

Name: _____ Date: _____ Period: _____

TITLE: From One Generation to Another

PURPOSE:

- 1) To simulate the transmission of genetic information grandparents, to parents, to children
- 2) To collect & interpret data on the diversity of possible patterns from these transmissions.
- 3) To relate the physical attributes of humans to the genetic information received from previous generations.

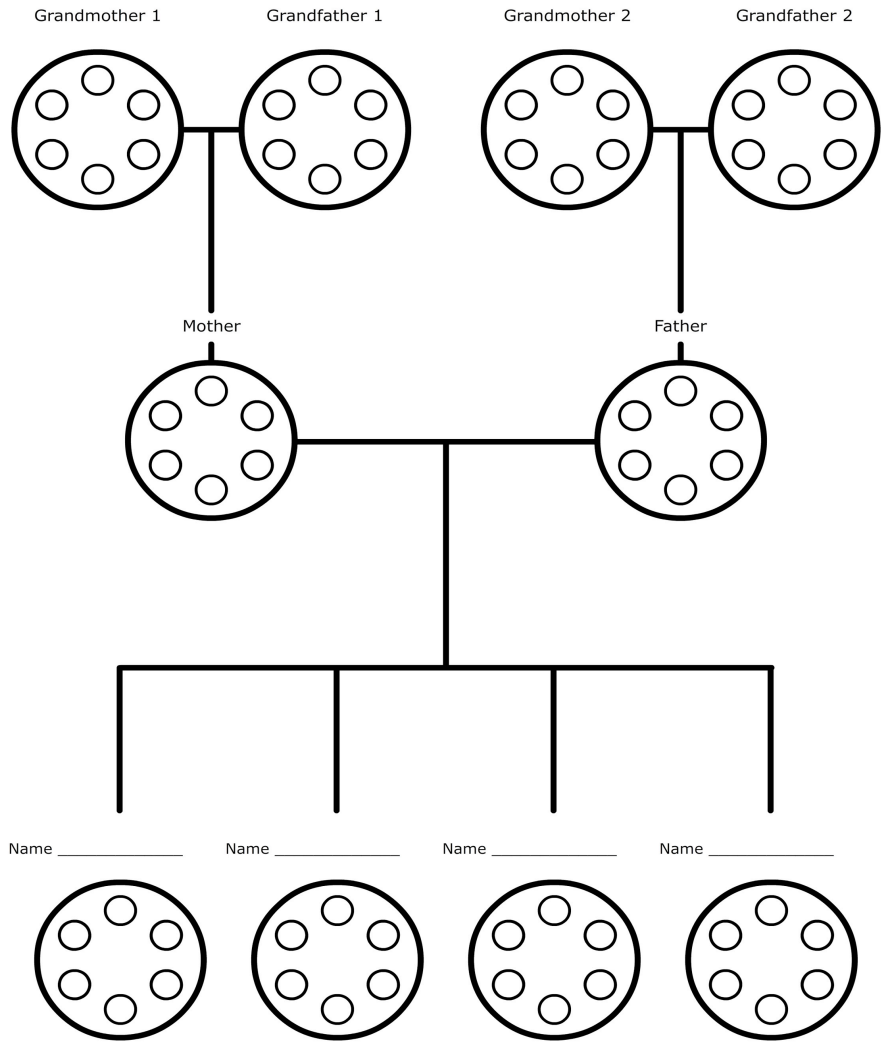
MATERIALS:

- 24 Skittles or M&Ms – 6 each of four different colors
- 6 Styrofoam or paper cups
- 1 felt tipped marker
- 4 crayons in colors to match the candy

PROCEDURE:

1. Use the marker to label the cups – Grandfather 1, Grandmother 1, Grandfather 2, Grandmother 2, Father, Mother
2. Put 6 candies of one color in the Grandfather 1 cup, 6 of another color in the Grandmother 1 cup, 6 of another color on the Grandfather 2 cup and the last six in the Grandmother 2 cup. These represent the genes of each grandparent.
3. Color the data diagram to show the colors used for each grandparent.
4. Without looking, pick 3 candies from the Grandfather 1 cup and 3 from the Grandmother 1 cup. These represent the genes of the daughter of the first grandparents; the daughter who will grow up to become a mother herself. Put them in the cup labeled Mother. The daughter has 6 genes, just like both of her parents.
5. Without looking, take 3 genes each from both the Grandfather 2 cup and the Grandmother 2 cup. Put them in the cup labeled Father. The Father has 6 genes, just like both of his parents.
6. Color the data diagram to show the genes for the Mother and Father.
7. Mother and Father have 4 children; Matthew, Joseph, Carolyn, Katherine. Select Matthew's genes by taking 3 genes from the Mother's cup and 3 genes from the Father's cup (without looking). Color the data diagram for Matthew.
8. Return the genes to the Mother and Father cups.
9. Select Joseph's genes the same way. Color the diagram.
10. Repeat for Carolyn and Katherine.

Name: _____ Date: _____ Period: _____



Use the color code to determine how many genes each grandchild received from each grandparent

	Matthew	Carolyn	Joseph	Katherine
Grandfather 1				
Grandmother 1				
Grandfather 2				
Grandmother 2				
TOTAL				

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Analysis and Conclusion:

- 1. Were any of the four children exactly alike? Use the data to support your answer.**

- 2. What did the colored candy represent?**

- 3. If the genes controlled a noticeable feature which of the children would look most alike? Use your data to explain your answer.**

- 4. Which of the children would most resemble a parent or grandparent? Explain your answer using your data.**

- 5. When the family went a family reunion, Matthew heard several relatives say he looked like his grandfather on his father's side. Katherine heard several relatives' comment that her hair was just like her grandmother's on her mother's side. Matthew and Katherine were confused because they know that they received their genes from their parents. Explain to Matthew and Katherine how they received traits that are very similar to their grandparents.**

- 6. Summarize how traits are passed from one generation to another.**