The Bioenergy Farm Game Standards

Next Generation Science Standards (2013)

Performance Expectations:
Middle School:
- **MS-LS2-5.** Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
- **MS-ESS3-3.** Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- **MS-ESS3-4.** Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.
- **MS-ETS1-2.** Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.

High School:
- **HS-LS2-7.** Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity.
- **HS-LS4-6.** Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity.
- **HS-ESS3-2.** Evaluate competing design solutions for developing, managing, and utilizing energy and mineral resources based on cost-benefit ratios.
- **HS-ESS3-4.** Evaluate or refine a technological solution that reduces impacts of human activities on natural systems.

Scientific and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Asking questions and defining problems Analyzing and interpreting data Using mathematics and computational thinking Constructing explanations and designing solutions Engaging in argument from evidence	**LS2**: Ecosystems: Interactions, energy, and dynamics **LS4**: Biological Evolution: Unity and Diversity **ESS3**: Earth and Human Activity **ETS1**: Engineering Design	Patterns Cause and effect: Mechanism and explanation Systems and systems models