You will need plenty of space for your pupils to play this game.

Before you start, revise the following:-
• sedimentary rocks are made from grains compacted and cemented together, e.g. sandstone and limestone, although finer grained rocks may just have been compacted together, e.g. mudstone
• metamorphic rocks are made of interlocking crystals which either show alignment, e.g. slate, or are made of one mineral, e.g. marble
• igneous rocks are made of interlocking crystals which have cooled and crystallised from magma, e.g. granite. The crystals show little or no alignment

Divide the pupils into groups. Ask some volunteers to demonstrate the following:-

1. **Sedimentary rocks** - pupils stand shoulder to shoulder with arms straight to represent grains compacted and cemented together, e.g. sandstone. They should stand in a group, not in a line.

2. **Metamorphic rock** - pupils stand with interlocking arms in rows to represent interlocking crystals which show alignment, e.g. slate

3. **Igneous rock** - pupils stand with interlocking arms in a random arrangement to represent interlocking crystals of several minerals, e.g. granite

Now you are ready to play the game. Pupils are divided into groups. The first group to get into the correct position for the rock group or rock mentioned gets one point. Of course, it is not necessary to play the game in a competitive way.

Lastly, give each group a tray of easy-to-identify rock specimens, e.g. different sandstones, limestones, different coloured slates, marbles, a variety of igneous rocks like granite, basalt, gabbro. Ask them to sort the rocks into the three groups.

---

**The back up**

**Title:** ‘Rockery 1’ - rock game  
**Subtitle:** Model different characteristics of rocks - with your pupils  
**Topic:** Sorting rock types according to their different characteristics  
**Age range of pupils:** 7 - 12 years  
**Time needed to complete activity:** 30 minutes
Pupil learning outcomes: Pupils can:
• realise that sedimentary rocks are made of grains cemented and compacted together;
• realise that metamorphic rocks are made from interlocking crystals which, in slate, show alignment;
• realise that igneous rocks are made from interlocking crystals which are randomly arranged;
• identify some rocks based on their different characteristics;
• sort rocks into the three groups.

Thinking skill development:
By sorting the rocks, pupils can see a pattern. Cognitive conflict is caused when rocks do not appear to fit the pattern. Metacognition is involved in the discussions about grouping the rocks. Bridging is required by the pupils pretending to be sedimentary grains or interlocking crystals.

Resource list:
• plenty of space and a dry day
• some rock samples, e.g. a variety of different sandstones, limestones, different coloured slates, marbles and a variety of igneous rocks - granite, basalt, gabbro. Kitchen worktop offcuts can be used to give the igneous variety. Note: The igneous rocks used to make polished kitchen worktops are often called ‘marble’ in the trade because they can be polished. However, marble is metamorphosed limestone and is too easily scratched for kitchen worktops.

Underlying principles:
• Sedimentary rocks are made of grains which have been cemented and compacted together.
• Rocks which have been subjected to the heat and/or pressure from plate tectonic movement become metamorphosed and are composed of interlocking crystals.
• Some metamorphic rocks show crystal alignment, e.g. slate, schist, gneiss.
• Some metamorphic rocks show no alignment often because they are made of one dominant mineral so that alignment cannot be seen e.g. marble (made from calcite), quartzite (made from quartz).
• Igneous rocks form from the cooling and crystallisation of molten rock or magma. The crystals are usually randomly arranged.

Following up the activity:
Pupils could try Rockery 2 - rock cycle game. They could try to put some local rocks into the three groups. The Earthlearningidea series Building Stones 1, 2, 3 and 4 will help with identification.

Context:
The activity helps children to remember the fundamental differences between rock types.

Useful links:
The following Earthlearningideas
http://www.earthlearningidea.com
‘Rock detective - rocky clues to the past’
‘What was it like to be there - in the rocky world’
Building stones activities 1 - 4.

Source: Developed by Elizabeth Devon of the Earthlearningidea Team with the help of the teachers and pupils of Box Church of England Primary School.

© Earthlearningidea team. The Earthlearningidea team seeks to produce a teaching idea regularly, at minimal cost, with minimal resources, for teacher educators and teachers of Earth science through school-level geography or science, with an online discussion around every idea in order to develop a global support network. ‘Earthlearningidea’ has little funding and is produced largely by voluntary effort. Copyright is waived for original material contained in this activity if it is required for use within the laboratory or classroom. Copyright material contained here in from other publishers rests with them. Any organisation wishing to use this material should contact the Earthlearningidea team. Every effort has been made to locate and contact copyright holders of materials included in this activity in order to obtain their permission. Please contact us if, however, you believe your copyright is being infringed: we welcome any information that will help us to update our records. If you have any difficulty with the readability of these documents, please contact the Earthlearningidea team for further help. Contact the Earthlearningidea team at: info@earthlearningidea.com