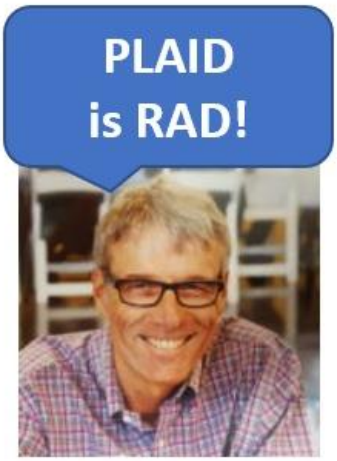
Name:

Student number/homeroom:



"Plaid Genetics"

LO: Describe the role of DNA in inheritance.

SLE: Meet NGSS.

For this worksheet, please follow the general conventions of pedigrees, as shown in the figure on page 74 of your textbook. That is, use squares for males and circles for females, filled-in symbols for the disease trait, half-filled symbols for "carriers," etc.

For this worksheet, we will assume (despite MUCH evidence to the contrary!) that the display of plaid colors is a "disease" controlled by a single gene, for which the possible alleles are D (dominant) and d (recessive). People do not have the plaid "disease" unless their genotype is dd.

1. Mr. Tice's genotype is dd; his sister's genotype is Dd. Their mother's genotype is dd. Below, draw a pedigree for this family, including both parents and both children. (Note that you will need to infer the father's genotype.) Leave some room at the bottom for an additional generation.

2. A man of about Mr. Tice's age stumbles into Room 31 one day, claiming to be Mr. Tice's long-lost brother, "Ben Tice." When asked, "Ben" admits that his genotype is DD. Could he be the biological child of Mr. Tice's parents? Explain.

3. In 2020-2030, Mr. Tice falls in love, gets married to a Dd woman, and has 2 male children, both of whom have the plaid phenotype. Add the wife and children to the pedigree you drew for #1 above.