

Cellular Constituents and Functions



Dr Julie May

Grade: 6th – 9th

Approximate Time Needed: 30-minute lesson + 30-minute activity.

Standards: L.6.1.2, L.6.1.3, BIO.1C, BIO.1C.1, BIO.1C.2, BIO.3A.2

Students will learn about The Cell Theory of Biology, explore the world of cells, and end with a fun small group game of “Catch and Release” by correctly identifying cellular constituents and functions.

The Student Will –

- Define The Cell Theory of Biology
- Identify the scientists who were instrumental in the formulation of The Cell Theory.
- Explore the differences between prokaryotes and eukaryotes.
- Identify cellular constituents and parts of a cell.
- Identify the functions of major cellular organelles.
- Compare and contrast mitosis and meiosis.

Included –

- Video Lesson – (30-minute lesson)
Cellular Constituents
- Worksheet –
Prokaryotic and Eukaryotic Cells
- Student Activity – (allow 30 minutes for game play)
Cellular Constituents Card Game – “*Catch and Release*”
Either ^a. Sent to teacher or ^b. Available as a pdf download on video lesson webpage.
Suggestion: ^a. Print on cardstock or ^b. Print on regular paper, trim, and laminate cards.

Engage

What are our bodies made up of at the smallest level?

What are plants made up of?

What are bacteria made up of?

“Cells!”

Explore

Today we will learn that all cells are not made the same way.

For example, there are cells called Prokaryotes and cells called Eukaryotes. They are arranged differently.

Can anyone tell me which one came first in terms of life on Earth?

“Eukaryotes”

If Eukaryotes were first, how did Prokaryotes get here?

Allow students to give answers.

There is a theory called the Endosymbiotic Theory explains how eukaryotic cells evolved from prokaryotic cells by engulfing them as symbionts. There is a possibility that mitochondria and chloroplasts are the descendants of ancient bacteria that lived inside larger host cells.

Explain

In today’s video lesson we will learn all about pieces and parts of cells and how they work.

- Play video lesson

Extend

As a class, or individually, complete the worksheet on Prokaryotic and Eukaryotic Cells.

- *(pdf worksheet is available on the video lesson webpage)*

Evaluate

Let’s see how much you learned today. In groups of 4, we will play a fun twist of “Go Fish” called “Catch and Release.”

- *(pdf of cards is available for download on the video lesson webpage)*