The Amazing Body Machine Project: Organelles to Systems and Diseases!

Project Goals:

- Students will identify the major organelles within a cell and their functions.
- Students will understand how different body systems work together.
- Students will explain how malfunctioning organelles or organs can lead to diseases.

Project Options:

Students will choose from one of the following options to produce a project that connects cells, organelles, organ systems and diseases together.

Option 1: Design a "Body Battle Royale" Game

Students will create a board game where players travel through different body systems, encountering challenges that represent diseases. To overcome these challenges, players must answer questions about the organelles and organs involved in that system.

Your game must have the following cards and elements:

- **Game Board:** Design a board with spaces representing different body systems (e.g., circulatory, respiratory, digestive).
- **Challenge Cards:** Create cards with disease descriptions (e.g., "You have a cold! Explain how the respiratory system fights off this infection"). Students will need to include a disease from the organelle disease list.
- **Answer Cards:** Create cards with information about organelles and organs within each system (e.g., "The cilia in your respiratory tract trap dust particles").
- **Gameplay:** Students will create rules for the game that make sense and follow logical game play and incorporates the theme of cells and the human body.

Option 2: Create a "Body System Superhero Comic"

Students will design a comic book where the hero represents a healthy body system. The villain will be a disease, and the comic will showcase how the hero (the system) uses its organs and organelles to fight the villain (the disease).

Comic Creation:

- **Characters:** Design a superhero representing the assigned body system and a villain representing a disease that affects that system.
- **Plot:** The comic showcases the superhero using its organs and organelles (the superpowers) to defeat the villainous disease.
- **Dialogue:** Include explanations about the functions of organs and organelles as the hero fights the disease.

Project Requirements:

- Regardless of the chosen option, students should research:
    - Major organelles and their functions.
    - The chosen body system and its organs.
    - A specific disease related to the chosen system.
- Students will present their project to the class, explaining their creation and the connection between organelles, systems, and diseases.

Human Body Project Rubric

Criteria	5 - Exceeds Expectations	4 - Meets Expectations	3 - Approaching Expectations	2 - Below Expectations	1 - Far Below Expectations
Conduct an Investigation Provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.	Comprehensive investigation with detailed, accurate, and well-organized evidence that living things are made of cells. Clearly demonstrates understanding of different cell types and their structures.	Thorough investigation with accurate evidence that living things are made of cells. Demonstrates understanding of different cell types.	Investigation provides some evidence that living things are made of cells, but lacks detail or has minor inaccuracies. Partial understanding of cell types.	Limited investigation with minimal or inaccurate evidence of cells. Demonstrates little understanding of cell types.	No investigation or evidence provided to show that living things are made of cells. Lacks understanding of cell types.
Develop and Use a Model Describe the function of a cell as a whole and ways the parts of cells contribute to the function.	Develops an exceptionally clear, detailed, and accurate model to describe the function of a cell and how its parts contribute to the overall function. Model demonstrates deep understanding.	Develops a clear and accurate model to describe the function of a cell and how its parts contribute to the overall function. Model demonstrates solid understanding.	Develops a model that partially describes the function of a cell and how its parts contribute, but may have some inaccuracies or lack of detail. Demonstrates basic understanding.	Develops a model with significant inaccuracies or lack of detail in describing cell function and the role of its parts. Demonstrates limited understanding.	No model developed or model is completely inaccurate. Demonstrates no understanding of cell function and the role of its parts.

Use Argument Supported by Evidence Explain how the body is a system of interacting subsystems composed of groups of cells.	Provides a comprehensive, well-reasoned argument supported by extensive, accurate evidence demonstrating a deep understanding of how the body is a system of interacting subsystems composed of groups of cells.	Provides a clear, well-supported argument with accurate evidence demonstrating a solid understanding of how the body is a system of interacting subsystems composed of groups of cells.	Provides an argument with some supporting evidence, but may have minor inaccuracies or lack of detail in demonstrating understanding of the body as a system of interacting subsystems composed of groups of cells.	Provides a limited argument with minimal or inaccurate evidence, demonstrating a poor understanding of the body as a system of interacting subsystems composed of groups of cells.	No argument provided or argument is completely inaccurate. Demonstrates no understanding of the body as a system of interacting subsystems composed of groups of cells.
Creativity	Project shows exceptional creativity and originality in the chosen format and presentation. Demonstrates a unique and engaging approach.	Project shows good creativity and originality in the chosen format and presentation. Demonstrates an engaging approach.	Project shows some creativity and originality in the chosen format and presentation, but could be more engaging.	Project shows limited creativity and originality in the chosen format and presentation. Lacks engagement.	Project shows no creativity or originality. Presentation is unengaging.

Neatness and Organization	Project is exceptionally neat, well-organized, and visually appealing. All components are clearly labeled and easy to follow.	Project is neat, well-organized, and visually appealing. Components are clearly labeled and easy to follow.	Project is somewhat neat and organized, but could be improved. Some components may be unclear or difficult to follow.	Project is messy and disorganized. Components are poorly labeled or difficult to follow.	Project is extremely messy and disorganized. Components are unlabeled and impossible to follow.