LESSON PLAN

Highland Boundary Fault

AIM:

Through learning a little about the Highland Boundary Fault, we can:

- learn about some of the physical features around us and on a map
- think about how these features may have influenced life in Scotland
- become more familiar with a map of Scotland
- look for similarities and differences in pictures of Scottish towns
- visit sites of interest and start to use what we learn to help us better observe our surroundings

ACTIVITIES:

Identifying the Fault Line by observing the main materials used to build in specific towns.

As a class, or in groups, look through the images of towns listed above. First, identify if the majority of buildings in the picture are grey or red. Once this has been agreed, plot each town accurately in the blank map of Scotland. This could be done using Google Maps, or a map of Scotland from a class Atlas (if it has all the towns on it), or a map of Scotland on the classroom wall. Once marked on the map, indicate which towns looked grey in pictures, and which were mainly red. The fault will run between the two.

Creating an example of layers of sedimentary rocks in the classroom.

You will need:

- a 'tetra pack' style juice carton per group with the top cut off
- sand
- fine gravel
- fine soil
- chalk dust
- plaster of paris
- plastic cups (or similar) for mixing

- a spoon for mixing
- table covering (unless you can do it outside)
- water
- small bits of shell

What to do:

In groups of up to four, write the headings; river; beach; shallow ocean; deep ocean at the top of a piece of paper. Collect ideas about what that environment would be like and what you would find there. Then, start with one environment and put the material(s) you'd find there in a cup to fill it 2/3 full. Next mix in plaster of paris and water and mix. Pour the rock mixture into the juice carton and press down firmly. Repeat the process for the four environments so you have four layers inside the carton. Leave to dry, then peel the carton apart to reveal your layers. You can sand them with fine sandpaper to show up the layers more clearly.

Learning about sedimentary, metamorphic and igneous rocks and how they are formed.

You will need:

- 9 Starburst sweets per group/pair
- 3 sheets of aluminium foil per group
- 3 sheets of baking paper per group
- a hot oven
- a chopping board per group
- a knife per group

Sedimentary rock. Explain that sedimentary rock is made from lots of bits of other rocks coming together under pressure and over time. Each group chops the three Starbursts into little pieces to mimic small bits of rock. They then form them into a pile and wrap them in baking paper, then foil (loosly). They then squash them as hard as possible, perhaps under the chopping board. Once squashed, they unravel and have a look, recording what they find.

Metamorphic rock. Explain that metamorphic rock is formed when layers of minerals and rocks are heated up and placed under extreme pressure over time. Then, each group piles three Starbursts (of different colours) in a tower, wraps the tower in baking paper, then foil. Each parcel is then placed in the hot oven for 2 or 3 minutes. Once out, the parcels are squashed, unwrapped and observed. Again, record what you see.

Igneous rock. Explain that igneous rock is formed when other rocks are heated to extremely high temperature and become liquid (magma), then cool down again when they rise out of the earth through a volcano and come to rest on a relatively cool surface. Groups make a pile to three Starbursts, wrap them again in baking paper then tinfoil and put them in the oven, this time for 10-15 minutes. Once out, they are unwrapped (when possible) and laid open. Groups watch as the molten sweets cool and solidify. Again, record observations.