

The following matrix connects the activities in the Chapters with the State of Ohio Standards for Science and Agriculture and Environmental Science at the time of publication.

Chapter	Agriculture/ Environmental Science strands	Ohio New Learning Science Standards	Topics/Activity
1 Teaching Waste to Energy	Strand 1. Business Operations/21st Century Skills Outcome 1.1. Employability Skills	Science is a Human Endeavor: Science has been, and continues to be, advanced by individuals of various races, genders, ethnicities, languages, abilities, family backgrounds and incomes.	STEM/Teaching
2 Lab Safety and Chemical Hygiene	Strand 3. Biotechnology Outcome 3.5. Laboratory Standard Operational Procedures	Scientific Inquiry, Practice and Applications: All students must use these scientific processes with appropriate laboratory safety techniques to construct their knowledge and understanding in all science content areas.	Safety
3 Growing Soybean and other Biofuel Plants	Strand 3. Biotechnology Outcome 3.8. Research and Experiments Strand 8. Plant Science Outcome 8.4. Growth and Management	Science is a Way of Knowing: Science assumes the universe is a vast single system in which basic laws are consistent. Natural laws operate today as they did in the past, and they will continue to do so in the future. Science is both a body of knowledge that represents a current understanding of natural systems and the processes used to refine, elaborate, revise and extend this knowledge	Plant Growth Basics/ Scientific Method

4 Harvesting Biofuels	Strand 3. Biotechnology Outcome 3.2. Foundations of Chemistry Strand 8. Plant Science Outcome 8.5. Harvesting	RECALLING ACCURATE SCIENCE (R) PHYSICAL SCIENCE (PS) Topic: Conservation of Mass and Energy This topic focuses on the e 7.PS.4: Energy can be transferred through a variety of ways	Harvesting Biofuels
5 Waste Oil Titration	Strand 6. Environmental Science Outcome 6.9. Hazardous Materials and Waste Management	PS.M.5: Reactions of Matter <ul style="list-style-type: none"> • Chemical reactions 	Titration
6 Titration of Biodiesel	Strand 6. Environmental Science Outcome 6.9. Hazardous Materials and Waste Management	IM: INTERACTIONS OF MATTER C.IM.1: Chemical reactions <ul style="list-style-type: none"> • Types of reactions • Kinetics • Energy • Equilibrium • Acids/bases 	Biodiesel Formation
7 Testing Biodiesel	Strand 6. Environmental Science Outcome 6.8. Contaminants and Pollution Control	Scientific Knowledge is Open to Revision in Light of New Evidence: Science is not static. Science is constantly changing as we acquire more knowledge. INTERPRETING AND COMMUNICATING SCIENCE CONCEPTS (C)	Testing Biodiesel
8 Energy and Biofuels	Strand 9. Energy Outcome 9.1. Energy Sources Outcome 9.2. Crude Oil and Natural Gas	EARTH'S RESOURCES ENV.ER.1: Energy resources • Renewable and nonrenewable energy sources and efficiency • Alternate energy sources	Energy and Biofuels

9 Viscosity and Biodiesel	Strand 6. Environmental Science Outcome 6.7. Solid Waste and Renewable Resource Management	C.IM: INTERACTIONS OF MATTER C.IM.1: Chemical reactions • Types of reactions • Kinetics • Energy • Equilibrium • Acids/ bases	Viscosity
10 Soybean and STEAM education		DESIGNING TECHNOLOGICAL/ ENGINEERING SOLUTIONS USING SCIENCE CONCEPTS (T) PG.ER: EARTH'S RESOURCES PG.ER.1: Energy resources • Renewable and nonrenewable energy sources and efficiency • Alternate energy sources and efficiency	STEAM