

## Unit Design Framework

Subject: Science- 7

Unit: Cells – Chapters 1 and 2

### Part I: Clarity of Learning Targets

**What are the grade level indicators that go with this unit? Place a star next to the grade level indicators that are Power Indicators. Are the indicators in student friendly language? Place the level of Bloom's Taxonomy next to each Power Indicator.**

- A.) **explain** that complex (multicellular) organisms have **specialized cells**, tissues, organs, and organ systems **that perform specific jobs**. (Factual, Understand)
- B.) **identify** how **plant cells and animal cells are different**. (Factual, Remember)
- C.) **explain** that organisms carry out similar **basic functions which take place in cells**. (Conceptual, Understand)
- D.) **explain** that **plant cells use sunlight (solar energy) to make food (chemical energy)**. (Procedural, Understand)
- E.) **explain** that the **food plants make** can be **used by the plant or eaten by consumers** for their survival. (Procedural, Understand)

**What are the Big Ideas that go with this unit?**

1. Basic functions of organisms are carried out by cells, and multicellular organisms have specialized cells. (A, C, D, and E)
2. Plant and animal cells are different. (B)

**What are the Essential Questions that go with this unit?**

1. What are the basic functions of multicellular organisms? (A, C, D, and E)  
How are these processes carried out in multicellular organisms? (A, C, D, and E)
  - osmosis and diffusion
  - passive and active transport
  - photosynthesis
  - respiration
  - cell cycle
2. How are plant and animal cells different? (B)

**What strategies will we use in order to make learning targets clearer for all students, before, during and after instruction? How will you communicate the learning indicators to students?**

- “I can” handout for cells.
- Post essential questions
- ½ sheet – check for student understanding of the learning target

**Strategies for making learning targets clearer for students**

- ✓ At the beginning of a unit, share the Big Idea or Essential Question with the students. Once you have taught a lesson, refer to the Big Idea or Essential Question and have the students make connections between the lesson and the Big Idea or Essential Question.
- ✓ Pose the Essential Question throughout or at the end of the unit. Have the students answer the Essential Question in their own words. The goal in this case is for the students to be able to respond to the Essential Question with the Big Idea stated in their own words.
- ✓ Share the grade level indicator with the students before, during, and after the lesson. Make connections between the grade level indicator and the Big Idea/Essential Question.
- ✓ Have the students summarize what they have learned in an exit slip.
- ✓ Introduce the language of a rubric to students by asking them what they already know and then linking their thoughts to the main concepts in the rubric.
- ✓ Create rubrics that are in student friendly language.
- ✓ Teach students how to use the rubric to evaluate models of strong and weak work samples.

**Part II: Feedback and Assessments (Formative and Summative)**

**How will we provide students with feedback throughout the unit?**

**What formative assessments will we use? (Non-graded assignments that check for understanding and provide feedback to the students) Incorporate the 7 Strategies of Assessment for Learning here.**

- cell parts – 10 point formative assessment with grade prediction – chapter 1, section 2 – learning target B
- diffusion and osmosis – 3 questions with snowball activity (students self-assess their level of understanding) – chapter 1, section 4 – learning targets A and C
- photosynthesis and respiration – chapter 2, section 1 and 2 – learning targets D and E
- cell cycle – chapter 2, section 3 – learning targets A and C

### **What summative assessments will we use? (Graded, evaluative assessments)**

- Make sure each item aligns with an indicator
  - Number of questions should reflect importance of the indicator/time spent
  - Questions should match the level of Bloom's Taxonomy
  - Check to make sure questions are well-written
  - Organize questions by indicator – put indicators on test
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- cell parts quiz – chapter 1, section 2 – learning target B
  - diffusion and osmosis quiz – chapter 1, section 4 – learning targets A and C
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- photosynthesis and respiration quiz – chapter 2, sections 1 and 2 – learning targets D and E
  - cell cycle quiz – chapter 2, section 3 – learning targets A and C

## **Part III: Instruction and Student Activities**

**What instructional and student activities will we use for this unit? These activities should directly align with the indicators and assessments.**

### Chapter 1, Section 2

- Brainpops
- Scoping out 'e'
- Hair and thread lab
- Cell model
- Animal cell lab
- Plant cell lab 1 and 2
- Inside the cell movie
- Cell cartoons
- Cell plots jot chart

### Chapter 1, Section 4

- Diffusion demos
- Crossing membranes
- Egg demos
- Venn diagram
- Brainpops
- Osmosis lab

### Chapter 2, Section 1 and 2

- Brainpop
- Elodea demo
- Fermentation demo

### Chapter 2, Section 3

- Brainpops
- Chromosomes and genes video
- DNA replication lab
- Cell cycle poster
- Cell cycle road map
- On-line mitosis and onion roots tips – computer lab (have to do!!)