D1.1 DNA replication

What the Cell · DP Biology · note-taking sheet · SL statements D1.1.1–5

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. 602–610) where you want more detail.

Guiding questions. How do cells make new DNA? What biotechnology has understanding DNA replication made possible?

D1.1.1 Why DNA is copied

Give three reasons why cells replicate their DNA. Say when in the cell cycle this happens.

D1.1.2 Semi-conservative replication and base pairing

Draw one DNA molecule becoming two. Use one colour for old strands and another for new strands.

Explain why complementary base pairing makes copying accurate.

D1.1.3 Helicase and DNA polymerase

Enzyme	What it does	Bonds involved
Helicase		
DNA polymerase		

D1.1.4 PCR and gel electrophoresis

PCR step	Temperature	What happens
Denaturation		
Annealing		
Elongation		

Why is Taq polymerase used? What do primers do?

Explain why DNA moves through a gel, and why fragments separate. Include **charge**, **electrode** and **length**.

D1.1.5 Applications

Why do short tandem repeats differ between people, and why are they useful?

Application	What is compared	How you reach a conclusion
Forensic		
Paternity		

Before you finish

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

☐ Three reasons for replication
☐ Semi-conservative
☐ Base pairing and accuracy
☐ Helicase
☐ DNA polymerase
☐ PCR steps
☐ Taq polymerase
☐ Reading a gel
☐ Paternity profiles