2. At North East Quarry. (About 30 minutes)

Walk up to the viewpoint at North East Quarry (See Figure 1) to view these slightly younger overlying limestone rocks. Questions here might focus on observing evidence for the cycle of deposition, uplift, weathering and erosion. It is advised that you do not cross the fence and approach the quarry face.

No material should be hammered or collected from this protected site.

"These rocks are all limestones. Which is the oldest bed in this quarry?"	[The lowest layer visible. The other beds are progressively younger to the top. Here, the quarry floor is the top of the oldest rock layer and represents an ancient seafloor, once washed by wave action.]
"These layers of rocks were all deposited horizontally, under the effect of gravity in a shallow sea. What has happened to them since?"	[Uplift to about 200m above sea level, and slight tilting of 10 – 15 degrees to the east.]
"What do you think happens to the rain when it falls on rocks at the top of the quarry face?"	[It sinks through the porous soil, then down the cracks (joint planes) easily visible in the face, then down to the water table below. You can demonstrate that water does not go through the rock itself by pouring a small amount of water on a loose block lying by the signboard. This limestone is **not porous** like Chalk. Water penetrates here through the cracks, not the rock. It is **permeable**, but **not porous**]
"What do you think caused the brown staining on these rocks?"	[NOTE: revisiting ideas from outcrop 1. Brown staining along joint faces, probably iron oxides & hydroxides formed by chemical weathering by water percolating down the vertical joints in the limestone. These quarried limestone faces are too recently exposed to show much sign of chemical weathering by acidic rainwater, especially at this distance.]
"How do you think the angular blocks at the foot of the slope were formed?"	[Broken from the rock face (physical weathering) maybe by frost, or maybe loosened by quarrying (biological-human weathering?). transported down the face by gravity (which is erosion, not weathering).]
"Describe the soil layer at the top of the quarry face? How do you think it was formed?"	[(NOTE: revisiting ideas from exposure 1. in anticipation of more pupil contributions) Brown and not very thick. Limestones tend to weather by carbonation and solution of the rock. Only the impurities are left behind to form soils that are usually thin clays, stained brown by iron.]

Pupils should be given time to make notes and sketches of the main features of this face and how it is being changed by weathering and erosion by completing Pupil Worksheet 2 and annotating the sketch. A completed example is included.

PHOTO OF THE WESTERN END OF THE FACE IN NORTHEAST QUARRY