READING STRATEGIES

As a college student, you have many reading assignments to balance. Here are some strategies to make your reading more effective.

How to Prepare for Reading

• Consider your environment. Make sure you’re away from distractions like texting or music, and you can focus and be comfortable.

• Have everything ready before you start—books, places to take notes, and food or drinks. Then you can dive in!

• Make sure your body is ready to study. Get the sleep and nutrition you need to focus.

• Your mental state is important. Have a good attitude, be well-rested, and have a reward for when you’re done reading.

Goals

□ Evaluate where you read, when, and your state of mind. Identify 1-2 ways to improve and try it out for a week.

□ Implement the SQ4R method [see back] in your reading for a week.

□ Review how each goal went with your counselor.

□ __________________________

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Next Appointment

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How to Read

You can use the SQ4R method to make sure you’re reading as effectively as possible. It may seem like more work, but it will make your reading more efficient!

1) **Survey** what you will be reading. Look at the heading, subheading, and bold words to give you an idea of what you will be studying.

2) Begin each section by **questioning**. Turn the header into a question: “What is the genome? What does it do?” Then look for the answers as you read.

3) Begin reading each section. Ask yourself, “Am I understanding this?” If not, reread, look up words, etc., so you can answer your questions.

4) Stop after every section and **recite** (write or tell yourself) what you have read. Reread if you can’t remember or are still confused.

5) Once you have finished the entire reading, **relate** what you have learned to what you already know from past chapters. Answer any last questions.

6) **Review** the text, make sure you understand each section, and reread if you have forgotten stuff. This puts information into long-term memory.

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**Chapter 6: Reproduction at the Cellular Level**

**Genomic DNA**

Before discussing the steps a cell undertakes to reproduce, we first need a basic understanding of our genetic material: DNA. DNA is composed of a single, double-stranded DNA molecule in the form of a loop or circle. Each region of this molecule is called a chromosome. In prokaryotes, the genome is composed of a single, double-stranded DNA molecule. In eukaryotes, there are many chromosomes, a configuration known as a diploid genome. In eukaryotes, the genome is composed of several double-stranded DNA molecules (Figure 6.1) called chromosomes. Each species of eukaryote has a characteristic number of chromosomes in the nuclei of its cells. Human cells (somatic cells) have 46 chromosomes. A somatic cell contains two matched sets of chromosomes, a configuration known as diploid. The letter ‘N’ is used to represent a single set of chromosomes; therefore, a diploid organism is represented as 2n. Human cells that contain one set of 23 chromosomes are called gametes, or sex cells. Chromosomes that reproduce are found in a haploid state.

**Chapter Outline**

- **6.1: The Genome**
- **6.2: The Cell Cycle**
- **6.3: Cancer and the Cell Cycle**
- **6.4: Prosomeric Cell Division**

**Introduction**

The individual sexually reproducing organisms—including humans—begin life as a fertilized egg, or zygote. Cell division is necessary for the cell to divide to produce a complex, multicellular organism. In other words, the original single cell was the result of every other cell in the body. Once a human individual is fully grown, cell reproduction is still necessary to repair or regenerate tissues. For example, new blood and skin cells are continuously being produced. All multicellular organisms use cell divisions for growth, and in most cases, the multiplication and repair of cells and tissues. Single-celled organisms use cell division as a method of reproduction.

**6.1: The Genome**

By the end of this section, you will be able to:

- Describe the prokaryotic and eukaryotic genome
- Distinguish between chromosomes, genes, and traits

The existence of life from one cell to another has its foundation in the reproduction of cells by way of the cell cycle. The cell cycle is an orderly sequence of events in the life of a cell from the division of one parent cell to produce two new daughter cells, or the subsequent division of these daughter cells. The mechanisms involved in the cell cycle are highly conserved across eukaryotes. Organisms as diverse as prokaryotes, plants, and animals employ similar stages.

Textbook Sample: Samantha Fowler, Rebecca Roush, and James Wise, *Concept of Biology*, available through OpenStax.