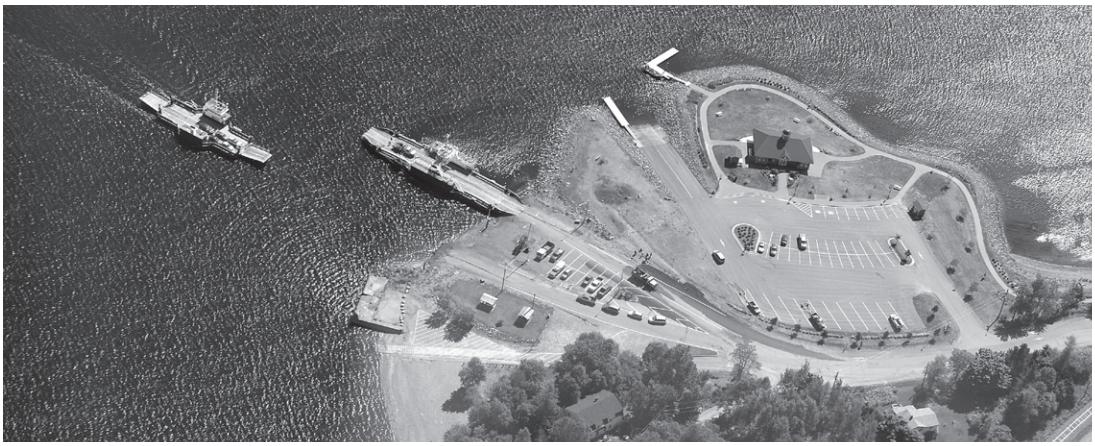
United Nations Educational, Scientific and Cultural Organization

Stonehammer UNESCO Global Geopark

BRUNDAGE POINT
Student Sheet

DRIFTINGAPART

STONE HAMMER



Student tasks for Brundage Point:

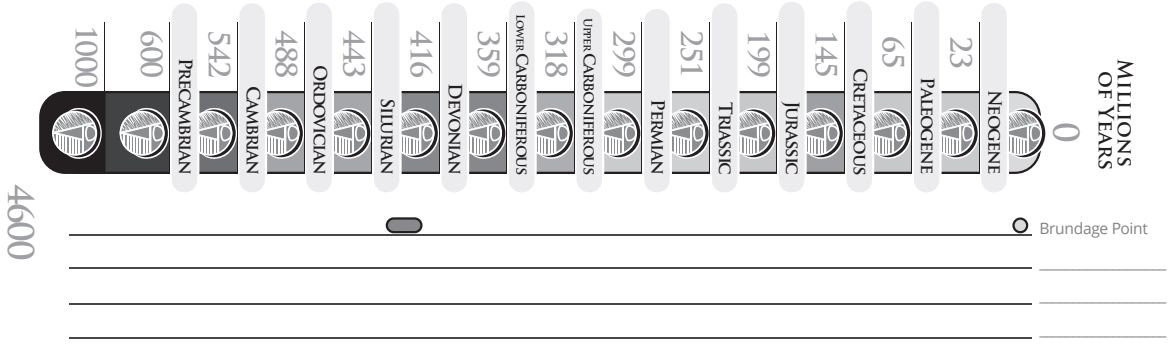
A

Brundage Point bedrock is in the Kingston Group, Westfield Formation, described as "Grey to maroon, dacitic to rhyolitic." It falls in the Silurian period on the Geological Time Scale. Using the bedrock geology maps on the government of New Brunswick website

http://www2.gnb.ca/content/gnb/en/departments/erd/energy/content/minerals/content/BedrockGeologyMaps_1-50-000.html

locate your school and your home or another significant place. Name the Group and Formation of your location and place it on the geological time scale. Copy the description of the rock and compare it to any outcroppings of bedrock you can find in your school or home yard. Be sure to look for rock coming out of the ground, not any boulders or gravel that have been moved onto your site.

	GROUP	FORMATION	PERIOD
1			
2			
3			



General instructions to students:

1. Note the main RISKS at the site when you arrive, especially tide times and falling rocks.
2. Respect the geological code of conduct at all times; do not feed or disturb wildlife, close gates, do not remove rocks/fossils or sand from the site.
3. Before leaving for the site ensure you have suitable clothing and footwear and the equipment to record your field observations:
   a. Pencils
   b. Clipboard
   c. Task sheet
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.

E

Research a current Island Arc volcanic site included in the Drifting Apart project area. Locate the evidence in the rocks of a similar ancient structure here. How does the newer site help us understand the story of what happened in the ancient structure?

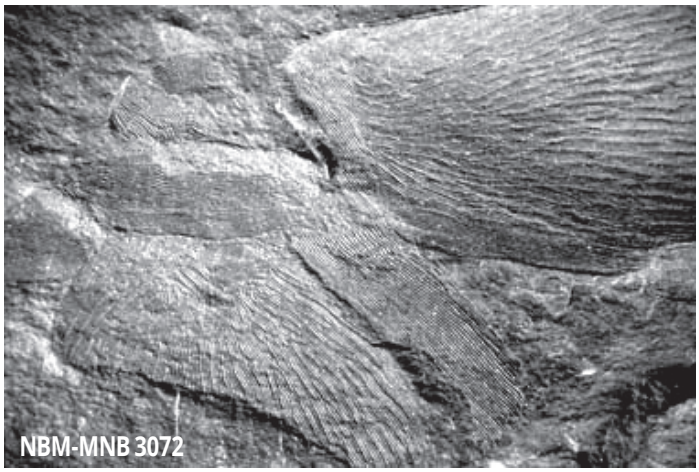
Name of current Island Arc volcanic site	Location	Date of volcanic eruption	Description	Similarities with the Silurian structures in the area around Brundage Point

F

Fossil task: *Cyasthaspis Acadica.* Silurian. Nerepis, New Brunswick.
Collector: G.F. Matthew, c. 1885. New Brunswick Museum (NBM 3072).

Image width (left) 8 cm. Heterostracans are extinct jawless fish. The front of the body covered with bony plates is preserved in the specimen from New Brunswick. George Matthew described this fossil specimen in 1886, the first of its kind known from North America. It is one of the oldest primitive fish fossils known from Canada.

In Nerepis, just northwest of Brundage Point, there is a formation of Silurian age sedimentary rock. Please explain why these fossils could not be found in the Silurian age rock right here at Brundage Point and immediately across the Saint John River?



Need Line Drawing to be supplied

B

The rock here is volcanic. Draw a volcano including ash, lava, sills, dykes, and magma.

C

Look across the river at the shape of the rolling hills. Sketch the hills you see today in Box A. These hills are the roots of ancient mountains. In Box B, sketch what this landscape might have looked like 100 million years ago.

A.

B.

D

The mountains with their volcanic activity formed here in the Silurian period were a result of subduction.
Model subducting plates using sandwich cookies:

Take 3 cookies. In this model, the top of the cookie is a tectonic plate, and the icing is the magma of the asthenosphere beneath.

Separate the top cookie from the icing and slide it around, mimicking tectonic plate movement.

Now separate the top cookie layer from each cookie and break it in half.

Use the cookies to construct models of 3 types of tectonic plate movement:
convergent (sliding towards each other),
divergent (pulling away from each other)
and transform (sliding in opposite directions parallel to each other).

Label and show your teacher your models before you eat them.

Which model represents the subduction that happened here around 430 million years ago?

CONVERGENT	DIVERGENT	TRANSFORM