D1.3 Mutation

What the Cell · DP Biology · note-taking sheet · SL statements D1.3.1–7

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. 637–642) where you want more detail.

Guiding questions. How do mutations in genes arise? What effects do gene mutations have?

D1.3.1 Types of gene mutation

Original sequence: A T G C A T G G C. Show one example of each type.

Type	New sequence	What has changed
Substitution		
Insertion		
Deletion		

D1.3.2 Consequences of base substitutions

What is a SNP? Why might a substitution have no effect on a polypeptide?

D1.3.3 Consequences of insertions and deletions

Explain what a frameshift is, and why it usually stops a polypeptide from working.

Gene	Type of change	Consequence
HTT		
CCR5 (delta 32)		

D1.3.4–5 Causes and randomness

Give two chemical mutagens, two types of mutagenic radiation and one other cause.

What does it mean to say that mutation is random? What does it not mean?

D1.3.6 Germ cells and somatic cells

	Germ cells	**Somatic cells**
Inherited by offspring?		
Main consequence		

D1.3.7 Mutation as a source of variation

Why is mutation essential to evolution, even though most mutations are harmful or neutral?

Before you finish

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

- ☐ Three types of mutation
- ☐ SNPs
- ☐ Frameshifts
- ☐ HTT
- ☐ CCR5
- ☐ Mutagens
- ☐ Randomness
- ☐ Germ and somatic cells
- ☐ Cancer
- ☐ Source of variation