Curriculum Visions

LOCAL STUDIES

Local rocks and stones

How to teach local natural and building materials

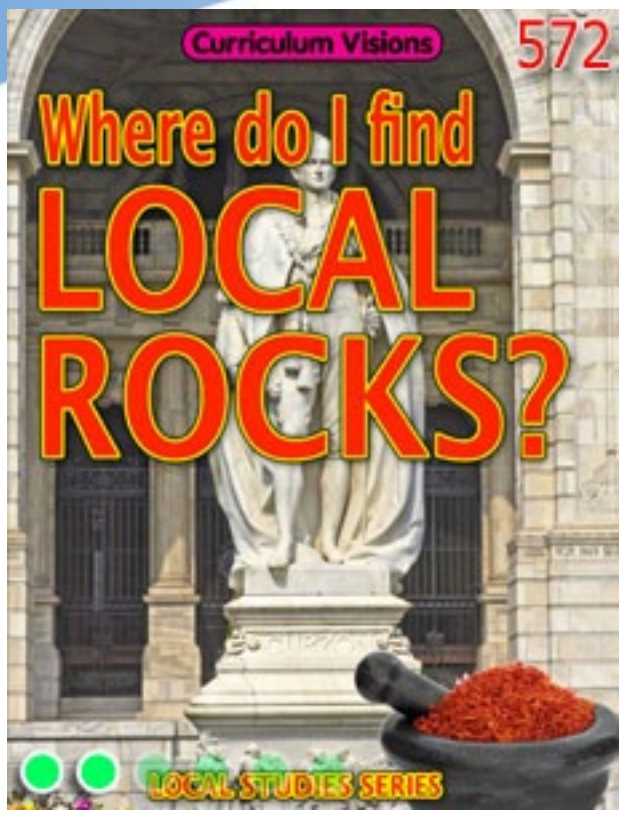
Local studies

Basic resources

1. The Local Rocks book

- This is the main book to use. It contains an explanation of common rocks and stones and therefore acts as a pointer to help your class identify what they see or have found. They should all be shown this book and where to find it. Download the cloud livebookmark for them and put it on your website or similar (but don't put the username or password online!).

You can support this with the science books shown opposite.



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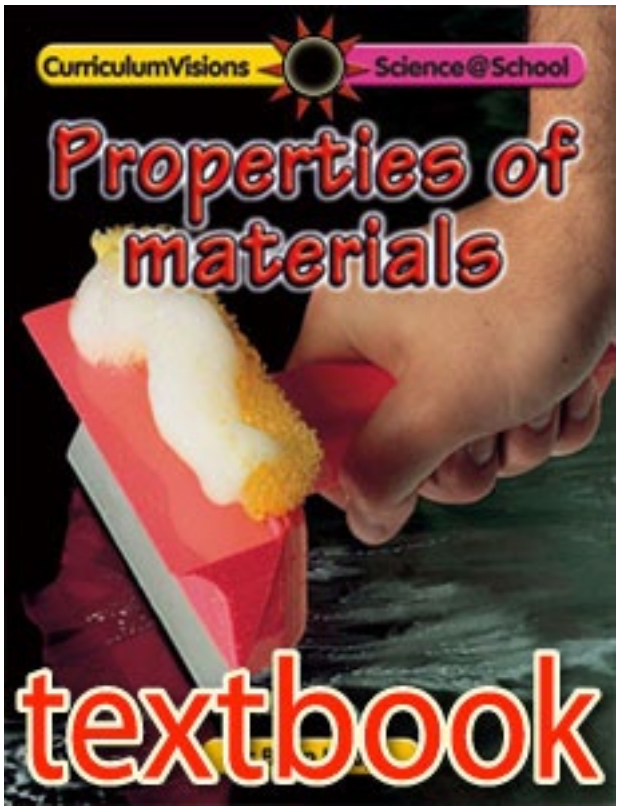
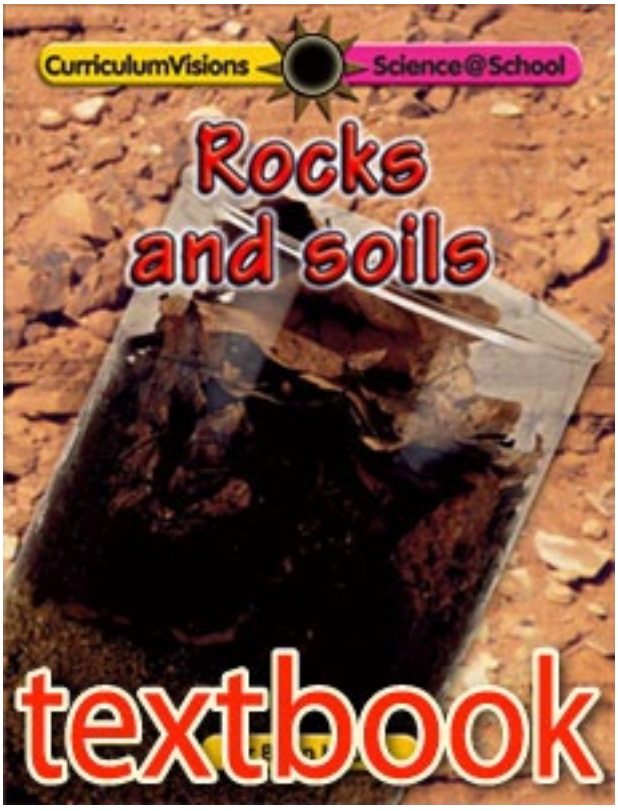
Don't forget, the easiest way to get to books quickly is to download the live bookmarks, put them in a new folder somewhere of your choice and just click those covers when needed.

2. Make a collection

- One of the best things you can do is to make a rock sample collection and keep it somewhere handy, such as on a shelf. You can buy small samples of rocks quite cheaply from suppliers, just make sure the samples are big enough to see properly (say samples should be a couple of inches across). Chalk, limestone, sandstone, slate, granite, shale and some minerals, such as quartz, fool's gold (iron sulphide) copper, iron would make a good start. We have some videos of these if you are stuck.





Local studies

Start with a collection

1. Whole class instruction

Objective: To get students to understand what rocks and stones are, and to look at some samples.

Mapping

"What is a rock and a stone?"

- Begin by collecting a few local rocks and stone and other similar materials. You should be able to collect stones from your garden, a brick, a piece of concrete. It would be best of all to have a sample collection as a reference.
- This local study can be combined with geography (landscape and weathering) and science (properties of materials).
- Students need to be introduced to natural (and building) materials and become familiar with them. You may wish to show that they are hard, that rounded equals abraded by some action such as washing on a beach or in a river or by a glacier. Sharp edged means it comes from a quarry, has not travelled very far or has been frost shattered. Most garden centre round stones come from beaches. In areas that have been glaciated, they often come from gravel quarries inland that were once deposited by river flowing from ice sheets.
- Look at building materials such as brick. Notice it is a block when new, but it is easily broken, so students might like to see what broken pieces of brick look like. They are usually red, and most natural stones are not, so this is a starting point. Concrete is light grey, again most natural materials are not.
- Encourage them to look at the materials with a hand lens. A limestone might have fossils in it. A

- A rocks, stones (and perhaps fossils) collection.

sandstone will have lots of sand grains, a granite will have interlocking crystals. Slate and shale are very fine-grained. Slate is normally almost black and shale is dark grey.

- Now get students to bring in some stone they have found in their own gardens or elsewhere and see if you can all work out what it is.
- Now explain that rocks and building stone (the same thing) are used all over their local area. Show them the introductory page from the book online and point out that in that picture rock is used for roads, curbs, walls, lintels, and roofs. It is, in fact, the most common material in a built environment.
- Now they are ready for their local study because they can put this knowledge into action.

2. Plenary session

- Review the ideas that rock occurs naturally and that it is a hard material, very strong under compression and sometimes brittle (relating it to your science curriculum)

3. Further work/homework

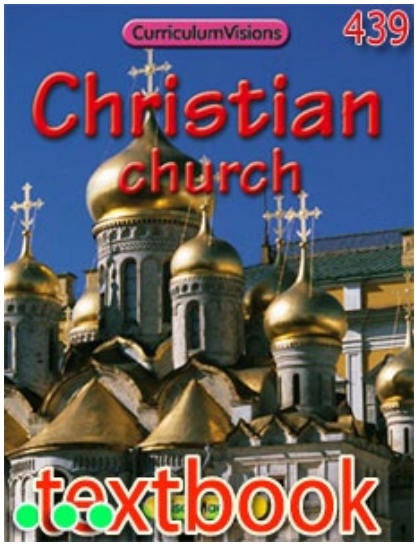
- Get students to see if they can find more samples to bring in, reminding them not to take them from places where they do not have permission! Get them to look at their own homes, and see the walls are made of stone/brick/concrete, and that the roofs are made from slate/tile (baked clay). Get them to begin to associate a rock with a colour.

Local studies

Churches, gravestones and more

1. Whole class instruction

Objective: To undertake a local study in the secure environment of your local church and its graveyard.



Founding

"What stones and rocks can we find in a graveyard?"

- This is a good place to start because the church will most likely be made of a local material, it may have walls delineating the graveyard, and there may well be graves of a different material.
- Start with the graves. The headstones will probably be made of marble or granite. But some are made of other materials that are less durable and weather badly. Get a conversation going about whether hard rocks like granite and marble cost more to carve than softer materials like sandstone. Then move on to the idea that some materials are more liable to weather than others, and connect the ability a family in the past might have had to pay for a stone with the material. If you have wooden grave markers, discuss why stone is normally used.
- Now you can move on to the church. All of this depends on the age and design of the church, but most were built in or before Victorian times. Victorian churches were largely built on traditional lines, using stone, so they can all be grouped together.
- This is an opportunity to do a local study of the church at the same time, perhaps reinforcing it with our church book, which has a diagram and also points out the main features.

- Your local church.

- Explain that function often affects the building stone used. So we are talking about fonts and perhaps windows needing to have intricate carving, and so being in limestone, and occasionally marble. As it is inside and not subject to weathering, limestone is fine, even though you can't carve the sharp detail that you can get in marble. There may be internal tombs. If these have effigies on top, they will be in marble, or something that is a very lard limestone. What about the flagstones, are they tile or a form of slate? Then examine the columns. Are they sandstone,or limestone (very rarely anything else). Go on examining every feature, or ask students to do it as a task and get them to sketch the feature as well.
- Now you can take the students outside and look at the building materials. The outside corners will often be either of a different material to the walls or a different size. This is partly decorative, but also because these are structural features. Are the rocks on the inside walls the same as the outside? If not, why not?

- Get students to sketch the various stones, or take photos, or make short videos, so they build up a reference bank of imagery.

2. Plenary session

- Your local church is a great source of local study for rocks and building stones and often has more variety than you can find anywhere else. Students should understand the main rocks types used in the building and the graves and have some understanding as to why each was used.

Local studies

In the street

1. Whole class instruction

Objective: To find out how and where various kinds of rocks and stones are used in the local area.

The local streets

"What rocks and stones can we find in our local area?"

- Decide whether you are going to look at a local stream or other part of the natural environment or the built environment.
- Choose streets that are not busy with traffic for this, as you will have to stand with a class. Use health and safety guidelines appropriate to your school.
- Quite often the best place is right in the middle of a town, as these streets are often pedestrian precincts and so traffic problems are alleviated. This may also be the place where the oldest buildings are, and also the public buildings. These offer more scope because public buildings like town halls were often built for prestige and so use materials that you would not find in a normal street.
- The principle is similar to the church, that is you go around looking at specific features, such as the stonework around shop fronts, the pavement, curbstones, walls, town hall steps and so on. Photographs would be a good idea here, too.
- This would be a good place for students to make presentations, using a video camera and leading the camera operator around while describing what they should be looking at and why materials are used differently in different places. There is nothing like doing a presentation for students to find out how much they know, and for you to see what they know.

2. Plenary session

- Review what students have seen, and see how far they have got with understanding how rocks are use. See if they have had trouble with their identification, and if necessary help out using samples in class. Explain that rough class samples might look different to polished versions used on buildings.

3. Further work/homework

- Get students to look around their own street with their parents and see how many materials are used locally. They could record what they saw using a mobile phone camera.