

Lesson 7 - Meiosis

Purpose - Show how meiosis passes on traits, but can also be impacted by genetic changes.

Need - Colored Pencils

Possibly add - <https://learn.genetics.utah.edu/content/pigeons/pigeonetics/>

1. Warm Up - Why does a human kid NOT look exactly like their mom or dad?



2. Watch - Overview of [Meiosis](#) (7:45) - (other option [Meiosis](#))
 - a. Write - How is meiosis DIFFERENT from mitosis?
 - i. Meiosis is different from mitosis because the amount of DNA in new cells from meiosis is _____.
3. Outline - Draw and explain meiosis (complete A-D in your notebook)
 - a. Setup meiosis model together for Part A.
 - b. Then complete parts B-D

Meiosis

- Add all drawings and concepts to your notebook.

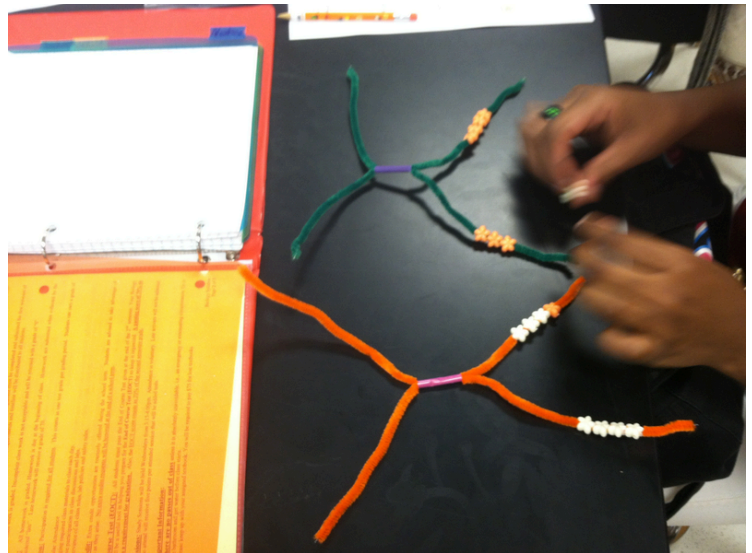
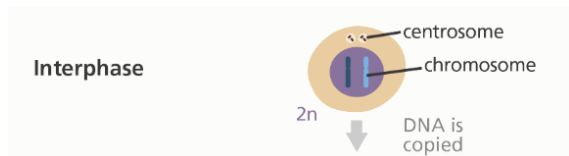
- Information - Use this resource to help find answers - [Meiosis](#)

A. Model - Create a model, then write how crossover can change the DNA from a parent to offspring. Get the Meiosis Materials bag from the teacher. (pipe cleaners, straws, and beads)

Follow these instructions about how to make your model. You will show a before (like Prophase 1) and after (like Telophase 2). Check your work with the teacher when finished.

See the basic “starting” setup here.

1. Connect 2 pipe cleaners of the same color with a straw. String 3 matching beads onto each side of the pipe cleaner. The pipe cleaners are like chromosomes and the beads are like a trait (combination of alleles) on the chromosome.



2. Repeat step one with the other colored pipe cleaner and a DIFFERENT color bead.
3. Draw - Your pipe cleaners now show Prophase 1. Draw this, in color, in your notebook.



4. Pause - Show 4 blank circles for cells. Students need to draw what the 4 cells would look like. Use the rest of your materials to show how crossing over would create 4 unique chromosomes like in Telophase 2.
5. Copy - (Add to the “Crossing Over” step)
 - a. Why is “crossing over” an important part of meiosis?

Crossing over, or recombination, is the exchange of chromosome segments between nonsister chromatids in meiosis. **Crossing over** creates new

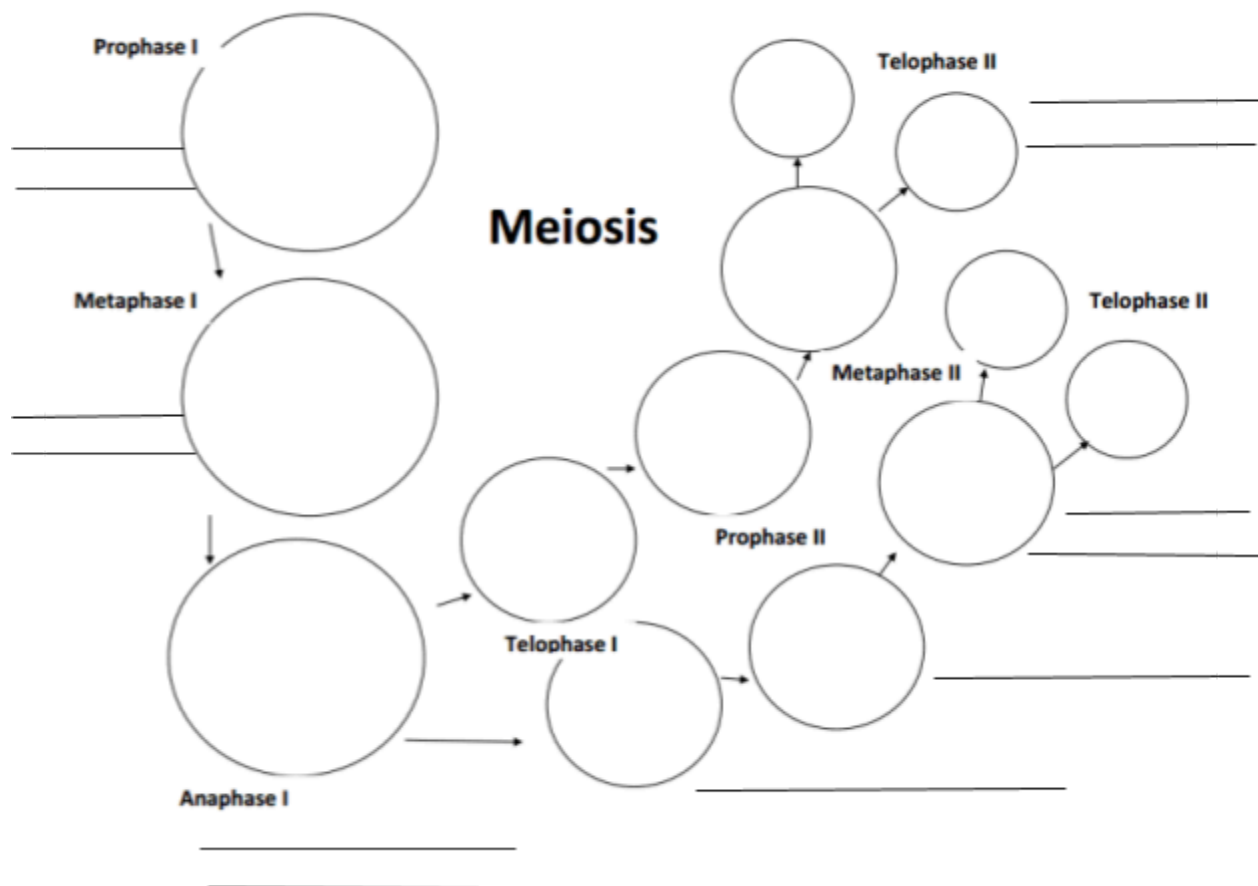
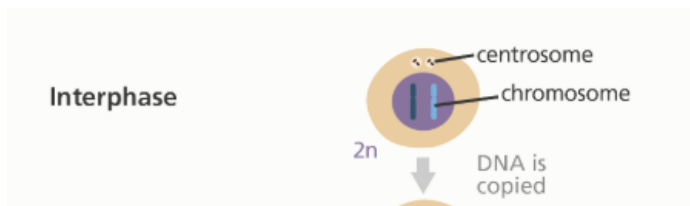
combinations of genes in the gametes that are not found in either parent, contributing to genetic diversity.

6. Show your example to the teacher and then carefully break down materials. Return everything to the bag. Check the floor for any beads.

B. Draw and explain the phases of meiosis. The first step of Interphase is shown.

Use 2 different colored pencils for the starting 2 chromosomes.

- Use this resource to help find answers - [Meiosis](#) (scroll down for the images)



C. Summary - Fill in the blanks for summary about meiosis.

eggs	half	twice	sperm	four
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Meiosis is a process where a single cell divides _____ to produce _____ cells containing _____ the original amount of genetic information. These cells are our sex cells – _____ in males, _____ in females.

D. Watch - How do [MUTATIONS](#) (7 min) in parent chromosomes possibly affect offspring? Then answer these questions.

1. The 3 types of genetic mutations are:
2. In general, how would an offspring be affected by a mutation in a sperm or egg cell?
([read](#))