

Background:

1. What is the pedigree symbol for a male?

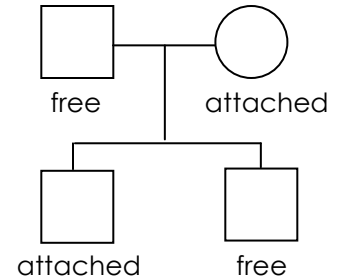
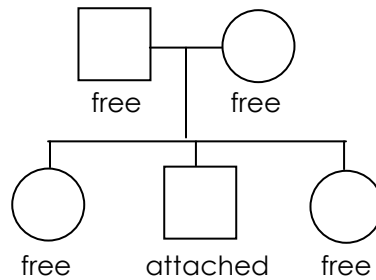
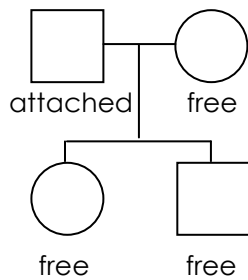
What is the pedigree symbol for a female?

How do you show that a male and a female have had biological children?

2. In order to solve pedigree problems, there are **specific strategies**.

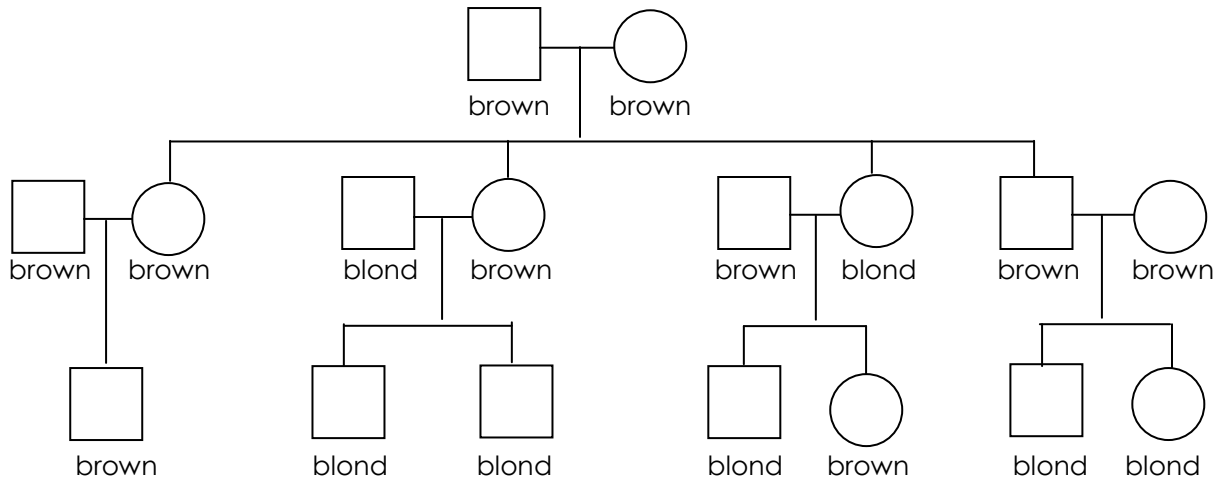
- First put in the genotype for all the individuals **exhibiting the recessive** trait as there is no question about what their genotype is.
- Second give each individual exhibiting the dominant trait, **one dominant gene**.
- Then **look above at the parents and below at the children**, when either is possible, to see if there are clues to help you solve the second gene for anyone with a dominant genotype.
- When you can't be certain what the second gene is, place a **question mark** in that spot.

Sample problems: Earlobes: Free = **E**, attached = **e**

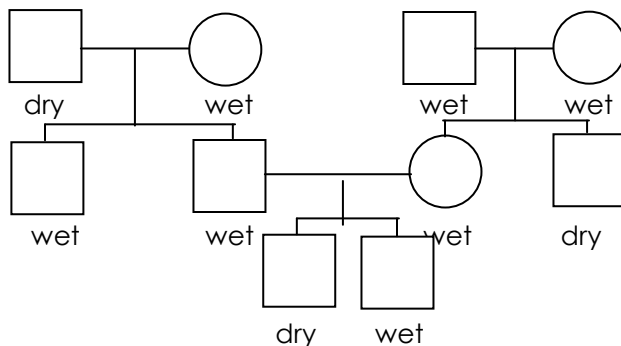


Pedigree Problems: (1/8 per individual in each pedigree)

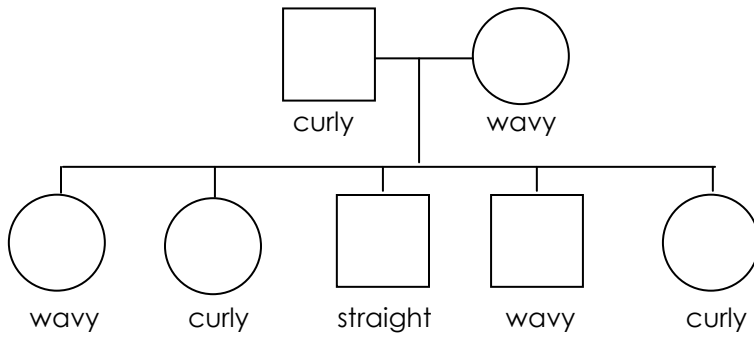
1. Hair color: Brown hair is dominant over blond. Brown = **B**, blond = **b** (2 1/4 points)



3. Ear wax: Wet or sticky ear wax is dominant (**E**) while dry or flakey ear wax is recessive (**e**). (1 1/4 points)



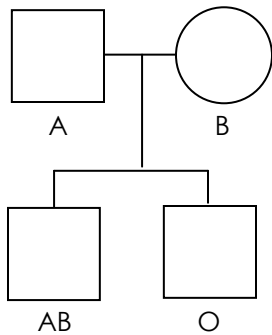
4. Hair body is a **codominant** trait. Curly= H^C , wavy, and straight= H^S . This family that has at least one adopted child. Normally only biological children are shown on a pedigree. There is a mistake here. **Circle** the child or children that are adopted. (7/8 point)



How you know that this child is adopted? **Explain** with details. (1/2 point)

5. Human blood types are both **codominant** and **recessive**. The genes for A (I^A) and B (I^B) are codominant while O (i) is recessive to both A and B.
- Fill in the **codominant genotypes** for the codominant phenotypes as there is no choice.
 - Do the **recessive** phenotypes with their **genotypes** as again there is no choice.
 - Fill in **one dominant** gene for the individuals with the dominant trait.
 - Try to figure out the second gene for these individuals by looking at their parents and/or children.

Sample Problem



Problems (3 and ¼ points)

