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Erosion → hydraulic action  
→ attrition  
→ abrasion  
→ solution

transport → motion  
→ saltation  
→ suspension  
→ solution

Floodplain → areas that are irrigated through River, perfect for farming.

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Meanders → create more area affected

Intro → what is erosion

→ what is a floodplain

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7 → meander + oxbow

8 → floodplains by meanders  
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b) River Drainage Basins all have the same features, but are individual and unique when located closer. This is because, Erosion and deposition are the two working forces of river formation.

These are influenced by many different things such as velocity of the river, pH of the river, permeability of the rock and many more. However they cause the most important feature for human kind, which are meanders. In this essay I will explain how Erosion and deposition cause meanders, and therefore cause large and important floodplains.

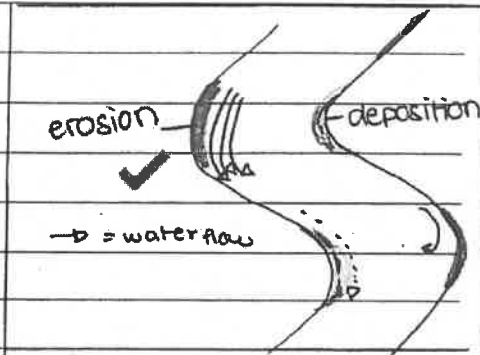
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There are four different types of erosion, which are hydraulic action (where water breaks down surfaces and rocks). Secondly, there is Attrition, which is when particles clash and break down, or abrasion where particles rub on others like sandpaper. Finally there is erosion where particles are dissolved in the



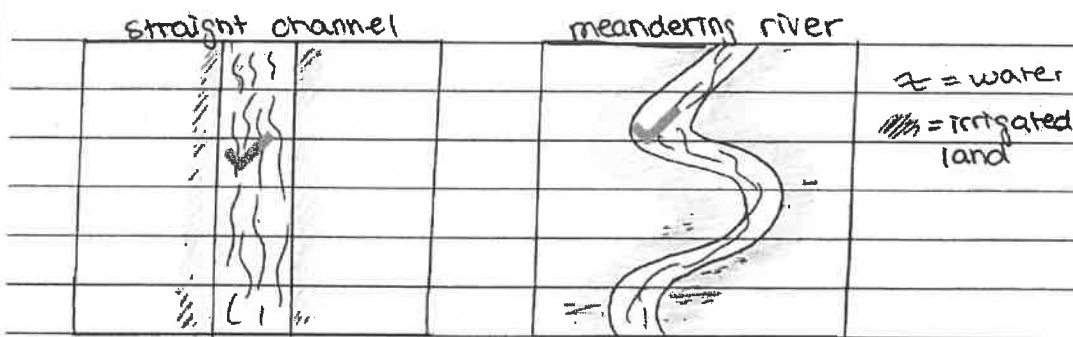
water. When eroded the particles are transported by either traction, saltation, suspension or solution to the place where they are finally deposited.

The diagram on the left shows the formation of a meander, where erosion occurs first (red) where the water is fastest and strongest. The particles then transported away loose speed on the inner parts (dotted arrow) when the water doesn't carry the



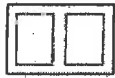
particles anymore because of the lack of strength and they are deposited. This means that erosion and deposition have an equal relative importance in the formation of meanders.

Floodplains are usually areas with a low relief where water spreads and comes together, irrigating a lot of area for farming and plant growth. In order for this to happen, meanders also influence the sphere of influence as suggested in the diagrams below.



This effect was also seen after the straightening of the Kalamazoo River in the United States, where as a result 22,000 km<sup>2</sup> of wetlands were lost, and also





the population of waterfowls and other species dropped by 90%. This shows the importance of meanders in floodplains, however erosion and deposition also play other roles in floodplains. Erosion erodes the sides of the channel which also increases the wetland area, whereas deposition decreases channel depth, increasing velocity, which then increases erosion resulting in a positive feedback loop.



In conclusion, erosion and deposition have to work hand in hand to form floodplains and meanders in every drainage basin. This is very important for the environment as well because it helps irrigate a lot of space.



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