**Polymerase Chain Reaction Diagram**

**First Cycle**

- F [Target Sequence] F
- F [Target Sequence] F

EXCESS PRIMERS
ALL FOUR TYPES OF dNTPs
HEAT STABLE DNA POLYMERASE
HEAT TO SEPARATE THE STRANDS.

- F [Target Sequence] F
  - P
- F [Target Sequence] F

**Second Cycle**

- F [Target Sequence] F
  - P
- F [Target Sequence] F

**Third Cycle**

- F [Target Sequence] F
  - P
- F [Target Sequence] F

**Target Sequence**

THE NEWLY SYNTHESIZED TARGET SEQUENCE

- F [Newly Synthesized Flanking Sequence]

**These 2 Newly Synthesized DNA Strands Are Longer Than The Parent Template.**
**Polymerase Chain Reaction (Con’d)**

**Second Cycle**

- **P** = Primers
- **F** = Original Flanking Sequence
- **F** = Synthesized Flanking Sequence from 1st Cycle

**Strand Separation and Hybridization of Primers to the Flanking Sequence**

DNA synthesis with the help of heat stable DNA polymerase

- Newly synthesized short strand target sequence
**POLYMERASE CHAIN REACTION (CON'D)**

**THIRD CYCLE**

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NEWLY SYNTHESIZED SHORT STRAND AT THE END OF SECOND CYCLE

FROM THIS CYCLE FORWARD THESE SHORT STRAND OF TARGET SEQUENCE WILL BE REPLICATED EXPONENTIALLY.