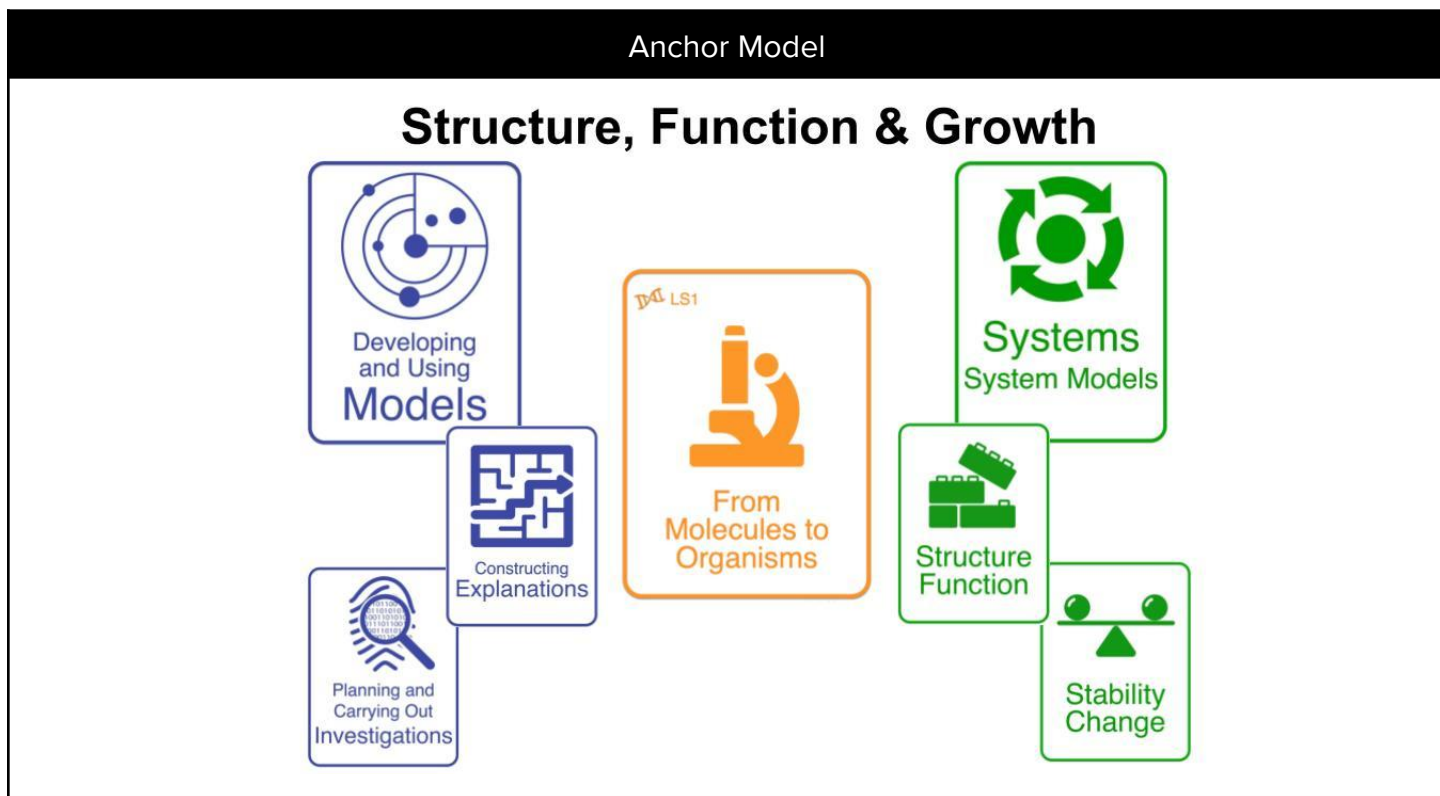


Storyline Unit Design

Understanding by Design (UbD) Template*

Unit		Course(s)	
Designed by		Time Frame	


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Stage 1: Desired Results

Performance Expectations

HS-LS1-1: Genes, Proteins, and Tissues

Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins which carry out the essential functions of life through systems of specialized cells.

HS-LS1-2: Interacting Body Systems

Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. (Systems and System Models)

HS-LS1-3: Feedback Mechanisms and Homeostasis

Plan and conduct an investigation to provide evidence that feedback mechanisms maintain homeostasis. (Stability and Change)

HS-LS1-4: Cellular Division and Differentiation

Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms. (Systems and System Models)

Anchoring Phenomenon

[Anchoring Phenomenon Worksheet](#)

- CF gene mutation
- Pizza to breastmilk
- Insulin glucose connection for diabetes
- Onion Root Tip
- Mitosis out of control- Cancer
- Thermostat controlling house temperature
- Pre-workout or Protein powder how does that help with protein building (working out)
- Sickle cell gene
- CRISPR Gene editing → Covid and other disease
- Positive feedback loops: wildfires and climate change
- Cell regeneration: star fish, axolotl
- Cold water creek cancer cases *

Enduring Understandings

Essential Questions

Stage 2: Assessments

HS-LS1-1 - [Stay Green Mutants](#)

HS-LS1-2 - [Modelling Pupillary Response](#)

HS-LS1-3 - [Investigating Stomata Response](#)

[Assessment Screening Tool Slides](#)

Backward Design Elements

What new skills (practices) will students need to learn?

What thinking concepts will students need to learn?

What science concepts will students need to learn?

Stage 3: Learning Plan

 Phenomenon or Problem	 Learning Performance - What will they do? The three dimensions woven together into a single learning performance.	 Why is this important? How does this activity help build understanding of the anchoring phenomenon.	 Learning Experience - How will they do it? Graphic organizers, protocols, scaffolds, labs, mini-lesson, student discourse, etc.
Coldwater Creek Cancer Map	Students will ask questions to determine why there are elevated patterns of rare cancers in this particular area as opposed to national averages	Students become familiar with a local phenomenon and get excited about brainsto	
Formative Assessment - What information are you collecting to know that they met the target?			
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Materials / Resources

Vocabulary

HS-LS1-1

Structure of DNA
Essential life functions
Structure and Function
Gene
Protein
Cell
Tissue

HS-LS1-3

Stability and Change
Homeostasis
Feedback mechanism (positive and negative)
Internal conditions

HS-LS1-2

Multicellular organism
Structure
Body systems
Organ
Tissue
Cell
System interaction
Function (e.g. nutrient uptake, water delivery, response to stimuli)

HS-LS1-4

Growth
Fertilized egg
Cellular division (mitosis)
Chromosomes

External conditions
Living system

Parent and daughter cells
Gene expression
Differentiation
Multi-cellular organism
System models

Mini Lessons

Systems Level 5 - [System Level 5 - Simulating Systems Mini-Lesson](#)

Systems Level 5 Thinking Slides - [System Level 5 - Simulating Systems Thinking Slides](#)

Graphic Organizers

[Phenomena Observation Graphic Organizer](#)

[Questioning Graphic Organizer](#)

[Modeling Graphic Organizer](#)

[Planning an Investigation Organizer - Experimental](#)

[Planning an Investigation Organizer - Observational](#)

[Investigation Evidence Organizer](#)

[Engaging in Argumentation Organizer](#)

Differentiation / Modifications