

Grade 8 Cells Unit Final Project 2023

Due Date: __ Week of November 13, 2023

There is a choice for final project:

Option A

Your Goal: To make a model cell to demonstrate an understanding of the basic structure and function of plant and animal cells. It must include a legend that explains the basic function of each part of the cell.

Option B

Your Goal: To pick a disease or cellular-based condition that you will research and find the cause. What makes the sickness or disease? Is it genetic or a virus or bacteria? How is the disease spread and what happens on a cellular level? Explain in as much detail as possible and discuss ways in which the disease is treated, cured or how the human organism becomes resistant to this problem. What is the prognosis or historical statistics (Is the disease getting more common or less?)

OPTION A

Part A – The Incredible Cell

1. Choose either to make a model of a plant or animal cell. Decide on the materials you will use to create the model. All models must be made out of materials that will not spoil. **Your model should have no dimension that is bigger than 40 cm.**
2. Your project must be labelled. You must label each organelle and put the names in the legend (See 4.).
3. Each model must include the following organelles.

a. Nucleus	d. (Chloroplasts)	g. Vacuole
b. Cell Membrane	e. Cytoplasm	h. Ribosomes
c. (Cell Wall)	f. Mitochondria	i. Endoplasmic Reticulum
4. Your project must include a legend that explains the basic function of each part of the cell. Example:

Cell Structure	Representative Material Chosen	Cell Function
Nucleus	Balloon	The nucleus holds all the information needed to make every cell in the body.

5. Record all your sources of information – including your notes if used.

OPTION B

Part A – This Disease

1. Choose a disease or cellular condition.
2. Find out how you are going to organize your project. Use headings! Maybe a table of contents
3. Describe the disease? What causes it? What are the symptoms? How is it spread? What is the prognosis? What is the mortality Rate? What are the treatments?
4. What are some organizations that are trying to help fight this disease?
5. What are things that Grade 8 students can do to help? (be realistic - think of the present, and the future).
6. Record all your sources of information – including your notes if used.

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Use the following questions to help you develop a good project.

- ☐ Is your name On your report, your model and on the front of the project?
- ☐ Is the cell type identified? Tell if it is a plant or animal cell. / What is the disease?
- ☐ Is the model a 2D/3D representation of a plant or animal cell? / How are you displaying your diseased information?
- ☐ Are all the organelles included? (>10 for plants cells, >9 for animal cells) / Are all aspects of your disease covered?
- ☐ Are the organelles correctly labelled? Each organelle must be labelled with its name. / Explain the disease.
- ☐ Have you included a legend with each organelles name and function? / Do you have pictures of the disease?
- ☐ Are the relationships between the parts shown correctly? Plant cell - are the chloroplasts around the vacuole?
- ☐ Have you included your sources of information or added to the resource list on this page?
- ☐ Option A - Are the materials acceptable? The materials cannot be food products.
- ☐ Option B - You should have a display of your disease and references to causes, prognosis, mortality, historic information, treatments/prevention, future direction and organizations. Diseases should not be edible. Display should not actually be infectious.

Resources Page

Some Helpful Websites to Explore:

- <http://www.windows.ucar.edu/tour/link=/earth/ecosystems.html&edu=elem>
- <http://www.teachersdomain.org/collection/k12/sci.life.oate.human/>
- <https://www.canadiangeographic.ca/kids>
- <https://askbiologist.asu.edu/explore/biomes>

If you used the websites above, check them off – add any other sites that you use below:

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Part B – Explanation Writing Piece

Your Goal: Compose an Explanatory writing piece that explains the basic structure & function of the cell or about a particular disease and what causes it and how it is prevented or treated.

You need to include an Explanatory writing piece that provides the following information:

- a. Title (Name of Cell) / (Name of Disease)
- b. Definition – What it is (A Cell is ...) / (How the disease affects humans)
- c. Components or parts – What it consists of (structures in the cell) / (cause, how it is spread)
- d. Operations – How it works (functions of the structures in the cell) / (prognosis, treatment, cure/prevention)
- e. Application – Why is cellular health important? What are some careers that have to do with cells and cellular health? What are some careers to do with your chosen disease?
- f. What are some organizations that are helping to fight this disease? What can you do as a Grade 8 student to help fight this disease?
- g. Resources Page – list all resources and references

Explanatory Writing Checklist

	Met	Not Yet Met
Content		
Title is interesting and appropriate.		
Does my first paragraph provide a definition?		
Does my second paragraph explain the operation?		
Details are logically developed and specific.		
Does my final paragraph give the applications?		
Ending leaves the reader with a clear understanding.		
Style and Organization		
Is it all written in an impersonal third person style without using 'I'?		
Nouns are specific.		
Format is clear and easy to read.		
Conventions		
Information is easy to read, with clearly marked divisions.		
Sentences are complete. Spelling is accurate.		

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Model Cell Rubric

Plant / Animal

Name: _____ Class: _____

1	2	3	4
Knowledge and Understanding (Knowledge of model or prototype)			
Is missing many elements in the model cell.	Is missing 1 element in the model cell.	Includes all required elements in the model cell.	Includes all required elements in the model cell and some additional elements.
Is missing many elements in the legend.	Is missing 1 element in the legend	All required elements are included in the legend.	Includes all required elements in the legend and some additional elements.
Thinking and Investigation (Use of critical/creative thinking processes, skills, and strategies: Creativity, Application of prior knowledge and skills)			
Few or no labels were present on the model	Few or no functions were present on the legend.	All required elements are labelled with a name.	All cell functions are correct in the legend and well labeled
All required elements are labelled with a name.	All cell functions are correct on the legend.	All required elements are labelled with a name.	All cell functions are correct and detailed.
Communication (Expression and organization of ideas and information in oral, visual, and/or written forms)			
Student uses vocabulary and terminology of the discipline with limited effectiveness	Student uses vocabulary and terminology of the discipline with some effectiveness	Student uses vocabulary and terminology of the discipline with considerable effectiveness	Student uses vocabulary and terminology of the discipline with a high degree of effectiveness
The model is distractingly messy or very poorly designed. It is not attractive	The model is acceptable attractive though it may be a bit messy	The model is attractive in terms of design, layout and neatness.	The model is exceptionally attractive in terms of design, layout, and neatness.
Application (Transfer of knowledge and skills to unfamiliar contexts: Creativity, Application of prior knowledge and skills)			
Cannot accurately illustrate/explain functions in the cell.	Can accurately illustrate/explain some of the functions in the cell.	Can accurately illustrate/explain the functions in the cell.	Can accurately illustrate/explain the functions in the cell in technical terms

Due Date: _____

Overall Mark:

Comments:

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Disease Rubric **Disease:** _____ **Name:** _____ **Class:** _____

1	2	3	4
Knowledge and Understanding (Knowledge of model or prototype)			
Mentions disease but information is either weak or not accurate. Might not be cited properly.	Explains some parts of the disease but misses one or two parts	Explains about the disease, its causes and how it affects the body.	Explains about the disease, historical information, what causes it and how it affects human population
Thinking and Investigation (Use of critical/creative thinking processes, skills, and strategies: Creativity, Application of prior knowledge and skills)			
Explanation of cause – may be absent or completely fabricated.	Explanation of cause – may include information not relevant or accurate.	Explanation of cellular-level cause with reference to cells.	Explanation of cellular-level cause with reference to specialized cells.
No or few sources listed.	Some general sources are mentioned.	Various sources are cited properly.	Numerous sources are included and annotated for reference
Communication (Expression and organization of ideas and information in oral, visual, and/or written forms)			
Student uses vocabulary and terminology of the discipline with limited effectiveness.	Student uses vocabulary and terminology of the discipline with some effectiveness.	Student uses vocabulary and terminology of the discipline with considerable effectiveness.	Student uses vocabulary and terminology of the discipline with a high degree of effectiveness.
Either no graphics or it is inaccurate or cartoon-like.	There are pictures or drawings that are included but may not be accurate.	Pictures and/or diagrams are included and add to the project.	Pictures and diagrams are informative, clear and add to understanding.
Display is rushed/messy and may be missing parts.	Display has some organization, somewhat neat and complete.	Display is organized, easy to read and neat.	Display is well organized, polished and easy to understand.
Application (Transfer of knowledge and skills to unfamiliar contexts: Creativity, Application of prior knowledge and skills)			
Write up is not in own words, may be disorganized, missing information or contains inaccurate information.	Write up covers topic, has some information on treatment and organizations that help.	Write up is organized with headings and information on treatment, organizations and what students can do.	Write up is organized with headings and lots of information on future treatment, organizations that help and what students can do.

Due Date: _____

Overall Mark:

Comments: