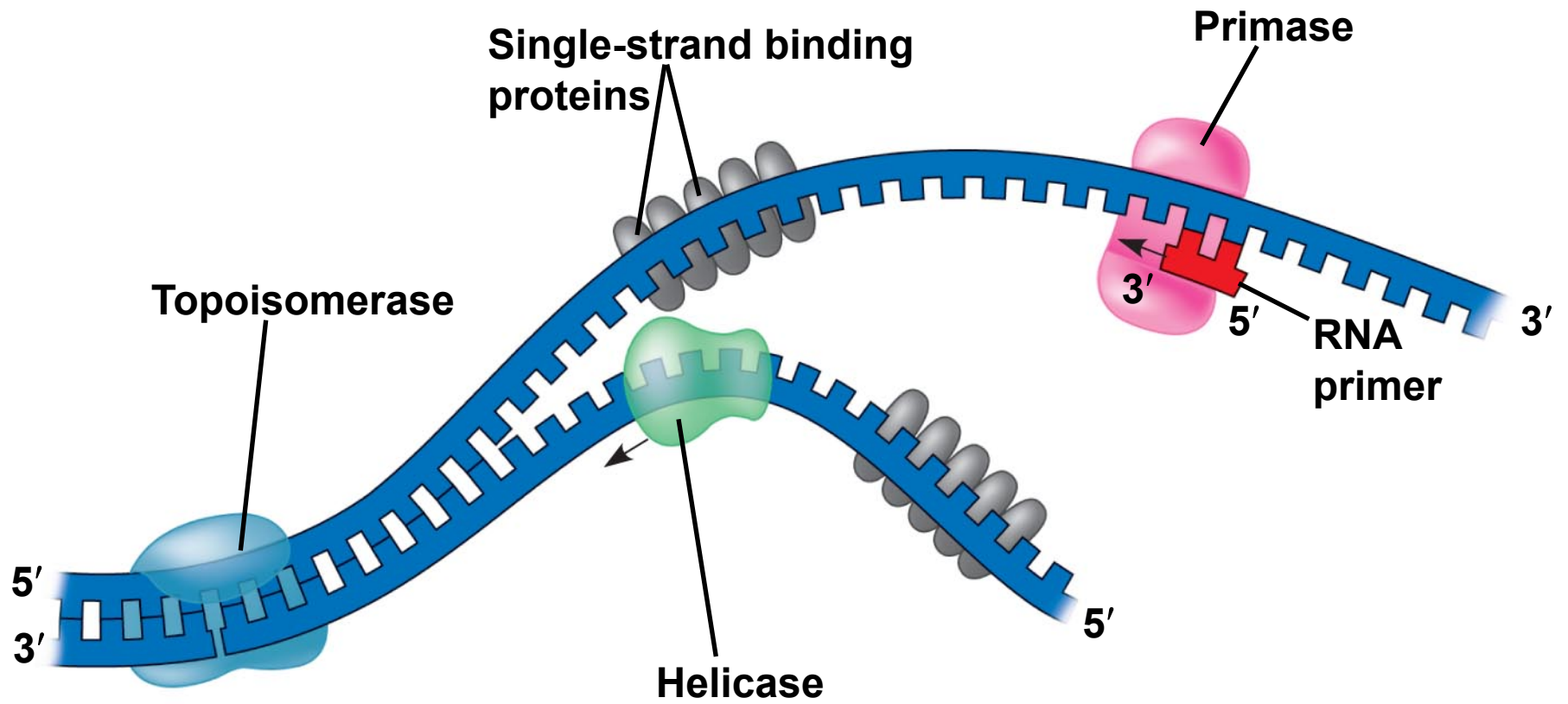
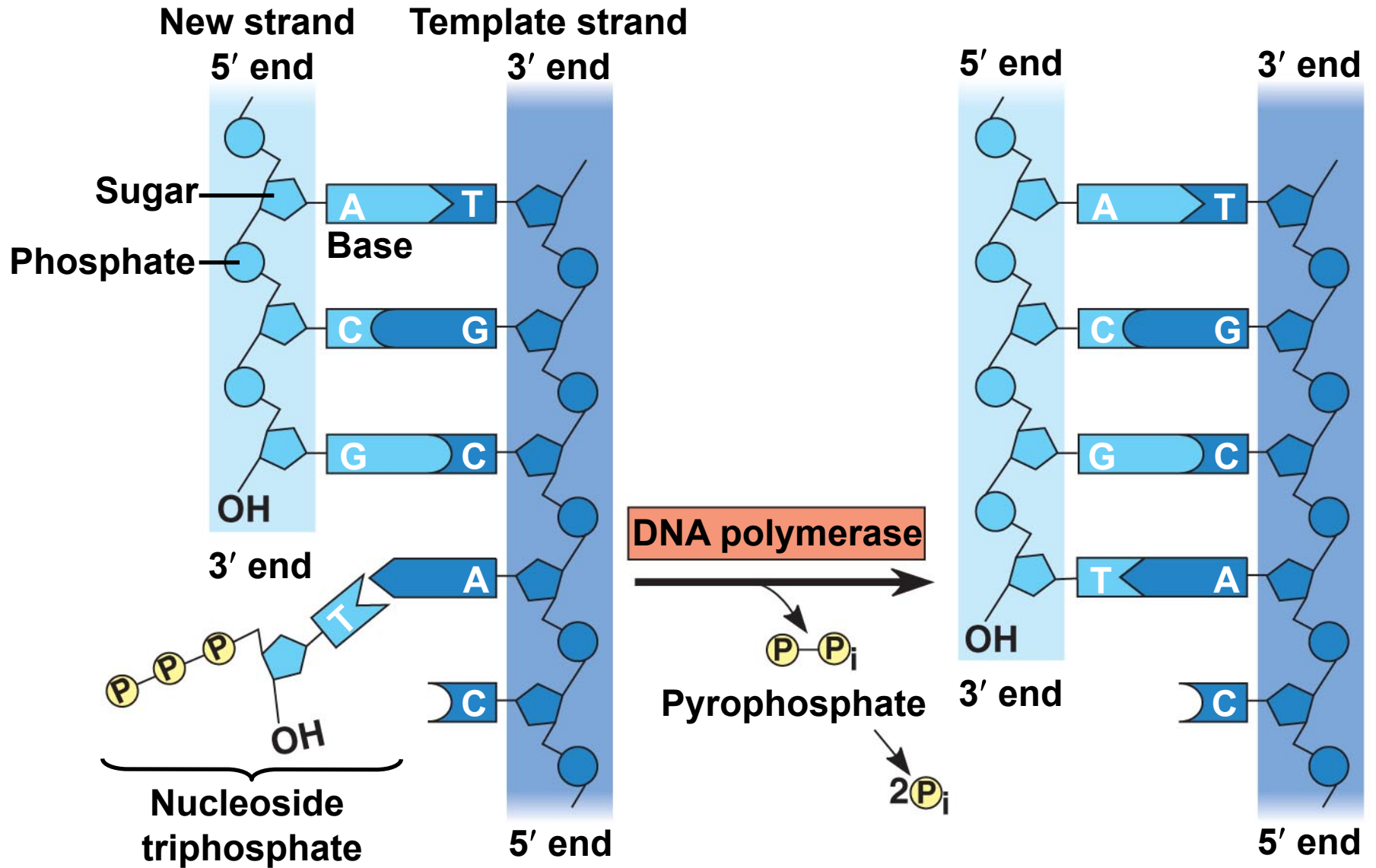


Polymerase Chain Reaction (PCR)

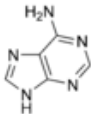
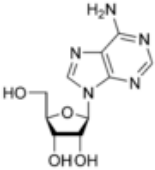
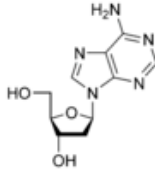
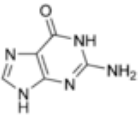
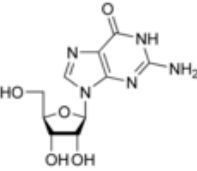
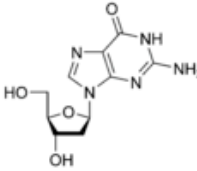
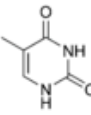
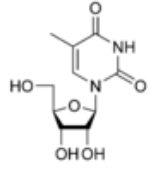
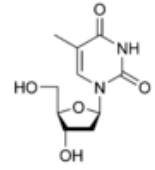
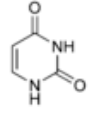
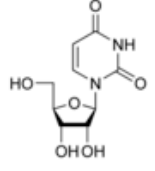
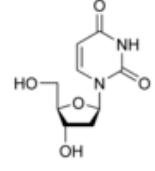
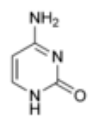
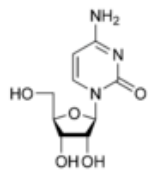
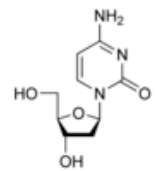
- Used to amplify a sample of DNA
- Many applications, including:
 - DNA sequencing
 - Phylogeny
 - Diagnosis of genetic disorders
 - Identity for forensics or paternity
- Amplification is exponential
- Requires thermal cycling
- DNA is doubled each cycle
- Typically used to amplify DNA fragments about 10 kb in length
- Usually uses 20 to 40 thermal cycles

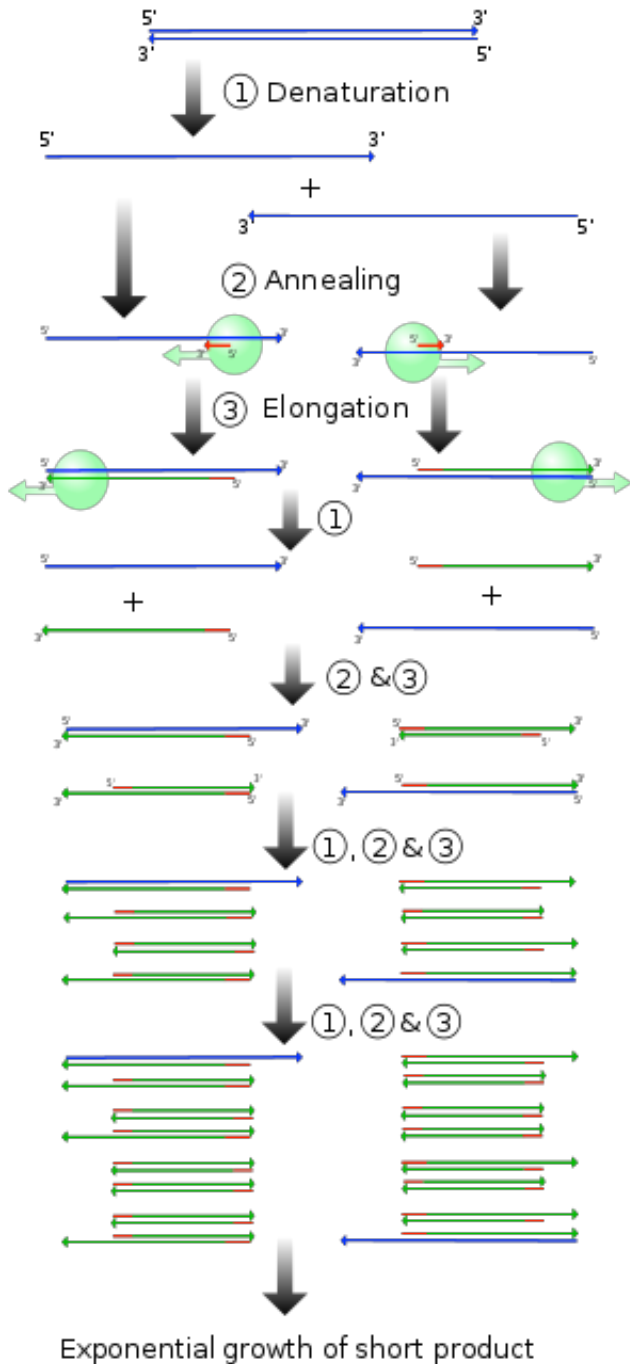


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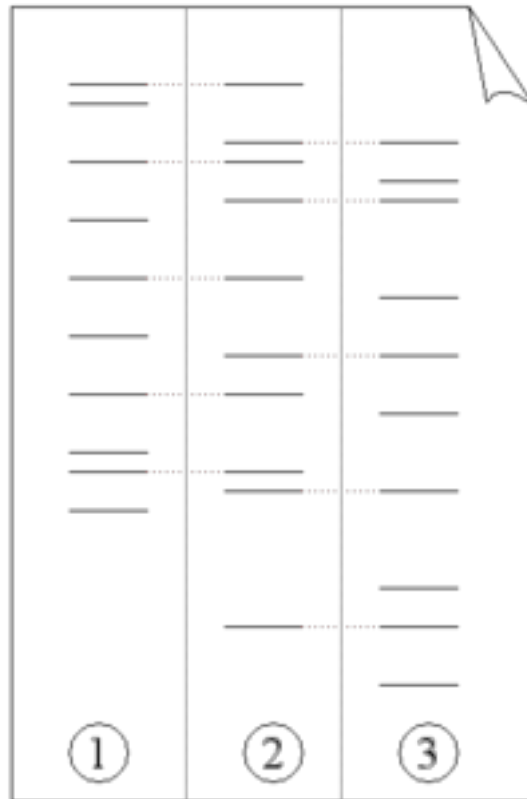


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Nitrogenous base	Nucleoside	Deoxynucleoside
 <p>Adenine</p>	 <p>Adenosine A</p>	 <p>Deoxyadenosine dA</p>
 <p>Guanine</p>	 <p>Guanosine G</p>	 <p>Deoxyguanosine dG</p>
 <p>Thymine</p>	 <p>5-Methyluridine m⁵U</p>	 <p>Thymidine dT</p>
 <p>Uracil</p>	 <p>Uridine U</p>	 <p>Deoxyuridine dU</p>
 <p>Cytosine</p>	 <p>Cytidine C</p>	 <p>Deoxycytidine dC</p>



Schematic drawing of the PCR cycle. (1) Denaturing at 94–96 °C. (2) Annealing at ~65 °C (3) Elongation at 72 °C. Four cycles are shown here. The blue lines represent the DNA template to which primers (red arrows) anneal that are extended by the DNA polymerase (light green circles), to give shorter DNA products (green lines), which themselves are used as templates as PCR progresses.



Electrophoresis of PCR-amplified DNA fragments. (1) Father. (2) Child. (3) Mother. The child has inherited some, but not all of the fingerprint of each of its parents, giving it a new, unique fingerprint.