute and take part, and a wish to try new things was present in many of the children at the start of our project; by the end of the sessions this was universal. During sessions children asked questions, showing how much they were thinking about the activity they were involved in, and also revisited activities, play and learning that had taken place during previous sessions. Regular reflection on immediate achievements, combined with the celebration of success, helped the children take pride in what they were doing.

A typical programme focuses on a number of main topics, for example, field studies of ecological systems, beach structure, beach management systems and wildlife conservation; sensory activities; beach crafts; team-building games; imaginative activities; physical play and construction; assessing risk and safety; observing flora and fauna; observing seasons, weather and tides; building shelter; fire lighting; role playing with found resources; and sand and stone play.

Beach school in practice: maths

Practitioners may find it hard to link the beach with specific areas, so as an example, the following points will show how beach school activities can support children's development in mathematics...

Number sense means the ability to count accurately. On the beach we can really count anything: steps, stones, shells, poles of shelter, etc., and then we can link the numerals with names of objects. Verbal counting helps to develop mathematical language, magnitude comparison, quantity identifying and size understanding (more, less, bigger, smaller, etc.)

Patterns are appearances of things numbers, shapes, images - that repeat in a logical and recognisable way. Patterns help children to make predictions, to figure out logical connections and to develop and use reasoning skills. The beach is actually built from patterns which allow the children to:

- seek similarities, differences and symmetry (in seabed, sand);
- make connections (how many steps away is the sea);
- build and construct (using stones, sand); sort and group in order (shape, size, colour, characteristics);
- understand dimensions (looking for 2D and 3D shapes);
- symbolise personal likes/choices through objects.

Children develop an ability to recognise mathematical problems, and they readily make ideas 'real' by using words, pictures, symbols and objects in their role play and in their social situations (e.g. acting out personal and fairy tale stories with numbers in them).

The development of spatial sense in early years leads to later understanding of geometry. On the beach it can be introduced by the observation of shapes, size, position, weight, length, direction and movement. The unbeatable advantage of the beach as a learning environment is that it constantly changes (due to natural forces) while retaining stable elements, objects, in it.

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Observing their immediate environment helps children to understand mathematical instructions (e.g. following a map, creating a treasure trail, identifying and describing the position of things).

Beach school provides opportunities to think through a problem and to recognise that there is more than one path to a satisfying answer (e.g. walking to the sea in different ways). It means using past, existing knowledge and logical thinking skills to find answers.

When observing the natural environment even listening to sounds offers mathematical understanding:

Counting and comparing beats of waves.

The notation of sounds and organising the patterns of sounds helps children understand spatial relationships.

Tonality (higher, lower) and pace (faster, slower) of sounds - being measurable attributes - develops measurement skills.

The beach creates countless mathematical *mark making* opportunities. There is a strong case that children's first marks cannot be dismissed as a generic 'scribbles' stage, because children are expressing, in form and content, identities, structures, symbols, events and meaning from their worlds.

THE BEACH SCHOOL APPROACH

With the UK's over 11,000 miles of coastline, plus its many rivers and lakes, the beach school approach has a real validity to those working in early years settings. A confident working team with a sound knowledge of health and safety, emergency rules, flags, tidal times and rip tides is a necessity, and a qualified leader is required to devise a programme that's entirely based on individual children's interests; this allows the children to build on skills at their own age and stage. Beach schools provide an emotionally safe environment for children to explore, built on routine that is established with regular repetition throughout the programme.