



SCIENCE EXPERIMENT

MAKING A MODEL OF CHROMOSOMES

Using Pipe Cleaners

Name: _____

Date: _____

Lesson/Topic: _____



OBJECTIVE:

To build a model of a chromosome using pipe cleaners and identify its main parts.



MATERIALS:

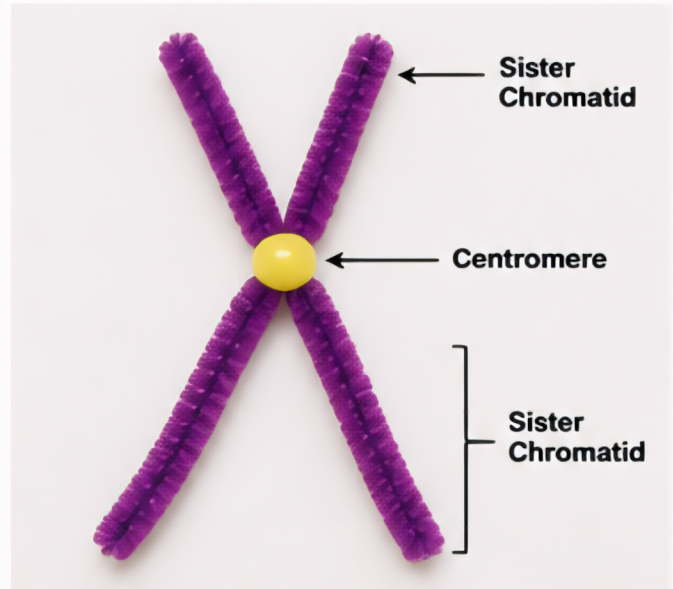
- Pipe cleaners (2 of the same color for each chromosome)
- Small bead or pom-pom (for the centromere)
- Scissors
- Different colored pipe cleaners (optional)
- Label tags or paper and tape
- Marker or colored pencils (optional)



BACKGROUND:

Chromosomes are thread-like structures inside the nucleus of cells. They carry our genes, which contain instructions for our traits. A replicated chromosome is shaped like an "X" and is made of two identical parts called **sister chromatids** joined together at a **centromere**.

EXAMPLE MODEL:



(Your model may look different. This is an example.)



PROCEDURE:

1. Take two pipe cleaners of the same color. These will be the sister chromatids.
2. Line them up side by side.
3. Cross the two pipe cleaners in the middle.
4. Add a bead or pom-pom to the center where they cross. This is the **centromere**.
5. Twist the pipe cleaners gently above and below the bead to secure it.
6. Bend the top ends outward to form the short arms (p arms).
7. Bend the bottom ends outward to form the long arms (q arms).
8. Label the parts of your chromosome model.
9. (Optional) Make more models using different colors to represent different chromosomes.



OBSERVE & THINK:

1. What does your model show about the shape of a replicated chromosome? _____
2. Why do you think chromosomes are shaped this way? _____
3. What did you learn about the parts of a chromosome? _____
4. How is your model similar to real chromosomes? How is it different? _____



EXTEND YOUR LEARNING:

Try making a set of models to represent **homologous chromosomes** (one from mom and one from dad). Use different colors and compare them.



CHALLENGE:

Research how many chromosomes are in a human cell. Then, create a model set showing that number!