



New York Mills High School

Curriculum Document

Curriculum Area: Science

Course Name: Biology Common Course Catalog Number: 322

Length of Course: Pre-Requisite: Full Year

Grade Level: 10-12

Course Description:

Our big picture focus in this class will be twofold. The first will be to impress upon you the dependence living things have on each other. The second will be to understand how DNA, genes & proteins lead to evolution and the diversity of life on this planet (and possibly others).

Essential Learner Outcomes (5 to 7)

Biology standards "I can" statements

I can model how ecosystems will change as a result of natural influences and human interactions.

I can recognize where and explain how respiration, photosynthesis, protein synthesis and cell reproduction occur.

I can describe the vital role of proteins in the cell and the process by which they are formed from DNA.

I can explain how mutations and new combinations of existing genes lead to variation in a species.

I can use natural selection to propose explanations for the diversity of life on earth.

Units of Study:

Observation & Experimentation: How can you be better at watching the world around you? We will try and translate your people watching skills to other living things.

Physical Processes: How is life built on photosynthesis, chemosynthesis and cellular respiration?

Diversity & Interdependence: How does the environment affect living things, like us? How are organisms dependent on their environment? What are the consequences of human influence on our earth?

Cells & Cancer: How do cells divide? What cell changes take place during the development of cancer? How is cancer treated and why is it treated that way? How does 1 cell become trillions with different jobs?

Genetics: What purpose do DNA & RNA serve and how do they relate to proteins? How are traits inherited? What are the causes of variety and genetic diversity?

Biological Evolution: How do species change over time? How does the history of life on this planet explain past changes on earth and the diversity we see today? How does natural selection relate to the survival of species? What do you know about artificial selection?

Ecology: We will either go the lake or wildlife ecology direction. What factors affect ecological balance? How do invasive species change the balance? What is a population and how do they evolve a niche to survive?