Rock Explorers
Putting rocks into families

A useful way to introduce sorting and classification is through exploring rocks and fossils, but the idea of sorting objects into groups could be explored first with sweets. Sweets such as Haribo™ could be used. The pupils 'classify' the sweets and say why they have chosen particular groups.

Now, introduce the pupils to their rôles as Rock Explorers. Rock Explorers are Earth scientists who are scientists who study rocks and soils. Introduce the pupils to the rock explorers' 'tool kit' using rock and fossil samples, magnifiers, rock ID books, posters, clipboards and pencils.

Divide the pupils into groups of three or four. Each group is asked to investigate a variety of assorted rock and fossil samples using the 'toolkit'. Once they have had a good look, ask them to group the samples into families based on any criteria they choose, e.g. colour, shininess, smoothness. This leads on to the idea that Earth scientists also put rocks and fossils into groups like families.

Allow the pupils the opportunity to decide on their own classification before making any suggestions. The pupils can put the different families of rocks and fossils on different pieces on paper and write what the group is, e.g. The Sparkle family with Mr. and Mrs. Sparkle and four Sparkle children or Mrs. White with her extended family.*

At this point the teacher could ask the pupils how they think the rocks might be used, e.g. the White family might be used to decorate buildings, the Pink family could be used in jewellery.

Pupils enjoy this activity and soon the whole class has a community of different families.

There is now an opportunity for the pupils to make up stories about their rock families. Some pupils may decide they want to keep the families together and make a permanent display in a rock garden or similar. Of course, some pupils may decide that the members of the rock family must be painted and others may insist upon individual names. This is an opportunity to reinforce alliteration e.g. Rhona Rough or Larry Lumpy.

**These are some children's comments:-*
"Mummy and Daddy Black are wrinkled with holes in but the children are smooth; that's because they are young and Mummy and Daddy are old."
"Mummy and Daddy Red had four children but then they had a surprise and had twin babies."

The rock/fossil families (*Elizabeth Devon)*

The back up:

Title: Rock Explorers

Subtitle: Putting rocks into families

Topic: As Rock Explorers, pupils investigate a variety of rocks and sort them into groups. The activity includes opportunities for literacy, numeracy and art.

Age range of pupils: 4 - 8 years

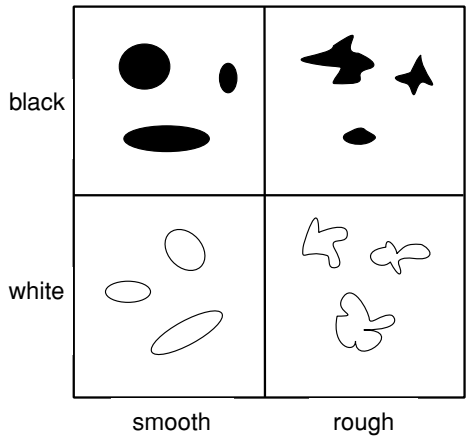
Time needed to complete activity: 30 minutes but it could be longer.

Pupil learning outcomes: Pupils can:
- sort rocks/fossils into groups using a range of criteria e.g. shape, size, colour, how heavy they feel;
- create their own forms of classification;
- create a family of rocks/fossils out of similar types;
- agree that there are many ways of grouping rocks and fossils.

Context: Through this activity, pupils are introduced, to how rocks can be investigated, discussed and used. A variety of cross-curricular and creative approaches can be carried out.

Following up the activity: The pupils could:-

- Extend the sorting activity, by making a Carroll diagram like the one below with two of the classification criteria. This diagram would be completed by placing the objects in the box that best describes them.



- Make a class list of all the different ways the pupils have found to sort their rocks and fossils.

Underlying principles:

- Rocks can be sorted into groups based on a number of different criteria.
- Earth scientists group rocks according to how they were formed.
- Sedimentary rocks are formed of grains of varying sizes which have usually been cemented together.
- Igneous and metamorphic rocks are made from interlocking crystals.

Thinking skill development:

By grouping rocks into categories, a pattern is developed. Discussion about how to group the rocks involves metacognition and disagreement about which group a particular specimen should join, causes cognitive conflict.

Resource list:

- sweets of differing colours and shapes (optional)
- a wide range of different rock and fossil samples of varying colours, sizes and shapes
- 'Rock Explorer' tool kits containing:-
  - magnifiers
  - rock ID books
  - posters (if available)
  - clipboards and pencils
  - large sheets of paper and pens

Useful Links:

Earthlearningidea Early years:-
'Pirates and buried treasure'
'Sensory treasure hunt'
http://www.earthlearningidea.com

Source:

ESEU KS1 Rock Circus
http://www.earthscienceeducation.com