



Sample Reports



... a management
system for Career
Cluster Information
-Foundations
-Pathways
-Specialties



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CTECS DIRECT 5 – Sample Reports

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Cluster Master List

Folder *States' Career Clusters*

Cluster Title	RL	FO	KS	RL	PA	KS	RL	OC
Agriculture, Food and Natural Resources	-	+	+	-	+	+	-	+
Architecture and Construction	-	+	+	-	+	+	-	-
Arts, Audio/Video Technology & Communications	-	+	+	-	+	+	-	-
Business, Management and Administration	-	+	+	-	+	+	-	+
Education and Training	-	+	+	-	+	+	-	-
Finance	-	+	+	-	+	+	-	-
Government and Public Administration	-	+	+	-	+	+	-	-
Health Science	-	+	+	-	+	+	-	+
Hospitality and Tourism	-	+	+	-	+	+	-	+
Human Services	-	+	+	-	+	+	-	-
Information Technology	-	+	+	-	+	+	-	-
Law, Public Safety and Security	-	+	+	-	+	+	-	-
Manufacturing	-	+	+	-	+	+	-	-
Marketing, Sales and Service	-	+	+	-	+	+	-	-
Science, Technology, Engineering & Mathematics	-	+	+	-	+	+	-	-
Transportation, Distribution and Logistics	-	+	+	-	+	+	-	+

- = No Data + = Data Exist

FO – Foundation

PA – Pathways

KS – Knowledge/Skill

OC – Occupational Specialty

RL – Resource Link

CTECS DIRECT Overview By Cluster

Folder States' Career Clusters

Cluster Arts, Audio/Video Technology and Communications

	KS	RL	OC
Foundation			
Academic Foundations	+	-	-
Communications	+	-	-
Employability and Career Development	+	-	-
Ethics and Legal Responsibilities	+	-	-
Information Technology Applications	+	-	-
Leadership and Teamwork	+	-	-
Problem Solving and Critical Thinking	+	-	-
Safety, Health, and Environmental	+	-	-
Systems	+	-	-
Technical Skills	+	-	-
Pathways			
Audio and Video Technology and Film	+	-	-
Journalism and Broadcasting	+	-	-
Performing Arts	+	-	-
Printing Technology	+	-	-
Telecommunications	+	-	-
Visual Arts	+	-	-

- = No Data + = Data Exist

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Cluster Elements

Folder States' Career Clusters
Cluster Arts, Audio/Video Technology and Communications
Foundation Communications

Knowledge and Skills

Use correct grammar, punctuation and terminology to write and edit documents.

Performance Element: Compose multi-paragraph writing clearly, succinctly, and accurately to write documents.

Measurement Criteria: Organize and arrange information for effective coherence.

Measurement Criteria: Report relevant information in order of occurrence.

Measurement Criteria: Interpret information, data, and observations correctly.

Measurement Criteria: Present main ideas and supporting facts.

Performance Element: Use description of audience and purpose to prepare written documents.

Measurement Criteria: Use technical terms and concepts.

Measurement Criteria: Incorporate and use references effectively and accurately.

Measurement Criteria: Report objective and/or subjective information to achieve the purpose and meet the needs of the audience.

Develop and interpret tables, charts, and figures to support written and oral communications.

Performance Element: Develop tables, charts and figures to support written and oral communication.

Measurement Criteria: Compile facts and arrange in an organized manner for a table, chart or figure.

Measurement Criteria: Document sources of data.

Measurement Criteria: Determine most appropriate way to display data for effective coherence.

Measurement Criteria: Prepare table, chart, graph or figure for inclusion in publication or presentation.

Performance Element: Interpret tables, charts and figures used to support written and oral communication.

Measurement Criteria: Evaluate reference or source of data for authenticity and reliability.

Measurement Criteria: Explain information presented in tables, charts and figures.

Measurement Criteria: Prepare written summary of findings expressed in tables, charts and figures.

CTECS DIRECT Cluster Elements

Folder	States' Career Clusters
Cluster	Arts, Audio/Video Technology and Communications
Pathway	Journalism and Broadcasting

Knowledge and Skills

Demonstrate writing processes for broadcast media.

Performance Element: Define the terminology associated with television broadcasting.

Measurement Criteria: Define commonly used television terminology.

Performance Element: Analyze how to develop a complete television project.

Measurement Criteria: Select graphics for stories.

Measurement Criteria: Write lead ins and teasers for television.

Measurement Criteria: Write several stories in an appropriate broadcast style, choose one to become a lead story, and prioritize others.

Performance Element: Analyze how to develop a complete radio project.

Measurement Criteria: Write a script for a radio broadcast.

Measurement Criteria: Write to a sound bite.

Measurement Criteria: Develop lead ins and teasers for radio.

Measurement Criteria: Edit stories.

Demonstrate the ability to plan and deliver a broadcast production.

Performance Element: Analyze the elements of a newscast production.

Measurement Criteria: Develop a rundown sheet for use with a broadcast.

Measurement Criteria: Identify location, number of cameras needed, and time restrictions for a newscast production.

Measurement Criteria: Describe the purposes of rundown sheets.

Performance Element: Analyze announcing competence.

Measurement Criteria: Identify announcing techniques required for a specific format.

CTECS DIRECT Overview By Occupation

Cluster Sample Cluster
Pathway Sample Pathway

Occupation ID	Title	CIP	EQ	PO	PS	EC	RAS	IN	IB
100001	Administrative Support Occupations Skill Standards	52.0401 52.0402 52.0403 52.0404	Y	Y					
100002	Workplace Skills			Y	Y	Y	Y	Y	Y
100004	Emergency Medical Technician	51.0904	Y	Y	Y	Y	Y	Y	Y
100005	Ornamental Horticulture Production Occupations	01.0601	Y	Y	Y	Y	Y	Y	Y
100006	Small Engine Repair	47.0606	Y	Y	Y	Y	Y	Y	Y
10003	Bio-Technician	02.0202 02.0405 14.0501 15.0401 26.0616 41.0101	Y	Y	Y	Y	Y	Y	Y

CIP – Classification of Instructional Programs

EQ – Equipment List

PO – Performance Objective

PS – Performance Steps

EC – Enabling Competencies

RAS – Related Academic Skills

IN – Instructional Elements

IB – Item Bank

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Duty/Task List

Cluster Sample Cluster
Pathway Sample Pathway
Occupation 100006 Small Engine Repair

Duty	Task	Sub Task	Duty / Task / Sub Task Description
A			PERFORMING ADMINISTRATIVE FUNCTIONS
A	001		Communicate with customer and/or supervisor to determine service requested.
A	002		Complete customer work order form.
A	003		Maintain work records to account for parts and labor.
A	004		Conduct product liability procedures.
A	005		Prepare customer bill/receipt.
A	006		Apply human relations skills in the small engine repair shop.
A	007		Identify types of four-stroke and two-stroke cycle engines.
A	008		Explain the strokes in a four-stroke cycle engine.
A	009		Explain the strokes in a two-stroke cycle engine.
A	010		Utilize parts identification media.
A	011		Identify small engine parts.
B			PERFORMING SEASONAL/ROUTINE SERVICE FOR SMALL ENGINES
B	001		Clean engine exterior and cooling fins.
B	002		Service an oil bath air cleaner.
B	003		Service a foam type air cleaner.
B	004		Service a dry element air cleaner.
B	005		Change engine oil.
B	006		Replace crankcase oil filter.
B	007		Service a crankcase breather.
B	008		Remove carbon deposits from exhaust ports and muffler of two-stroke engine.
B	009		Service small engine controls.
B	010		Prepare small engine for storage.
C			MAINTAINING SMALL ENGINE FUEL SYSTEMS
C	001		Service fuel tank and fuel lines.
C	002		Service fuel filter systems.
C	003		Service a pulsation-type carburetor.
C	004		Service a float-type carburetor.
C	005		Service a diaphragm-type carburetor.
C	006		Service a fuel pump.
C	007		Fine tune carburetor.
C	008		Service governor mechanisms.
D			MAINTAINING CHARGING AND STARTING SYSTEMS
D	001		Service the battery.
D	002		Service the direct-current starter system.
D	003		Service a combination starter-generator system.
D	004		Service an alternator system.
D	005		Service a manual recoil starter.
E			MAINTAINING THE IGNITION SYSTEM
E	001		Install spark plugs.
E	002		Maintain the magneto ignition system.
E	003		Service the battery ignition system.
E	004		Service the battery ignition system.
F			OVERHAULING SMALL ENGINES
F	001		Disassemble small engine.
F	002		Examine internal engine parts for damage or wear.
F	003		Repair valves and valve seats on four-stroke cycle engine.
F	004		Repair valves on two-stroke cycle engine.
F	005		Adjust valves on overhead valve engine.
F	006		Repair piston, ring, and rod assemblies.
F	007		Repair or replace cylinders.
F	008		Repair lubricating mechanisms in four-stroke engines.
F	009		Repair camshaft assemblies in four-stroke engine.
F	010		Repair crankshaft assemblies.
F	011		Repair damaged thread using heli-coil.
F	012		Repair damaged thread using tap and die set.
F	013		Assemble engine.
F	014		Replace a short block.

CTECS DIRECT – Equipment List

Cluster Sample Cluster

Pathway Sample Pathway

Occupation 100006 Small Engine Repair

<p>Air compressor Alternator tester Anvil Armature lay Banding tool Bar grinding press Battery charger Battery, bulb filler Battery, cell tester Battery, hydrometer Battery, jumper cables Battery, terminal cleaners Battery, terminal lifters Bearing puller Boring bar Breaker plunger gauges Brush, wire C – clamp C D ignition tester Calipers Chain breaker Chain grinder kit Chisel, cold Coil and condenser tester Compression gauges Condenser spring compressor Counterbore cutters Crankcase run out gauge Crankcase support jack Crankshaft straightener Crow bar Cutter bolt Cylinder dial gauge Cylinder hone (midget) Depth gauge tools Dial indicator set Diamond grinding wheel Diode tester Disc sander Drill press Drill, portable Dry ice Dwell meter</p>	<p>Electric impact Electric planer Electric rpm gauge Engine stands Feeler gauges File guide Files (assorted) Flashlight with gooseneck adapter Flat bed trailer Fly-wheel holder Fly-wheel puller Gasket scraper Generator test stand Glaze breaker Grease gun Grinder with wire brush Growler Hacksaw Hammer, ball peen Hammer, brass Hammer, sledge Hand saw Helicoil kit Hoist, electric Hole gauge Hole saws, assorted Hone, cylinder Ice pick Impact tool set Lathe M – 80 ignition tester Magnet Metric hex keys Metric tap and die Metric thread file Micrometers, assorted Motor jack Multi-meter Nut cracker Nut driver set Nut driver set, 1/4" - 5/8" Paint gun Parts washer</p>	<p>Pickup truck Pilot set for a given engine Pipe clamp Pipe wrenches – set Piston ring compressor Piston ring expander Pitchblock and surface plate bench Pliers (assorted) Pliers, vise grip Plug gauges for a given engine Portable circular saw Press, arbor Pressure pot for gear oil Pressure tester Pressure testing tool Pressure washer Propane torch Puller, seal Punches (assorted) Reamer set for given engine Retaining pliers-external Retaining ring pliers-convertible type Ridge reamer Ring groove cleaner Rivet installing tool Rolling tool Rule, steel Saber saw Screw extractor set Screwdrivers (Phillips assorted) Screwdrivers (standard assorted) Screwdrivers, carburetor jet Scribe Shop bar Sink, chemical cleaning Soldering gun Soldering iron Spark tester Sprocket tool Starter rewind crank Steam cleaner Stethoscope Stud gun</p>	<p>Stud remover Surface plate Table jack Tachometer (vibrator type) Tap and die set Telescoping gauge Test lamp – 12 V Test wheels Tester Tester, regulator and generator Thread file Timing light Tin snips Trouble light Ts – 1 ignition tester Tubing tools Tweezers Undercutter Vacuum gauge Valve lapping compound Valve seat repair set for a given engine Valve spring compressor Vise, machinist Welder electric Welder, heliarc Welder, oxyacetylene Welding vise Wet valve grinding machine, small engines Wrench spanner Wrench, spark plug Wrench, torque (foot/lbs.) Wrench, torque (inch/lbs.) Wrenches, adjustable Wrenches, air impact Wrenches, Allen Wrenches, box end (assorted) Wrenches, ignition Wrenches, open end (assorted) Wrenches, socket 1/2" drive Wrenches, socket 1/4" drive Wrenches, socket 3/4" Wrenches, socket 3/8" drive</p>
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Unduplicated Academic Skills List (Sorted by RAS Code)

Cluster Sample Cluster
Pathway Sample Pathway
Occupation 100006 Small Engine Repair

Code	Skill Statement	Occurrence
FE064	Describes/Explains Division of labor	1
FE109	Describes/Explains Labor relations	1
FE118	Identifies Cost factors	2
LA005	Adapts Strategy Listening	5
LA006	Adapts Strategy Reading	43
LA007	Adapts Strategy Speaking	1
LA035	Attends Directions/task	5
LA038	Collects/Organizes Information-oral/written	7
LA058	Composes/Edits Forms/documents	3
LA141	Comprehends Information-written Main idea	39
LA167	Evaluates Information-oral	2
LA181	Evaluates Information-written Adequacy/sufficiency	1
LA184	Evaluates Information-written Conclusions/solutions	5
LA271	Uses Dictionary	1
LA278	Uses Text resources	26
MA022	Computes Addition Algebraic fractions	1
MA039	Computes Division Decimals	1
MA065	Computes Multiplication Decimals	1
MA084	Computes Subtraction Decimals	1
MA174	Interprets Charts/tables/graphs	14
MA179	Measures Direct	18
MA180	Measures Direct Angles	2
MA188	Measures Metric	10
MA261	Uses calculator Addition	4
MA262	Uses calculator Division	4
MA263	Uses calculator Exponential functions	4
MA268	Uses calculator Subtraction	4
SC037	Applies/Uses Classification schemes	4
SC047	Applies/Uses Scientific methods Observation--direct/indirect	11
SC176	Describes/Explains Ecosystems	7
SC178	Describes/Explains Electricity Batteries	4
SC179	Describes/Explains Electricity Charging	4
SC199	Describes/Explains Electricity--measurement Ammeter/voltmeter	3
SC205	Describes/Explains Electricity--measurement Voltage	4
SC237	Describes/Explains Energy Power	3
SC251	Describes/Explains Force Friction	7
SC274	Describes/Explains Heat Conduction/convection	1
SC281	Describes/Explains Heat Radiation	1
SC449	Identifies Acids/bases	4
SC489	Measures Distance/length	10
SC490	Measures Electric currents	6
SC498	Uses Computers	2
SC499	Uses Computers Information processing	14

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Unduplicated Academic Skills List (Sorted by RAS Occurrence)

Cluster Sample Cluster
Pathway Sample Pathway
Occupation 100006 Small Engine Repair

Code	Skill Statement	Occurrence
LA006	Adapts Strategy Reading	43
LA141	Comprehends Information-written Main idea	39
LA278	Uses Text resources	26
MA179	Measures Direct	18
MA174	Interprets Charts/tables/graphs	14
SC499	Uses Computers Information processing	14
SC047	Applies/Uses Scientific methods Observation--direct/indirect	11
MA188	Measures Metric	10
SC489	Measures Distance/length	10
SC176	Describes/Explains Ecosystems	7
SC251	Describes/Explains Force Friction	7
LA038	Collects/Organizes Information-oral/written	7
SC490	Measures Electric currents	6
LA005	Adapts Strategy Listening	5
LA184	Evaluates Information-written Conclusions/solutions	5
LA035	Attends Directions/task	5
MA261	Uses calculator Addition	4
MA262	Uses calculator Division	4
MA263	Uses calculator Exponential functions	4
MA268	Uses calculator Subtraction	4
SC037	Applies/Uses Classification schemes	4
SC205	Describes/Explains Electricity--measurement Voltage	4
SC178	Describes/Explains Electricity Batteries	4
SC179	Describes/Explains Electricity Charging	4
SC449	Identifies Acids/bases	4
SC199	Describes/Explains Electricity--measurement Ammeter/voltmeter	3
SC237	Describes/Explains Energy Power	3
LA058	Composes/Edits Forms/documents	3
FE118	Identifies Cost factors	2
LA167	Evaluates Information-oral	2
MA180	Measures Direct Angles	2
SC498	Uses Computers	2
SC274	Describes/Explains Heat Conduction/convection	1
SC281	Describes/Explains Heat Radiation	1
LA181	Evaluates Information-written Adequacy/sufficiency	1
LA271	Uses Dictionary	1
MA022	Computes Addition Algebraic fractions	1
MA039	Computes Division Decimals	1
MA065	Computes Multiplication Decimals	1
MA084	Computes Subtraction Decimals	1
FE064	Describes/Explains Division of labor	1
FE109	Describes/Explains Labor relations	1
LA007	Adapts Strategy Speaking	1

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Elements

Cluster	Sample Cluster
Pathway	Sample Pathway
Occupation	Small Engine Repair
Duty	B PERFORMING SEASONAL/ROUTINE SERVICE FOR SMALL ENGINES
Task	B 005 Change engine oil.

Performance Objective

CONDITIONS FOR PERFORMANCE OF TASK

A four-stroke cycle engine needing an oil change
Mechanic's tool set
Funnel with flexible spout
Container for used oil
Clean rags
Oil recommended by manufacturer

PERFORMANCE

Change engine oil.

STANDARD

Contaminated oil will be drained from engine and stored in container for used oil, the crankcase will be filled with new oil of the viscosity and type recommended by the manufacturer, and oily rags will be cleaned or destroyed.

SOURCE

Writing team.

Steps

1. Operate engine until it is completely heated.
2. Stop the engine and disconnect the spark plug wire.
3. Locate the drain plug.
4. Clean dirt from around plug before removal.
5. Remove drain plug.
6. Let crankcase drain.
7. Replace crankcase oil filter (if model is equipped with filter).
8. Replace drain plug.
9. Refill crankcase with new oil.
10. Connect spark plug wire and start engine.
11. Inspect for oil leaks.
12. Stop engine.
13. Recheck oil level.
14. Clean or destroy oily rags and dispose of used engine oil in an environmentally safe manner.

Enabling Competencies

1. Review educational media on the subject of changing the engine oil.
2. Explain the importance of clean oil for engine operation.
3. Explain the functions of engine oil, viscosity, additives, and causes of oil contamination.
4. Practice changing engine oil.

Academic Skills

- LA006 Adapts reading strategy to read and interpret educational media on the selection of appropriate lubricant and the sequence of changing engine oil.
- LA141 Comprehends main idea in educational media on selecting appropriate lubricant and the sequence of changing engine oil.
- SC176 Describes/explains the damage to ecosystems from water and soil pollution resulting from improper disposal of waste oil and solvent.
- SC251 Describes/explains force of friction on engine operation resulting from contaminated engine lubricant.

Instructional Materials

Activities

1. Discuss the importance of clean oil for engine operation.
2. Discuss the functions of engine oil, viscosity, additives, and causes of engine oil contamination.
3. Demonstrate procedures for changing engine oil.
4. Demonstrate procedures for disposing of used engine oil.

Resources

1. American Association for Vocational Instructional Materials. (1993). AAVIM catalog: Technology & Industrial Education [Catalog] – *Small Gas Engine Series*. Athens, GA.
2. Briggs and Stratton Corporation. *Small Engine Care & Repair: A step-by-step guide to maintaining your small engine*.
3. Briggs and Stratton Corporation. Web Site: www.briggsandstratton.com
4. Radcliff, Bruce & Roark, Dann. (1997). *Small Engines 2nd Edition*. American Technical Pubs., Inc
5. Mid-America Vocational Curriculum (1999). *Power Product: Lawn and Garden Equipment*. Stillwater, OK.
6. Meridian Education (MCI). (1995). *Small Gas Engine Series (Video)*.

Test Items

100006 | MS | 4/1/1999 | B | 005 | | P | P3 | OT | | 0732

Directions to Test Administrator:

Provide the student with a four-stroke cycle engine, mechanic's tool set, funnel with flexible spout, container for used oil, clean rags, and clean engine oil recommended by the manufacturer. Observe while student demonstrates procedures used to change engine oil. The contaminated oil will be drained from engine and stored in container for used oil, the crankcase will be filled with new oil of the viscosity and type recommended by the manufacturer, and oily rags will be cleaned or destroyed.

Indicate acceptance of student performance by placing a check next to each criterion statement.

Criteria for Evaluating Student Performance

- Operated engine until completely heated.
- Stopped the engine and disconnected the spark plug wire.
- Located the drain plug.
- Cleaned dirt from around plug before removal.
- Removed drain plug.
- Drained crankcase.
- Replaced crankcase oil filter (for models equipped with filter).
- Replaced drain plug.
- Refilled crankcase with new oil.
- Connected spark plug wire and started engine.
- Inspected for oil leaks.
- Stopped engine.
- Rechecked oil level.
- Cleaned or destroyed oily rags and disposed of used engine oil in an environmentally safe manner.

Directions to Student:

You will be provided a four-stroke cycle engine, mechanic's tool set, funnel with flexible spout, container for used oil, clean rags, and clean engine oil recommended by the manufacturer. Demonstrate procedures used to change engine oil. The contaminated oil must be drained from engine and stored in container for used oil, the crankcase will be filled with new oil of the viscosity and type recommended by the manufacturer, and oily rags will be cleaned or destroyed.

The test administrator will provide time frames and levels of acceptance based on a checklist.

Duty B PERFORMING SEASONAL/ROUTINE SERVICE FOR SMALL ENGINES

Task B 005 Change engine oil

Test Items

100006 | MS | 4/1/1999 | B | 005 | | MC | C1 | OT | A | 0612

When changing the engine oil in a small engine, the replacement oil selected should be:

- a. the type of oil recommended by the engine manufacturer
- b. the type of oil which was previously in the engine
- c. SAE 50 weight oil with high detergent
- d. filtered oil from previous engine oil changes

100006 | MS | 4/1/1999 | B | 005 | | MA | C1 | OT | chfgbd | 0717

Match the terms and definitions.

TERMS	DEFINITIONS
___1. Viscosity	a. A compound used for lapping valves
___2. Detergent	b. A compound which will dissolve or suspend another
___3. SAE	c. A measure of the thickness of engine oil
___4. Additive	d. A condition where fuel, oil, or solvent contains water, soil, or other foreign matter
___5. Solvent	e. Standard Automotive Engineering
___6. Contamination	f. Society of Automotive Engineers
	g. A compound placed in fuel to perform functions such as improving octane
	h. A compound placed in oil which cleans surfaces and suspends carbon particles
	i. A chemical sprayed on the outside of small engines to prevent accumulation of dust and debris

Small Engine Maintenance: Unit Test – Part 1

<p>1. The small engine crankcase oil filter (found on larger, compact engines) should be changed:</p> <ol style="list-style-type: none"> a. once per year b. at intervals recommended by the manufacturer and at the time the engine oil is being changed c. only when the engine is used in excessively dusty or harsh conditions d. never change the filter as it is self-cleaning <p>2. When changing the engine oil in a small engine, the replacement oil selected should be:</p> <ol style="list-style-type: none"> a. the type of oil recommended by the engine manufacturer b. the type of oil which was previously in the engine c. SAE 50 weight oil with high detergent d. filtered oil from previous engine oil changes <p>3. A foam type air cleaner should be serviced by:</p> <ol style="list-style-type: none"> a. washing in gasoline b. soaking in clean oil c. washing in clean solvent or detergent d. replacement is recommended over washing <p>4. Spark plugs suitable for replacement include:</p> <ol style="list-style-type: none"> a. a plug that will screw into the threads b. a plug that will fit another engine made by the same manufacturer c. another plug manufactured by the same company as the original plug d. the spark plug recommended by the manufacturer <p>5. Why should protective covers be placed on the engine electrical system and air cleaner openings prior to cleaning with hot water or steam?</p> <ol style="list-style-type: none"> a. To keep dust out of the engine oil of four-stroke cycle engines. b. To prevent water from contaminating the engine oil in two-stroke cycle engines. c. To prevent water from entering the carburetor and/or causing electrical shorts in the ignition system. d. It is not necessary to place covers on the engine electrical system and air cleaner openings. 	<p>6. Match the terms and definitions.</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center; border-bottom: 1px solid black;">TERMS</th> <th style="text-align: center; border-bottom: 1px solid black;">DEFINITIONS</th> </tr> </thead> <tbody> <tr> <td style="padding: 5px;">___ 1. Viscosity</td> <td style="padding: 5px;">a. A compound used for lapping valves</td> </tr> <tr> <td style="padding: 5px;">___ 2. Detergent</td> <td style="padding: 5px;">b. A compound which will dissolve or suspend another</td> </tr> <tr> <td style="padding: 5px;">___ 3. SAE</td> <td style="padding: 5px;">c. A measure of the thickness of engine oil</td> </tr> <tr> <td style="padding: 5px;">___ 4. Additive</td> <td style="padding: 5px;">d. A condition where fuel, oil, or solvent contains water, soil, or other foreign matter</td> </tr> <tr> <td style="padding: 5px;">___ 5. Solvent</td> <td style="padding: 5px;">e. Standard Automotive Engineering</td> </tr> <tr> <td style="padding: 5px;">___ 6. Contamination</td> <td style="padding: 5px;">f. Society of Automotive Engineers</td> </tr> <tr> <td></td> <td style="padding: 5px;">g. A compound placed in fuel to perform functions such as improving octane</td> </tr> <tr> <td></td> <td style="padding: 5px;">h. A compound placed in oil which cleans surfaces and suspends carbon particles</td> </tr> <tr> <td></td> <td style="padding: 5px;">i. A chemical sprayed on the outside of small engines to prevent accumulation of dust and debris</td> </tr> </tbody> </table>	TERMS	DEFINITIONS	___ 1. Viscosity	a. A compound used for lapping valves	___ 2. Detergent	b. A compound which will dissolve or suspend another	___ 3. SAE	c. A measure of the thickness of engine oil	___ 4. Additive	d. A condition where fuel, oil, or solvent contains water, soil, or other foreign matter	___ 5. Solvent	e. Standard Automotive Engineering	___ 6. Contamination	f. Society of Automotive Engineers		g. A compound placed in fuel to perform functions such as improving octane		h. A compound placed in oil which cleans surfaces and suspends carbon particles		i. A chemical sprayed on the outside of small engines to prevent accumulation of dust and debris
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Small Engine Maintenance: Unit Test – Part 2

7. Directions to Test Administrator:

Provide the student with a small engine, mechanic's tool set, torque wrench, and wire feeler gauge.

Observe student performance of procedures to install spark plug(s).

The student must select, gap, and install spark plug(s) according to manufacturer's specification.

Indicate acceptance of student performance by placing a check next to each criterion statement.

Criteria for Evaluating Student Performance

- Removed the spark plug wire from the spark plug.
- Removed the spark plug using a socket wrench.
- Selected a spark plug recommended by the manufacturer.
- Set spark plug gap to manufacturer's specifications.
- Screwed spark plug into cylinder head and tightened with fingers.
- Torqued spark plug to manufacturer's specifications using spark plug socket and torque wrench.
- Checked conditions of connectors and insulation on spark plug wire when reattaching wire to spark plug.

Directions to Student:

You will be provided a small engine, mechanic's tool set, torque wrench, and wire feeler gauge.

Demonstrate performance of procedures to install spark plugs).

Select, gap, and install spark plug(s) according to manufacturer's specification.

The test administrator will provide time frames and levels of acceptance based on a checklist.

Skills Survey

School _____

Occupation **Small Engine Repair**



Rate the Importance of the following skills (check one)			Skill			Where Is This Skill Best Taught (check one or both)	
Nice to Know	Need to Know	Needed for Survival	Duty	Task		Class room	Job
			A		PERFORMING ADMINISTRATIVE FUNCTIONS		
			A	001	Communicate with customer and/or supervisor to determine service requested.		
			A	002	Complete customer work order form.		
			A	003	Maintain work records to account for parts and labor.		
			A	004	Conduct product liability procedures.		
			A	005	Prepare customer bill/receipt.		
			A	006	Apply human relations skills in the small engine repair shop.		
			A	007	Identify types of four-stroke and two-stroke cycle engines.		
			A	008	Explain the strokes in a four-stroke cycle engine.		
			A	009	Explain the strokes in a two-stroke cycle engine.		
			A	010	Utilize parts identification media.		
			A	011	Identify small engine parts.		
			B		PERFORMING SEASONAL/ROUTINE SERVICE FOR SMALL ENGINES		
			B	001	Clean engine exterior and cooling fins.		
			B	002	Service an oil bath air cleaner.		
			B	003	Service a foam type air cleaner.		
			B	004	Service a dry element air cleaner.		
			B	005	Change engine oil.		
			B	006	Replace crankcase oil filter.		
			B	007	Service a crankcase breather.		
			B	008	Remove carbon deposits from exhaust ports and muffler of two-stroke engine.		
			B	009	Service small engine controls.		
			B	010	Prepare small engine for storage.		
			C		MAINTAINING SMALL ENGINE FUEL SYSTEMS		
			C	001	Service fuel tank and fuel lines.		
			C	002	Service fuel filter systems.		
			C	003	Service a pulsation-type carburetor.		
			C	004	Service a float-type carburetor.		
			C	005	Service a diaphragm-type carburetor.		
			C	006	Service a fuel pump.		
			C	007	Fine tune carburetor.		
			C	008	Service governor mechanisms.		

CTE Program of Study

Duties and Task Worksheet



Cluster Sample Cluster
 Pathway Sample Pathway
 Occupation Small Engine Repair

Program of Study Participants: _____

Evaluation Description:

- 0 = Not presented
- 1 = Introduction of fundamental instruction
- 2 = Basic, understanding and initial application under close supervision
- 3 = Intermediate, provides skill development and opportunity to practice with min supervision
- 4 = Mastery, tasks completed proficiently with little or no supervision

Notes:

Duty	Task	Duty Task Description	Sec	Post Sec	Eval. Desc.	Course and School	Eval. Desc.	Course and School	Eval. Desc.	Course and School
A		PERFORMING ADMINISTRATIVE FUNCTIONS								
A	001	Communicate with customer and/or supervisor to determine service requested.								
A	002	Complete customer work order form.								
A	003	Maintain work records to account for parts and labor.								
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A	007	Identify types of four-stroke and two-stroke cycle engines.								
A	008	Explain the strokes in a four-stroke cycle engine.								
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A	010	Utilize parts identification media.								
A	011	Identify small engine parts.								
B		PERFORMING SEASONAL/ROUTINE SERVICE FOR SMALL ENGINES								
B	001	Clean engine exterior and cooling fins.								
B	002	Service an oil bath air cleaner.								
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