Middle-level CTE Learning Experience Title: Composting School Food Waste Educator: Steve Perry Length of Lesson: 7 day(40 minute periods) Grade Level: 7	CTE Area: Agriculture CTE Theme: Sustainability CTE Content: Stewardship of the Land Date Created: 3/27/2020

PLANNING	

	NRS.02. Analyze the interrelationships between natural resources and humans NRS.03. Develop plans to ensure sustainable production and processing of natural resources NRS.04. Demonstrate responsible management procedures and techniques to protect, maintain, enhance, and improve natural resources
NYS Standards	New York State Career Development and Occupational Studies (CDOS) Standards Intermediate Level http://www.p12.nysed.gov/cte/ Standard 1: Career Development Students will be knowledgeable about the world of work, explore career options, and relate personal skills, aptitudes, and abilities to future career decisions. Standard 2: Integrated Learning Students will demonstrate how academic knowledge and skills are applied in the workplace and other settings. Standard 3a: Universal Foundation Skills Students will demonstrate mastery of the foundation skills and competencies essential for success in the workplace.
Learning Objectives	Sustainability 1. Resources Students will a) Define "sustainability" as it applies to resource use b) Explain how sustainability can be a factor in decision making c) Define and give example of renewable and non-renewable resources d) Explain factors to consider when evaluating environmental implications of decisions e) Investigate practices that promote stewardship of environmental resources f) Research the personal, environmental and financial costs and benefits of sustainability-conscious decisions to individuals, families, schools, workplaces and communities. g) Practice making decisions that show consideration for sustainability of resources in a variety of classroom applications. Stewardship of the Land 1. Soil Students will a) Examine the physical and chemical properties of soil b) List and describe the various agricultural uses for land c)

Vocabulary

Academic
Sustainability, Renewable, Nonrenewable
Environment, Natural Resource

Content
Compoonte,

Middle-

	https://ny.pbslearningmedia.org/resource/ess05.sci.ess.earthsys.lp_recycle/recycling-and-composting/ Day 2 Teacher introduces the class to the Composting School Food Waste Project. Teacher explains the class will be conducting research into how much food waste is produced each day in their schools' student cafeteria. Teacher further explains that students will investigate not only how much food is wasted but how the waste could be better utilized. Teacher leads a summary discussion: - What do we mean by the term compost? - Utilizing students input, the teacher develops a formal definition to include "a form of waste disposal where organic (define) waste decomposes naturally under oxygen-rich conditions…Once these waste items are placed in a pile, the composting process can start. The organic materials are broken down naturally by earthworms, bacteria and other organisms that live in soil." Resource: Study.com What is Composting	Day 2 Students take out their Agriscience notebooks. Students write down the components of the class research project as explained by the teacher. Students offer their input as to what a definition of compost should include.	Day 2: 40 mins 10 mins 30 mins.

https://study.com/academy/lesson/what-is-composting-definition-and-examples.html

Teacher continues direct instruction with these questions

- How can compost help improve the quality of the soil?

Students offer their re4.881.326 0 im[S)4.5 (15P (o)-6 (f)13.n7 (r)3.4.5 (15e.6 (f)2.tim[S)6 (f)13.)2

Teacher leads a summary discussion:

- Puts nutrients back in the soil
- Increases organic content.

Resource: Cornell Waste Management Institute

http://cwmi.css.cornell.edu/composting.htm

Day 3

Teacher takes class to student cafeteria to see food waste/other waste containers.

Teacher asks the class

- How can we best figure out how much student food waste is produced each week in this cafeteria?

Possible Solutions

- Total number of food waste containers for the day and multiple by 5 (days a week)
- Total number of food waste containers for each day for a

	Resource: Soil Texture Analysis https://www.soils4kids.org/ Teacher leads students into a discussion: What is soil? - 50% solids (sand,silts,clay) - 25% air - 25% water Teacher mentions that today we are beginning to look at the solids in our little jar exercise. Teacher asks How do each of these components help the plant? - Support - Oxygen - Water - Nutrients Teacher asks How do you imagine soil is formed? In other words, where did it come from? - Slow weathering process that takes place above and below the Earth's surface. - Physical breakdown and chemical decomposition of rock. - Wind and rain blow against mountains. Boulders become loosened and freezing rain cracks smaller boulders. Below ground during decomposition rock becomes soil.	Students take out their Agriscience notebooks and take notes on the main ideas presented during the discussion. Students offers responses to the question. Students offer responses to the question. Students continue to take notes in their Agriscience notebook. Students offer responses to the question. Students continue to take notes in their Agriscience notebooks.	20 mins

Teacher reminds class that tomorrow when we come in, we should be able to see just what solids are found in the soil in our jars.

Resource: Amazing World Under Our Feet
https://extension.unl.edu/statewide/fillmore/Soils%20Intro%20Lesson.pdf

Day 5

Teacher requests student report on total food waste from the day before.

Teacher requests student groups from day before to return to their jars and report on visual observations.

Teacher instructs students to use their sharp.5 ((h)2.32(t)8 (1 (o)-6.(t)8 (t)7.3 ( )-11. (o)-6.7 (t60.6 (d)2.34 ( )10.ark(s)40.6 (d)2.3(t)8 ac ( )9.2 (e)-3 (o)-6.f0.002 Tc 0 Tw

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	by students to the compost bin. Sites are selected for utilization of compost for school soil improvement.	Students utilize compost to improve school soils.	
Differentiation	Students will be grouped by their abilities and interests. Teacher will provide scaffolded support where needed. Students who have physical disabilities will be accommodated for. Students who are meeting all of the expectations will be challenged to go above and beyond.		
Closure	Students will select		