Virginia FFA: Small Engines

State Fair of Virginia

2024 Contest Letter

State Fair Address: Meadow Event Park 13111 Dawn Blvd Doswell, VA 23047 Caroline County	**Contest Registration and Tickets:** Participants must have a $6 Student Competition Ticket to enter the Fairgrounds unless they are already at the Fair for another competition. Agricultural Education instructors are responsible for ordering tickets: https://www.vaffa.org/state-fairof-virginia	**Event Location:** Best of Show Tent	**Date:** September 27, 2024 **Times:** *Contest Meeting:* 10:15 AM *Contest Begins:* 10:30 AM *Awards:* Following the Event
Contest Superintendents: Jeff Wilt Andy Seibel Stuart Byrd	**Entry Deadline:** September 20, 2024 by 5:00 PM.	**Questions? Contact us!** *Virginia FFA Association* Andy Seibel - gseibel@vt.edu Alison Jones - alisonks@vt.edu 540-231-3823	

Purpose:

This event provides FFA members an opportunity to demonstrate their knowledge of small engines by completing a written test and to display their practical skills by troubleshooting an engine malfunction.

Procedures:

1. The state event is held during the State Fair of Virginia.
2. One participant from each area competes in the state event.
3. The event consists of two parts. Part I is a written test, and Part II is a practical test.

Part I: Written Test

1. The written test contains:
    a. 20 true-false and/or multiple-choice questions
    b. One measurement
    c. Five tool identifications
    d. One part for which to determine the replacement part number
2. The time limit is 40 minutes.
3. The test has a maximum of 100 points.

Part II: Practical Test

1. The practical test involves having the participant troubleshoot an engine to determine specific malfunctions and to adjust the engine so that it operates properly.
2. The maximum time limit is two hours. A shorter time limit may be set if appropriate. If unplanned malfunction occurs, time required to correct the malfunction is deducted from the participant's total time.
3. If possible, all engines are of the same make and model and have the same malfunctions.
4. Participants bring their own safety glasses, tools, and repair manuals.
5. Oil, fuel, rags, fire extinguishers and parts containers are provided.
6. No work is to be done outside the designated troubleshooting area.
7. If a mechanical failure over which no one has any control should occur, it is considered an act of nature, and participants are expected to accept this without claim or recourse.
8. Adjustments must be within tolerances specified in repair manuals.
9. Participants should consult with the event manager when in doubt.
10. Participants are not penalized for requesting parts if they can justify their requests to the events manager.
11. Participants may be disqualified for any of the following reasons:
    a. Failure to follow rules and regulations of the event or the judges' instructions.
    b. Conduct on the part of an instructor or participant unbecoming a gentleman or lady or inappropriate spirit of the event and of the school is represented.
    c. Smoking in the event area.
    d. Conversing with anyone other than the judges and the event manager.
    e. Employing an unapproved practice (such as using starter fluid).
12. The event manager is allowed to request a participant's aid and to use participant's tools to determine if malfunctions have been corrected.
13. The point-addition system is used to score the event. The participant with the lowest total score is the winner. Each participant is scored on safety throughout the event. Each participant receives a Malfunction Check-off Sheet to complete

as he or she corrects a malfunction. This sheet is also used for scoring. (The Malfunction Checkoff Sheet and the Small Engines Troubleshooting Event Score Sheet follow this section).

14. Participants must notify the event manager when they have completed the event. At that point, no further adjustments to the engines are allowed.
15. Only members of the event committee and participants are allowed in the immediate troubleshooting area. Spectators are allowed to observe from a distance but may not converse with participants.
16. The event manager and judges' rule on any condition not covered herein. Their decision is final.

Judging/Scoring Criteria:

- Written Exam - 100 points
- Diagnosis (10 points per malfunction) - 100 points
- Repair (50 points per correction) - 100 points
- 10 point deduction for safety infraction

Awards:

Cash Awards:

Place:	Award:
1st	$50
2nd	$45
3rd	$40
4th	$35
5th	$30

Ribbons:

1st-6th Place - Rosette Ribbons
7th-10th Place - Flat Ribbons

State Fair Scholarship Program:

Contestants will be eligible to participate in the State Fair Scholarship Program. Please see the State Fair website, www.statefairva.org for more information regarding the State Fair of Virginia Scholarship Program and eligibility requirements for other available scholarships. The following scholarships will be awarded to the top four individuals:

1st Place - $600
2nd Place - $400
3rd Place - $300
4th Place - $200

Event Sponsor:

Attachments:

- Malfunction Check-Off Sheet
- Score Sheet
- Event Tool List

Small Engines Troubleshooting

Malfunction Check-Off sheet

Participant's Name _____ *School* _____

Engine Model _____ *Engine Type* _____

	Good	Needs Work	Describe Work Done
1. Ignition System			
a. Spark Plug			
b. Breaker points			
c. Condenser			
d. Armature air gap			
e. Ignition wires			
f. Other			
2. Fuel System			
a. Air Cleaner			
b. Carburetor			
c. Fuel			
d. Idle adjustment			
e. Main Load adjustment			
f. Choke			
g. Stop Switch			
h. Governor			
i. Other			
3. Cranking System			
a. Compression			
b. Tappet clearance			
c. Rings			
d. Timing			
e. Gaskets			
f. Other			
4. Lubrication			
a. Oil Level			
b. Drain plug			
c. Breather			
d. Other			

NOTE: Notify event manager when you have completed the event

Small Engines Troubleshooting

SCORE SHEET

Participant _____ *School* _____

Engine Model Number _____ *Engine Type* _____

	Scoring Area	Points
1.	Failure to start engine (+200 points)	
2.	Failure to correct present defects (_____ defects not corrected X 50 points)	
3.	Number of parts requested but not needed: _____ X 20	
4.	Carburetor idle mixture improperly adjusted (+20 points) (Engine must have a distinct high and low end idle)	
5.	Number of minutes or major fractions thereof (over 30 seconds) of troubleshooting: _____ Minutes X 2 points	
6.	Safety violations (ex. Goggles, carelessness): _____ safety violations X 20 points	
7.	Improper use and care of tools: _____ incidents X 20 points	
8.	Failure to reassemble the engine to factory/original condition + 100	
9.	Written Examination: _____ wrong X 5 points	
10.	Parts and Tool ID: _____ wrong X 10 points	
11.	Measurement: +5 points if incorrect	
12.	Part Lookup: +20 points if incorrect	
	TOTAL POINTS	

Small Engines Troubleshooting

SCORE SHEET

Measurement, Identification, Part Number

Participant _____ *School* _____

Measurement Exercise

1._____

Parts and Tool ID

1. _____
2. _____
3. _____
4. _____
5. _____

Determining Part Number

1._____

Small Engines Event Tool List

Adapter—"to 3/8"
Adjustable wrench
Allen or hex wrench (SAE & metric)
Ball peen hammer
Box-end wrench
Brass hammer
Breaker bar*
Center punch
Clutch type screwdriver
Cold chisel
Combination wrench
Compression tester or gauge
Crankshaft holder wrench
Cylinder gauge
Cylinder hone
Cylinder ridge remover
Deep socket or deep well socket*#
diagonal cutters
Diagonal cutting pliers or
Dial caliper
Die
Die stock
Drift punch
Extension*
Feeler gauge (SAE & metric)
Flat file
Flywheel holder
Flywheel knocker
Flywheel puller
Gear or wheel puller
Groove joint or channel lock pliers
Half-round file
Ignition or spark tester
Impact socket*
Lever wrench pliers or vise grip pliers
Metric socket
Micrometer
Needle nose or long nose pliers
Nut driver *
Offset screwdriver
Open-end wrench
Phillips screwdriver
Pin punch or prick punch
Piston groove cleaner
Piston ring expander
Plastic hammer
Ratchet or ratchet handle*
Ratchet starter remover
Ring compressor or piston ring compressor
Round file
Rubber mallet
Screw extractor
Sliding "T" handle
Slip-joint or combination pliers
Snap ring pliers
Spark plug gauge and adjusting tool
Spark plug socket
Speed handle*
Standard or regular socket*#
Standard screwdriver
Starter clutch wrench
Tap
Tap wrench
Telescoping gauge
Torque wrench* (in lbs.)
Torx screwdriver
Valve grinder (hand)
Valve lapper (hand)
Valve refacer
Valve spring compressor
Vernier caliper
Vibration tachometer

* size drive—3/8
# point