

Lesson Overview: **Cells-Build-A-Lot**

Author/Teacher: **Cassandra Baptiste**

Grade Level: **Science, 7**

Unit Description

This is a unit for students in the 7th Grade. The length of the unit is **32 days over the course of approximately 6 weeks**. Students are in a 12:1:1 classroom setting and receive science instruction 4 days a week (3 days at 45 minutes, and 1 day at 90 minutes).

Essential Question:

How do surrounding environmental elements affect the natural progression of cells to human body systems?

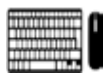
Summative Assessment Description:

The summative assessment will be two- fold: students will be asked to design a t-shirt representing a Human Body system, illustrate the major organs that represent the body system, and include other body systems and or organs that help the human body maintain homeostasis depending on the environment. Students will also be asked to produce a writing sample following the steps to write for information, which will include how they perceive the impact the surrounding environment has on the development of cells to human body systems.

Woke Cypha Elements:



Barbershop/Beauty Salon Conversations: Analyzing how we cope in our environments and ways to eradicate the social stressors that come with living in an urban setting in order to (1) align book sense with street sense, (2) see the community as authority, and (3) as Freire says, “read the world and the word.”



Beyond the 5 Paragraph Essay and Artistry: A multi-modal orientation to the ways we engage students in crafting and creation to foster work products that build upon students’ multiple skill sets and strengths and reflect real world New Century application.

Materials and Resources for the unit:

- Glencoe 7th Grade TextBook and Smart Science Labs
- Brainpop Video (Cells/Human Body/Homeostasis etc)
- Linked to Learning Parent Engagement Experiment

Summative Assessment

Project Name	It Ain't Hard to Cell
<p>In depth summative assessment description</p>	<p>Part I: Your knowledge on the content and standards of Unit 3 will be assessed by:</p> <p>Design a T-Shirt that you would like to be able to sell in a clothing store. The T-Shirt should have these 3 components:</p> <ol style="list-style-type: none"> 1. One Human Body System 2. All major organs related to the human body system that you chose 3. Other organs/Other body systems that are related or work in collaboration to maintain homeostasis within the human body <p>Part II: You will develop an On-Demand written piece on how the surrounding environment impacts the creation, growth, and development of cells that eventually become a part of human body systems. You are to use strategies for writing for information.</p> <p>Part III: Unit 3 Post Test (Multiple Choice and Short Response).</p>
<p>Rubric and Length: How long will students have to complete the summative assessment? How will you assess mastery or growth?</p>	<p>Students will utilize the 90 minute instructional block to complete both parts of the Summative Assessment.</p> <p>Students will be given 45 minutes to complete Post Test.</p> <p>TC Writing Checklists will be used to assess Mastery or Growth for Writing Abilities</p> <p>T-Shirt Design Project Rubric will be used for students to self-assess their work and also engage in Peer-Review processes</p>

Project Name	It Ain't Hard to Cell
<p>Formative Benchmarks</p>	<ul style="list-style-type: none"> • Online Interactive Labs (Smart Science) • Kahoot! Teacher Created Assessments • On Demand Writing Prompts • Class Discussions with Guided Questions • Reading Comprehension related to Human Body Systems • Human Body System Posters... Cell City incorporating student "lingo"/"slanguage" • Quick Quiz: Cells, Tissues, Organs, Body Systems • Dichotomous Key Classification Activity (Create Crest for each Kingdom) • Formulating Observable Questions • Kahoot! Formative Assessment (Biggie Lyrics)
<p>Standards: Common Core and State (No more than 3 standards)</p>	<p>NY State Scope and Sequence/Next Generation Standards</p> <ul style="list-style-type: none"> • Animals have a great variety of body plans and internal structures that contribute to their ability to maintain a balanced condition. (5.1a) • WHST.6–8.4: Produce a clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience. • RST.6–8.3: Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

Major Key: Extensions

Directions:

Please give insight to your specific teaching context and the ways you differentiate for students.

1. ENL Support (Up to 3 supports)

- Interactive Word Walls
- Cloze Reading Comprehension with vocabulary word bank
- Word Structure/Etymology

2. Students with Disabilities (Up to 3 supports)

- Visual Cues and Symbols
- Multiple Entry Points during lesson (Draw It/Read It Question It/Write It/Research It)
- Leveled Graphic Organizers

3. Technology Supports (Up to 3 supports)

- Tablets/Laptop Computers
- Interactive Technology Websites (Brainpop.com, The Amoeba Sisters, Nearpod, Smart Science)

About the Educator

Educator Bio:

My name is Cassandra Baptiste and I have been teaching Special Education for past 12 years. This past year, I transferred into a Renewal School as a Peer Collaborative Teacher to share best practices for instruction across all content areas within a middle school setting. I spent the past year teaching science to 6, 7, and 8th grade students within a 12:1:1 setting, along with an 8th Grade ICT setting. Throughout the course of my career I have taught in schools with students of diverse backgrounds; the one commonality is that the majority of the students have been exposed to high poverty and a myriad of traumatic experiences. Engaging in this work has been a truly rewarding experience as I now have a set of tools to help my students further engage in critically conscious ways of thinking and applying their brilliance to all kinds of situations that require creativity.

Pedagogical Philosophy:

I believe that every student should graduate with a set of moral values and ethics at each stage of the educational process (kindergarten/middle school/high school and beyond) so that they can apply integrity and good judgment when making all decisions. After attending Woke Cypha seminars, I decided to revamp my pedagogical philosophy by including that I want my students to open their “Real Eyes” to “Realize” the “Real Lies” that they have been told. I’ve always believed in agency, self-advocacy, knowing oneself, understanding history, and engaging in lifelong learning practices. The Woke Cypha Elements have helped me bring those beliefs to life by being able to apply research based strategies into my everyday instructional practice.

At each stage of their educational career, schools should expose students to a variety of academic and social skill sets. With a composite set of well- developed skills such as linguistics, mathematical, scientific, technological, artistic and social, all students will have an opportunity of achieving success in whatever personal dreams they hope to convert into a reality. I believe that educators are responsible for the development of an inquiring mind which will be used to continue a strong desire for knowledge and the improvement of humanity.

Reflection:

1. How have the **CREAD elements** impacted the way you approach unit/curriculum planning?

The CREAD elements have impacted the way in which I approach unit/curriculum planning by applying critical consciousness to all aspects of my unit/curriculum plan. Often times, I would ask myself, “How am I going to make these lessons culturally relevant?” Being able to utilize the elements makes the work clear cut, and each element offers a student friendly approach which also happens to feel natural to me as a teacher. The CREAD elements also assisted me with developing summative assessments, aligning them to the formative assessment, while keeping the objectives of the learning standard at the forefront. Also, in thinking about that 21st Century Student and the skills that students need in order to be independent, critical thinking, productive members in a non-traditional society, the elements helped me as a teacher to keep up with trends, technology, and new paradigms for teaching.

2. How has the experience of the Woke Cypha impacted your pedagogical practice?

My experience in the Woke Cypha has impacted my pedagogical practice immensely. After the first week of implementing an actual “Woke Cypha” in my 6th and 8th grade 12:1:1 classroom, 90% of students began attending class on time ready to engage in the work. The students were very enthusiastic to participate and even learn about the different elements like “hair salon” and “sankofa”. I believe that my participation added to my teaching abilities and has assisted me with developing a keen eye for critical consciousness across all content areas. I also thoroughly enjoyed the camaraderie with my peers when we completed group work or had invigorating conversations. I learned a great deal about facilitating workshops and professional development. My next steps are to engage other key stakeholders at both the school and district levels so that we can engage in Collaborative Inquiry Cycles that serve to infuse culturally relevant pedagogical practices into everyday instruction. Participation in the Work Cypha has awakened interests that I have had in education for a long time but did not have a safe outlet where I could build community and collaborate with other educators.

3. In which ways is this unit different from the last time you taught it?

This is my first year teaching science in a middle school setting. When creating this unit, I revised the unit more than once as I was teaching. Engaging in looking at student work protocols allowed me to see which skills students needed to learn in order to gain mastery in the unit standards- which lead me to implementing the various Woke Cypha elements. I also added an assessment for each daily lesson objective, which really helped me to remain organized and cognizant of lessons where students needed instructional extensions, additional time, or another way to showcase their understanding. The unit has changed significantly, to the point where even the sequential order was reorganized to best fit students’ learning needs. My ultimate goal was to have students be able to explain how and why cells develop into tissues, continue building and eventually form

into interdependent systems. I also wanted to students to be able to explain how environmental factors affect the human body in terms of growth, development, and sustainability. As I engaged in Woke Cypha, the unit plan changed to reflect this. The unit also changed in that I started to reflect on ways to implement assessments that allowed room for scaffolding so that English Language Learners could maximize on their ability to participate. Finally, being that I also teach ICT, I wanted the unit to be accessible to students receiving an education with the criteria for general education, and the teachers who provide instruction in those settings as well. Engaging in this process allowed me to change my unit, but it also provided room to grow my own thought process and the ways in which I contribute to the daily educational experiences of my students.

Notes:

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Day 4

Objective SWBAT:

Explain how single celled organisms are considered to be living things.

Common Core Standards:

Living Environment 1.1a, 1.1b, 1.1c-Design a comparison chart of the organelles of an animal cell and a plant cell. Briefly describe the job of each organelle.

- Animals have a great variety of body plans and internal structures that contribute to their ability to maintain a balanced condition. (5.1 a)
- WHST.6–8.4: Produce a clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience.
- RST.6–8.3: Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

CREAD Element:

Beyond the 5 Paragraph Essay

Materials:

- Glencoe 7th Grade Text Pgs. 363-366
- Brainpop Video *Prokaryotic and Eukaryotic Cells*
- Youtube *Cell Rap Song*

Starter/Do Now:

1. What do scientists mean when they say the nucleus is like the brain of the cell?
2. In 3 complete sentences, explain the purpose of a cell having organelles that carry out different functions/activities.

Direct Instruction:

Students will be provided with a PowerPoint slide which will highlight the main similarities and characteristics of prokaryotic and eukaryotic cells. The presentation will include opportunities for interactive word study along with visuals so that students can make mental connections about single vs. multi- cellular organisms.

Activities/Student Work: Students will complete interactive notebook pages as a reference for prokaryotic/eukaryotic cells; students will complete on demand writing prompts; students will use technology to research examples of unicellular and multicellular organisms.

Assessment/Evidence of Learning:

Homework: Research a single celled organism that lives in your community and write 1 paragraph about how this organism is able to survive with only one cell.

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Day 9-10

Objective SWBAT:

- Identify how their surrounding environment operates much like the parts of a cell.
- Make real world connections by explaining how each part of a cell is comparable to the parts of a city.

Common Core Standards:

- Animals have a great variety of body plans and internal structures that contribute to their ability to maintain a balanced condition. (5.1a)
- WHST.6–8.4: Produce a clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience.
- RST.6–8.3: Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

CREAD Element:

What does the hood know?

Materials:

- Graphic Organizers
- Cell City Exemplar Activities
- Pictures of the school community (Clason Point/Castle Hill/Soundview)
- Teacher Provided Tablets

Starter/Do Now:

Do Now: How does a city function? Create a list of all the major parts of a city and their significance. Ex. A supermarket is important to a city because it stores groceries until people are ready to buy food to eat.

Direct Instruction:

The teacher will provide students with visuals in a PowerPoint, along with a think- aloud activity where the teacher will use academic vocabulary and provide a model for how to present information to a group.

Activities/Student Work:

Using tablets for access to technology students will engage in peer partnerships when completing the Cell City Graphic Organizer. Students will use photographs to create concept maps, which make the correlation that parts of a city are similar to parts of a cell.

Assessment/Evidence of Learning:

- **Do Now:** How does a city function? Create a list of all the major parts of a city and their significance. Ex. A supermarket is important to a city because it stores groceries until people are ready to buy food to eat;
- **Independent Practice:** Research Cell City Projects and complete graphic organizer for each organelle;
- Student mini-presentations.

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Day 18

Objective SWBAT:

Apply concept-mapping skills by making an event-chain concept map of the different levels of cell organization from cell to organ system. Provide an example of each level of organization.

Common Core Standards:

- Animals have a great variety of body plans and internal structures that contribute to their ability to maintain a balanced condition. (5.1 a)
- WHST.6–8.4: Produce a clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience.
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CREAD Element:

Artistry

Materials:

- Blank Concept Map Graphic Organizers
- Timeline of Events Sample (From Cell to Organ)
- *ReadWorks* Article on Tissue Development “Growth and Development in Urban Communities”
- Art Supplies
- Student materials brought from home

Starter/Do Now:

Do Now: How does a city function? Create a list of all the major parts of a city and their significance.
Ex. A supermarket is important to a city because it stores groceries until people are ready to buy food to eat.

Direct Instruction:

The teacher will reintroduce how scientists can use thinking maps to document their learning. Students will read, annotate text, and develop questions to share out during whole group discussion. Students will be grouped according to academic ability along with social emotional readiness and will be given differentiated tasks that lead to the completion of a concept map.

Activities/Student Work:

Based on their concept maps, students will begin the design process of an actual “cell city” by drawing an outline of their community and superimposing images, other drawings or self-made materials that resemble parts of a cell. For example, toilet paper rolls can be cut into pieces and painted on to represent the golgi bodies of a cell.

Assessment/Evidence of Learning:

Do Now/Student Discussion/Work Samples

Notes:

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Day 23-24

Objective SWBAT:

Day 1: Predict what type of stimulus each sense organ responds to and how. **Day 2:** Explain how drugs specifically affect the nervous system.

CREAD Element:

Barbershop/Beauty Salon Conversations

Materials:

Brain on Drugs Video

Glencoe Text Nervous System Article: "Middle School and Drugs"

Starter/Do Now:

Do Now Choice Activities:

1. How do drugs cause people to behave?
2. Why and how do people become addicted to drugs?
3. Cite for Evidence: Does the human brain cause addiction, or the human body?

Direct Instruction:

Using a PowerPoint presentation, teacher will provide mini-lesson on the organs of the nervous system, and definitions for environmental response and stimuli.

Activities/Student Work:

In a fishbowl protocol activity, based on student responses and individual questions, students will lead a discussion on the effect drugs have on the human body, particularly the nervous system.

Assessment/Evidence of Learning:

Think-See-Wonder: Look at the picture and think about all the activities that you see. List the types of stimuli that are present within the picture.

Read, Annotate, Write: Summarize the effects of drugs and alcohol use on human organ systems.

Exit Ticket:

How does your nervous system cause your body to react to the surrounding environment?

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Day 25-26

Objective SWBAT:

- **Day 1:** Compare and contrast arteries, veins, and capillaries.
- **Day 2:** Design real life illustrations of the heart and explain how blood moves through each part of the heart.

Common Core Standards:

- Animals have a great variety of body plans and internal structures that contribute to their ability to maintain a balanced condition. (5.1a)
- WHST.6–8.4: Produce a clear and coherent writing in which the development, organization, and style are appropriate to task, purpose and audience.
- RST.6–8.3: Follow precisely a multistep procedure when carrying out experiments, taking measurements, or performing technical tasks.

CREAD Element:

Movement

Materials:

- Lab Packets
- Video on Resting vs. Active Heart Rate
- Student Question and Answer Sheets
- Poster Paper
- Art Supplies

Starter/Do Now:

Name places in your community where you can exercise for free.

Direct Instruction:

Teacher/Student lead vocabulary word study activities; brief mini-lesson on the parts of the human heart. Teacher will model how to complete *Identifying Major Organs of the Circulatory System* graphic organizer.

Activities/Student Work:

- SmartScience Online Lab
- Neighborhood Community Walk Activity
- Lab: Resting Heart Rate vs. Active Heart Rate Experiment
- Design human heart posters; label all major parts of the human heart

