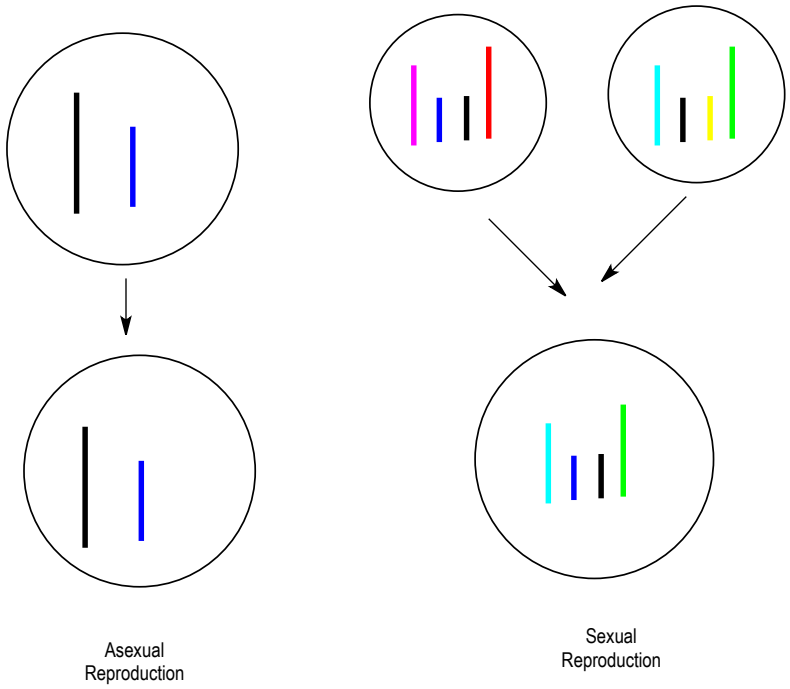
CONCEPT: BASICS OF MEIOTIC GENETICS

- **Sexual reproduction** involves mixing DNA from _____ individuals to produce genetically distinct offspring
  - □ Beneficial because it allows for genetic diversity
    - Reshuffling of genes provides competitive advantages to offspring
    - Selects out mutated genes
  - □ **Asexual reproduction** produces offspring _____ to the patents and siblings
    - Offspring are not as adaptive

EXAMPLE: Asexual vs. Sexual Reproduction



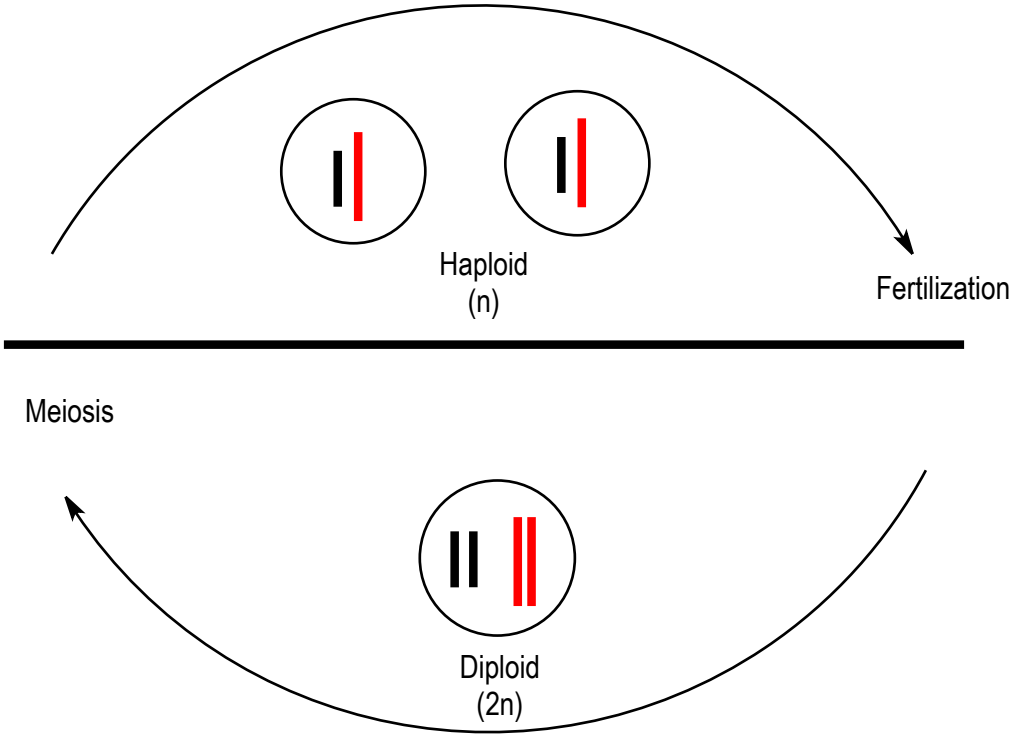
- Sexual reproduction involves dividing and segregating out genetic information from _____ parents
  - □ **Germ cells** (sex cells) each need to only contain on set of chromosomes
    - Egg or Sperm
    - **Somatic cells** (cells for rest of body) need both sets of chromosomes
  - □ **Haploid** cells are cells with ½ the genetic information (one copy of every gene)
    - Two haploid cells can form a diploid cell
    - Human fertilization: Haploid egg and sperm form a diploid zygote

□ **Diploid** cells are cells with the full amount of genetic information (two copies of every gene)

- **Homologous chromosomes** are chromosome pairs with the same genes

□ One exception are the **sex chromosomes** (X and Y) which differ in genetic makeup

EXAMPLE: Haploid and Diploid Cells



PRACTICE:

1. True or False: Germ cells are diploid.
    a. True
    b. False

2. Fill in the blanks. Haploid cells have _____ copy of genetic material, while diploid cells have ____ copies of genetic material.
    a. 1,2
    b. 2,1
    c. 1,3
    d. 3,1