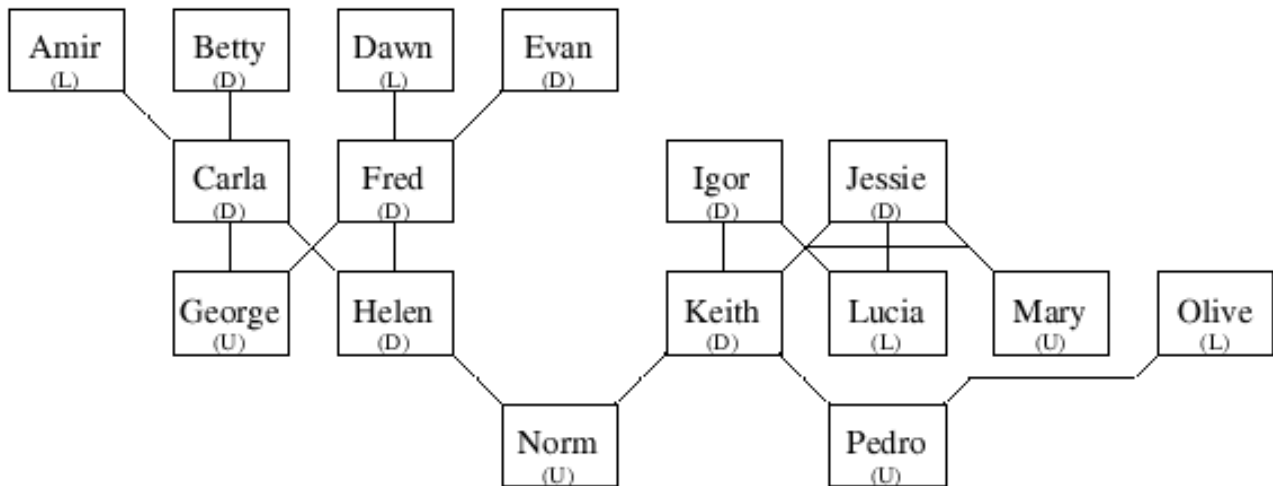


“Struck by Lightning” Supplementary Materials

Group Exercise about Genetics

Working cooperatively with your group, consider the following questions.

Examine the following family tree. The lines indicate parentage, with children below their parents. (L) indicates a person with Light-coloured eyes, while (D) indicates a person with Dark-coloured eyes, and (U) indicates a person of unknown eye colour (e.g. perhaps they are yet to be born). Of course, each (L) person must have Light-Light genes, but the genes of the (D) and (U) people are unknown.



1. Explain why each person with Light-coloured eyes (L) must have Light-Light genes.
2. For each person with Dark-coloured eyes (D), except for Betty and Evan, compute the probability that their genes are Dark-Dark versus Light-Dark. Why are Betty and Evan excluded?
3. For each person with unknown eye colour (U), compute the probability that their genes are Dark-Dark versus Light-Dark versus Light-Light, and the probability that they will have light-coloured eyes.

Then, if you have time, then separately for each person in your group:

4. Draw a family tree for the group member, including whatever relatives eye colours are known, and also including a made-up group member's fictional spouse and fictional child. (If you want, you can also make up other relatives to make it more interesting.) Then, fill in everyone's probabilities for Light-Light, Light-Dark, and Dark-Dark genes as best as you can.