



Would You Believe . . . ?

It all started in ancient China. A fisherman caught an unusual carp. Usually these small freshwater fish are drab colored, but this one had a pale golden hue. It was too pretty to eat, so the fisherman took the fish home as a pet.

Months later, the fisherman caught another gold-tinged carp. He kept the two fish in the same bowl. When the fish reproduced, the offspring were even more brightly colored than their parents. The first goldfish had been born!



In the years that followed, people throughout China began keeping and breeding the new, orange-colored pets. Many became goldfish matchmakers, choosing only the most handsome mates for their favorite fish. With each generation of hatchlings, the fish looked more and more distinctive. By A.D. 1500, when the first shipments of goldfish arrived in Japan, goldfish no longer resembled carp. In fact, they were so regal looking that the commoners in Japan were forbidden to keep these animals as pets.

Without knowing it, these early goldfish breeders were using the principles of genetics to create many new kinds of goldfish. In this chapter you will learn about heredity, the passing on of traits from parents to offspring. You'll discover the principles that allowed beautiful goldfish to be bred from rather plain-looking carp.



What Do You Think?

In your ScienceLog, try to answer the following questions based on what you already know:

1. Why don't all humans look exactly alike?
2. What determines whether a human baby will be a boy or a girl?



Investigate!

Clothing Combos

Do you look like your father or your mother? Do you look like your sister or your brother? You may. But chances are you look quite different. Even though you are different, you share some characteristics with your siblings and your parents.

In this activity you will investigate how different characteristics can be combined to make something special and unique, just like you are.

Procedure

1. Your teacher will provide **three boxes**. One box contains **five hats**. One box contains **five gloves**, and one box contains **five scarves**.
2. Without looking in the boxes, five of your classmates will select one hat, one scarf, and one glove. They will put the items on and model them for the class. Then they will put the clothing back into the boxes for the next five students. This process will continue until all students have made their selections.
3. Record the clothing combination you selected in your ScienceLog.

Analysis

4. Were any of the combinations the same? How many different combinations did you have in your class?
5. Do you think you saw all of the possible combinations? Explain your answer.
6. Choose a partner. Using the pieces of clothing you and your partner selected from the box, how many different combinations could you make by giving a third person one hat, one glove, and one scarf? You may want to make a chart like the one below to help you figure it out.

	Hat	Glove	Scarf
1	X	X	X
2	X	X	X
3	X		

7. Considering what you have learned from this Investigate, why do you think parents often have children who look very different from each other?