

Lesson 1: CELLebration! Notice & Define

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Grade Level(s)

K-5

Lesson Overview

Students will learn to identify the parts of the cell with an interactive lesson that fuses analogies, metaphor and storytelling, enhancing the understanding of a cell's anatomy.

Learning Objectives

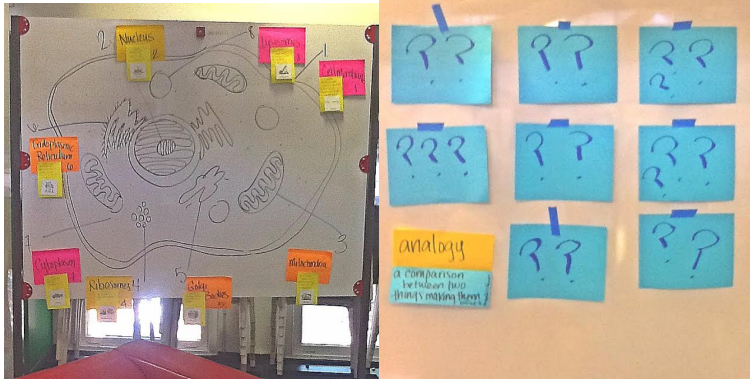
- To understand the vocabulary of cells: Analogy, Cell, Cell Membrane, Nucleus, Endoplasmic Reticulum, Golgi Bodies, Mitochondria, Lysosomes, Ribosomes, Cytoplasm
- To understand that cells are the basic units of all living things (except viruses)
- To learn how to identify the parts of the cell
- To learn how to understand the functions of the cell through analogies

Standards

- Develop and use a model to describe the function of a cell as a whole as ways parts of cells contribute to the function (NGSS MS-LS1-2)

Preparation

- Large plant or animal cell illustrated on a white board
- Numbered lines identifying and labeling the anatomy of the cell
- The parts of the cell, their definitions, and small analogous visuals attached to the vocabulary. Each term should be numbered so students can easily match the parts. For the sake of mystery and fun, terms can be hidden under ??? sheets. The students can choose which sheet they want revealed and the students or the teacher can match the parts to the cell
- You may choose to make your own or use “Cell in the City” flashcards that are pre-cut and can be attached to each term [Cell in the City | Nano-Activities for Kids: Biology - The Center ...](#) (Used 8/10 Cell City flashcards—see example below):



- | | |
|-----------------------------------|---|
| 1. Cell Membrane: City Boundaries | 5. Golgi Bodies: Postal Service |
| 2. Nucleus: City Hall | 6. Endoplasmic Reticulum: Streets and Roads |
| 3. Mitochondria: Power Plant | 7. Cytoplasm: Community |
| 4. Ribosomes: Manufacturing Plant | 8. Lysosomes: Demolition/Construction Service |

Materials and Resources

- Colors! Bright paper or large post it's for whiteboard demonstration
- Moving cells! [Moving Cells Under Microscope Stock Footage Video | Getty Images](#)
- Small analogous picture cards labeled with the part of the cell they represent [Cell in the City | Nano-Activities for Kids: Biology - The Center ...](#)
- Step-by-step "How to Draw a Cell" tutorial (Also available on YouTube!) <http://www.how-to-draw-cartoons-online.com/cartoon-cell.html>
- Color pencils, paper, oil pastels for coloring, 11x17 paper, Cell-in-the-City cards

Activity 1: Introducing Analogy and the Cell (5 Minutes)

- The lesson should be introduced with an explanation of what an analogy is. Let the students quickly come up with a few examples of their own. Introduce the cell and define a cell. Explain how it is the basic unit of living things. Scientists find cells tricky to count because they are constantly dying and reproducing, but if they estimate the weight of the cell, they can guesstimate at about 70 TRILLION in humans. Let the students know that they are scientists and will be using the keen observations to learn the parts of the cell. (Use a device to show them images or videos of cells, moving and flowing.)

Activity 2: Mystery Vocabulary Reveal (10 Minutes)

- Introduce the mystery vocabulary reveal activity. Explain that each term revealed has a definition, an analogous picture, and a number to help us match the parts to the cell anatomy diagram.

- Invite a courageous volunteer to pick the first term and get silly! It's ok to deliberately, "accidentally" point to the wrong mystery sheet. They all look the same! Your students will get a kick out of the teacher modeling **marvelous mistakes** (**Mistakes** that are wonderful because they are learning opportunities: "There is no win or fail! There are no mistakes, there is only make!")

Activity 3: *How-to-Draw-a-Cell Guide, Label and Color (30 Minutes)*

- After revealing all of the parts on the whiteboard, explain that the students will now learn how to draw the parts of the cell through a do-with-me exercise. They will also be using the labeled Cell City images to help identify the parts and better understand their functions.
- With a pencil and a sheet of paper, follow the How-To-Draw-A-Cell Guide. Feel free to be relatively quick, describing the parts of the cell and their functions through story-like metaphors ("1st, we are going to draw the cell membrane. The cell membrane is like a city's borders and it controls what goes in and out of the cell.")
- After each student has finished their sketch of the cell, explain that they will now be able to use their own Cell City flashcards to identify and label the parts of the cell. Demonstrate this with your labeled cell-city cards and then let work on their own. Through conversations and collaborations, they will deepen their understanding of the cell parts, better understanding their definitions and the story of it's relationship to the analogy.
- Now it's time to color! crayons, color pencils, oil pastels. Enjoy!

Troubleshooting

Get silly, but not too silly with the mystery reveal game. Be prepared to reel students back in if they get too silly. Transitions during the do-with-me exercise will help with those who may move more quickly than others. Have students hold a pencil up in the air like the Statue of Liberty when they've finished a step, and cue match-me's to transition to the next step, not moving on until everyone has finished the previous one and is mimicking you (i.e. "if you can hear my voice, match me...")

Assessment

Assess during reflections. Challenge the students to identify the parts without referring to the self-correction tool. Challenge them to name all the parts and their functions without looking at their cells.