Unit 01E: Structure and Function - Cell Division

Content Area: **Science**
Course(s): **Generic Course**
Time Period: **Semester 1**
Length: **3 weeks**
Status: **Published**

Standards

LS1.A

- Systems of specialized cells within organisms help them perform the essential functions of life. (HS-LS1-1)
- All cells contain genetic information in the form of DNA molecules. Genes are regions in the DNA that contain the instructions that code for the formation of proteins, which carry out most of the work of cells. (HS-LS1-1) *(Note: This Disciplinary Core Idea is also addressed by HS-LS3-1.)*
- Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level. (HS-LS1-2)
- Feedback mechanisms maintain a living system's internal conditions within certain limits and mediate behaviors, allowing it to remain alive and functional even as external conditions change within some range. Feedback mechanisms can encourage (through positive feedback) or discourage (negative feedback) what is going on inside the living system. (HS-LS1-3)

SCI.9-12.HS-LS1-3	Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis.
SCI.9-12.HS-LS3-2	Make and defend a claim based on evidence that inheritable genetic variations may result from (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors.
SCI.9-12.HS-LS3-1	Ask questions to clarify relationships about the role of DNA and chromosomes in coding the instructions for characteristic traits passed from parents to offspring.
SCI.9-12.HS-LS1-4	Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.

Essential Questions

- How do the structures of organisms enable life's functions?

Content / Skills

Content

- Why is Mitosis important
- Why is Binary Fission Important

- What causes nondisjunction
- What are the products of Mitosis
- How does mitosis and DNA replication fit into the cell cycle
- Why is small cell size important?

Skills

- How do cancer cells differ from normal cells?
- How to compare prokaryote and eukaryote cell division
- How to compare sexual and asexual reproduction?
- What is the role of chromosomes in the cell cycle and cell division?