

Chromosome Combinations?

Procedure

- 1. Use Models** Model genes on chromosomes by stringing three beads on each chenille stem. Refer to the chart to find the meaning of each type of bead. Thread the ear shape gene first, then the eye color gene, and then the gene for hair color. Separate the chromosomes into two pairs to represent two parents.
- 2. Record Data** In the chart below, draw the bead shapes and colors on the chromosomes for each parent.

Meaning	Variations	
Ear shape	Attached:	Not Attached:
Eye color	Blue:	Brown:
Hair color	Brown:	Black:

- 3. Experiment** Take one chromosome from the first parent to form a gamete chromosome. Repeat for the second parent. Draw the gamete chromosomes in the chart. Then combine them to form a zygote. Draw the chromosomes of the zygote in the chart.

Conclusion

Write the answers to the questions.

1. **Analyze Data** Is it possible to predict the offspring's chances of having a certain hair color, eye color, and ear shape? Why or why not?

2. **Use Models** Make a model of two parents whose traits are exactly alike and model the offspring's chromosomes. Are the traits of this offspring more predictable than those of the first offspring you modeled?

Investigate More!

Experiment Find out what happens when you add more choices of traits. Make models with several choices for eye color, hair color, and one other trait.

