D2.1 Cell and nuclear division

What the Cell · DP Biology · note-taking sheet · SL statements D2.1.1–11

Name _____ **Date** _____

How to use this sheet: go through the slides and videos with it, then close them and write from memory. Use your own words and add page numbers from the book (pp. 648–661) where you want more detail.

Guiding questions. How are large numbers of cells with identical genes produced? How do eukaryotes make genetically varied cells that can become gametes?

D2.1.1, 4, 5 Why cells divide

	Mitosis	**Meiosis**
Chromosome number		
Genome		
Used for		

Why must DNA be replicated first? Why must the nucleus divide before the cell?

D2.1.6 Condensation and movement

Explain what histones do, and why chromosomes condense. Then state what moves them.

D2.1.7–8 The phases of mitosis

Draw a cell with 2n = 4 in each phase, and add what you would look for in a micrograph.

Prophase	**Metaphase**	**Anaphase**	**Telophase**

D2.1.2–3 Cytokinesis

Cell	How the cytoplasm is split
Animal	
Plant	

Give two examples of unequal cytokinesis. What must every daughter cell receive?

D2.1.9 Meiosis

Define **diploid**, **haploid** and **homologous**.

	Meiosis I	Meiosis II
What separates		
Result		

D2.1.10 Down syndrome and non-disjunction

Explain how a zygote can receive three copies of chromosome 21.

D2.1.11 How meiosis generates variation

Process	When	How it creates variation
Random orientation		
Crossing over		

Before you finish

Tick the ones you can explain without notes. Circle anything to ask about.

☐ Why nuclei divide first
☐ Chromatids and centromere
☐ Histones
☐ Microtubules
☐ Phases of mitosis
☐ Mitotic index
☐ Cytokinesis
☐ Two rounds in meiosis
☐ Non-disjunction
☐ Two sources of variation

What the Cell. Original material written for this course.