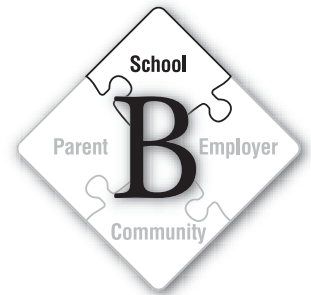


Cell Model Assignment

Activity Summary

- In this activity, students will:
- ◆ Build a three-dimensional cell structure
 - ◆ Complete an **Essential Skills** Comparison Activity
 - ◆ Create **Essential Skills** icons and label a Cell Model

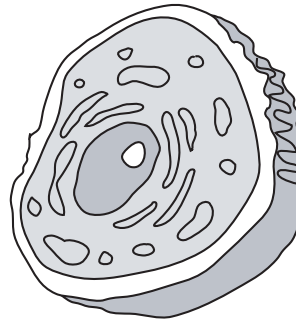


Prior Knowledge

- **Essential Skills**
- Introduction to cells and organelles and their functions
- Identification of organelles

Teaching Planning Notes

- Review assignment including prior knowledge required and assessment and evaluation tools
- Remind students to consult library and/or internet to help create precise cell (may want to schedule class time)
- Conduct a class discussion about the relation of the **Essential Skills** to cell parts to help generate some ideas and thought



Assessment of Student Achievement

Task	Tool / Type
Cell Model	Ex-CELL-ent Idea! Cell Model Rubric (Summative)
Comparing Organelles and Essential Skills	Ex-CELL-ent Idea! Essential Skills Comparison Assessment Tool (Formative)

Activities and Assessment Materials

- Activity Assignment Sheet
- Cell Model Checklist
- **Essential Skills** Comparison Assessment Tool
- Cell Model Rubric

FOCUS ON LEARNING

Essential Skills:

Reading Text

Research for Cell Model

Writing

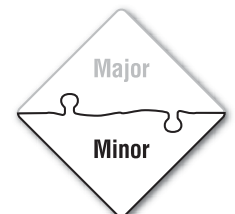
Essential Skills
Comparison Sheet

Thinking Skills

Model Building
Essential Skills
Comparison Sheet

Working With Others

Model Building



Curriculum Linkages For Ontario Educators

Essential Skills truly are everywhere and as teachers we are always teaching students the **Essential Skills!** As subject teachers and specialists, we know that many of the curriculum expectations we are accountable to teach and assess, also address the **Essential Skills** and while the linkages are not always readily apparent, the linkages exist nonetheless.

While this activity connects to a variety of courses it is most closely aligned to the following course(s):

- Grade 8 Science

To assist you, the teacher, in making more transparent linkages, we have identified the following curriculum linkages for this activity.

Grade 8 Science

Life Systems

Coded Overall Expectations	Coded Specific Expectations
8LSV.01 - demonstrate an understanding of the basic structure and function of plant and animal cells, and describe the hierarchical organization of cells in plants and animals	8LS1.03 - identify organelles in cells through observation and explain their function;

Ex-CELL-ent Idea!

The cell is the basic unit of life. Although microscopic, each cell and its parts must be programmed and work correctly to help its living thing function (possibly making up a tissue, organ or organ system). Hence, cells have very important jobs in living things, though they are so tiny! Similarly, the **Essential Skills** can also be thought of as the basic skills for life. They are important skills to have to ensure success in the world of work. Both cells and **Essential Skills** require energy, a commitment by all parts, and a time to reflect or rest. By digging a little deeper, the parts of a cell may function together like the nine **Essential Skills**. Together, though, they result in success.



Part 1: Model Your Knowledge

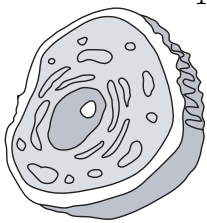
In partners, you will construct the basic structure of a plant or animal cell. Each group of two will accurately build a three-dimensional cell structure, and place the contents of the cell inside of it (e.g. nucleus, mitochondria, etc.). The parts of the cell should be placed in the correct spot in the cell and should be the correct shape and size, according to your class notes and text. A visit to the library or the Internet may also help in constructing a precise cell. All parts must not be edible. Use the checklist provided to assist you in your creation.

Part 2: Relatives

Using your knowledge of cell parts and the nine **Essential Skills**, think about how they might be related. For example, the mitochondria is the powerhouse of the cell. Is there an **Essential Skill** that was the powerhouse behind you and your partner as you completed your model?

Maybe Thinking Skills? Another example might be the cell membrane and Reading Text. The cell membrane allows substances in/out of the cell.

Similarly, as you researched your cell model through reading books/research, you and your partner would have allowed some points to remain in your head (the useful ones) while others you would have disregarded.



- 1) On a separate sheet of paper, relate each of the nine **Essential Skills** to a part of the cell. Briefly explain why you chose to match specific cell parts to specific **Essential Skills**.
- 2) Create a small icon representing each **Essential Skill**. Go back to your cell model and place the icon beside the part of the cell you and your partner felt it most resembled. (HINT: You might want to make the icon into a flag to put on your model.)

Ex-CELL-ent Idea! A Checklist For Your Cell Model

- The cell should be three-dimensional.
- The cell should demonstrate a basic understanding of the structure and function of a plant or animal cell.
- The cell should be coloured.
- The cell should be free-standing.
- The cell should have a legend on the bottom of the structure to indicate to the viewer what all the labeled parts of the cell are.
- Only numbers should be found on the cell. The names of the parts should be in the legend.
- Your cell should be accurate, neat, well-planned and creative.

Essential Skills Comparison Assessment Tool

ACTIVITY	RATING 1= LIMITED, 2 = SOMEWHAT, 3 = CONSIDERABLE, 4=TO A HIGH DEGREE			
Effective labeling of model and <i>Essential Skills</i>	1	2	3	4
Demonstrates thoughtful relationship between <i>Essential Skills</i> and organelle functions	1	2	3	4

Ex-CELL-ent Idea! Cell Model Rubric

CATEGORIES/ CRITERIA	LEVEL 1 (50-59%)	LEVEL 2 (60-69%)	LEVEL 3 (70-79%)	LEVEL 4 (80-100%)
<p>Knowledge and Understanding</p> <p>Accurately identifies the parts of the cell (plant/animal) and demonstrates an understanding of the function of each organelle.</p>	Limited Understanding	Some Understanding	Considerable Understanding	Thorough Understanding
<p>Thinking</p> <p>Demonstrates selection of appropriate materials and equipment which have been adapted to exceed the design of the product.</p> <p>Demonstrates creative solutions that include great detail.</p>	Limited Effectiveness	Some Effectiveness	Considerable Effectiveness	High Degree of Effectiveness
<p>Communication</p> <p>Expresses and organizes ideas through visual model</p>	Limited Effectiveness	Some Effectiveness	Considerable Effectiveness	High Degree of Effectiveness

Note: A student whose achievement is below Level 1 (50%) has not met the expectations for this assignment.

