

Name _____

Hour _____

Cell Organelles- Structure & Function

Introduction guiding question: How does changing the structure change the function?

Table 1

| | <i>Observations on structure</i> | <i>How does this affect the function?</i> |
|----------------------|----------------------------------|---|
| <i>Bicycles</i> | | |
| <i>Your example:</i> | | |

Case Study - Making observations, interpretations, and communicating evidence of cell organelle structure and function pertaining to case study disorders.

1. You may work **ON YOUR OWN** or with up to two assigned partners to investigate a Case Study.
2. Read through the case study to identify the signs and symptoms of the disorder.
3. Use the case study and internet to research the signs and symptoms of your case to determine the name of the disorder. **RECORD** this information in Table 2 below.
4. Investigate further to determine the name of the organelle associated with this disorder, its function, and any changes due to the disorder. **RECORD** this information in Table 2 below.

Your Assigned Case Study

Table 2

| <i>Case #</i> | <i>Disease</i> | <i>Affected organelle</i> | <i>Structure (picture)</i> | <i>Normal Function</i> | <i>Change in Structure</i> | <i>Change in Function</i> |
|---------------|----------------|---------------------------|----------------------------|------------------------|----------------------------|---------------------------|
| | | | | | | |

- Add your information to this slide show [HERE](#) / see CANVAS CASE STUDY ASSIGNMENT.
- During the presentation, complete Table 3 BELOW for the other case studies. You may write "SEE ABOVE" for your assigned disease/disorder.

Table 3

| <i>Case #</i> | <i>Disease</i> | <i>Affected organelle</i> | <i>Structure describe/draw</i> | <i>Normal Function</i> | <i>Change in Structure- describe/draw</i> | <i>Change in Function</i> |
|---------------|----------------|---------------------------|--------------------------------|------------------------|---|---------------------------|
| 1 | | | | | | |
| 2 | | | | | | |
| 3 | | | | | | |
| 4 | | | | | | |
| 5 | | | | | | |

| <i>Case #</i> | <i>Disease</i> | <i>Affected organelle</i> | <i>Structure describe/draw</i> | <i>Normal Function</i> | <i>Change in Structure- describe/draw</i> | <i>Change in Function</i> |
|---------------|----------------|---------------------------|--------------------------------|------------------------|---|---------------------------|
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |

Lung cell activity

What does each object represent?

Balloon = _____ = taped to the end of your table

Straws = _____ = 2-3 students

Ping pong balls = _____ = 1 student with 4+

In this activity, you will work as a table to protect your lung cell by attempting to “blow” the bad particles away from the lung cell. You will have 60 seconds for Round 1 and Round 2

Round One- Straws may move around the table

Round two- Straws must stay in a fixed location

| Your observations | ROUND 1 | ROUND 2 |
|---------------------------------|---------|---------|
| What strategies worked for you? | | |
| What did you find challenging? | | |

Lung cells have cilia that protect the cells from foreign or bad particles. When a person smokes, they eventually can immobilize the cilia. How might that affect a person’s ability to get rid of foreign or bad particles?




Final Analysis

Some cells are specialized to perform specific functions. To answer this question, you will investigate the following question:

1. Which cells/tissues/organs have the MOST mitochondria and WHY?
2. Rank them from HIGHEST TO lowest.
3. Be prepared to explain your ranking.



What organs have the most mitochondria?

-  Brain cells/neurons
-  Skeletal muscle
-  Heart/cardiac muscle
-  Ovaries
-  Liver

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