

Caswell Bay Geotrail Worksheet



To use this worksheet you
will need access to **Google
MyMaps**

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Caswell Bay Geotrail](#)

Introduction

This geotrail was inspired by the Scratching the Surface geology and landscape walks series by Dr Geraint Owen. It covers a broad range of geological concepts including sedimentary rocks, fossils, mountain building, folding and faults. Exercises focus on drawing field sketches, building a stratigraphy, describing sedimentary rocks in the field and understanding the geological history of an area.

This worksheet is for stops 1-8 which focus on the geology within Caswell Bay. Stops 9-12 can be done as part of a guided walk along the coastal path to Langland Bay.

How to use this worksheet

The location of each stop is indicated on Google MyMaps. Each stop has an explanation with accompanying photographs showing key features of the site. This worksheet provides activities that can be done at each of the stops. Answers can be found at www.s4science.co.uk/geotrails/geologytrails/caswellbay.



Stop 1: Caswell Bay stratigraphy

Q1. Draw 2 different species of fossil.

Remember to add a scale and label your sketch



Crinoid fossils



Coral fossil

Stop 2: Langland Dolomite

Q1. Add the Langland Dolomite to the stratigraphic column from stop 1.

Q2. Look carefully at the white lumps pictured below. What mineral are they made of and what properties of this mineral could be used to identify it?



White lumps in the Langland Dolomite

Stop 3: Caswell thrust

Q1. Draw a schematic sketch of the Caswell thrust, showing the dip of the rocks, the direction of movement across the fault and the names of the formations either side of the fault.

Remember to add a scale and orientation to your sketch

Q2. What type of stress needs to be applied to the rocks to create this type of fault? Compressional or extensional?

Q2. Why are the rocks dipping in opposite directions either side of the fault?

Stop 4: Syncline

Q1. Draw a field sketch of the syncline.

Remember to add a scale and orientation to your sketch

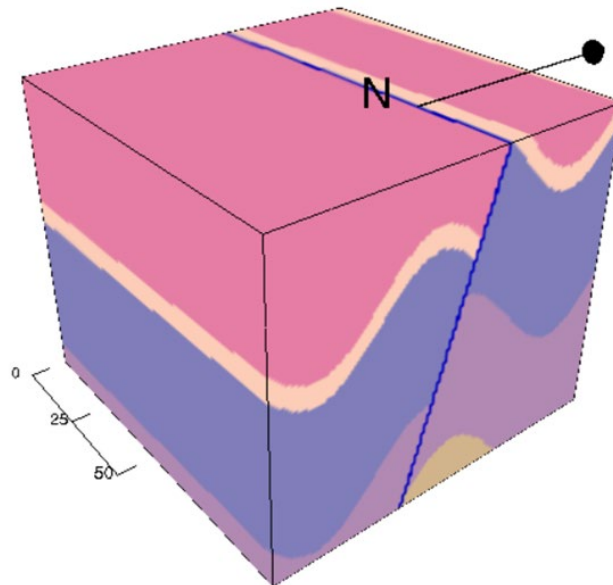


Syncline

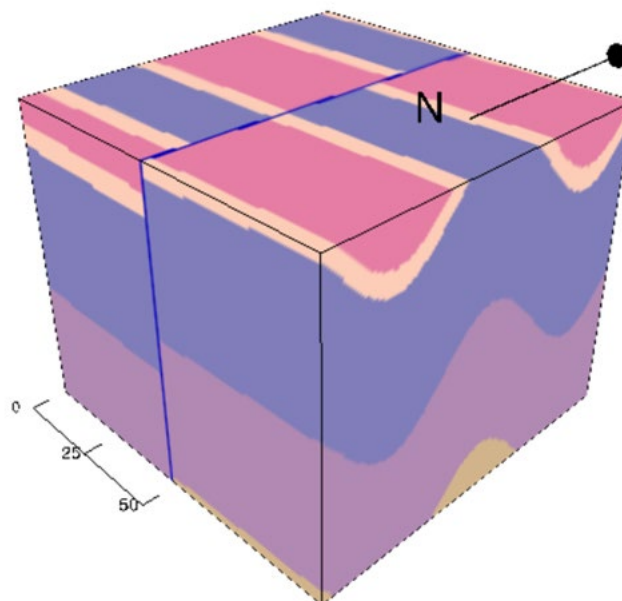
Stop 5: Faulting in the bay

Q1. Label the block diagrams giving the name of the type of faulting and the example seen at Caswell Bay. You might need to wait until stop 8 before adding movement direction arrows to the fault in block 2.

Block 1



Block 2



Stop 6: Quaternary deposits

Q1. What is a superficial deposit? Give two examples of superficial deposits found at Caswell Bay.

Q2. Describe the glacial head deposit.

Use the following prompts to help:

- What colour is the rock?
- What size are the clasts? Give a range.
- How rounded are the clasts? This is not how circular they are but how smooth the edges are. Use one of the following terms to describe their roundness:
Well rounded, Rounded, Sub-rounded, Sub-angular, Angular, Very Angular
- What type of clasts are there? What is the most common?
- What is surrounding the clasts? Is it a mineral (known as cement) or finer sediment (known as matrix)?



Glacial head



Raised beach

Q3. What is the geological name for the surface between the Carboniferous limestone and the much younger Quaternary deposits?

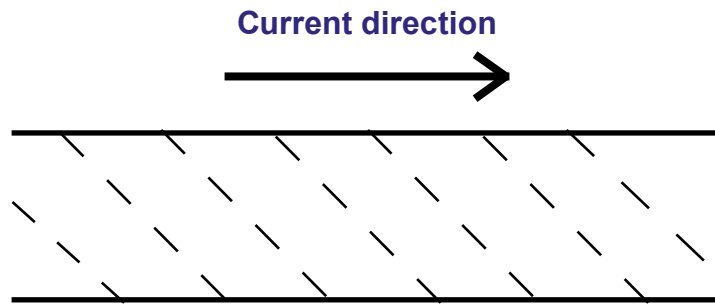
Q4. What is the geological history of the Caswell Bay geology? Write a list of events with the oldest at the bottom of the page.

Youngest

Oldest

Step 7: Cross lamination

Q1. Draw a sketch of the cross lamination and add an arrow to show which direction the current was flowing. Use the diagram of the cross lamination below to help.



Remember to add a scale and orientation to your sketch

Stop 8: Sea level changes

Q1. Is the strike-slip fault through Caswell Bay sinistral (moving left) or dextral (moving right)?
Check your answers from stop 5.

Q2. Why is the sea level higher during interglacial periods and lower during glacial periods?



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Find the answers at [www.s4science.co.uk/
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geologytrails/caswellbay](http://www.s4science.co.uk/geotrails/geologytrails/caswellbay)



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(S4) Funded by the European Social Fund and the Welsh Government.