## Use the key research by Van Leeuwen et al (2008) to explain the effect of biological factors upon intelligence. (10 marks)

The Van Leeuwen study (2008) on IQ testing for intelligence with monozygotic and dizygotic twins, parents and siblings aimed to see how genetics impacted intelligence. Twins were recruited from the Netherlands Twin Registry (NTR), established by the Department of Biological Psychology at the Vrije Universiteit (VU) in Amsterdam. By the end 112 families volunteered to take part and the study collected cognitive, behavioural and hormonal data, as well as pubertal status and structural Magnetic Resonance Imaging (MRI) brain data. Through completing the Ravens standard progressive matrices for children and adults it was found that there was the highest correlation for monozygotic twins (MZ) compared to with other family members. This shows biological factors influencing intelligence as they share the same genetic makeup. While environment may have affected this, the correlation for dizygotic twins (DZ) was not as strong; they share some of the same genetics and probably some of the same environment meaning the correlation was higher for monozygotic twins due to shared biology. This supports that biology influences intelligence. Furthermore, Van Leeuwen found that overall level for inheritance was 67%. This means that the majority of the influence comes from biology and genes when looking at IQ scores. This is further supported by the correlation between siblings. The siblings were between the ages of 9-12 years and also took part in the test. Their results showed how their genes influenced their IQ due to having similar results to the rest of their family. However, in this case, it cannot be proven that this is due to biological factors as environment and upbringing also influence IQ. Nevertheless, they also concluded that parental influence on their children's IQ can be explained by the transmission of genes. All of these findings demonstrate how biological factors affect intelligence.

