

Achmelvich

Student Sheet



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, do not remove rocks/fossils or sand from the site.
3. Before leaving transport, check that you have suitable clothing and footwear and the equipment to record your field observations:
 - ✓ Pencils
 - ✓ Clipboard
 - ✓ Task sheet (can vary)
4. Stay close to your teacher/supervisor at all times.
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)
Site 1	1a. Choose an interesting part of the rock (about 30cm square) and make a sketch focusing on the shapes made by the two different colours within the gneiss. 1b. Try and identify the minerals in both the light and dark bands of gneiss. 1c. Which of the two mineral bands in this gneiss is more resistant to weathering? What indicated this? 1d. Dark parts in the gneiss show long narrow pods like the shape of an eye. Draw an example of this and mark with arrows which way you think the forces have been applied to create this shape?	<input type="checkbox"/>
Site 2	2a. There is an intrusion of almost black, igneous rock. Find the edges of the igneous intrusion, describe them and estimate how wide the intrusion is. Note the compass direction of the edges. 2b. Decide if the intrusion is it a dyke or a sill? A dyke is a vertical intrusion and in a sill the intrusion follows the layering in the surrounding rock. 2c. Sometimes when magma is intruded into solid rock it breaks pieces off and carries them along. The magma crystallizes around these pieces as it cools to form a xenolith. Locate and draw two examples which show that the igneous rock was once liquid. Either a thin intrusion off the main intrusion or a piece of surrounding gneiss that has been broken off and become trapped in the intrusion. 2d. Note what happens to the direction of the layering in the gneiss as the edge of the intrusion is approached?	<input type="checkbox"/>
Site 3	3a. Describe the shape of the gap in the rock. Use information on what you have seen at Sites 1 & 2 to suggest what has been removed to leave this gap? 3b. What has removed this rock? 3c. Walk up to the track along the trench. What has formed in the feature inland?	<input type="checkbox"/>
Site 4	4a. Draw the fold by choosing two layers and follow their shape right round the shape of the bend (fold). Make sure to include the thickness of the layers as they go around the fold. 4b. Add two arrows to your drawing to show the direction of squeezing needed to produce this shape. 4c. Do you think the rock was cold hard when it was folded? Explain your answer.	<input type="checkbox"/>
Site 5	5a. Make a sketch showing the shape of the pod features. Note their main characteristics and estimate their size. 5b. Which way are the layers sloping? Compare this to what you seen at Site 1.	<input type="checkbox"/>
Site 6	At Site 6 find a safe spot and sketch a map of the coast line including the areas you have covered inland. Annotate your map with details including rock type, features, vegetation and hazards.	<input type="checkbox"/>

Name

Location

Achmelvich

1a. Choose an interesting part of the rock (about 30cm square) and make a sketch focusing on the shapes made by the two different colours within the gneiss.



1b. Try and identify the minerals in both the light and dark bands of gneiss.

1c. Which of the two mineral bands in this gneiss is more resistant to weathering? What indicated this?

1d. Dark parts in the gneiss show long narrow pods like the shape of an eye. Draw an example of this and mark with arrows which way you think the forces have been applied to create this shape?

Name

Location

Achmelvich

2a. There is an intrusion of almost black, igneous rock. Find the edges of the igneous intrusion, describe them and estimate how wide the intrusion is. Note the compass direction of the edges.

2b. Decide if the intrusion is it a dyke or a sill? A dyke is a vertical intrusion and in a sill the intrusion follows the layering in the surrounding rock.

2c. Sometimes when magma is intruded into solid rock it breaks pieces off and carries them along. The magma crystallizes around these pieces as it cools to form a xenolith. Locate and draw two examples which show that the igneous rock was once liquid. Either a thin intrusion off the main intrusion or a piece of surrounding gneiss that has been broken off and become trapped in the intrusion.

--	--

2d. Note what happens to the direction of the layering in the gneiss as the edge of the intrusion is approached?

Name

Location

Achmelvich

3a. Describe the shape of the gap in the rock. Use information on what you have seen at Sites 1 & 2 to suggest what has been removed to leave this gap?

3b. What has removed this rock?

3c. Walk up to the track along the trench. What has formed in the feature inland?

4a. Draw the fold by choosing two layers and follow their shape right round the shape of the bend (fold). Make sure to include the thickness of the layers as they go around the fold.
4b. Add two arrows to your drawing to show the direction of squeezing needed to produce this shape.



4c. Do you think the rock was cold hard when it was folded? Explain your answer.

Name

Location

Achmelvich

5a. Make a sketch showing the shape of the pod features. Note their main characteristics and estimate their size.



5b. Which way are the layers sloping? Compare this to what you seen at Site 1.
