



Exploring Agricultural Tools & Materials Middle Grades CDE

Purpose

The Middle Grades Exploring Agricultural Tools & Materials CDE is designed to test middle grades FFA members' knowledge of biotechnology tools, processes, and practices. Members are tested on their ability to identify biotechnology tools, and performance on a written test.

State Event Superintendent

The superintendent for this event is Mrs. Shelby Robertson, State FFA Coordinator, Department of Agricultural and Human Sciences, NC State University, Box 7654, Raleigh, NC 27695-7654
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Eligibility

This event is open to all Middle Grades FFA chapters (6th–8th grade) and Middle Grades FFA members in good standing. Members winning a previous state event in this area are ineligible.

Each chapter may send one team to compete at the state event. Teams shall consist of three or four members. Four scores will count towards the team total (A three-member team will earn a zero for the 4th score). No alternates are allowed in state events. Any alternate found participating in a state event will result in team disqualification.

At the middle grades rally, members may participate in only one career development event with the exceptions of Middle Grades Prepared Public Speaking and Middle Grades Parliamentary Procedure.

The use or possession of cellular phones or any other mobile electronic communication device is prohibited during any state-level career development event. Any violation of this rule will result in total disqualification.

Any member found cheating in any state-level career development event will result in total disqualification for that event.

The North Carolina FFA Association, in keeping with the FFA mission and purposes, does not permit the use of tobacco products, e-cigarettes, vapes, or Juuls at any FFA facility or at any FFA activity.

In compliance with the Americans with Disabilities Act, North Carolina FFA will honor requests for reasonable accommodations made by individuals with disabilities. Please direct accommodation requests through the CDE/LDE Accommodation Request [Form](#). If the accommodation can be made for all and/or doesn't provide an unfair advantage, then every effort will be made to provide the accommodation. Requests can be accommodated more effectively if notice is provided at least 10 days before the event.



Dress Code

Participants are required to follow the North Carolina FFA Career Development Event Dress Code. Participants are allowed to wear long pants, an appropriate shirt with a collar or an appropriate high school or FFA t-shirt.

The North Carolina FFA Association strives to promote a positive image at all Official FFA Events. The dress code policy was established to address the issue of appropriate attire at all Official FFA Events. Members should adhere to this policy for all events. A ten percent reduction will be applied to all individual scores from a chapter if a participant from that chapter violates the dress code during that career event.

Procedures for Administering the Event

The event coordinator shall be responsible for setting up the event, choosing event officials, and developing materials according to the criteria listed below.

The Tools and Materials Identification Phase (40 points)

1. Twenty (20) tools will be selected from the attached official list.
2. Each tool used in the event shall be identified by a number. Participants may examine tools.
3. Participants will place the identification number of the tool in the space to the left of that tool name on the official list.
4. When two sets of tools are used, they shall include the same tools.
5. No tool will be used more than once in the identification portion of the event.
6. Each participant will be assigned a tool to begin identification.
7. Each participant will remain at each tool for one (1) minute and then progress to the next tool. Twenty (20) minutes total will be given for the identification round.
8. No participant will be permitted to return to a tool for a second time.
9. Grading will be done by giving 2 points for each tool correctly identified.
10. If it is observed that a participant uses the same number on his or her paper for more than one identification, neither number will be counted as correct thus resulting in a penalty for using the same number twice.
11. When teachers are involved in the grading of papers, they shall not grade any papers of their own team members.



The Tools and Materials Knowledge Test Phase (40 points)

1. A written (matching) test designed to test the knowledge of the participants regarding the proper use(s) of 20 randomly selected tools will be developed by the coordinator selecting 20 tools and 25 uses from the attached tool identification listing.
2. Participants will place the letter of the correct use in the space to the left of each tool.
3. Each participant will be given twenty (20) minutes to complete the test. Two (2) points will be given for each tool with the correct use.
4. When teachers are involved in the grading of papers, they shall not grade papers of their own team members.

Scoring

Maximum Score	80
Tool Identification	40
Knowledge Test	40

Procedure for Determining the State Event Winner When Scores are Tied

In the case of a team tie, the fourth team member's score will be used to determine team ranking. If the event remains tied co-winners will be awarded.

In the case of an individual tie, the tie will be broken by comparing individual scores in the Tool Knowledge portion of the event. If the individuals remained tied compare the Tool Identification portion. If the scores remain tied co-winners will be awarded

State Awards

The awards for the state event will be presented annually at the conclusion of the NC FFA Middle School CDE Rally to include a team 1st, 2nd and 3rd place certificate. At the state FFA convention awards will be presented to include a team 1st, 2nd, and 3rd, place plaque.

Bibliography

Exploring Biotechnology Curriculum Guide (latest edition), available on www.ncffa.org.

Exploring Agricultural Science Curriculum Guide (latest edition), available on www.ncffa.org.

Exploring Agricultural Tools and Materials Identification List

Instructions: Tools/Materials will be numbered 1-20. The contestant is to write appropriate number in the space to the left of the tool/material.

Contestant Number: _____ Contestant Name: _____

_____	Balance	_____	Petri Dish
_____	Beaker	_____	Pipette
_____	Computer	_____	Pipette Pump
_____	Disk	_____	Raised Plant Bed
_____	Dissecting Microscope	_____	Ratchet
_____	Ear Plugs	_____	Refrigerator
_____	Electric Microscope	_____	Safety Glasses
_____	Flask	_____	Safety Goggles
_____	Flower Pot	_____	Scale
_____	Forceps	_____	Scalpel
_____	Germicidal Cabinet	_____	Scissors
_____	Graduated Cylinder	_____	Screwdriver
_____	Greenhouse	_____	Slide Cover Slips
_____	Handheld GPS	_____	Small Animal Cage
_____	Hand Lenses	_____	Socket Set
_____	Incubator	_____	Soil Tube
_____	Lab Jacket	_____	Sponge
_____	Light Bank	_____	Stirring Rods
_____	Magnet	_____	Stopwatch
_____	Magnifying Lenses	_____	Stove/Oven
_____	Medicine Dropper	_____	Test Tube
_____	Meter Stick	_____	Test Tube Rack
_____	Metric Ruler	_____	Test Tube Thermometer
_____	Microscope Slides	_____	Tweezers
_____	Mortar		
_____	Pestle		

Exploring Agricultural Tools and Materials Career Development Event

Name	Proper Use of Tools, Equipment or Materials
Balance	An instrument for weighing
Beaker	A deep wide mouthed thin-walled vessel usually with a lip for pouring that is used especially in science laboratories
Computer	Electronic device that processes data, stores information, and performs calculations based on instructions
Disk	A piece of equipment with metal blades used to break up the soil
Dissecting Microscope	An instrument used to view three-dimensional objects and larger specimens
Ear Plugs	Device that is inserted into the ear to protect from loud noises, dust or other foreign bodies
Electric Microscope	Device that uses a beam of electrons rather than viable light to illuminate the sample.
Flask	A container often somewhat narrowed toward the outlet and often fitted with a closure
Flower Pot	A small container used for growing plants in
Forceps	An instrument for grasping, holding firmly, or exerting traction upon objects especially for delicate operations
Germicidal Cabinet	Device that used UV light to sterilize and disinfect items that are placed inside.
Graduated Cylinder	A cylinder that has been divided into increments for measuring
Greenhouse	A climate-controlled enclosed structure used for the cultivation of plants
Hand Held GPS	A portable device used to provide geographical positioning information.
Hand Lenses	A small portable device with magnification power used to examine small objects or details.
Incubator	An apparatus with a chamber used to provide controlled environmental conditions especially for the cultivation of microorganisms
Lab Jacket	A protective garment worn over the clothes
Light Bank	A collection of grow lights arranged to provide the necessary lights for plant growth.
Magnet	An object that has strong metal attraction
Magnifying Lenses	a convex lens that produces a magnified image of an object

Medicine Dropper	A short glass tube fitted with a rubber bulb and used to measure liquids by drops
Meter Stick	1 meter measuring tool used for larger objects
Metric Ruler	Shorter metric ruler for smaller objects
Microscope Slides	A thin, rectangular piece of glass or plastic used to hold a specimen for viewing under a microscope.
Mortar	A strong vessel in which material is pounded or rubbed with a pestle
Pestle	A usually club-shaped implement for pounding or grinding substances in a mortar
Petri Dish	Small shallow dish of thin glass or plastic with a loose cover used especially for cultures in bacteriology
Pipette	A small piece of apparatus which typically consists of a narrow tube into which fluid is drawn by suction (as for dispensing or measurement) and retained by closing the upper end
Pipette Pump	Device used to accurately dispense small amount of fluids
Raised Plant Bed	A gardening area that is elevated above the surrounding ground level.
Ratchet	Tool used to turn sockets in forward rotations
Refrigerator	An appliance used to cool
Safety Glasses	To protect the eyes from impact of foreign objects
Safety Goggles	To protect eyes from the liquids and vapors
Scale	A device used to measure mass by the force exerted by the object.
Scalpel	A small straight thin-bladed knife used especially in surgery
Scissors	Instrument used for cutting
Screwdriver	Tool used to turn screws
Slide Cover Slips	Thin material used to mount specimens
Small Animal Cage	An enclosed structure designed to safely house animals
Socket Set	Various tools of different sizes used to turn nuts and bolts
Soil Tube	Used to obtain soil for testing
Sponge	Porus material used to absorb and hold liquid
Stirring Rods	Instrument used to mix liquids
Stopwatch	Handheld device used to measure elapsed time
Stove/Oven	Appliance used for cooking food with heat
Test Tube	A plain or lipped tube usually of thin glass closed at one end and used especially in chemistry and biology
Test Tube Rack	A device used to hold test tubes

Test Tube Thermometer	An instrument for determining temperature in test tubes
Tweezers	Small handheld tool for grasping or gripping objects
