

Build 1 red chromosome & 1 yellow chromosome by doing the following:

- 1) Link 11 red beads and attach to the bottom of the red magnet. Repeat with yellow beads.
- 2) Link 7 red beads and attach to the top of the red magnet. Repeat with yellow beads.
- 3) Circle the correct answer—What do these 2 chromosomes represent?
homologous chromosomes or sister chromatids?
- 4) Using masking tape, create tape markers for two genes (ex.: Hh & Aa), place one allele for each gene on the different chromosomes in the same locations! Sketch the chromosomes below:

- 5) If these chromosomes are sorted to become 2 different gamete cells, what are the most likely gene combinations for the gametes?

- 6) Place the tape labels on chromosome locations that will represent linked genes that are *likely* to be crossed over. Explain why having the genes in these locations promotes cross over.

Teacher sign off: _____

- 7) Place the tape labels on chromosome locations that will represent linked genes that are *unlikely* to be crossed over. Explain why having the genes in these locations limits cross over.

Teacher sign off: _____

- 8) Please combine models with another team and show crossover happening with a tetrad. Sketch the tetrad & genes. How many of the 4 chromatids are likely to cross over? Why?

Teacher sign off: _____

- 9) Please disconnect your chromosome models and return them to the original containers.