



North Polk Community Schools Pacing & Course Description Guide



Grade Level: 10-12

Content: Ag Mechanics

Year: 2022-2023

Course Description/Rationale

Designed to introduce students to the fundamentals of small gas engines. Students learn basic terminology used in the agricultural mechanics industry, safe work practices, agricultural tools, four-stroke fundamentals, and troubleshooting. Students will learn what it takes to become an informed consumer when buying and maintaining small gas engines. Students will also be learning CNC plasma metal cutting in addition. Continued development of SAE projects. (1 HS credit)

Name of Unit	Time Frame	Essential Learning Target	Standard(s)
Safety	2 weeks	ELT 1: Properly identify tool by correct name, purpose, and location for use in the small engine shop. ELT2: Identify and use the appropriate PPE based upon the tool and situation in the small engine shop. ELT3: Demonstrate proper use of all tools in the small engines shop.	CS.03.04. Use appropriate protective equipment and demonstrate safe and proper use of AFNR tools and equipment. CS.03.04.01.a. Identify and differentiate the appropriate protective equipment for the safe use and operation of specific tools and equipment (e.g. PPE, etc.). CS.03.04.01.b. Analyze and demonstrate adherence to protective equipment requirements when using various AFNR tools and

			equipment. CS.03.04.02.a. Identify standard tools, equipment and safety procedures related to AFNR tasks.
Engine Construction	2 weeks	ELT1: Identify engine components and their purpose. ELT2: Identify and describe the four strokes and their impact on engine function and efficiency. ELT3: Describe the processes that occur during an internal combustion engine.	PST.03.01.01.a. Identify and classify components of internal combustion engines used in AFNR power, structural and technical systems. PST.03.01.01.b. Analyze and explain how the components of internal combustion engines interrelate during operation.
Systems	5 weeks	ELT 1: Identify the five systems based upon parts and function to the internal combustion engine ELT2: Relate each system to each other and the impact it has on engine function and efficiency.	PST.03.01.01.b. Analyze and explain how the components of internal combustion engines interrelate during operation. PST.03.01.02.a. Distinguish the characteristics of spark-and-compression internal combustion

			engines used in AFNR power, structural and technical systems. PST.03.01.02.c. Inspect, analyze and repair spark-and-compression internal combustion engines used in AFNR power, structural and technical systems.
Teardown	3 weeks	ELT 1: I can use the proper tools for teardown of an engine. ELT2: I can work with a partner to complete a tear down of an engine using a manual and teardown instructions.	PST.03.01.02.c. Inspect, analyze and repair spark-and-compression internal combustion engines used in AFNR power, structural and technical systems.
Troubleshooting	3 weeks	ELT1: Read, interpret, decipher a technical manual. ELT2:Using a flow chart based upon symptoms, diagnose and repair issues with four cycle engines.	PST.03.01.02.b. Utilize technical manuals and diagnostic tools to determine service and repair needs of spark-and-compression internal combustion engines used in AFNR power, structural and technical systems.

Project	3 weeks	ELT1: Complete an inspection, diagnosis, plan of repair, and work ticket for an issue in a small engine.	PST.03.01.02.c. Inspect, analyze and repair spark-and-compr ession internal combustion engines used in AFNR power, structural and technical systems.
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