

Arizona Department of Education

Career and Technical Education

Recommended Equipment List

Program: AgriScience
CIP#: 01.0000.00

NOTE: The following items and descriptions are the recommended equipment guidelines for each **CTE AgriScience** program. Please note that this list of recommended items does not necessarily need to be supported financially by Federal Perkins or State Priority funding sources. In many cases, local school district funds are used to purchase items on a regular basis (i.e. furniture, consumables, etc.) Further, please understand that this is not an exhaustive list. Local program and business needs may necessitate the purchase of additional equipment and software resources, as may the rapidly-changing nature of the industry-specific technologies used in the program.

Please contact ADE-CTE Program Specialist Bruce Watkins (bruce.watkins@azed.gov) if you have questions regarding the appropriateness of any item you are considering for addition to your **CTE AgriScience** program.

Recommended Equipment and Software

Item

Item

AgriScience

Agriscience classroom should reflect the environment, equipment, supplies and instructional materials students would expect to find in industry.

<u>Equipment:</u>	<u>Facility/Equipment(continued)</u>
Foldable Table	Grinders
National FFA Career Development Event (CDE) equipment	Tiller
Printers	Fertilizer injectors
Stackable Chairs	EC (electroconductivity) meter
Whiteboard	Pipe threader
Pipe cutter – large and small	Disc
Calculators (graphing/scientific)	Propane torches – soldering
Disc	Pipe vises (and tables)
Ice Maker	Metal tables
*Computers	Welders
<u>Facility/Equipment</u>	Collapseable (sp) saw horses
fence panel (Non Permanent)	<u>Laboratory Equipment</u>
10x10 pop up tents	CO2 Gas Sensor GD
40ft x 40ft outdoor tents	Conductivity sensor GD
Push Brooms	Dissolved oxygen sensor GD
Refrigerator	Energy oxygen sensor GD
Trash Cans	Go Direct O2 Gas Sensor
Freezer	Graphical Analysis (™) 4 App
Greenhouse – complete with environmental controls and timers	Temperture Sensor GD
Benches/Tables for greenhouse	Tris-compatible flat PH sensor GD
Microphone speaker system	LAB Aid Kit
Lab stools	The Lab-Aids to AFNR Set, Case-M003A
3D Printing Systems	Lab glassware – beakers, graduated cylinders, bottles
Bottom heat for propagating.	Hot/stir plates
Hydroponics systems	Computers
Aquaculture system	Drafting boards and equipment (T squares, triangles, templates, etc.)
Wheelbarrows	<u>Animal Systems</u>
Fiberglass concrete forms – for benches, etc.	A.I. simulator
Hand tools – hammers, screwdrivers, socket set, wrenches, tape	Animal scale up to 2500lb capacity
Drills – cordless is always good	Castration simulator
Concrete/Masonry tools – trowel, float, edger, jointer	Chicken Broiler
Drill press	Chute
Band saw	Chute trim pads
Drill bits, hole saws	Ear notching simulator

Arizona Department of Education

Career and Technical Education

Recommended Equipment List

Program: AgriScience
CIP#: 01.0000.00

NOTE: The following items and descriptions are the recommended equipment guidelines for each **CTE AgriScience** program. Please note that this list of recommended items does not necessarily need to be supported financially by Federal Perkins or State Priority funding sources. In many cases, local school district funds are used to purchase items on a regular basis (i.e. furniture, consumables, etc.) Further, please understand that this is not an exhaustive list. Local program and business needs may necessitate the purchase of additional equipment and software resources, as may the rapidly-changing nature of the industry-specific technologies used in the program.

Please contact ADE-CTE Program Specialist Bruce Watkins (bruce.watkins@azed.gov) if you have questions regarding the appropriateness of any item you are considering for addition to your **CTE AgriScience** program.

Recommended Equipment and Software

Item	Item
Aquaculture water meter (colorimeter kit is good too)	Feed Buckets and feeders
Handheld pH meters	Feed Storage Rack
Benchtop pH meter for Biotech/Tissue Culture	hog panels
Tissue culture grow rack with lights	Lamb and goat stand
Tissue Culture chambers	Animal waterers
Autoclave	Processing Scissors and Knives
Incubator	Processing Tables
Lawn mower	Rechargeable clippers
Laminar Flow Hood (tissue culture)	Table top scale for animals
Disc Replacements	Hog panels
Plant Systems	Chick brooder box, heat lamps.
Floral cutter	Lister shears for Goat and Lambs
Floral refridator	fence gate
floral shears	fence panel
Garden tools	Water hoses
Gardening Hoes	feed storage container
Greenhouse Storage containers	Enviromental Systems
growth tower	- Charge controllers
Reuseable Floral Bowls	- Inverters
Rototiller	- Deep cycle batteries
Top Rail fencing for GH	- Digital clamp-on multimeters
Technology Tools and Systems	- Solar PV hand tools
MAVIC 3 Interprise Drone	- Powder Coating Systems

The following tools and equipment have been assembled to provide guidance to satisfy the core curriculum in Agricultural Mechanics Instruction.

Ag Mechanization

Wood Construction—Machinery	Metal Construction—Hand Tools Plumbing
Drill Press 15in.	Bender, Tubing 1/4" – 5/8"
Saw, Radial Arm 14in. blade	Brace, Hand 10"
Saw, Table 10in blade	Cutter, Pipe 1/8" – 2"
Wood Construction—Portable Electric Power Tools	Cutter, Tubing 3/16" – 5/8"
Cleaner, Vacuum 2HP	Cutter, Plastic pipe 1/4" – 2 5/8"
Drill, Electric (HI-LO gear) 3/8"	Die, Pipe threading 3/8" – 3/4"
Drill, Electric (Reversible) 3/8"	Die, Pipe Threading 1/2" – 2"
Router 1 1/2 HP	Flaring Tool 3/16" – 5/8"
Wood Construction—Hand Tools	Groover, Hand No. 4
Awl, Scratch 6"	Hammer, Tinnners 12 oz
Bar, Nail 10"	Handle, Tap 1/4" – 1"
Bar, Pry 10"	Mallet, Tinnners 20 oz
Bar, Ripping 24"	Pliers, Forming 8"
Bevel, Sliding 8"	Riveter, Pop 1/8" – 3/16"
Bit, Auger No. 4 – 16	Rule, Steel 1" x 36"
Bit, Expansive 7/8" – 3"	Snips, Tinnners (left cut) 10"
Bit, Wood 1/4" – 1"	Snips, Tinnners (right cut) 10"

Arizona Department of Education

Career and Technical Education

Recommended Equipment List

Program: AgriScience
CIP#: 01.0000.00

NOTE: The following items and descriptions are the recommended equipment guidelines for each **CTE AgriScience** program. Please note that this list of recommended items does not necessarily need to be supported financially by Federal Perkins or State Priority funding sources. In many cases, local school district funds are used to purchase items on a regular basis (i.e. furniture, consumables, etc.) Further, please understand that this is not an exhaustive list. Local program and business needs may necessitate the purchase of additional equipment and software resources, as may the rapidly-changing nature of the industry-specific technologies used in the program.

Please contact ADE-CTE Program Specialist Bruce Watkins (bruce.watkins@azed.gov) if you have questions regarding the appropriateness of any item you are considering for addition to your **CTE AgriScience** program.

Recommended Equipment and Software

Item	Item
Brace, Box Ratchet 10"	Snips, Tinnars (straight combo) 10"
Chalk line 50ft	Square, Combination 12"
Chisel, Wood ¼ - 1 ½"	Oiler, Bench 1/3 pint
Clamp, Fixture ¾" pipe	Reamer, Pipe 1/8" – 1"
Clamp, Hand Screw 12"	Reamer, Pipe ¼" – 2"
Clamp, Hand Screw 10"	Saw, Hack 12"
Clamp, Hand Screw 8"	Swaging Tool ¼" – 5/8" OD
Clamp, Hand Screw 6"	Tap, Pipe 1-8" ¼"
Countersink ½"	Torch, Propane
Divider, Wing 7"	Vise, Pipe 1/8" – 2 ½"
Drill, Screw setting No. 6-12	Wrench, Pipe 8"
Hammer, Nail (curved claw) 13oz	Wrench, Pipe 10"
Hammer, Nail (curved claw) 16oz	Wrench, Pipe 12"
Hammer, Nail (ripping claw) 16oz	Wrench, Pipe 14"
Knife, Putty 1 ¼"	Wrench, Pipe 18"
Knife, Utility 6"	Wrench, Pipe 24"
Level, Carpenter's 24"	Sheet Metal
Mallet 16oz	Awl, Scratch 6"
Nail Set 4"	Copper, Soldering 3 lb
Plane, Block 6"	Copper, Soldering 2 lb
Plane, Jack 14"	Divider, Wing 12"
Wood Construction—Hand Tools	Metal Construction—Hand Tools Welding Hot Metal
Plane, Smoothing 9"	Gauge, metal
Pliers, Fencing 10 ½"	Chipping Tool
Rasp (half round) 14"	Clamp 9"
Rasp (round) 14"	Clamp, C 4"
Rasp (square) 12"	Clamp, C 6"
Rule, Tape 5M/16ft	Clamp, C 8"
Rule, Tape 30M/100ft	Clamp, C 11"
Saw, Hand 26" x 11pt	Cleaner, Tip
Saw, Hand 26" x 9pt	Glove, Leather Large
Saw, Hand 26" x 5 ½ pt	Hammer (ball pein) 24oz
Screwdriver, Clutch 3"	Hammer (ball pein) 32oz
Screwdriver, Clutch 4"	Hammer (blacksmith) 32oz
Screwdriver, Phillips 3"	Hammer 8 lb
Screwdriver, Phillips 4"	Lighter
Screwdriver, Ratchet 25"	Pliers 10"
Screwdriver, Regular 4"	Saw, Hack 10" – 12"
Screwdriver, Regular 6"	Tongs 3/8" x 20"
Screwdriver, Regular 8"	Tongs 24"
Square, Combination 12"	Welding Helmet
Square, Framing 16" x 24"	Vise 5"
Square, Framing Metric	Concrete & Masonry—Machinery
Wood Construction—Miscellaneous	Mixer 4 cu ft
Bench, 2 station 28 x 64"	Mortar Box 9.2 cu ft
Brush, Bench 8"	Wheelbarrow 5.5 cu ft

Arizona Department of Education

Career and Technical Education

Recommended Equipment List

Program: AgriScience
CIP#: 01.0000.00

NOTE: The following items and descriptions are the recommended equipment guidelines for each **CTE AgriScience** program. Please note that this list of recommended items does not necessarily need to be supported financially by Federal Perkins or State Priority funding sources. In many cases, local school district funds are used to purchase items on a regular basis (i.e. furniture, consumables, etc.) Further, please understand that this is not an exhaustive list. Local program and business needs may necessitate the purchase of additional equipment and software resources, as may the rapidly-changing nature of the industry-specific technologies used in the program.

Please contact ADE-CTE Program Specialist Bruce Watkins (bruce.watkins@azed.gov) if you have questions regarding the appropriateness of any item you are considering for addition to your **CTE AgriScience** program.

Recommended Equipment and Software

Item	Item
Brush, Paint 2"	Concrete & Masonry— Hand Tools
Brush, Paint 3"	Corner Box
Sharpening Stone 8 x 2 x 1"	Drill, Masonry
Staple Gun ½"	Edger 6" x 2 ½" x ¼"
Vise, Woodworking 4" x 10"	Edger 6" x 3 ½ x 3/8"
Metal Construction—Machinery	Edger 6" x 4" x ½"
Anvil 140#	Float, Bull 42" x 8"
Bender, Iron	Float, Magnesium 16" x 3 ½"
Brake, Metal 48"	Float, Sponge 8" x 4"
Compressor, Air 7.5 CFM	Float, Wood 18" x 3 ½"
Drill Press 20"	Float, Wood 12" x 4 ½"
Drill Press Vise No. 3	Groover 6" x 2" x 1/8"
Forge, Gas Fired 400,000 BTU	Groover 5 ½" x 3" x 3/8"
Grinder, Bench 6" x ¾" x ½"	Hammer, Electric ½"
Grinder, Floor Stand 12" x 2" x 1 ¼"	Hoe, Mortar 10" width
Saw, Abrasive cut off 14" blade	Hose, Water 5/8" x 50'
Saw, metal Cutting ½" x .024" blade	Jointer, Brick ½" 5/8"
Shear, metal 3/16"	Level, Masons 48"
Sheer, metal ½"	Line, Masons 250'
Welder, Electric Arc 225 amp	Pads, Knee
Metal Construction—Machinery (cont.)	Rubbing Brick 6" x 3"
CNC Plasma Table	Concrete & Masonry— Hand Tools (cont.)
Welder, Electric Arc 250-300 amp	Scale, Weight 100lb
Welder, MIG 150-200amp	Sieve, Aggregate
Welder, Oxy-acetylene Equipment	Shovel (square point) 10"
Metal Construction—Portable Power Tools	Shovel (round point) 9"
Drill, Electric ½"	Tamper, Jitterbug 36" x 6 ½"
Furnace, Soldering 3 burner	Trowel, Brick 11 ½" x 5"
Grinder, Right Angle 7"	Trowel, Finishing 12" x 4"
Grinder, Straight 5"	Trowel, Finishing 16" x 4"
Impact Tool, Electric 5"	Trowel, Margin 5" x 2"
Nibbler 16ga	Trowel, Pointed 11" x 5 ½"
Saw, Band ½" blade	Trowel, Pointing 4 ½"
Metal Construction—Hand Tools Cold Metal	Concrete & Masonry—Miscellaneous
Caliper, Vernier 5" cap (English meas.)	Bucket 5 gal
Caliper, Vernier 5" cap (metric meas.)	Can, Oil 1qt
Chisel, Cold ¾"	Electrical—Hand Tools
Cutter, Bolt 30"	Belt, Cotton Web 2 ¼" wide
Dresser, Grinder 12"	Bender ½"
Dresser, Grinder 6"	Bender ¾"
Drill, Twist Fractional (straight shank)	Bit, Auger 5/8" x 18"
Drill, Twist Number (straight shank)	Bit, Auger ¾" x 18"
Drill, Twist Letter (straight shank)	Cable Ripper 3 ¾"
Drill, Twist Fractional (taper shank)	GFCI, Portable 15 amp
File, Hand (half round) 14"	Hammer, Nail 16oz
File, Hand (flat) 12"	Knife 1 blade
File, Hand (mill) 12"	Knockout ½ - 1 ¼

Arizona Department of Education

Career and Technical Education

Recommended Equipment List

Program: AgriScience
CIP#: 01.0000.00

NOTE: The following items and descriptions are the recommended equipment guidelines for each CTE AgriScience program. Please note that this list of recommended items does not necessarily need to be supported financially by Federal Perkins or State Priority funding sources. In many cases, local school district funds are used to purchase items on a regular basis (i.e. furniture, consumables, etc.) Further, please understand that this is not an exhaustive list. Local program and business needs may necessitate the purchase of additional equipment and software resources, as may the rapidly-changing nature of the industry-specific technologies used in the program.

Please contact ADE-CTE Program Specialist Bruce Watkins (bruce.watkins@azed.gov) if you have questions regarding the appropriateness of any item you are considering for addition to your CTE AgriScience program.

Recommended Equipment and Software

Item	Item
File, Hand (half round) 10"	Meter, AC Volts 4 ½
File, Hand (mill) 10"	Meter, AC Amp 4 ½
File, Hand (round) 12"	Pliers, Diagonal 8"
File, Hand (round) 10"	Pliers, Long Nose 7"
File, Hand (square) 12"	Pliers, Pump 10"
File, Hand (square) 10"	Pliers, Side Cutting 9"
File, Card N	Screwdriver 3/16" x 4"
File, Hand (3-square) 8"	Screwdriver 3/16" x 6"
File, Hand (taper) 6"	Screwdriver #2 x 4"
Gauge, Drill point 6"	Soldering Gun 325 watt
Gauge, Drill size fractional	Terminal
Hammer, Ball Pein 3/0	Tester 0-300amp & 0-600 volt
Hammer, Ball Pein 1	Needle nose pliers
Marking Stamps (figure) 3/16"	Tool Pouch 5"
Marking Stamps (letter) 3/16"	Portable Tester Equipment
Oiler, Bench 1/3 pint	Analyzer, Exhaust Gas
Saw, Hack 10-12"	Extension Cord 50'
Saw, Hole ¾" – 2 ½"	Hydrometer (battery testing)
Screwdriver 4"	Hydrometer (radiator testing)
Screwdriver 6"	Lamp, Trouble 25'
Metal Construction—Hand Tools Cold Metal (cont.)	Tachometer 50-4000rpm
Screw plate ¼" – ¾" NC	Portable Tester Equipment (cont.)
Screw plate ¼" – ½" NC	Tester, Battery
Screw plate machine screw	Tester, Engine
Square, Combination 12"	Tester, Generator
Square, Combination (blade square head) 12"	Tester, Ignition
Vise, Machinist's 4"	Tester Pressure Cap
Wrench, Adjustable 8"	Tester, RPM
Wrench, Adjustable 10"	Hand Tools (Continued)
Power Tools & Equipment	Puller (universal joint)
Tractor Disc Harrow	Puller 13 ton
Charger, Battery 80amp	Punch, Gasket ¼-5/8"
Cleaner, Parts 45gal	Punch 1/8-1/4"
Cleaner, Washer 4 GPH	Retrieving Tool 26'
Creeper, Mechanics	Screwdriver 12" (standard blade)
Hoist, Wheel 2 ton	Screwdriver 10" (standard blade)
Jack, Axle 4 ton	Screwdriver 8" (standard blade)
Jack, Service 1 ½ ton	Screwdriver 6" (standard blade)
Paint Spray 1qt	Screwdriver 4" (standard blade)
Press, Hydraulic 25ton	Screwdriver #3 (Phillips head)
Stands, Safety 2 ton	Screwdriver #2 (Phillips head)
Hand Tools	Screwdriver #1 (Phillips head)
Air Hose ¼" 25"	Screwdriver 3/16 (clutch head)
Bar, Drag Link 16"	Screwdriver ¼ (clutch head)
Bar, Pry ¾" x 24"	Screwdriver 5/16 (clutch head)
Bar, Pry ¾" x 18"	Wrench, Adjustable 8"
Battery Carrier 17"	Wrench, Adjustable 10"

Arizona Department of Education

Career and Technical Education

Recommended Equipment List

Program: AgriScience
CIP#: 01.0000.00

NOTE: The following items and descriptions are the recommended equipment guidelines for each **CTE AgriScience** program. Please note that this list of recommended items does not necessarily need to be supported financially by Federal Perkins or State Priority funding sources. In many cases, local school district funds are used to purchase items on a regular basis (i.e. furniture, consumables, etc.) Further, please understand that this is not an exhaustive list. Local program and business needs may necessitate the purchase of additional equipment and software resources, as may the rapidly-changing nature of the industry-specific technologies used in the program.

Please contact ADE-CTE Program Specialist Bruce Watkins (bruce.watkins@azed.gov) if you have questions regarding the appropriateness of any item you are considering for addition to your **CTE AgriScience** program.

Recommended Equipment and Software

Item	Item
Battery Cleaner	Wrench, Adjustable 12"
Battery Filler 1qt	Wrench, Adjustable 18"
Brush, Parts 12"	Wrench, Allen .028-3/8"
Bushing Driver	Wrench, Flat 1/4"-1 5/16"
Caliper, Inside 8"	Wrench, Flat 3/8" –1 1/4"
Caliper, Outside 8"	Wrench, Ignition 7/32 – 7/16
Caliper, Micrometer 0-1"	Wrench, Oil Filter
Caliper, Micrometer 1-2"	Wrench, Socket 3/4" Drive (square)
Caliper, Micrometer 2-3"	Wrench, Socket 1/2" Drive (square)
Caliper, Micrometer 3-4"	Wrench, Socket 3/8" Drive (square)
Caliper, Micrometer 4-5"	Wrench, Socket 1/2 Drive (deep socket)
Caliper 6"	Wrench, Socket 3/8" Drive (deep socket)
Can Fuel 5gal	Wrench, Socket 3/8" Drive (spark plug)
Can, Spout 1 & 5 qt	Wrench, Stud Remover 1/4-3/4"
Can, Waste 10 gal	Wrench, Tappet 7/16-11/16