

Designer Cell Challenge

The shape of a cell reveals its function. Designing a cell will allow you to begin to think about the relationship between a cell's structure, its function and how it interacts with cells around it.

Specialized cells vary widely with respect to:

- shape, size, number of organelles, types of organelles

Challenge:

1. Determine a desired function for a new animal or plant cell.
 - It must be a **NEW** cell & function.
2. Determine the shape, size, and organelle distribution required for your cell required to perform its **NEW** function.
3. Create a drawing (digital or by hand) of your cell.



Diagram & Design Requirements:

- Name of cell and where it is found (*ex. leopard paws, fish gills, tulip leaves ...*).
- Applicable organelles covered in class.
- Clearly **labeled** parts. A legend/key may be used.
- Large enough to **easily distinguish** all the parts.
- **Researched** structures and organelles. (minimum of 2)
 - Researched structures should indicate the type of cells where they are normally found.
 - **Optional:** Create new organelles with logical structure related to function **as well**.

Follow Up Questions: **TO BE COMPLETED INDIVIDUALLY**

1. What is the unique **function** of your cell? ①
2. Why/how is this function desirable for an organism? ②
3. List the special features the cell contains. ①
*List of Features → (more, longer, larger.... **NOT WHY PRESENT**)*
4. What is the function of unique/researched organelles? ②
 References required for researched structures (website link is acceptable)
5. Explain reasoning for special features, researched organelles, and new organelles. ④
 How is the structure of your cell related to its function?
*ex. **How** do these special features make it suited for its function?
Why does it have more or less of certain organelles?*

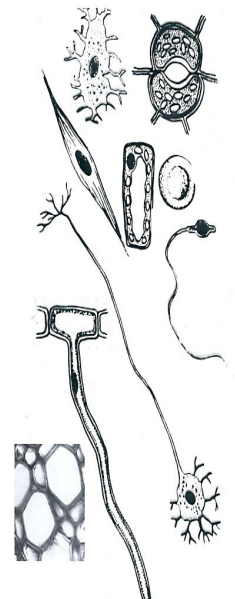


Diagram & Design	
Name of cell and where it is found (<i>ex. leopard paws, fish gills, tulip leaves ...</i>).	/1
Applicable organelles covered in class. Clarity: Organelle labels/key/legend is clear and easy to use. Easy to distinguish different parts of cell.	/4
Researched/unique structures and organelles. - indicate the type of cells where they are normally found.	/4
Professionalism (neat, carefully constructed, planning evident...)	/2
OPTIONAL SECTIONS: <i>check if these are to be assessed.</i>	/2
○ Create new organelles with logical structure related to function.	/3
○ Creativity of cell design and attractiveness of image(s)	/3
○ Additional diagrams showing cell – in action, in the organism....	/3
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Follow Up Questions – Completed Independently	
What is the unique function of your cell?	/1
Why/how is this function desirable for an organism?	/2
List the special features the cell contains.	/1
What is the function of unique/researched organelles? <i>Including references</i>	/2 /2
Explain reasoning for special features, researched organelles, and new organelles.	/4
	/ 12
Total	/