16 Meiosis and variation – Part 1

Name: _____ Class: _____ Date: _____

Vocabulary

Write each word three times.

English	**Write it 3 times** (English)		
diploid			
chromosomes			
Meiosis			
gametes			
haploid			
crossing over			
independent assortment			

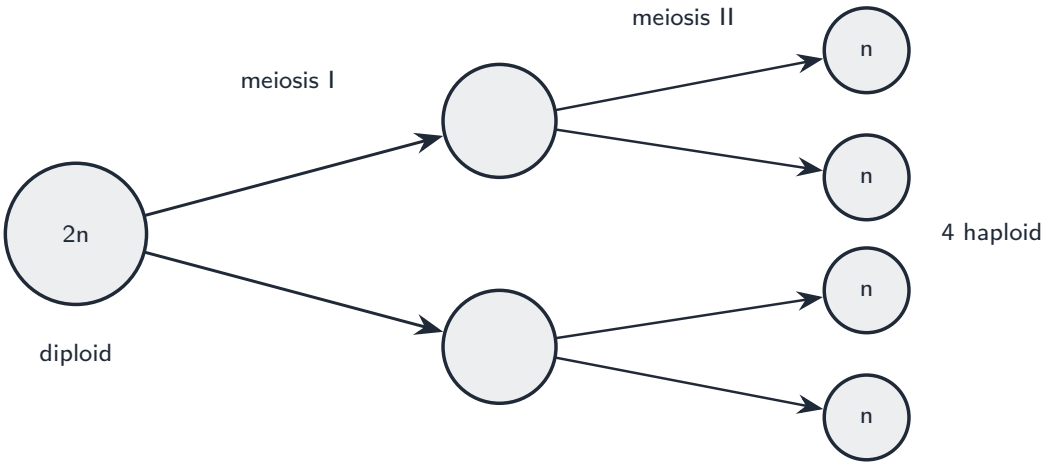
Recall

A **diploid** body cell has two sets of **chromosomes** – one from each parent. Sex cells must have only one set, or the number would double each generation.

New ideas

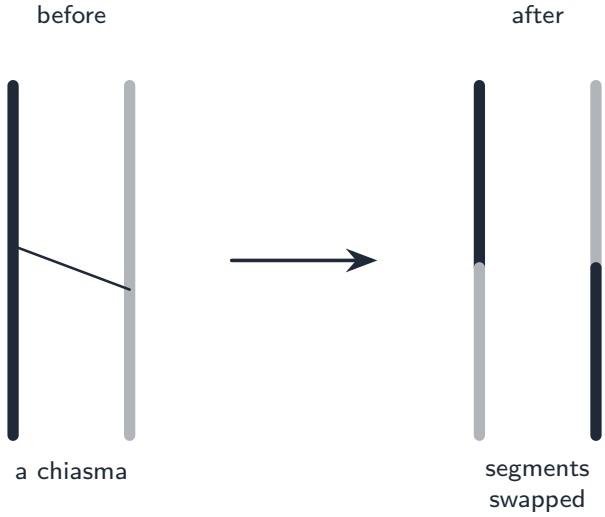
Read these first, then do the Practice.

1 Meiosis halves the number



Meiosis is a special division that makes **gametes** (sex cells). It has two divisions, giving four **haploid** cells with half the chromosome number.

2 Making variety



Meiosis mixes the alleles in two ways: **crossing over** (paired chromosomes swap segments) and **independent assortment** (pairs line up in a random order).

Watch out: meiosis *halves* the chromosome number (diploid → four haploid gametes) and *mixes* the alleles – the opposite of mitosis, which keeps the number and makes identical cells.

Practice

Try these in order.

16.1 How many sets of chromosomes does a *diploid* cell have? [1]

16.2 What does *meiosis* make? [1]

16.3 How many cells does meiosis produce from one cell? [1]

16.4 Are gametes *haploid* or *diploid*? [1]

16.5 Name one way meiosis creates variety. [1]

16.6 Challenge. Two children of the same parents are not identical (unless they are identical twins). Explain how meiosis produces this variety. [2]