Landform Development Sample Answer

**Landform Development**

Case Study: Waterfall

A waterfall is a feature of fluvial erosion found in a rivers upper course.

As there is both soft and hard rock at the base of a river the soft rock erodes at a much quicker rate than the more resistant hard rock.

This increases the speed of the river (along with rainfall) and allows for the agents of erosion to act upon the rivers bed at a much quicker rate. The agents of erosion are hydraulic action, abrasion and solution. The hydraulic force of the water forces its way into the river bed through cracks and weaknesses these widen and fall apart overtime.

The power of the falling water together with it loads weat away the bed and banks by corrosion.

The eroding action of the rivers load erodes the soft rock quickly but finds the hard rock more resistant creating an overhang.

As the flowing water strikes the soft rock a plunge pool is formed

**Waterfall proper 30/30 Sample Answer** The Irish landform that I have studied is the waterfall. Waterfalls can be found in Killarney such as the Torc Waterfall and in Wicklow, the Powers court falls.

Waterfalls are a feature of river erosion which is commonly found in the youthful stage of a rivers course. In the formation of waterfalls processes such as hydraulic action, abrasion, eddying and solution are present.

Waterfalls occur when a band of hard rock lies on a river bed, where the river bed is usually soft rock.

Rapids form where the hard rock dips downstream/ upstream. As the river passes down over the hard rock hydraulic action is present.

Hydraulic action, where force of moving water increases the erosive power and thus vertically erodes the soft rock.

Differential erosion is where the river erodes the softer rock at a faster rate than the hard rock.

Abrasion, where the river uses it’s broken off material to deepen and widen the vertical fall that formed, is present here.

As the fall has been deepened, when the water comes down the speed will have increased which will strengthen the hydraulic action and abrasion.This in turn steepens the fall.

Most erosion takes place at the base of the waterfall thus forming a plunge pool. Eddying is now present, where the swirling motion of the water and turbulence uses the load to widen the plunge pool.

Eventually the waterfall will be undercut and will collapse as the back of the waterfall is eroded by spray. The waterfall has now increased in height.

The collapsed rock is broken down by attrition and is transported downstream by solution, suspension, saltation and traction. Eventually the waterfall will retreat backwards by headword erosion and end its days as a Gorge.

Waterfalls are usually formed on the upper stage of a rivers level. Sometimes waterfalls can be formed on the lower stage as a result of river rejuvenation due to a drop in river base level. Faulting can also lead to the formation of waterfalls. At a normal fault the land slips downwards, and if a river was flowing down this it will now have been changed. Waterfalls can also be found in Glaciated regions where hanging valleys occur. The world’s most famous waterfalls are Niagara Falls and Vitoria falls.