Backwards Design Planning

Grade:	Subject Area: Science	Strand/Topic:
Learning Standard: HS-LS1-1. 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		**Unit Guiding Question(s):** **What is the structure of DNA? What is DNA? What does DNA look like? What does DNA do?** **How are the structures of DNA and the structures of proteins related?** **How can I use evidence to explain how the structure of DNA impacts that structure of proteins?** **How are the structure of proteins and related to the essential functions of life?** **What is the role the systems of specialized cells?**
Key Vocabulary: theories and laws, evidence, natural world, **structure of DNA, DNA, proteins, essential functions of life, life, systems of specialized cells,** organisms		

Learning Goals	Curricular Language What do Students need to Know and Do?	Student Friendly Language
Science and Engineering Practices (skills)	Construct an explanation based on valid and reliable evidence obtained from a variety of sources (including students' own investigations, models, theories, simulations, peer review) and the assumption that theories and laws that describe the natural world operate today as they did in the past , present, future.	**I can** explain using evidence that there are theories and laws that describe the natural world • I know what evidence is • I know what science and theories and laws* are • I know what the natural world is
Disciplinary Core Ideas (knowledge)	Disciplinary Core Ideas LS1.A: Structure and Function • Systems of specialized cells within organisms help them perform the essential functions of life. • 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.	**I know** that the systems of specialized cells inside organisms perform essential functions of life • I know what systems of specialized cells are • I know what organisms are • I know what the essential* functions of life are **I know** that cells have genetic information in DNA molecules **I know** that genes are parts of DNA that are instructions for how proteins are formed **I know** how cells work
Crosscutting Concepts (Big Idea)	Structure and Function • Investigating or designing new systems or structures requires a detailed examination of the properties of different materials, the structures of different components, and connections of components to reveal its function and/or solve a problem.	**I understand** that structures are made of many different components that are connected and have specific functions.