



Science Lesson Plan 3

SC3: Materials and their Properties

Focus:- Rocks and Soil

Aim: Recognise that rock is a naturally occurring material; and rock used for buildings or structures may be man-made 'rock' or natural, precast, or quarried.

Introduction: Around the school and playground:

- Look at the buildings; wall; roads; pavement.
- Feel and describe colour, shape, texture, warmth, etc.
- Make a list or chart of findings with predictions about natural/man-made.

Resources:

- Rock samples
- Posters/film clip 'Building a road'
- Soil samples from local gardens
- Map of the Reserve
- Hand lens/scratching tools

In the classroom:

Observe:

- Look at samples of rock and building material
- Sort and group samples, e.g. smooth pebble, garden stone, grit and gravel, concrete block, brick, etc.
- Develop a word bank based on the samples.

Investigate:

- Using natural rock to investigate properties:-
- Scratch with a large nail
- Drip water on to
- Rub with a file
- Introduce words such as erosion, hardness, permeability, crystalline, (add to word bank).
- Talk about suitability for purpose, e.g. building a wall; making a path
- Try out ideas



Site visit: This is an excellent winter/early spring visit when more of the cliffs and structures can be seen.

On the way to Golden Valley look for examples of natural and man-made 'rock'

At the Reserve

- Note any natural rock, or structures
- Look at the River Boyd and observe the shores; stream bed and banks
- Notice any living things on the rocks and cliff faces around
- Man-made structures have also become part of the living environment – observe and record.

Wick Quarry:

Limestone is quarried and crushed to be used for road construction and concrete products

Notice and Record Reactions:

- Stress H & S features. The Quarry is a working area
- The sound and site of the quarry is very dramatic
- What do the children think about this landscape?

Ravens Rock & Folly Arch:

- Structures to record, photograph, sketch, etc.
- Ravens Rock is a great bird-watching site and many birds use the cliffs to perch, roost and even nest.

Follow-up:

- Make a large scale map of the trail
- Illustrate the route with pictures of structures and natural outcrops of rock
- Add descriptions of the Quarry and what the children thought
- Exchange ideas about the industrial buildings and what should become of them

Investigate: Separating mixtures of materials

- Using samples of crushed chippings varying in size from coarse to dust; and a range of sieves, can you sort/grade the materials into a range of sizes?
- Look at the range of particle size

How is a road made?

- Use experiences the children may have had when paths and patios have been laid at home.
- Use sorted and graded materials to prepare a foundation for a model road.