

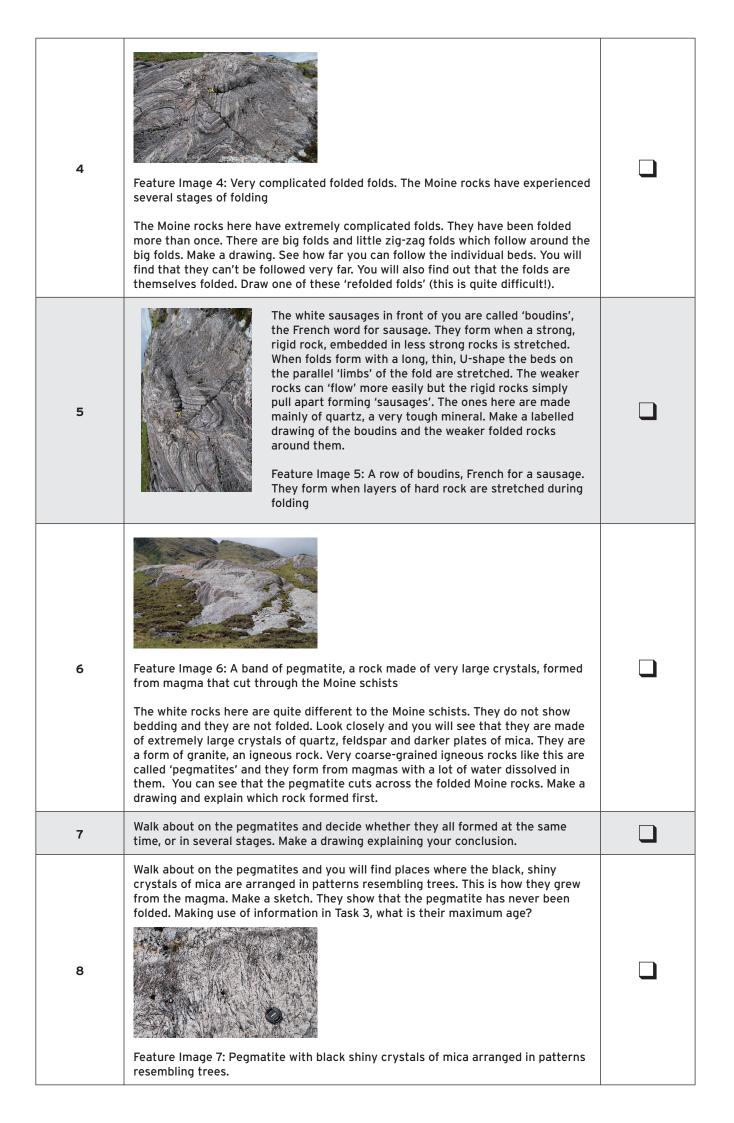


General instructions to students:

- 1. Note the main RISKS at the site when you arrive.
- 2. Respect the geological code of conduct at all times, do not disturb wildlife, close gates. Observe the recommendations of the Scottish Natural Heritage when collecting rocks and fossils see www.snh. scot/scottish-fossil-code
- 3. Before leaving transport, check that you have suitable clothing and footwear and the equipment to record your field observations:
 - ✓ Pencils
 - ✓ Clipboard
 - ✓ Task sheet
- 4. Stay close to your teacher/supervisor at all times. Note there is water, boggy ground, cliffs and scree.
- 5. Try and complete your observations in as much detail as possible. Listen to the teacher as they explain what you are looking at and ask questions if you are unsure about any aspects of the site.

Tasks to be completed:

Task	Description	Completed (tick)
1	You are asked below to make drawings. Always put a scale on drawings and photographs. A ruler is best but a hand or a foot will do!Image: The set of	
2	Feature Image 2: Grooves in a rock surface carved by boulders being carried by a moving glacier Find a grooved rock surface and draw detailed sketches showing features, both large and small, that result from abrasion by boulders carried by ice. Indicate the direction in which the ice was moving.	
3	Feature Image 3: Tight folds in Moine schist formed when Scotland was on the edge of Canada. It collided with a subduction zone during the closure of the lapetus ocean. Most of the rock exposures around you, and in the distance, are made of a rock called schist. They are called the Moine schists and form most of Scotland north of the Great Glen right up to the north coast. They formed originally as sand and mud in a shallow sea on the edge of a glant continent called Rodinia a billion years ago. When Rodinia broke apart the Moine sedimentary rocks found themselves on the edge of a continent called Laurentia collided with a subduction zone, a line where old ocean floor sinks down into the Earth's mantle. All the rocks of the Scotlish Highlands were folded and piled up to produce a great mountain range, the Caledonian - Appalachian mountains. In Scotland, this time is called the Grampian 'orogeny', a word that means 'mountain building'. The Moine rocks were involved in a second orogeny called the Scandian orogeny 430 million years ago when a small continent called Avalonia, carrying the rocks that now underlie England, collided with Laurentia. The bands in the rocks are ret the original sedimentary layers but they have been intensely folded, piled up and heated by being buried deep below the surface, so that new mineral grains have formed, a process called 'metamorphism'. It is hard to imagine how rocks can fold but when they are red hot they become plastic, a bit like an iron bar when it is heated. These rocks have been folded and stretched. When you get home find an old strip of carpet and create a fold by pushing in the ends. If you make the fold tall enough it will flop over and look very like the folds in front of you now. Look closely at the mineral grains in the different beds. You will see that they vary in colour and size. Find a distinctive band and see how far you can follow it before it dies out. Compete with your friends to find the longest continuous bed!	



Name



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