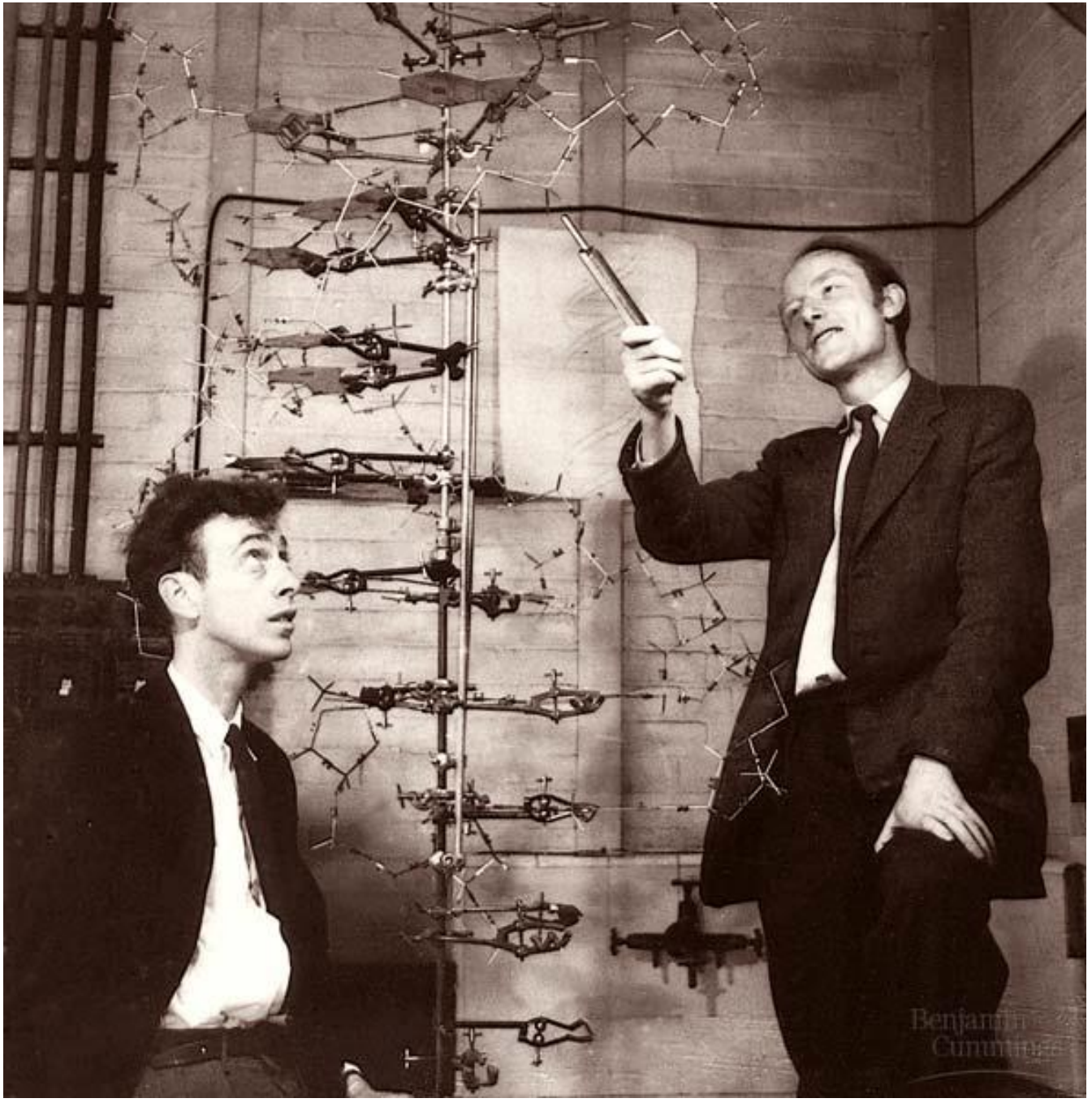
Figure 16.0 Watson and Crick



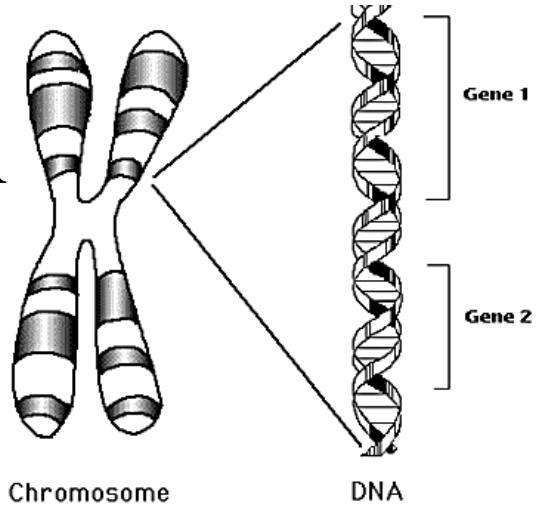
Objective: You will be able describe the structure of DNA

- Why is DNA important?

Genes

- Genes are found on chromosomes in a linear sequence

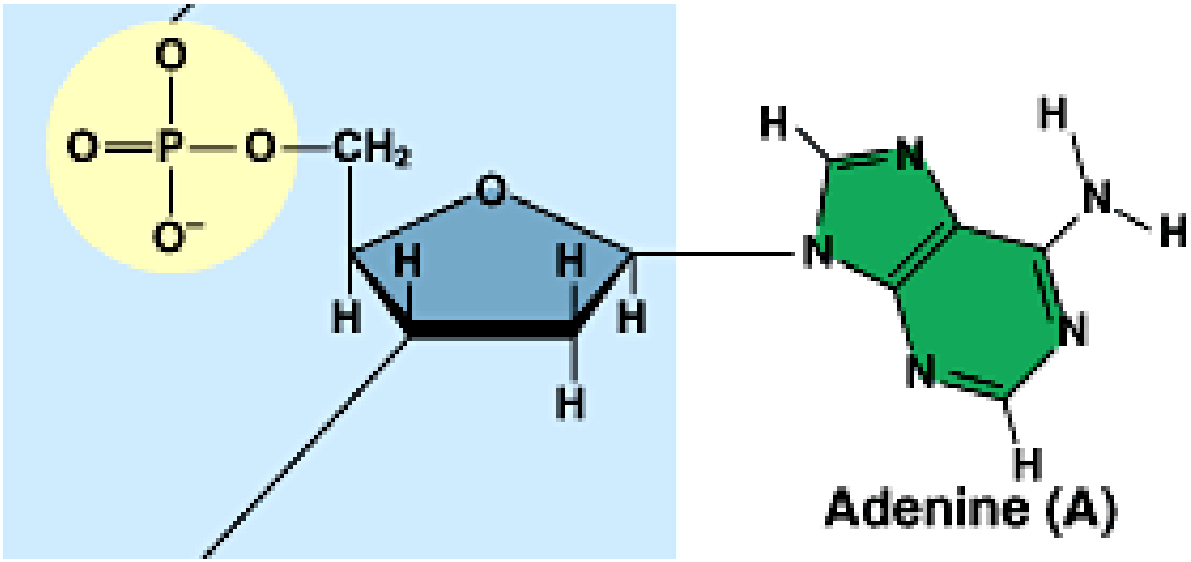
- Chromosomes are made up of DNA



- This also means then that genes are made up of DNA

A nucleotide

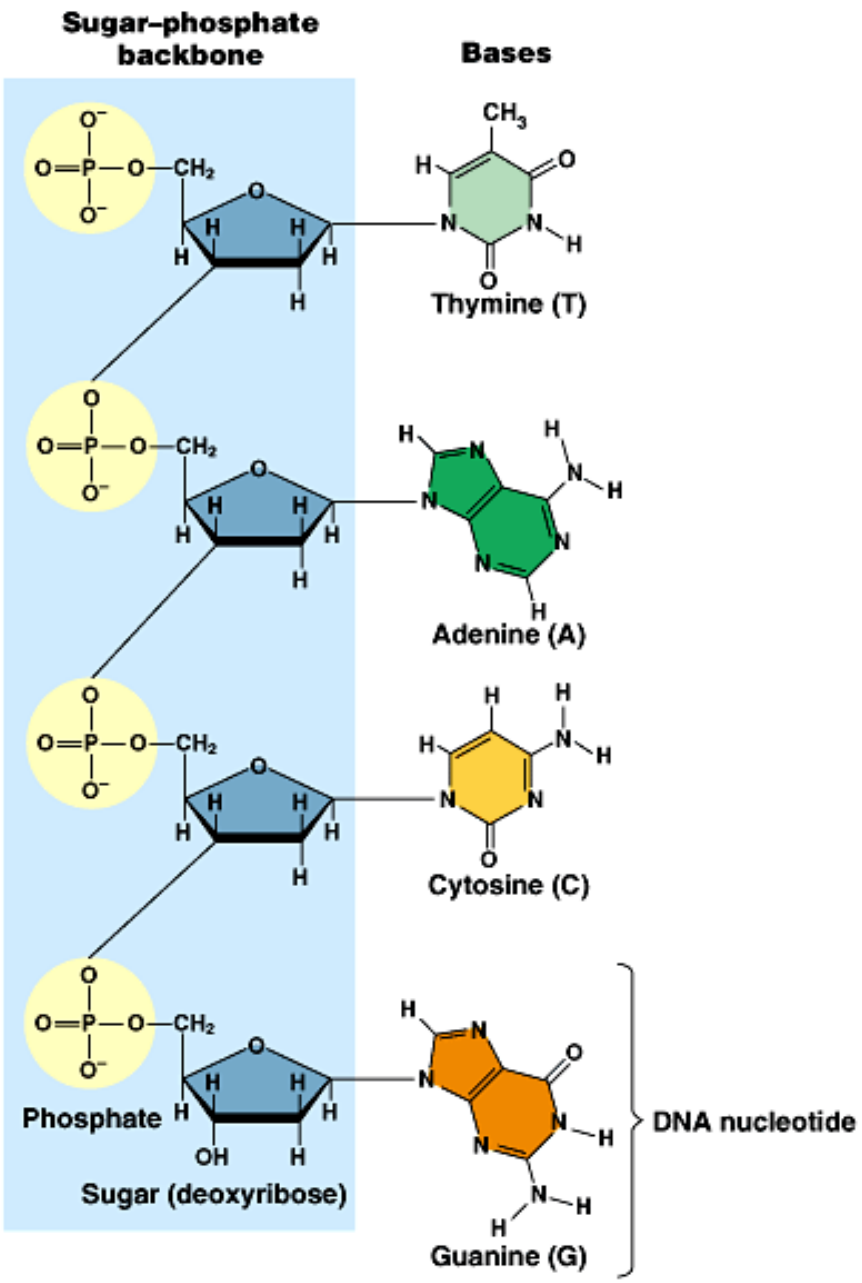
Phosphate



Sugar

Nitrogenous Base

Figure 16.3 The structure of a DNA stand

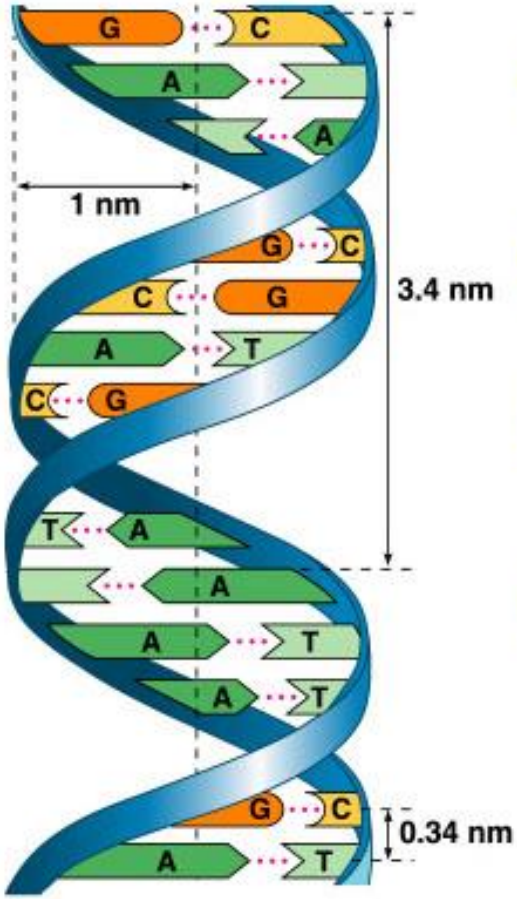


If you put nucleotides together, you get DNA

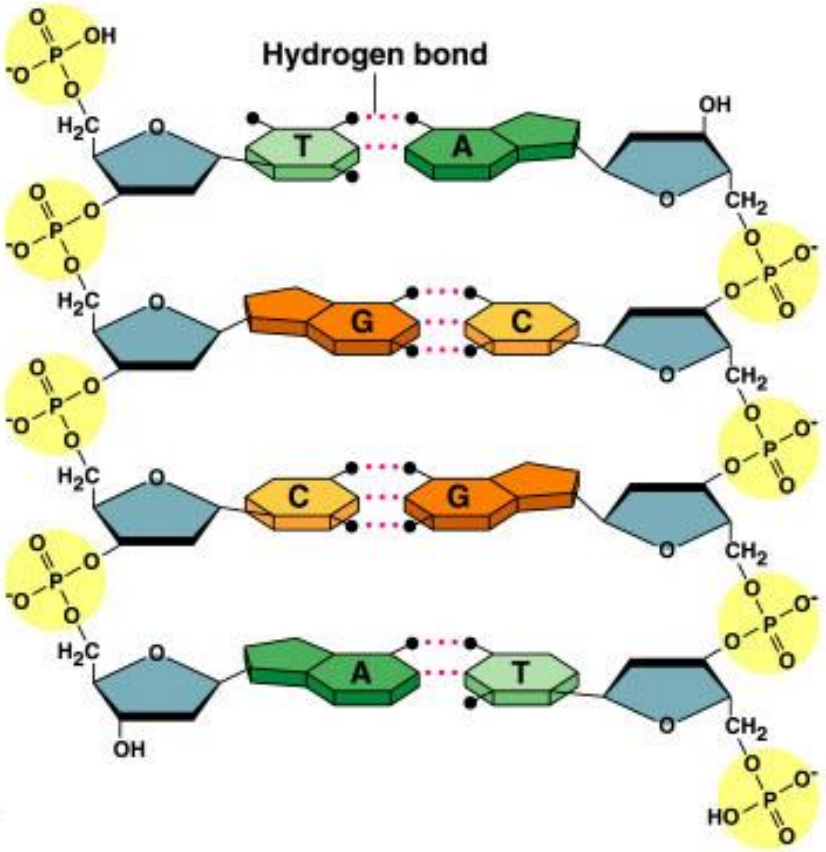
Questions

- What do we call the sections of a chromosome?
- Where in a cell would you find DNA?
- **Genes**, **Nucleus**, **DNA**…put them in order from smallest to largest
- Your immune system uses proteins called antibodies to fight off viruses. Where are the instructions of how to make these antibodies found?

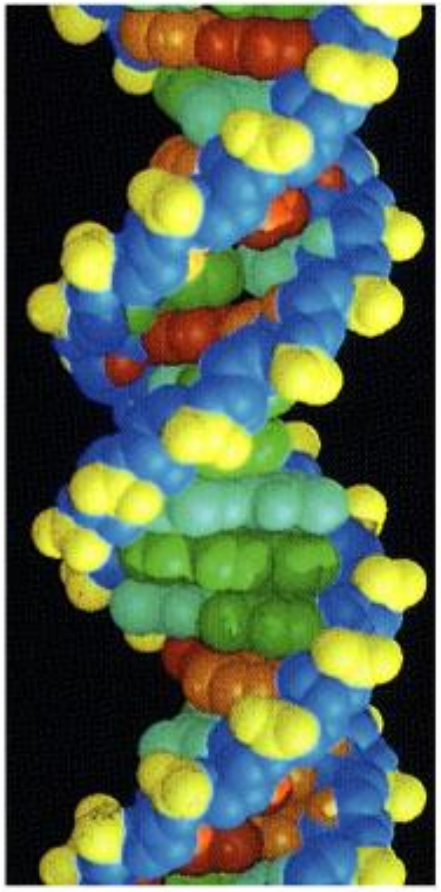
How do you know that the picture below is DNA?



(a) Key features of DNA structure



(b) Partial chemical structure

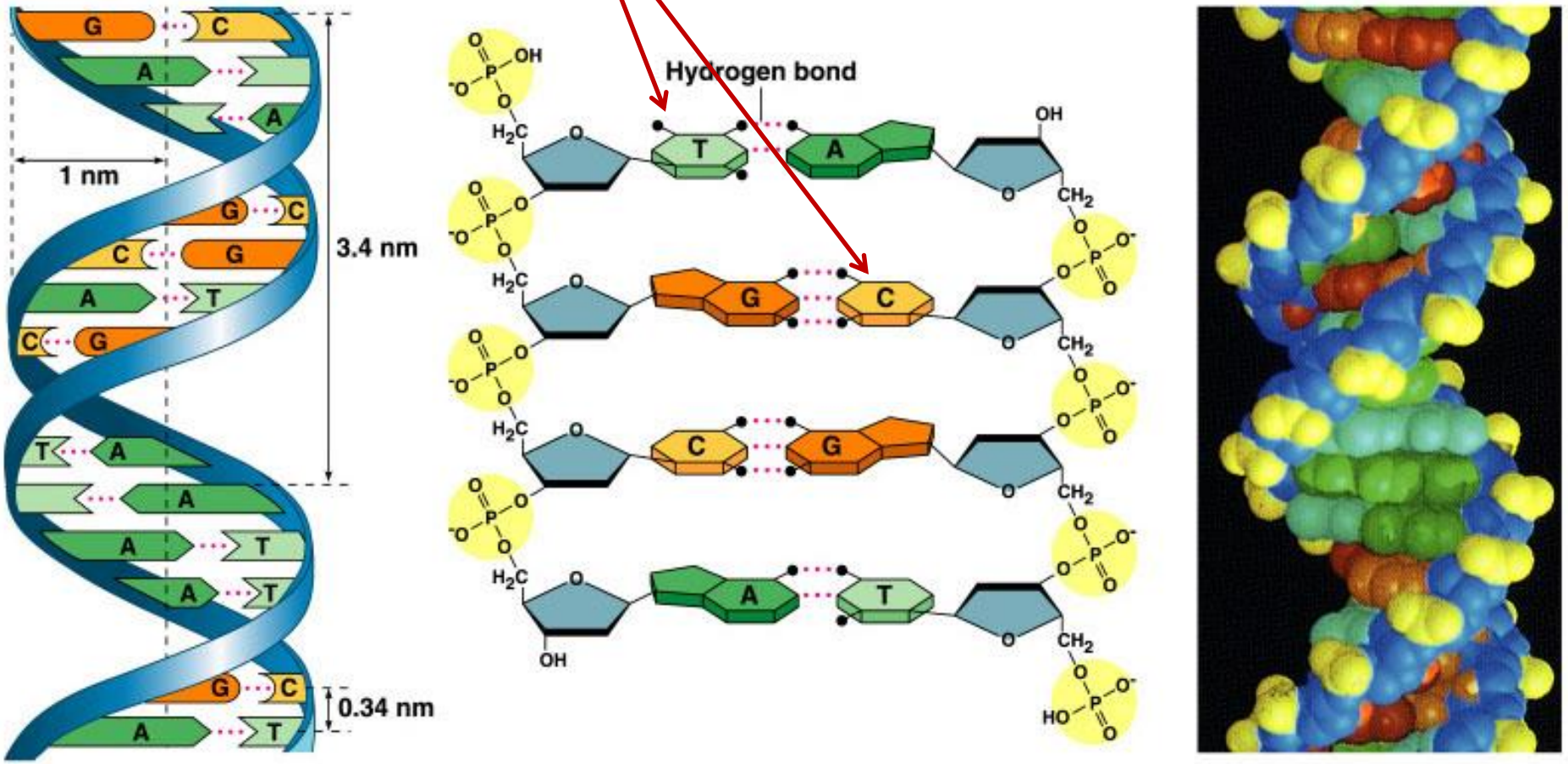


(c) Space-filling model

Why don't you look like everyone else?

- You are different because you have different DNA
    - The order of T, C, A and G is different in you!
- The different order means that your DNA makes a different protein…hence you are different

What is the function of these parts?



(a) Key features of DNA structure

(b) Partial chemical structure

(c) Space-filling model

Group Activity

- Build a model of DNA by using the picture on the table.
- Look at the names and what color you should use
- Hints:
  - There are 4 bases right? How can you represent 4 different bases with the pieces that you have
  - Place the sugar, phosphate and base directly on the paper

Objective: You will be able describe the structure of DNA.

Do Now:

- **Use your knowledge of biology and the picture to the right to <u>list facts about the structure of DNA</u>**

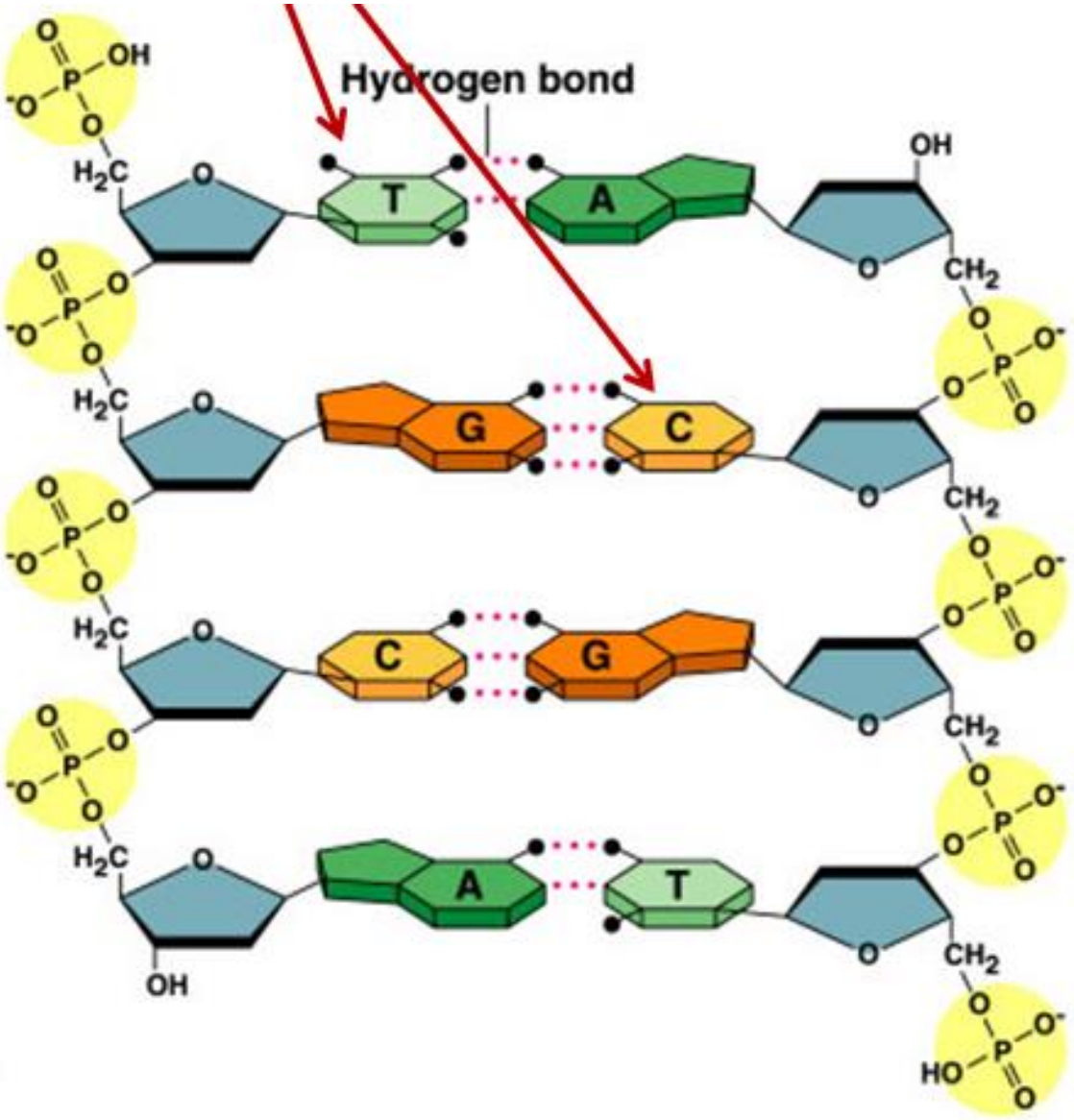
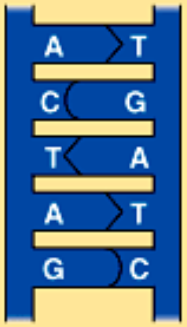
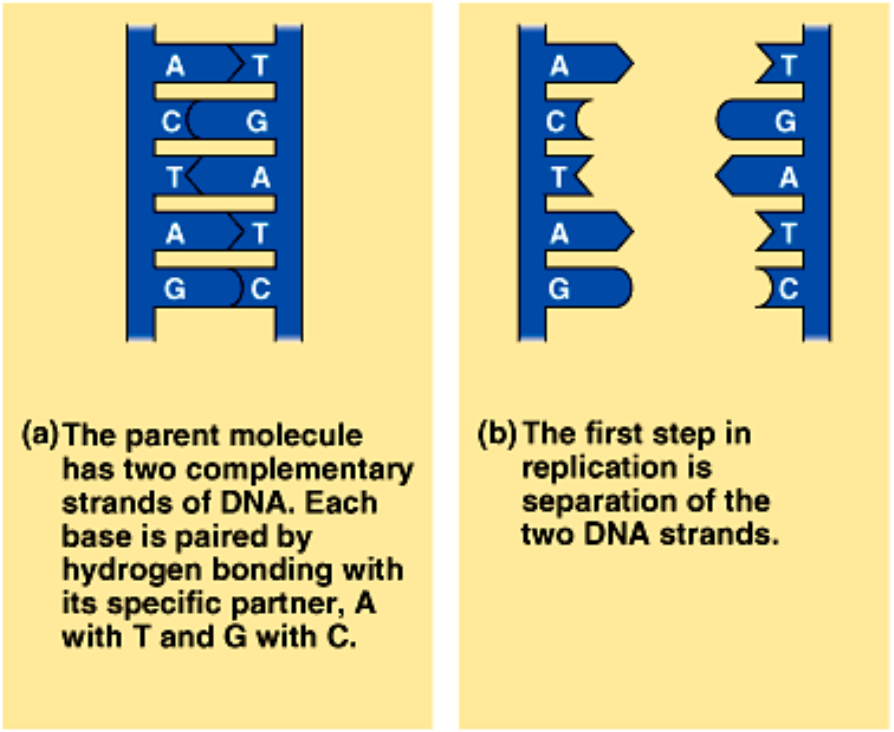


Figure 16.7 A model for DNA replication: the basic concept (Layer 1)



(a) The parent molecule has two complementary strands of DNA. Each base is paired by hydrogen bonding with its specific partner, A with T and G with C.

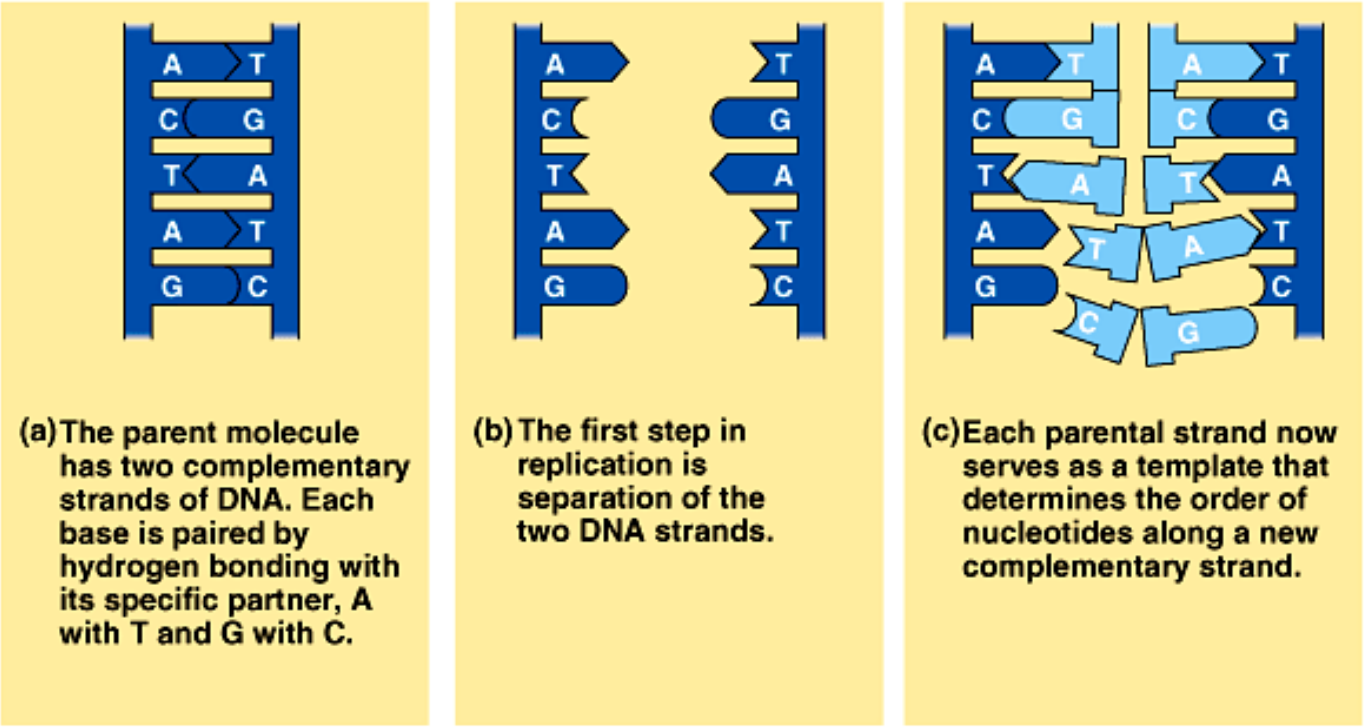
Figure 16.7 A model for DNA replication: the basic concept (Layer 2)



(a) The parent molecule has two complementary strands of DNA. Each base is paired by hydrogen bonding with its specific partner, A with T and G with C.

(b) The first step in replication is separation of the two DNA strands.

Figure 16.7 A model for DNA replication: the basic concept (Layer 3)



(a) The parent molecule has two complementary strands of DNA. Each base is paired by hydrogen bonding with its specific partner, A with T and G with C.

(b) The first step in replication is separation of the two DNA strands.

(c) Each parental strand now serves as a template that determines the order of nucleotides along a new complementary strand.

Figure 16.7 A model for DNA replication: the basic concept (Layer 4)

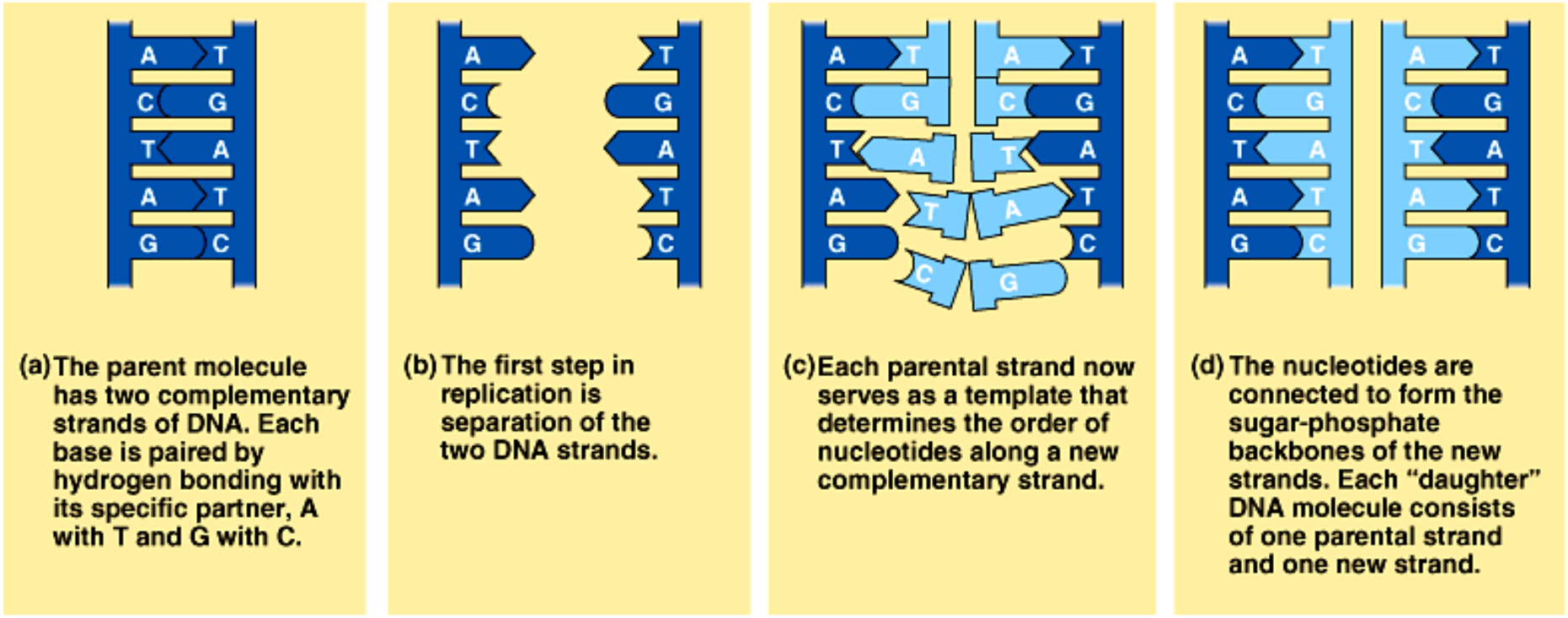


Figure 20.8

Polymerase Chain Reaction (PCR)

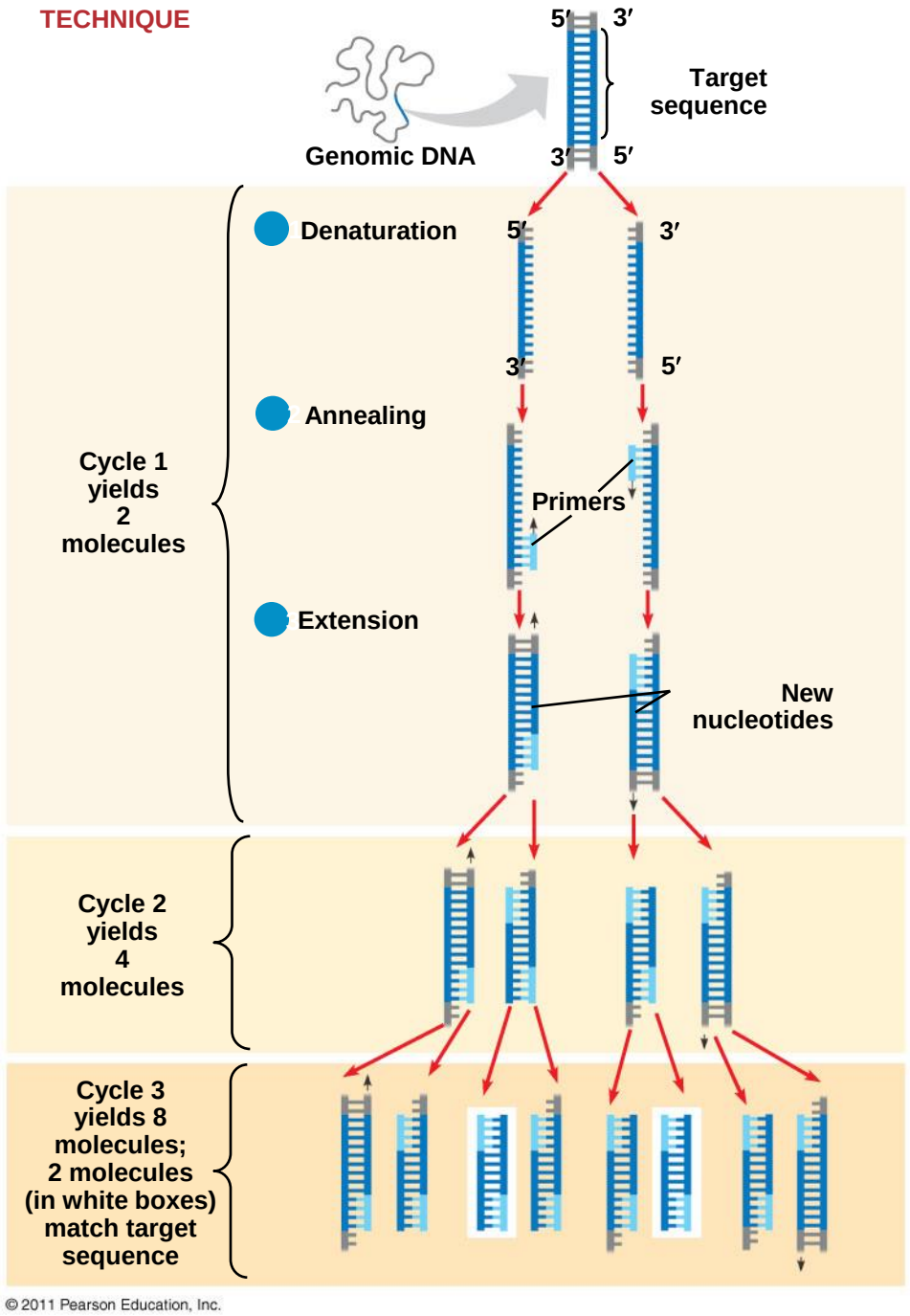


Figure 20.8a

TECHNIQUE

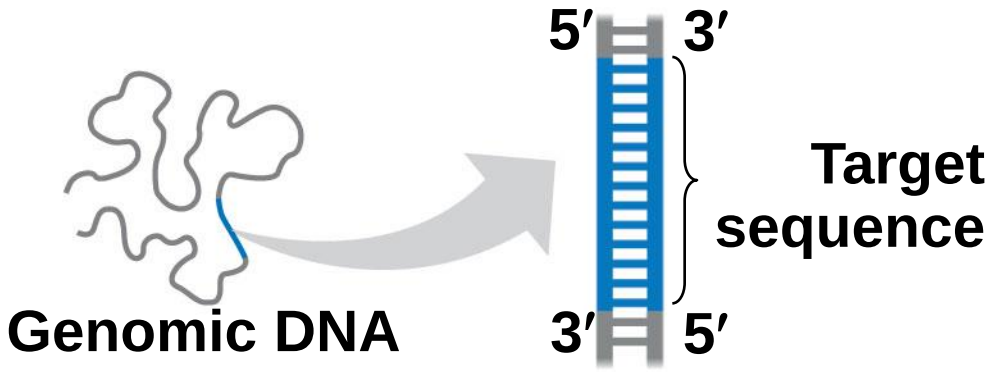


Figure 20.8b

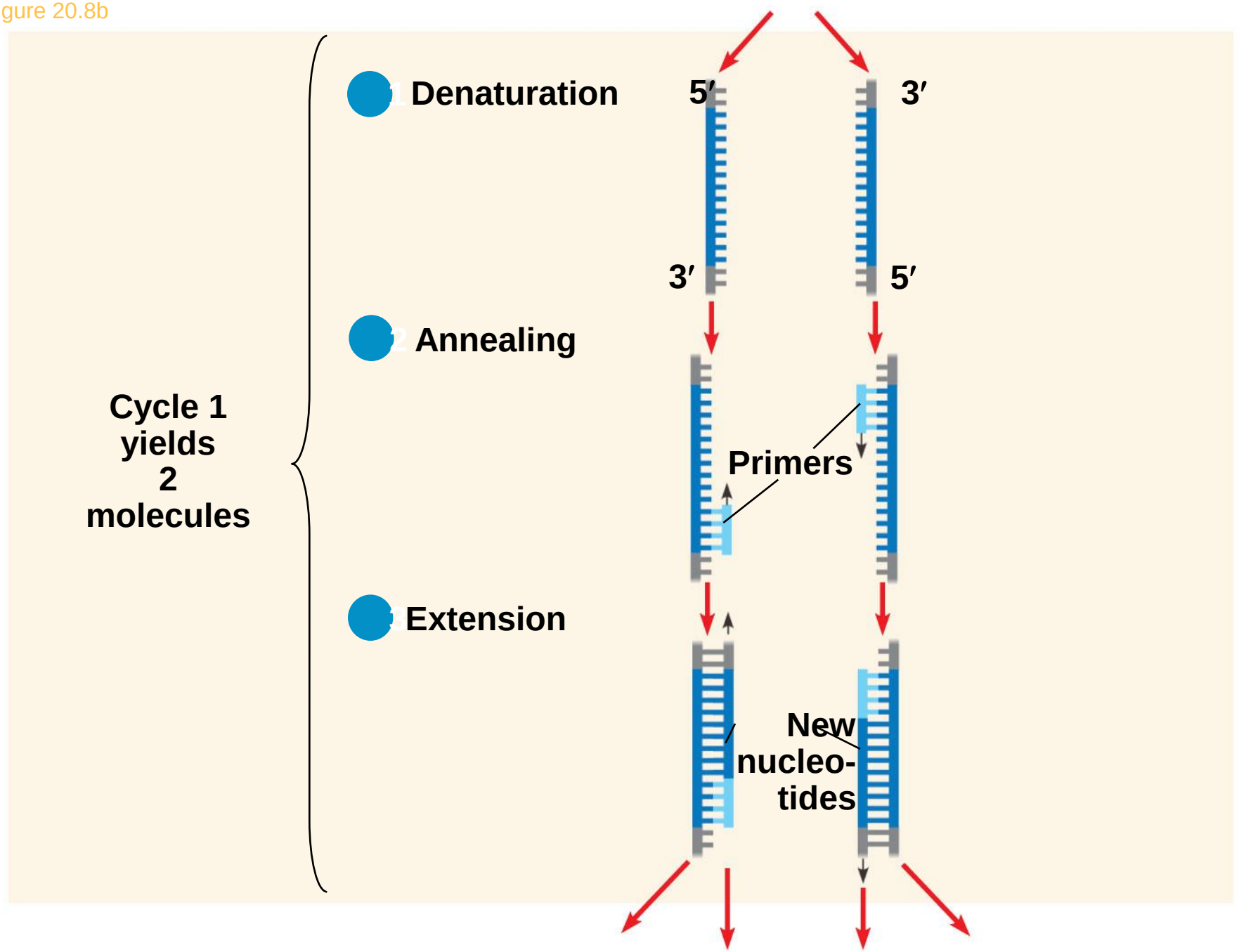


Figure 20.8c

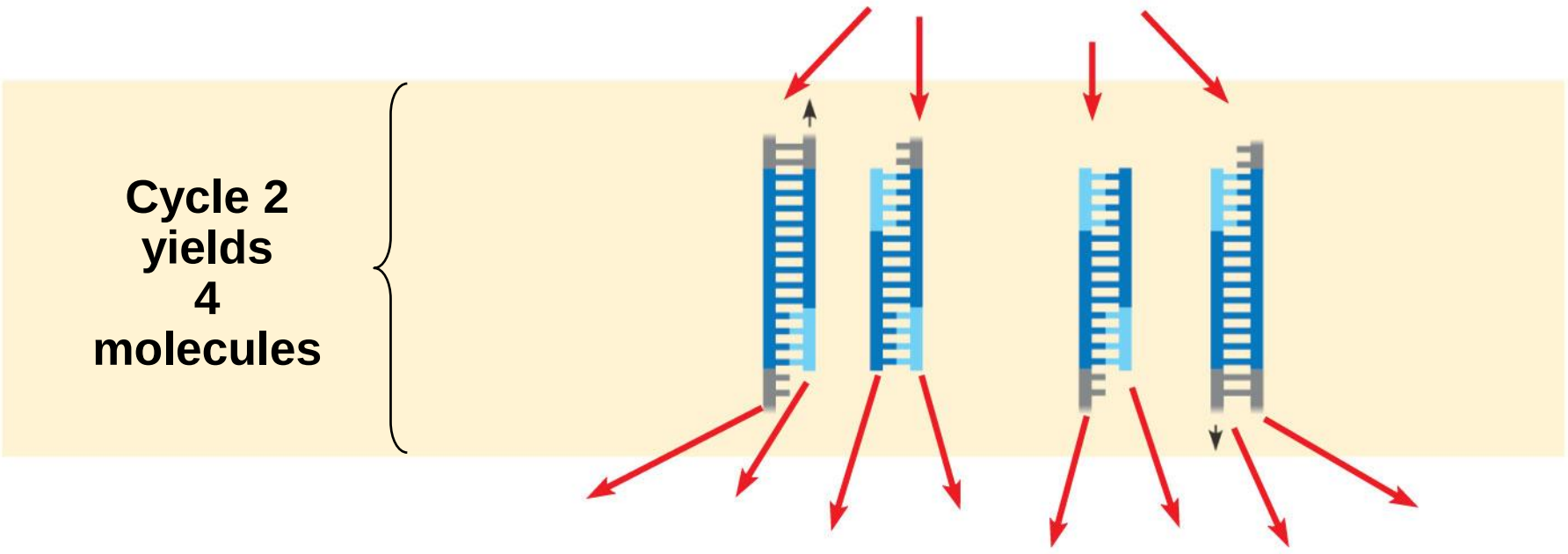


Figure 20.8d

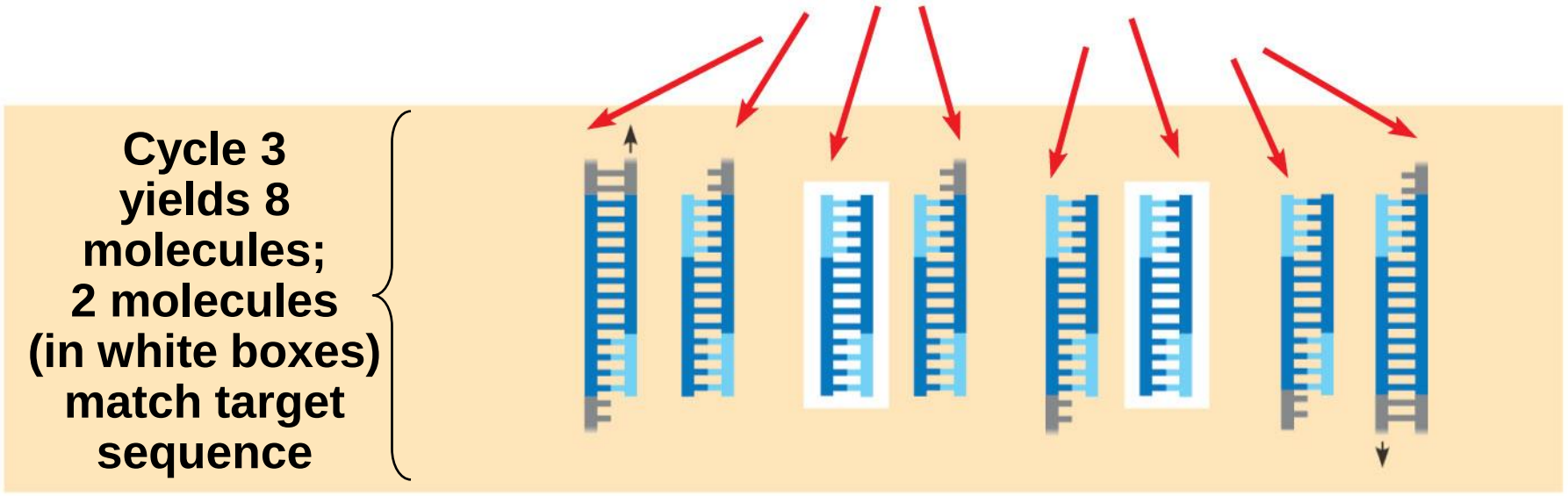


Figure 17.4 The triplet code

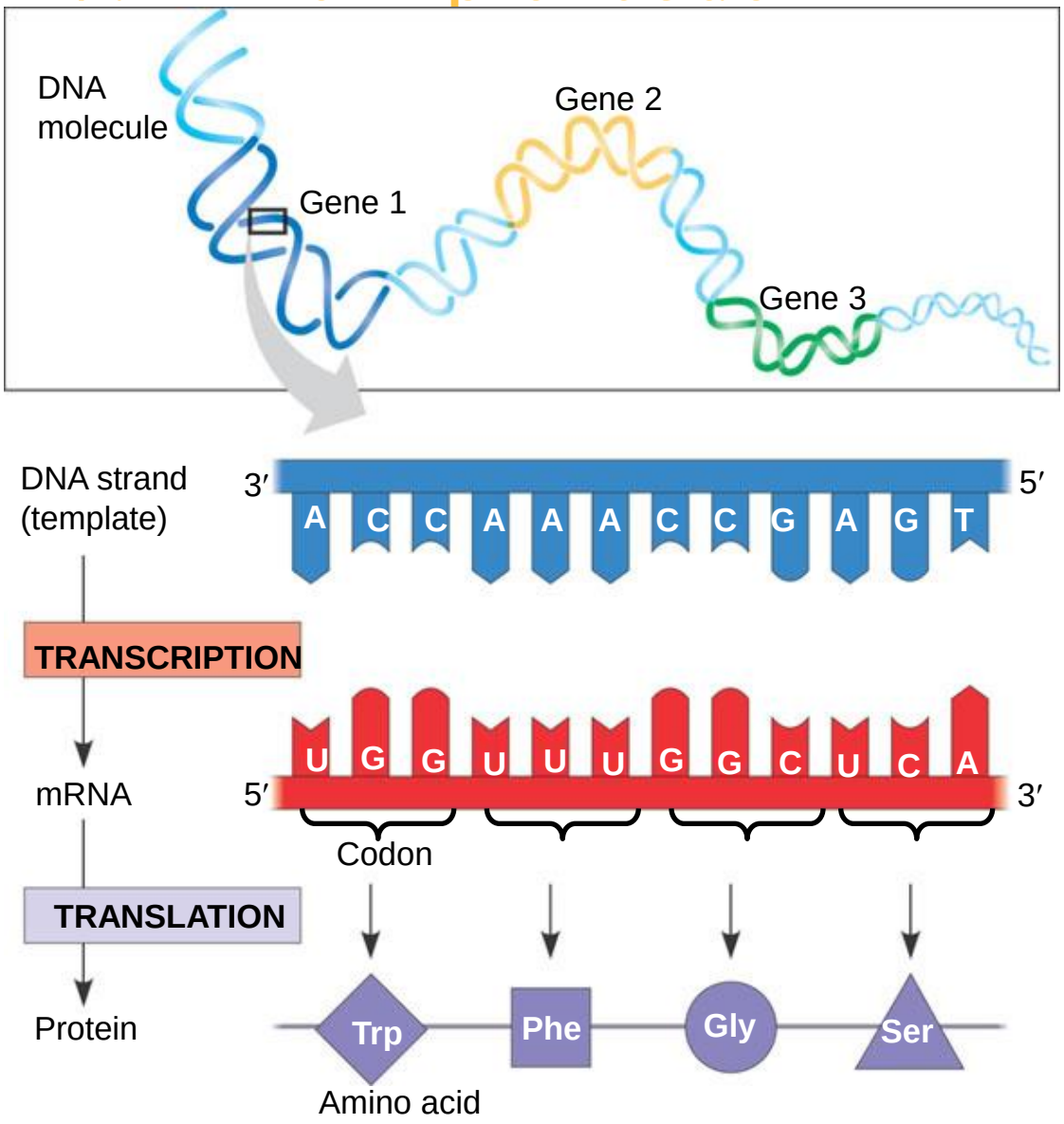


Figure 17.5 The dictionary of the genetic code

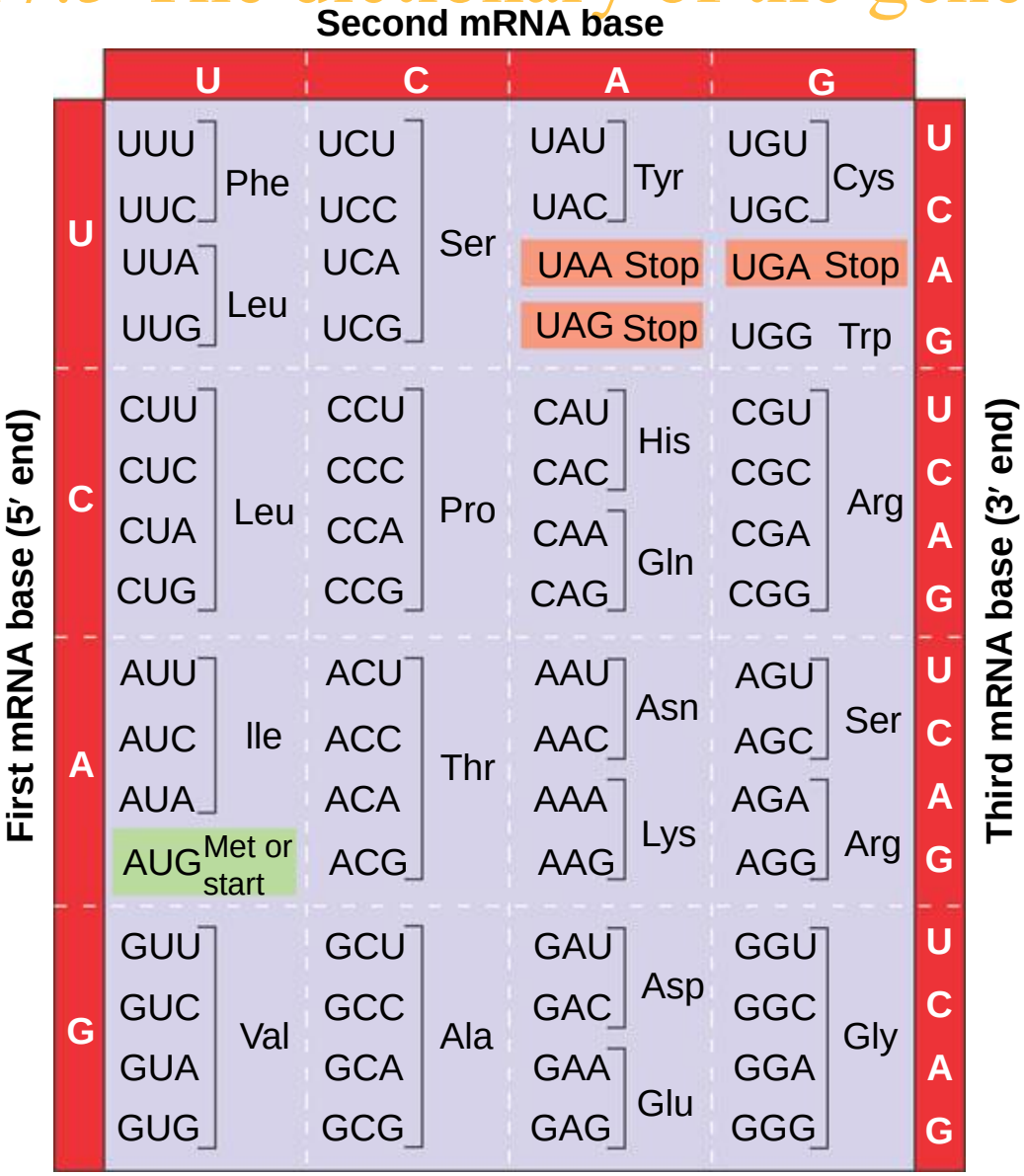


Figure 17.6 A tobacco plant expressing a firefly gene