Pedigree Analysis.

Knowing how inheritance works you can begin to interpret a family tree, sometimes called pedigree analysis.

Consider a family tree for cystic fibrosis.

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- 1. From the family tree you can say that the allele for cystic fibrosis is **not dominant** because plenty of family members **carry** the recessive allele, but **are not sufferers**.
- 2. There is a 0% chance of Mark and Caroline having a child that will be a sufferer because Caroline is normal (FF).



3. There is a 25% chance that Eve and Phil will have a baby that is a sufferer, or a 50% chance it will be a carrier or a 25% chance it will be normal. This is because both the parents are carriers, but not sufferers.

Many genetic disorders can be found by analysing cells genes. This is called screening. Family trees can help people to decide whether or not to be screened or have their unborn baby screened.

For example, Phil and Eve may decide to have their unborn baby screened because the are both carriers for cystic fibrosis.

Q1. The genetic pedigree diagram below shows the inheritance of sickle cell anaemia in one family.

SS	I I I I I I I I I I I I I I I I I I I
Emma 55 lan	Key Unaffected male
James Ss Sr Martha SJ Mike Juliana	Unaffected female Male with sickle cell andemia
a) How many children cit En ma and Ian have?	Lichild - James (2) 2
 b) Name one female who is hon ozygour for the sickle b) Name one female who is a carrier for sickle cell at 	naemia. Martha (1)
c) If James and Martha have another chid what is the Explain your answer. Thar's a lin! booth are ketteres	chance it will have sickle cell anaemia? Chance kecause 2 y gous. (7000 (2) ²
GCSE D = 3 marks GCSE C = 5 marks GCSE B $=$	=7 marks
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