UNIT 3: The Cell

DAYSHEET 44: The Different Types of Cells

Name: _______________________________                     Date: ____________

Bellringer: Get out your Technology! Go to www.Biomonsters.com

1st, 3rd & 4th Periods:

1. Go to Biomonsters Cinema and begin watching the “Types of Cells Video” as you read along with your daysheet.

2. Fill in your Cornell Notes by following along with the video.

3. Add your essential questions to the left side of your Cornell Notes once you have completed the reading and notes.

6th & 7th Periods:

1. Log into QuizStar.

2. Begin taking your “Summative Cell Theory & Scientists Assessment” that we were not able to complete last Friday.

3. If you are unhappy with your score, please schedule a time to meet with Ms. Cook/Ms. Lane to review your notes and retake the assessment. This must be done by Friday of this week!

4. After you finish your assessment, begin the bellringer directions for 1st, 3rd & 4th periods.

Objective: I can sort cells into their appropriate categories based on cellular structure and size.

Homework: Complete HW#44. Study for your Unit 3 Assessment. It drops on Tuesday 26th!
Activity 1: Reading and Cornell Notes

- **Purpose:** To find out about the different types of cells
- **Task:**
  1. Before you read, use the headings in your reading to make your essential questions.
  2. As you read, highlight only information related to your essential questions.
  3. After you read, organize your highlighted information in your Cornell notes.
- **Outcome:** The information from your reading should be organized in your Cornell notes!

The Classification of Living Things

There are lots of different and interesting types of living things on our planet. I think you already knew that though. You’ve probably seen an abundance of unique organisms like giraffes, mushrooms, worms, alligators, grasshoppers, bacteria, algae, and apple trees. Did you know that all of these very different organisms are divided into two categories? That’s right – every living thing on the planet can be classified into two groups based on the cells that make them up. So let’s talk about these cells. I hope that you already knew that cells are the basic units of life, and that all living things are composed of cells. Although all cells have some things in common, each cell type also has unique characteristics that make them easy to identify. Let’s focus on these unique characteristics.

**Prokaryotes**

Our first cell type is called a prokaryotic cell or prokaryote (pro-kar-e-oat). These cells are unique because they are only found in the smallest organisms on the planet, bacteria. Scientists believe that these bacterial cells (prokaryotes) were the very first life forms on Earth. That means that these cells have been on the planet longer than any other living thing. Bacteria are really old! So what makes bacterial cells different from all other types of cells? These prokaryotic cells are very simple and small. It’s their simplicity that makes them so easy to recognize. Prokaryotes do not have any membrane-bound organelles (cell parts). That means that bacteria don’t have a nucleus (PRO-NO). That’s crazy! Their DNA just floats around. So what does this all mean? Prokaryotes are the simplest of all cell types: they are very small, unicellular, and they do not have a nucleus.

**Eukaryotes**

If bacteria are the only living examples of prokaryotes, everything else on the planet must be composed of eukaryotic cells. Eukaryotes (U-kar-e-oats) are much bigger than prokaryotic cells. Some eukaryotic cells are even large enough to be seen without a microscope! Eukaryotic cells are complex. They have lots of different rooms or compartments inside of them. These rooms are called membrane-bound organelles. Some examples of these rooms are mitochondria and endoplasmic reticulum. The most important organelle in a eukaryotic cell is its nucleus. This is the control center of the cell. Eukaryotes have a brain (nucleus) than can control lots of different cellular activities at one time. This means eukaryotes can grow much larger than prokaryotic cells, and control lots of unique cellular activities all at once. All multicellular organisms are eukaryotes, including you! You are EU-karyote!
### Biology Objective:

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<thead>
<tr>
<th>Essential Questions</th>
<th>Notes:</th>
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Activity 2: Summarizing

Assignment:
Choose one of the options below to demonstrate your understanding of the different types of cells

<table>
<thead>
<tr>
<th>ONLINE DATING AD</th>
<th>WELCOME TO C’VILLE (CELL-VILLE)</th>
<th>DEBATE</th>
<th>YOUR CHOICE</th>
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<tbody>
<tr>
<td>Pretend you are a prokaryote or eukaryote trying to get a date with the opposite type of cell. Talk about yourself, what you’re looking for in a partner, the similarities you share, and what makes you different.</td>
<td>You are the mayor of C’ville (Cell-ville). Tell us about your citizens! Who lives in c’ville? What do all the citizens of c’ville have in common? What are some things that make them different?</td>
<td>Write a dialogue between a prokaryote and a eukaryote arguing over who is the BEST type of cell out there. Make sure your dialogue includes examples of each, similarities, and difference</td>
<td>Come up with another creative way to demonstrate your understanding of the different types of cells. You must get approval from your teacher before beginning.</td>
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Rubric:
Make sure you look over the rubric below before you begin writing!

<table>
<thead>
<tr>
<th>Score</th>
<th>Non-Proficient</th>
<th>Proficient</th>
<th>Mastery</th>
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<tr>
<td>Criteria</td>
<td>• Provides an example of a prokaryote and an example of a eukaryote</td>
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<td>• Explains at least one similarity between prokaryotes and eukaryotes</td>
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Example of a Writing Assignment:

Who are you?
P-Dizzle Prokaryote!

What do you look like?
I like to keep it simple – I wear everything loose on my inside, instead of keeping things stored in membrane-bound organelles (parts). Some other cells out there like to store their DNA in a nucleus, but that’s too much work for me. I don’t have a nucleus – my DNA is out in the open. I’m not lazy, I’m efficient.

Where are you found?
I’m found just about everywhere – although you might not know it, since like all my bacteria brothers I’m microscopic. I’m only in organisms that are unicellular – made of just one cell.

Why should we vote for you?
My bacteria friends and I are helping you out every day. Sure, once in a while we make you sick, but we also help make your food – like cheese and yogurt, help your body breakdown food, and get rid of waste.

Who are you?
I’m Eugene Eukaryote!

What do you look like?
Some smaller, simpler cells like to brag about “openness” on their insides. That’s NASTY! I have lot of membrane-bound organelles: A place for everything, and everything in its place. I respect my DNA too much to just let it all hangout. That’s NASTY too! I keep my DNA stored in my nucleus. That’s right, I have a control center (brain). My nucleus really sets me apart from Mr. P-Dizzle Prokaryote. It’s just too bad he’s so simple.

Where are you found?
I’m found in just about every kingdom of life – animals, plants, fungi and protists. My greatest masterpieces are huge multicellular organisms like elephants, oak trees, and for a while… dinosaurs.

Why should we vote for you?
I make complex and interesting life possible. Without my nucleus, humans wouldn’t be able to participate in complex tasks like regulating body temperature. That’s right; homeostasis is practically my middle name.

Score | Non-Proficient | Proficient | Mastery
--- | --- | --- | ---
Criteria | • Provides an example of a prokaryote and an example of a eukaryote | • Provides an example of a prokaryote and an example of a eukaryote | • Provides an example of a prokaryote and an example of a eukaryote
• Explains at least one similarity between prokaryotes and eukaryotes | • Explains at least two similarities between prokaryotes and eukaryotes | • Explains at least three similarities between prokaryotes and eukaryotes
• Explains at least two differences between prokaryotes and eukaryotes | • Explains at least two differences between prokaryotes and eukaryotes | • Explains at least three differences between prokaryotes and eukaryotes
1. How is the prokaryotic bacterium in the diagram different from a eukaryotic cell?
   A. It has ribosomes to make proteins.
   B. It stores its genetic information in DNA.
   C. It has no membrane-bound nucle
   D. It has a cell membrane.

2. Which of these statements best summarizes the cell theory?
   A. Cells contain a nucleus and other parts.
   B. Cells come in different shapes and sizes.
   C. Cells can be seen through a microscope.
   D. Cells are the building blocks of living things.

3. When Robert Hooke observed cork through his compound microscope, all that he could see were empty chambers. Why were Hooke’s chambers empty?
   A. His microscope was not powerful enough to see inside cork cells.
   B. Cork comes from plants, and plants do not have any structures inside their corks.
   C. He was observing structures within cells rather than whole cells.
   D. Cork is made up of dead plant cells, so only the structure of the cell wall remains.

4. Alice is studying the flow of water through different types of soil. She set up identical volumes of samples of different types of soil in each of five different beakers. One by one, she poured a measured volume of water into the samples and measured the time it took for the water to drain through the samples. In this investigation, what is the dependent variable?
   A. The number of samples she used
   B. The amount of water she poured
   C. The type of soil she selected
   D. The draining time

5. Which of these statements is a principle of the cell theory that supports the idea that new cells will replace damaged cells in a scraped knee?
   A. All living things are composed of one or more cells.
   B. Cells are the basic units of structure and function in living things.
   C. All presently existing cells arise from previously existing cells.
   D. Most cells are too small to be viewed with the unaided eye.