THE REPUBLIC OF UGANDA
Ministry of Education and Sports

DIRECTORATE OF INDUSTRIAL TRAINING

Business, Technical, Vocational Education and Training [BTVET] Sub sector Reform

Assessment and Training Package

For

MOTORCYCLE MECHANIC

Qualification Level: 1

Occupational Cluster: Engineering and other Sciences

January 2022

Developed by:

Qualifications Standards Department
Directorate of Industrial Training
DIT

Funded by:

Government of Uganda

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Under BTVET Act, 2008 the functions of the Directorate of Industrial Training are:

(a) To identify the needs of the labour market for occupational competencies that fall under the UVQF
(b) To regulate apprenticeship schemes;
(c) To foster and promote entrepreneurial values and skills, as an integral part of the UVQF;
(d) To secure adequate and sustainable financing for the efficient operations of the Directorate;
(e) To accredit training institutions or companies as assessment centres;
(f) To determine fees payable under the Act;
(g) To develop, apply, expand and improve the purposeful application of Uganda Vocational Qualifications defined in the UVQF;
(h) To assess and award Uganda Vocational Qualifications;
(i) To promote on-the-job training in industry for apprenticeship, traineeship and indenture training and for other training such as further skills training and upgrading
(j) To prescribe the procedure for the making of training schemes

Further to the above provisions, there is an established Uganda Vocational Qualifications Framework (UVQF), under part V of the BTVET Act, 2008. It is stated that: The purpose of the UVQF is to define:

(a) Occupational standards in the world of work;
(b) Assessment standards;
(c) Vocational qualifications of learners who meet the set standards of different studies;
(d) Provide guidelines for modular training.

The UVQF shall follow principles of Competence Based Education and Training (CBET) which include:

(a) Flexible training or learning modules;

(b) Positive assessment and Certification;

(c) Assessment of Prior Learning;

(d) Recognition of formal and non-formal training;

(e) Self-paced or individual learning; and

(f) Work place learning

For award and recognition of certificates, the BTVET Act, 2008 provides that

(1) The Directorate and other examination boards established under the Act shall award certificates and diplomas for Business, Technical or Vocational education and training under the UVQF;

(2) The Certificates and Diplomas to be awarded shall be in the form prescribed by the Minister on the recommendation of the Industrial Training Council;

(3) The Certificates and Diplomas awarded under the Act shall be recognized in the Uganda education system and by the labour market.

At operational level in the Directorate, the Qualification Standards Department performs development tasks related to concepts, procedures and instruments for establishment of the UVQF in close collaboration with both public and private stakeholders in vocational training.

In particular, the Department organizes and coordinates the development of Assessment and Training Packages for use in competence-based vocational training as well as standards-based assessment and certification.

The Directorate has therefore produced this Assessment and Training Package for use in implementing Competence-Based Education and Training mechanisms.

Mr. Byakatonda Patrick
Ag. Director DIT

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Word from Permanent Secretary

The Ministry of Education and Sports (MoES) in co-operation with the private sector and other stakeholders embarked on reforming Business, Technical and Vocational Education and Training (BTVET) in Uganda. The reform led to the establishment of a Uganda Vocational Qualifications Framework (UVQF) based on Competence-Based Education and Training (CBET) principles.

The advantages of CBET include improved access, equity and relevance of BTVET, reduced unit costs of training, and recognition of Prior Learning (or on-the-job- training), among others.

As the Ministry executes its obligation of ensuring quality in training standards, the public-private partnership is being strengthened to improve occupational competence of the country's workforce without gender bias.

Further to efforts to link Education and Training to the real world of work, the Ministry through the BTVET department set up the Uganda Vocational Qualifications Framework (UVQF) Secretariat in 2004 which was main-streamed into DIT in 2008 as the Qualifications Standards Department.

To achieve the set-out targets in the reform process, the Directorate embarked on the anticipated UVQF design and development piloting its instruments and mechanisms in order to effectively enhance Competence-Based Education and Training (CBET) in Uganda.

To date, the Qualifications Standards Department of DIT has produced Assessment and Training Packages (ATP) for various occupations. Each ATP contains 3 parts namely:

1. Occupational/job Profile
2. Training modules
3. Assessment instruments Banks

The ATP can be used by any training provider and/or those who wish to present themselves for Occupational Assessment and Certification.

Herewith, the Directorate of Industrial Training presents the "Assessment & Training Package (ATP)" for training, assessment and certification of MOTORCYCLE MECHANIC LEVEL 1.

Finally, I thank all individuals, organizations and development partners who have contributed and/or participated in the Review of this noble document.

Ketty Lamaro
Permanent secretary

Acknowledgements

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- Members of the DIT Industrial Training Council;
- The Director and staff of DIT;
- Ministry of Education and Sports;
- The practitioners from the world of work;
- The facilitators involved in guiding the review panels in their activities;
- Korean International Cooperation Agency (KOICA) for financing the review of this ATP.

Abbreviations and Acronyms

A&C	Assessment & Certification
ATP	Assessment & Training Packages
BTVET	Business, Technical and Vocational Education and Training
CBET	Competency Based Education and Training
DIT	Directorate of Industrial Training
ITC	Industrial Training Council
GoU	Government of Uganda
LWA	Learning-working Assignment
MC	Modular Curriculum
MoES	Ministry of Education and Sports
OP	Occupational Profile
PEX	Practical Exercise
PTI	Performance (Practical) Test Item
QS	Qualification Standards
RPL	Recognition of Prior Learning
TIB	Test Item Bank
UVQ	Uganda Vocational Qualification
UVQF	Uganda Vocational Qualifications Framework
WTI	Written (Theory) Test Item

Key Definitions

Assessment Assessment is the means by which evidence is gathered and judged to decide if an individual has met the stipulated assessment standards or not. Testing is a form of formal assessment.

Certification Certification is a formal procedure to issue a certificate (qualification) to an individual that has demonstrated during formal assessment that he/she is competent to perform the tasks specified in the occupational profile.

Competence (Occupational) competence is understood as the ability to perform tasks common to an occupation at an acceptable level.

CBET Competence-based education and training means that programmes:

1. have content directly related to work
2. focus is on 'doing something well'
3. assessment is based upon industry work standards, and
4. curricula are developed in modular form

Duty A Duty describes a large area of work in performance terms. A duty serves as a title for a cluster of related Tasks (see also: TASK).

Learning-Working Assignment (LWA) LWA are simulated or real job situations / assignments that are suitable for learning in a training environment (e.g. "small projects"). In a working environment LWAs are real work situations /assignments.

Modules Modules are part(s) of a curriculum. Modules can be considered as "self-contained" partial qualifications which are described by learning outcomes or competencies and which can be assessed and certified individually.

Occupational Profile (OP)

An Occupational Profile is an overview of the duties and tasks a job incumbent is expected to perform competently in employment.

Occupational Profiles developed by practitioners from the world of work enhance the relevance of training and learning to the requirements of the world of work.

Occupational Profiles define WHAT a person is supposed to do in performance terms. It also contains generic information regarding related knowledge and skills, attitudes/behavior, tools, materials and equipment required to perform as well as trends/ concerns in the occupation.

Occupational profiles are the reference points for developing modular curricular and assessment standards

Qualification

A qualification is a formal recognition for demonstrating competence, based on formal assessment against set standards. A qualification is provided to the individual in form of a certificate specifying the nature of the competence.

Task

Job TASKS represent the smallest unit of job activities with a meaningful outcome. Tasks result in a product, service, or decision. They represent an assignable unit of work and have a definite beginning and ending point. Tasks can be observed and measured. *(see also: Duty)*

Executive Summary

This Assessment and Training Package is a Competence-Based Education and Training (CBET) tool and consists of three major parts:

0.1 **PART I: The "Occupational Profile" (OP) of a MOTOCYCLE MECHANIC.** This Occupational Profile which was developed by MOTORCYCLE MECHANICS practicing in the world of work mirrors the duties and tasks MOTORCYCLE MECHANICS are expected to perform.

0.2 **PART II: "Training Modules"** in the form of guidelines to train a MOTORCYCLE MECHANIC both on the job as well as in training centers (or combinations of both venues of learning). The Training Modules herein have been developed basing on the Occupational Profile and hence are directly relevant for employment.

0.3 **PART III: "Assessment Instruments"** in the form of performance (Practical) and written (theory) test items that can and should be used to assess whether a person complies with the requirements of employment as a MOTORCYCLE MECHANIC. These assessment instruments were Developed jointly by job practitioners (MOTORCYCLE MECHANIC) and instructors based on the occupational profile and training modules[1].

0.4 While the Occupational Profile (OP) contained in PART I of this document provides the information on **WHAT a person is expected to do** competently in the world of work, the test items, - including performance criteria- of PART III qualify the **HOW and/or HOW WELL a person must do the job**.

0.5 The modular format of the curriculum (PART II) allows learners to acquire job specific skills and knowledge (i.e. competencies) module by module. A single module can be accomplished within a relatively short duration of time allowing flexibility for learners to move directly into an entry level job, go for further modules or advance to higher levels of training. Modular courses allow more learners to access the training system because training centres as well as companies can accommodate more students in a given period of time.

0.6 In addition to improved access, equity and relevance of BTVET, the UVQF will also enable people who are convinced to have acquired competencies laid down in this ATP through prior training and on-the-job experience to access assessment and certification directly; be it on the basis of a single module, a group of modules or all modules pertaining to the occupation at once. This achievement will facilitate Recognition of Prior Learning (RPL).

0.7 The parts of this Assessment and Training Package were sequentially developed as follows:

i Part 1: Occupational Profile: ***January 2022***
ii Part 2: Training Modules: ***January 2022***
iii Part 3: Assessment Instruments (initial bank): ***January 2022***

This ATP (or parts of it) may be periodically revised to match the dynamic trends in the occupation and hence issued in different versions.

Mr. Byakatonda Patrick
Ag. Director

1.0 ATP-PART I
Occupational Profile for a MOTORCYCLE MECHANIC

1.1 The OCCUPATIONAL PROFILE (OP) for "MOTORCYCLE MECHANIC" below defines the ***Duties*** and ***Tasks*** a competent MOTORCYCLE MECHANIC is expected to perform in the world of work (on the job) in Uganda and the East African region today.

1.2 Since it reflects the skill requirements of work life, the Occupational Profile is the reference document for the subsequent development of training modules and assessment instruments (test items) which are directly relevant to employment in Ugandan and the East African businesses and industries.

1.3 To ensure that the Occupational Profile is relevant for employment in Uganda and East Africa, the DIT used the method of "occupational/job profiling.

This approach involves the brainstorming of a panel of 8 to 12 competent job practitioners guided by trained and experienced facilitators. During a two-day workshop the panelists define the duties and tasks performed in employment, as well as the prerequisite skills, knowledge, attitudes, tools and equipment, and the future trends and concerns in the occupation/job.

1.4 The panelists, facilitators and coordinators who participated in Developing this Occupational Profile for MOTORCYCLE MECHANIC are listed on the following page.

Job Expert Panel

Katende Charles
CK Auto Garage and Spare parts

Kawooya Ibra
Toyota Uganda

Kitenda Dennis
VERMA Bajaj Co.LTD

Ssamba Ashiraf
Yamaha Garage
Ashiraf and brothers

Ntalo Robert
UNEB Representative

Kigwana Alex
NCDC Representative

Apuatum George
Teacher Namilyango College

Anyizukire Ivan
Teacher Mary Hill High School

Palaasi Charles
Teacher Busoga college Mwiri

Nanyenya Ronald
Teacher St. Mary's College Kisubi

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Funded by
Government Of Uganda

THE REPUBLIC OF UGANDA
Ministry of Education and Sports

Business, Technical and Vocational Education and Training (BTVET) Sub sector Reform

Occupational Profile

For a

"MOTORCYCLE MECHANIC"

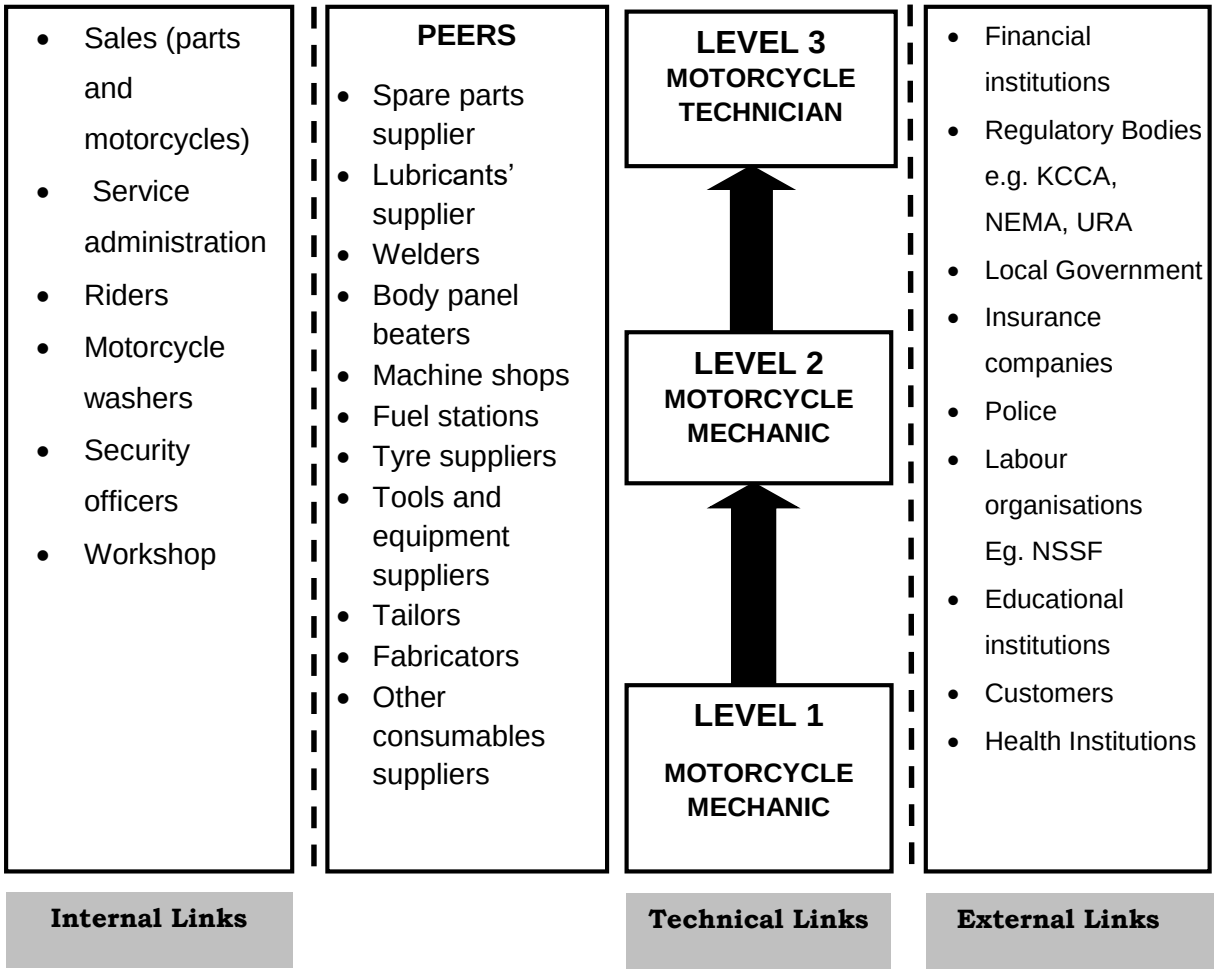
Developed by: Qualifications standard department
Directorate of Industrial Training

Dates of workshop: 10TH-14th January 2022

NOMENCLATURE FOR THE OCCUPATION OF MOTORCYCLE MECHANIC

Definition: A skilled person who assembles, diagnoses, repairs and maintains a motorcycle efficiently.

JOB ORGANIZATION CHART FOR A MOTORCYCLE MECHANIC



1. **A Level I Motorcycle mechanic** is a person who does basic repairs and service of a motorcycle under supervision.
2. **A level II Motorcycle mechanic** is a person who is in a position to diagnose, do repairs and servicing of a motorcycle engine under minimum supervision.
3. **A Level III Motorcycle Technician** is a highly skilled person who can diagnose, do engine repairs, electrical and other motorcycle systems.

DUTIES AND TASKS

A. PLAN WORK	A1. Carry out feasibility study	A2. Prepare business plan	A3. Prepare work plan
	A4. Source Financial resources	A5. Locate land	A6. Plan workshop layout
	A7. Identify tools, equipment and materials	A8. Identify Human Resources	

B. OBSERVE OCCUPATIONAL HEALTH SAFTY AND ENVIROMENTAL PROTECTION PRACTICES	B1. Observe safety precautions	B2. Maintain personal health and hygiene	B3. Clean workshop
	B4. Observe security precautions	B5. Perform fire extinguishers	B6. Install fire extinguishers
	B7. Install first aid kit	B8. Observe security precautions	B9. Manage waste

C. PERFORM ADMINSTRATIVE TASKS	C1. Secure the Premise	C2. Obtain the legal documents	C3. Recruit workers
	C4. Train workers	C5.Procure tools, materials and equipment	C6.Assign tasks and roles
	C7. Orient workers	C8. Supervise workers	C9.Conduct meetings
	C10. Provide welfare services	C11. Sign contracts	C12. Appraise workers
	C13. Motivate	C14. Mentor	C15. Counsel

	workers	workers	workers
	C16. Arbitrate and mediate workers	C17. Market your business	C18. Keep records

D. SERVICE MOTORCYCLE ENGINE	D1. Change Oil	D2. Clean or Replace Air filter	D3. Replace spark plug
	D4. Clean cooling fins	D5. Change the coolant of the engine	D6.Tighten bolts
	D7. Changing Oil filter		

E. CHANGE MOTORCYCLE ENGINE COMPONENTS	E1. Time cam chain / V-belt	E2. Replace cam chain / V-belt	E3. Replace piston kit
	E4. Replace cylinder block	E5. Replace valve seals and valve stems	E6. Replace gaskets
	E7. Replace connecting rods	E8. Replace the bearings	E9. Replace bolts and nuts
	E10. Adjust tapets	E11. Replace the packings	E12. Decarbonizing the silencer
	E13. Unblock the manifolds		

F. FUEL SUPPLY SYSTEM	E1. Inspect and repair tank leakages	E2. Replace fuel gauge	E3. Inspect fuel line
	E4. Replace fuel pipes	E5. Replace joint 1 (carburetor hose pipe) and 2 (air cleaner)	E6. Replace clamps

	E7. Clean carburetor	E8. Clean carburetor jets	E9. Replace carburetor piston
	E10. Replace the needle jet	E11. Replace the jet needle	E12. Replace diaphragms
	E13. Replace floater		

G. REPAIR GEARBOX	F1. Replace friction plates	F2. Replace clutch plates	F3. Replace boss clutch
	F4. Replace pressure plate	F5. Replace gearbox oil filter	F6. Replace gearbox seals
	E7. Replace the bearings	E8. Replace gear lever	

H. REPAIR WHEELS AND TYRES	G1. Align wheels	G2. Replace damaged spokes	G3. Replace wheel
	G4. Replace tyre / tube	G5. Patch punched tubes	G6. Replace valves
	G7. Lubricate the axle	G8. Replace ball bearings	G9. Replace the axle

I. SERVICE and REPAIR ELECTRICAL SYSTEM	H1. Replace resistors	H2. Replace capacitors	H3. Replace fuses
	H4. Replace bulbs	H5. Replace heated wires	H6. Replace battery
	H7. Replace or repair switches	H8. Replace or repair broken head / tail	H9. Repair or replace instrumental

		lamp	cluster

J. SERVICE IGNITION SYSTEM	I1. Replace the ignition switch	I2. Replace the ignition coils	I3. Replace power pack (Capacitor Discharge Ignition, CDI)
	I4. Replace spark plug	I5. Tightening battery terminals	I6. Replace the high tension cable
	I7. Replace Regulator Rectifier Unit (RRU)	I8. Replace the crank position sensors	I9. Replace the kick-start lever

K. SERVICE / REPAIR BRAKE SYSTEM	J1. Lubricate brake actuation system	J2. Clean brake shoe and drum	J3. Adjust brake lever system
	J4. Replace brake shoes	J5. Replace brake pads	J6. Replace brake cable
	J7. Refill brake fluid	J8. Adjust or replace the spring	J9. Replace the brake lever
	J10. Replace the hand lever holder	J11. Replace the master cylinders	J12. Bleeding the brake system
	J13. Replace the hosepipe	J14. Replace brake discs	

L. SERVICE / REPAIR DRIVE COMPONENTS	K1. Adjust tension of the chain	K2. Lubricate the chain	K3. Replace the chain
	K4. Adjust length of the chain	K5. Replace drive sprocket	K6. Replace driven

			sprocket
	K7. Replace sprocket shafts	K8. Replace the clutch hub bearing	K9. Replace rear sprocket bolts
	K10. Lubricate the differential bearings using oil and grease	K11. Servicing the shaft drive	K12. Servicing the differentials

M. MAINTAIN THE BODY FITMENTS	L1. Replace the tank	L2. Panel beat the tank	L3. Replace side covers
	L4. Service the chasis	L5. Spray the tank	L6. Replace springs and shock absorbers
	L7. Replace the front fork seal	L8. Replace handle bar	L9. Chang oil in the front fork
	L10. Replace dimmer switches	L11. Service the cone set bearings	L12. Replace side mirrors
	L13. Replace grip frame	L14. Replace front and rear fenders	L15. Replace leg guard
	L16. Replace all cables	L17. Replace fork springs	L18. Align swing-arm
	L19. Fork alignment	L20. Replace rear arm bushes	

ADDITIONAL INFORMATION

Generic Knowledge & Skills • Fundamentals of Automotive technology • Entrepreneurship skills • Environment, health and safety • First Aid • Technical drawing • Manual Handling • Record keeping • Selection of service parts • Interpretation of motorcycle workshop manuals • Housekeeping i.e., the 5S • Workshop processes	• Selection of appropriate tools and equipment • Types of lubricants applied in motorcycle workshop manuals • Knowledge of emissions • Knowledge of motorcycle power transmission systems • Principles of motion • Interpretation of engineering drawings • Dismantling and assembling skills of motorcycle components • Entrepreneurship skills

Tools, machines, materials and Equipment • Brush • Water • Oils e.g. Gear box oil • Tool box • Overall • Fire extinguisher • Drill machine • Ratchet handle • Hinged handle • Extension bar • Sliding offset handle • Universal joint • Gloves • Safety glasses • Safety boots • Tyre levers • Centre punch • Hummer • T-handles • Adjustable wrench • Allen keys • File • Hacksaw • Tap and die	• Grease gun • Air Compressor • Battery Charger • Record book • Hydrometer • Wheel alignment tool • Tyre pressure gauge • Multimeter • First aid box • Brake fluid • Cotton wastes • Empty container • Coolant • Spring squeeze • Computer • Work table • Oil can • Battery • Spanners • Screw Drivers • Anvil • Power source • Magneto motor puller

• Vice • Scraper • Wire stripper • Welding machine • Feeler gauge • Stands • Torque wrench • Hand pump • Compression guage	

Future Trends & Concerns	**Attitudes/ Traits/ Behaviour**
• Financial accountability • Quality service delivery • Computer literacy • Form associations for motorcycle mechanics • Use of internet • Media sensitization • Technological change • Certification of technician • Improve communication facilities in workplaces	1. Time conscious 2. Trustworthy 3. Hardworking 4. Team player 5. Honest 6. Innovative 7. Ethical 8. Analytical 9. Resilient 10. Good interpersonal skills 11. Disciplined 12. Smart 13. Respectful 14. Good communicator 15. Approachable 16. Flexible 17. Reliable 18. Patient 19. Attentive 20. Foreseer/visionary 21. Ambitious 22. Organised 23. Clean

2.0 ATP-PART II

Training Modules for MOTORCYCLE MECHANIC

2.1 A curriculum is a "guide /plan for teaching and learning" which provides a guide to teachers, instructors and learners. In the envisaged system of competence-based or outcome-oriented education and training (CBET), Curricula are no longer the benchmark against which assessment is conducted. It is rather the Occupational Profile that provides the benchmark for Curriculum development as well as assessment.

2.2 This modular format of the curriculum allows learners of the occupation of MOTORCYCLE MECHANIC to acquire job specific skills and knowledge (i.e. competencies) module by module. A single module can be accomplished within a relatively short duration of time allowing learners to move directly into an entry level job, do further modules and advance to higher levels of training. Modular courses allow more learners to access the training system because training centres, as well as companies can accommodate more students in a given period of time.

2.3 The modules were developed jointly by both instructors and job practitioners. They were reviewed using the Occupational Profile as a reference point and taking into account the specifications of training and learning outcomes.

2.4 The modules contain "Learning-Working Assignments" (LWAs) and related "Practical Exercises" (PEXs) as key elements.

LWAs are simulated or real job situations/assignments that are suitable for learning in a training environment (e.g. "small projects"). In a working environment, LWAs are real work situations.

PEXs are therefore sub-sets of a LWA.

2.5 In principle, and following the philosophy of Competence-Based Education and Training (CBET), the modules can be used as a guide for learning in a training Centre, at the workplace; or a combination of both

WHO IS A MOTOCYCLE MECHANIC QUALIFICATION LEVEL 1?

A Motor cycle Level 1
Is a person who does basic repairs and service of a motorcycle under supervision.

OVERVIEW OF MODULES FOR A MOTORCYCLE MECHANIC UVQF LEVEL 1

Code	Module Title	Average duration	
		Contact hours	Weeks
UE/MCM/M1.1	Perform wheel and tyre maintenance	200	5
UE/MCM/M1.2	Maintain drive systems	320	8
UE/MCM/M1.3	Maintain chassis and suspension components	112	2.8
UE/MCM/M1.4	Maintain engine fuel system	80	2
UE/MCM/M1.5	Replace minor electrical components or parts of a motor cycle	96	2.4
UE/MCM/M1.6	Carry out Light Service on motorcycle engine	80	2
UE/MCM/M1.7	Replace motorcycle body components	200	5
UE/MCM/M1.8	Perform Entrepreneurship Tasks	200	5
Summary	**8 training Modules**	**1288 hours**	**32.3**

Note: Average duration is contact time but NOT calendar duration
It is assumed that:

- 1 day is equivalent to 8 hours of nominal learning and
- 1 month is equivalent to 160 hours of nominal learning

Information given on the average duration of training should be understood as a guideline. Quick learners may need less time than indicated or vice versa.

At completion of a module, the learner should be able to satisfactorily perform the included Learning Working Assignments, their Practical exercises and attached theoretical instructions, as the minimum exposure.

Prior to summative assessment by recognised Agencies, the users of these Modules Guides are encouraged to carefully consider continuous assessment using samples of (or similar) performance (practical) and written test items available in part 3 of this ATP for MOTORCYCLE MECHANIC

Code	UE/MCM/M1.1
Module title	**M1.1: Perform wheel and tyre maintenance**
Related Qualification	Part of Uganda Vocational Qualification (MOTORCYCLE MECHANIC UVQ1)
Qualification Level	1
Module purpose **Learning-Working Assignments (LWAs)** **Related Practical Exercises (PEXs)**	After completion of this module, the trainee will be able to perform wheel and tyre maintenance. **LWA 1/1: Repair Punctured Tubes** **LWA 1/2: Repair Punctured tyres** **LWA 1/3: Remove and replace wheel assemblies** **LWA 1/4: Assemble wheels** **LWA 1/5: Align wheels** **LWA 1/6: Service brakes** **LWA 1/:7 Perform Occupational Health, Safety & Environmental Protection Practices** **Note:** 1. The learning exercises may be repeated till the Trainee acquires targeted competence; The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment. **LWA 1/1: Repair Punctured Tubes** PEX 1.1: Remove wheel PEX 1.2: Remove tyre from rim PEX 1.3: Inspect tyre for damages PEX 1.4: Repair damages PEX 1.5: Add pressure into the tube PEX 1.6: Inspect performance of the tube PEX 1.7: Put back the tube into the tyre

LWA 1/2: Repair Punctured tyres
PEX 2.1: Remove wheel
PEX 2.2: Remove tyre from rim
PEX 2.3: Inspect tyre for puncture
PEX 2.4: Inspect tubeless for damages
PEX 2.5: Repair damage
PEX 2.6: Adjust tyre pressure
LWA 1/3: Remove and replace wheel assemblies
PEX 3.1: Open nuts and bolts
PEX 3.2: Remove wheel
PEX 3.3: Clean axle, brake shoes and drum
PEX 3.4: Lubricate axle
PEX 3.5: Put back the wheel
PEX 3.6: Adjust chain
PEX 3.7: Check alignment of wheels
PEX 3.8: Tighten nuts on the bolts
PEX 3.9: Adjust brakes
LWA 1/4: Assemble wheels
PEX 4.1: Fix bearing into the hub
PEX 4.2: Fix the spokes on the hub
PEX 4.3: Join the nipples to spokes to hold the wheel
PEX 4.4: Tighten the nipples
PEX 4.5: Put rubber bands
PEX 4.6: Fix tyre on the wheel
PEX 4.7: Put tube into the tyre
PEX 4.8: Put pressure into the tyre
LWA 1/5: Align wheels
PEX 5.1: Rotate the wheel and detect where the bend is
PEX 5.2: Remove the tyre
PEX 5.3: Tighten or untighten the spokes
PEX 5.4: Replace broken spokes and nipples if any
PEX 5.5: Put back the tyre
PEX 5.6: Put pressure into the tyre
LWA 1/6: Service brakes
PEX 6.1: Remove the wheel

	PEX 6.2: Remove the brakes PEX 6.3: Remove the brake shaft PEX 6.4: Remove the brake axle PEX 6.5: Lubricate the axle PEX 6.6: Clean the brakes PEX 6.7: Assemble the brake PEX 6.8: Put the brake back into the drum PEX 6.9: Fix back the wheel
	LWA 1/4: Perform Occupational Health, Safety & Environmental Protection Practices PEX 4.1: Wear PPE PEX 4.2: Administer First aid PEX 4.3: Perform fire fighting PEX 4.4: Manage waste PEX 4.5: Display safety signs
Occupational health and safety	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs
Pre-requisite modules	None
Related knowledge/ theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognised reference materials as appropriate*:* • Knowledge on Technical Drawing • Know the parts descriptions and part numbers • Know the tolerances (standard limits) • Wheel alignment • Tyre specifications • Principles of wheels and tyres • Functions of wheels and tyres • Entrepreneurship skills • Basic physics (pressure, motion, friction)
Average duration of learning	200 hours (5 days) of nominal learning suggested to include: • 2 days of occupational theory and • 3days of occupational practice
Suggestions on	The acquisition of competencies (skills, knowledge, attitudes)

organization of learning	described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Assessment	Assessment to be conducted according to established regulations by recognized assessment body using related Practical and Written Test Items from Item bank.
Minimum required tools/ equipment/ implements or equivalent	Wheel spanners, motorcycle stand, tyre lever, valve keys, pressure source (compressor), pressure gauge, hammer, sand paper, sockets, tyre needle, file, pair of pliers, screw driver, ring spanner(offset wrench), spoke wrench, clamp
Minimum required materials and consumables or equivalent	Cotton waste, water, cold sealing patches, lubricants, detergents, adhesive
Special notes	

Code	UE/MCM/M1.2
Module title	**M1.2: Maintain drive systems**
Related Qualification	Part of Uganda Vocational Qualification (MOTORCYCLE MECHANIC UVQ1)
Qualification Level	1
Module purpose	After completion of this module, the trainee will be able to service the drive system of a motorcycle.
Learning-Working Assignments (LWAs)	**LWA 2/1: Maintain chain** **LWA 2/2: Replace chain** **LWA 2/3: Service and replace shaft** **LWA 2/4: Replace drive sprocket** **LWA 2/5: Replace driven sprocket** **LWA 2/6: Perform Occupational Health, Safety & Environmental Protection Practices** **Note:** 1. The learning exercises may be repeated till the Trainee acquires targeted competence; *2.* The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.
Related Practical Exercises (PEXs)	**LWA 2/1: Maintain chain** PEX 1.1 Open chain box where applicable PEX 1.2: Diagnose fault of the chain PEX 1.3: Clean chain PEX 1.4: Lubricate chain PEX 1.5: Adjust tension of chain PEX 1.6: Loosening tight links of chain PEX 1.7: Test performance

LWA 2/2: Replace chain PEX 2.1: Remove chain box where applicable PEX 2.2: Disjoint chain PEX 2.3: Remove faulty chain PEX 2.4: Fix new chain PEX 2.5: Join fixed chain PEX 2.6: Adjust tension of chain PEX 2.7: Fix nuts and bolts PEX 2.8: Fix chain box back PEX 2.9: Test for performance
LWA 2/3: Service and replace shaft PEX 3.1: Remove shaft PEX 3.2: Clean shaft PEX 3.3: Fix loose parts on the shaft PEX 3.4: Grease shaft using lithium grease PEX 3.5: Fix shaft back PEX 3.5: Test for performance
LWA 2/4: Replace drive sprocket PEX 4.1: Remove sprocket cover PEX 4.2: Open drive sprocket screws / nuts / locks PEX 4.3: Remove sprocket PEX 4.4: Fix new sprocket PEX 4.5: Tighten screws / nuts/ locks PEX 4.6: Fix sprocket cover PEX 4.7: Adjust tension of chain PEX 4.8: Test for performance of the motorcycle
LWA 2/5: Replace driven sprocket PEX 5.1: Remove chain box PEX 5.2: Remove nuts from the axle PEX 5.3: Remove wheel PEX 5.4: Remove hub PEX 5.5: Remove sprocket PEX 5.6: Fix new sprocket PEX 5.7: Re-assemble components PEX 5.8: Test for performance

	LWA 2/6: Perform Occupational Health, Safety & Environmental Protection Practices PEX 6.1: Wear PPE PEX 6.2: Administer First aid PEX 6.3: Perform fire fighting PEX 6.4: Manage waste PEX 6.5: Display safety signs
Occupational health and safety	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs
Pre-requisite modules	None
Related knowledge/ theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognised reference materials as appropriate • Knowledge of transmission of motion • Knowledge of relevant tools and equipment to perform the task • Theory of friction • Theory of moments • Theory of forces • Knowledge of the standard service limits • Knowledge of simple machines • Knowledge of safety and health precautions
Average duration of learning	320 hours (40 days) of nominal learning suggested to include: • 10 days of occupational theory and • 30 days of occupational practice
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Assessment	Assessment to be conducted according to established regulations by recognized assessment body using related Practical and Written Test Items from Item bank.
Minimum required tools/ equipment/	Bleeding machine, brake pipe spanner, pressure gauges, tool box (nipple spanner, pliers, screw driver)

implements or equivalent	
Minimum required materials and consumables or equivalent	fuel, cotton waste, water, brake fluid
Special notes	

Code	UE/MCM/M1.3
Module title	**M1.3: Maintain chassis and suspension components.**
Related Qualification	Part of Uganda Vocational Qualification (MOTORCYCLE MECHANIC UVQ1)
Qualification Level	1
Module purpose	After completion of this module, the trainee will be able to maintain chassis and suspension components.
Learning-Working Assignments (LWAs)	**LWA 3/1: Repair and Maintain chassis** **LWA 3/2: Maintain suspension components of front fork** **LWA 3/3: Replace suspension rear shock absorber** **LWA 3/3: Perform Occupational Health, Safety & Environmental Protection Practices** **Note:** 1. The learning exercises may be repeated till the Trainee acquires targeted competence; *2.* The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment*.*
Related Practical Exercises (PEXs)	**LWA 3/1: Repair and Maintain chassis** PEX 1.1: Remove all the major components of the motorcycle to access the chassis PEX 1.2: Check for broken members of the chassis PEX 1.3: Weld broken members and joints PEX 1.4: Clean welded joints PEX 1.5: Check chassis for mis-alignment PEX 1.6: Align chassis PEX 1.7: Re-assemble the motorcycle
	LWA 3/2: Maintain suspension components of front fork PEX 2.1: Remove front forks PEX 2.2: Dismantle fork assembly PEX 2.3: Check dumping PEX 2.4: Change and re-fill the oil PEX 2.5: Replace front fork seals
	PEX 2.6: Test performance and re-assemble

	LWA 3/3: Replace suspension rear shock absorber PEX 3.1: Remove third footrest PEX 3.2: Remove exhaust pipe PEX 3.3: Remove shock absorber PEX 3.4: Adjust tension or Replace shock absorbers PEX 3.5: Re-assemble components PEX 3.6: Test for performance
	LWA 3/4: Perform Occupational Health, Safety & Environmental Protection Practices PEX 4.1: Wear PPE PEX 4.2: Administer First aid PEX 4.3: Perform fire fighting PEX 4.4: Manage waste PEX 4.5: Display safety signs
Occupational health and safety	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs
Pre-requisite modules	None
Related knowledge/ theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognized reference materials as appropriate*:* • Elasticity • Fluid mechanics • Pressure • Forces • Structures
Average duration of learning	112 hours (14 days) of nominal learning suggested to include: • 3 days of occupational theory and • 11 days of occupational practice
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Assessment	Assessment to be conducted according to established

	regulations by recognized assessment body using related Practical and Written Test Items from Item bank.
Minimum required tools/ equipment/ implements or equivalent	Welding machine, spanners, harmer, Metallic pipes, front fork cylinder holder handle with adopter, Allen key, adjustable spanner, hand file, grinder, spraying machine, compressor, spring compression belt
Minimum required materials and consumables or equivalent	Welding electrodes, hydraulic fluid, primer, paint, thinner, water, cotton waste
Special notes	Training at this level will not involve dismantling of the engine and the gear box.

Code	UE/MCM/M1.4
Module title	**M1.4: Maintain engine fuel system**
Related Qualification	Part of Uganda Vocational Qualification (MOTOCYCLE MECHANIC UVQ1)
Qualification Level	1
Module purpose	After completion of this module, the trainee will be able to service engine fuel system.
Learning-Working Assignments (LWAs)	**LWA 4/1: Service fuel tank** **LWA 4/2: Service fuel tap** **LWA 4/3: Clean carburetor** **LWA 4/4: Replace fuel ducts from tank to engine** **LWA 4/5: Clean serviceable air filters** **LWA 4/6: Clean fuel strainer** **LWA 4/7: Perform Occupational Health, Safety & Environmental Protection Practices** **Note:** 1. The learning exercises may be repeated till the Trainee acquires targeted competence; *2.* The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.
Related Practical Exercises (PEXs)	**LWA 4/1: Service fuel tank** PEX 1.1: Remove side covers PEX 1.2: Remove cushion PEX 1.3: Open fuel tap to check for dirt PEX 1.4: Remove tank and empty it PEX 1.5: Remove fuel tap PEX 1.6: Clean tank PEX 1.7: Unblock vent on tank filler cap PEX 1.8: Inspect tank for leakages PEX 1.9: Solder tank in case of leakage PEX 1.10: Spray the tank PEX 1.11: Re-install and reconnect tank

LWA 4/2: Service fuel tap PEX 2.1: Remove fuel tap PEX 2.2: Dismantle fuel tap PEX 2.3: Remove strainers PEX 2.4: Remove dirt PEX 2.5: Clean different parts of the fuel tap PEX 2.6: Re-assemble and fix tap
LWA 4/3: Clean carburetor PEX 3.1: Inspect carburetor for dirt or leakages PEX 3.2: Remove carburetor PEX 3.3: Clean the external parts PEX 3.4: Open carburetor PEX 3.5: Clean the inside parts of the carburetor PEX 3.6: Assemble and fix back the carburetor
LWA 4/4: Replace fuel ducts from tank to engine PEX 4.1: Inspect for leakages and kinks PEX 4.2: Replace fuel ducts or seals in case of leakage PEX 4.3: Straighten ducts in case of kinks
LWA 4/5: Clean serviceable air filters PEX 5.1: Open side cover PEX 5.2: Open air cleaner case PEX 5.3: Remove air filters PEX 5.4: Clean filters PEX 5.5: Replace filter PEX 5.6: Close the case
LWA 4/6: Clean fuel strainer PEX 6.1: Remove carburetor PEX 6.2: Remove fuel tap PEX 6.3: Remove strainer PEX 6.4: Wash the strainer with petrol PEX 6.4: Blow strainer with compressed air PEX 6.5: Replace the strainer in its position PEX 6.6: Fix the tap with the clean strainer onto the tank PEX 6.7: Fix the carburetor back in its position

	LWA 4/7: Perform Occupational Health, Safety & Environmental Protection Practices PEX 7.1: Wear PPE PEX 7.2: Administer First aid PEX 7.3: Perform fire fighting PEX 7.4: Manage waste PEX 7.5: Display safety signs
Occupational health and safety	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs
Pre-requisite modules	None
Related knowledge/ theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognised reference materials as appropriate*:* • Hydraulics • Pressure in fluids • Fluid mechanics • Heat • Dimensions • Petrol engines
Average duration of learning	80 hours (10 days) of nominal learning suggested to include: • 2 days of occupational theory and • 8 days of occupational practice
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Assessment	Assessment to be conducted according to established regulations by recognized assessment body using related Practical and Written Test Items from Item bank.
Minimum required tools/ equipment/ implements or equivalent	screwdrivers, spanners, soldiering gun, Allen keys, file, fuel gauges, multi-meter, wire brush, air compressor, harmer, sockets
Minimum required materials and	wire gauze, cotton waste, solvent for cleaning, welding

consumables or equivalent	electrodes, paint, thinner
Special notes	

Code	UE/MCM/M1.5
Module title	**M1.5: Replace minor electrical components or parts of a motor cycle.**
Related Qualification	Part of Uganda Vocational Qualification (MOTORCYCLE MECHANIC UVQ1)
Qualification Level	1
Module purpose	After completion of this module, the trainee will be able to remove and replace minor electrical components.
Learning-Working Assignments (LWAs) **Related Practical Exercises (PEXs)**	**LWA 5/1: Replace lights** **LWA 5/2: Service electrical conductors** **LWA 5/3: Replace electronic accessories** **LWA 5/4: Test for soundness of battery** **LWA 5/5: Maintaining Alternating Current charging system** **LWA 5/6: Perform Occupational Health, Safety & Environmental Protection Practices** **Note:** 1. The learning exercises may be repeated till the Trainee acquires targeted competence; The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment. **LWA 5/1: Replace lights** PEX 1.1: Open light casing PEX 1.2: Test condition of bulb PEX 1.3: Clean bulb holder PEX 1.4: Replace bulbs PEX 1.5: Put back the light casing PEX 1.6: Test performance
	LWA 5/2: Service electrical conductors PEX 2.1: Test positive terminal on light PEX 2.2: Test negative terminal on light PEX 2.3: Test battery PEX 2.4: Test continuity of conductors PEX 2.5: Replace faulty conductors PEX 2.6: Test performance

	LWA 5/3: Replace electronic accessories PEX 3.1: Remove covers PEX 3.2: Remove accessory PEX 3.3: Replace accessory PEX 3.4: Test for performance PEX 3.5: Put back covers
	LWA 5/4: Test for soundness of battery PEX 4.1: Remove side cover PEX 4.2: Remove battery belt PEX 4.3: Remove caps from terminals PEX 4.4: Remove battery PEX 4.5: Test battery PEX 4.6: Reconnect battery
	LWA 5/5: Maintaining Alternating Current charging system PEX 5.1: Remove alternator (magneto) cover PEX 5.2: Remove "magneto" PEX 5.3: Remove charging coil / lighting coil PEX 5.4: Remove the Regulator Rectifier unit (RRU) PEX 5.5: Replace faulty component PEX 5.6: Reassemble the components PEX 5.7: Test performance
	LWA5/6: Perform Occupational Health, Safety & Environmental Protection Practices PEX 6.1: Wear PPE PEX 6.2: Administer First aid PEX 6.3: Perform fire fighting PEX 6.4: Manage waste PEX 6.5: Display safety signs
Occupational health and safety	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs
Pre-requisite modules	None
Related knowledge/ theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below.

	In any case, related knowledge/ theory may be obtained from various recognised reference materials as appropriate:
	• Electromagnetism • Basic electronics • Circular motion • Friction • Heat
Average duration of learning	96 hours (12 days) of nominal learning suggested to include: • 5 days of occupational theory and • 7 days of occupational practice
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Assessment	Assessment to be conducted according to established regulations by recognized assessment body using related Practical and Written Test Items from Item bank.
Minimum required tools/ equipment/ implements or equivalent	Multi-meter, screw drivers, spanners, Allen keys, tester, magneto puller, hydrometer, wire cutters, plug key, soldering gun.
Minimum required materials and consumables or equivalent	Distilled water, electric wires, insulating tape, wire terminals, soldering wire, water, cotton waste.
Special notes	

Code	UE/MCM/M1.6
Module title	**M1.6: Carry out Light Service on motorcycle engine**
Related Qualification	Part of Uganda Vocational Qualification (MOTORCYCLE MECHANIC UVQ1)
Qualification Level	1
Module purpose	After completion of this module, the trainee will be able to carry out light service on motorcycle engine without opening it.
Learning-Working Assignments (LWAs)	**LWA 6/1: Change oil** **LWA 6/2: Top up coolant** **LWA 6/3: Change spark plug** **LWA 6/4: Change oil filter** **LWA 6/5: Change oil seals** **LWA 6/6: Fasten engine mountings** **LWA 6/7: Perform Occupational Health, Safety & Environmental Protection Practices** **Note:** 1. The learning exercises may be repeated till the Trainee acquires targeted competence; *2.* The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment.
Related Practical Exercises (PEXs)	**LWA 6/1: Change oil** PEX 1.1: Drain engine oil PEX 1.2: Refill engine oil PEX 1.3: Check engine oil level
	LWA 6/2: Top up coolant PEX 2.1: Open radiator cap PEX 2.2: Check level of coolant PEX 2.3: Fill to the required level
	LWA 6/3: Change spark plug PEX 3.1: Remove plug cap PEX 3.2: Remove old plug PEX 3.3: Replace with new plug PEX 3.4: Replace the cap

	LWA 6/4: Change oil filter PEX 4.1: Open filter case PEX 4.2: Remove old filter PEX 4.3: Clean air cleaner case PEX 4.4: Fix new filter PEX 4.5: Close filter case
	LWA 6/5: Change oil seals PEX 5.1: Check oil leakage PEX 5.2: Remove old oil seals PEX 5.3: Fix new oil seals
	LWA 6/6: Fasten engine mountings PEX 6.1: Inspect for loose mountings PEX 6.2: Fasten loose mountings PEX 6.3: Test performance
	LWA 6/7: Perform Occupational Health, Safety & Environmental Protection Practices PEX 7.1: Wear PPE PEX 7.2: Administer First aid PEX 7.3: Perform fire fighting PEX 7.4: Manage waste PEX 7.5: Display safety signs
Occupational health and safety	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs
Pre-requisite modules	None
Related knowledge/ theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognised reference materials as appropriate • Knowledge of oil grades and quantity • To read and interpret manuals • Knowledge of viscosity • Knowledge on petrol engines • Parts catalog • Heat • Waste management

Average duration of learning	80 hours (10 days) of nominal learning suggested to include: • 2 days of occupational theory and • 8 days of occupational practice
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Assessment	Assessment to be conducted according to established regulations by recognized assessment body using related Practical and Written Test Items from Item bank.
Minimum required tools/ equipment/ implements or equivalent	Spanners, spark plug key, Screw drivers, filler gauge, sockets, funnel, drainer trough, socket handle
Minimum required materials and consumables or equivalent	Cotton waste, water, engine oil, silicon, grease, coolant
Special notes	

Code	UE/MCM/M1.7
Module title	**M1.7: Replace motorcycle body components**
Related Qualification	Part of Uganda Vocational Qualification (MOTORCYLE MECHANIC UVQ1)
Qualification Level	1
Module purpose	After completion of this module, the trainee will be able to replace motorcycle body components.
Learning-Working Assignments (LWAs)	**LWA 7/1: Replace steering assembly and attached components** **LWA 7/2: Replace cables** **LWA 7/3: Replace sit assembly** **LWA 7/4: Replace frame systems** **LWA 7/5: Replace exhaust pipe** **LWA 7/6: Perform Occupational Health, Safety & Environmental Protection Practices** **Note:** 1. The learning exercises may be repeated till the Trainee acquires targeted competence; *2.* The Trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning working assignment*.*
Related Practical Exercises (PEXs)	**LWA 7/1: Replace steering assembly and attached components** PEX 1.1: Replace fenders (front and rear) PEX 1.2: Replace handle bar PEX 1.3: Replace headlamp assembly PEX 1.4: Replace lever and dimmer switches PEX 1.5: Replace side mirrors PEX 1.6: Replace instrumental cluster PEX 1.7: Replace lockset
	LWA 7/2: Replace cables PEX 2.1: Replace throttle (accelerator) cables PEX 2.2: Replace chock cable PEX 2.3: Replace brake cable PEX 2.4: Replace clutch cable

	PEX 2.5: Replace speedometer cable
	LWA 7/3: Replace sit assembly PEX: 3.1: Replace side covers PEX 3.2: Replace grip frame (carrier) PEX 3.3: Replace license plates
	LWA 7/4: Replace frame systems PEX 4.1: Replace leg guard PEX 4.2: Replace footrest PEX 4.3: Replace stands
	LWA 7/5: Replace exhaust pipe PEX 5.1: Loosen exhaust system mounting PEX 5.2: Remove exhaust pipe PEX 5.3: Remove old gasket / parking PEX 5.4: Clean exhaust port PEX 5.5: Replace gasket PEX 5.6: Replace exhaust pipe
	LWA 7/6: Perform Occupational Health, Safety & Environmental Protection Practices PEX 6.1: Wear PPE PEX 6.2: Administer First aid PEX 6.3: Perform fire fighting PEX 6.4: Manage waste PEX 6.5: Display safety signs
Occupational health and safety	Precautions, rules and regulations on occupational health, safety and environmental protection, included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs
Pre-requisite modules	None
Related knowledge/ theory	For Occupational theory suggested for instruction/ demonstration, the Trainer is not limited to the outline below. In any case, related knowledge/ theory may be obtained from various recognised reference materials as appropriate*:* • Measurements • Specifications of parts • User manuals • First aid • Moments

Average duration of learning	200 hours (25 days) of nominal learning suggested to include: • 5 days of occupational theory and • 20 days of occupational practice
Suggestions on organization of learning	The acquisition of competencies (skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Assessment	Assessment to be conducted according to established regulations by recognized assessment body using related Practical and Written Test Items from Item bank.
Minimum required tools/ equipment/ implements or equivalent	Spanners, Allen keys, screw drivers, sockets, pliers, torque wrenches, adjustable
Minimum required materials and consumables or equivalent	Lubricants, water, cotton waste, screws, nuts, bolts
Special notes	

Code	UE/MCM/M1.
Module title	**M1.8: Perform entrepreneurial task**
Related Qualification	Part of Uganda Vocational Qualification (MOTOR CYCLE MECHANIC UVQ 1)
Qualification Level	1
Module purpose	At the end of this module, a trainee shall be able to perform entrepreneurial tasks
Learning-Working Assignments (LWAs)	**LWA 8/1: Market service** **LWA 8/2: Manage finances** **LWA 8/3: keep records** **LWA 8/4: Perform occupational Health, Safety and environment protection practices** ***Note:*** *1. The learning exercises may be repeated till the trainee acquires targeted competence* *2. The trainer is advised to deliver relevant theoretical instruction with demonstrations as required to perform each learning assignment*
Related Practical Exercises (PEXs)	**LWA 8/1: Market service** PEX 1.1: Cost service PEX 1.2: Advertise/promote service PEX 1.3: Brand service PEX 1.4:Create partnerships PEX 1.5: Value service PEX 1.6: Perform customer care PEX 1.7: Distribute product
	LWA 8/2: Manage finances PEX 2.1: Prepare budgets PEX 2.2: Source funds PEX 2.3: Prepare balance sheets PEX 2.4: Prepare cash flow statements PEX 2.5: Prepare receipts PEX 2.6: Prepare income statements PEX 2.7: Prepare inventory PEX 2.8: Prepare debit notes
	LWA 8/3: Keep record PEX 3.1: Prepare reports PEX 3.2: Prepare portfolio PEX 3.3: Sign agreements PEX 3.4: Keep staff records PEX 3.5: Keep guest data PEX 3.6: Keep business files
	LWA 8/4 : Perform occupational Health,

	safety and environment protection practices PEX 4.1: Manage waste PEX 4.2: Administer first aid PEX 4.3: Wear protective gear PEX 4.4: Practice personal hygiene PEX 4.5: Sensitize workers on health issues
Occupational Health and Safety	Precautions, rules and regulations on occupational health safety and environmental protection included in the listed related knowledge should be observed and demonstrated during LWAs and PEXs
Pre-Requisite Modules	None
Related Knowledge/ Theory	*For occupational theory suggested for instruction/demonstration, the trainer is not limited to the outline below. In any case related knowledge/ theory may be obtained from various recognised reference materials as appropriate:* • Advertising • Financial knowledge • Customer care • Report writing • Record keeping • Commercial knowledge • Branding • Portfolio making • Rules and regulations/ government policies • Safety, health and environmental knowledge • Conflict resolution •
Average Duration of Learning	200hours (25days) of nominal learning suggested to include: • 5 day of occupational theory and • 20 days of occupational practice
Suggestions On Organization of Learning	The acquisition of competencies (Skills, knowledge, attitudes) described in this module may take place at a training centre or its equivalent provided all equipment and materials required for training are in place.
Assessment	Assessment to be conducted according to the established regulations by recognised assessment body using related Practical and written Test Items from Item Bank

Minimum Required Tools/ Equipment/ Implements or Equivalent	Computers, furniture, printers, cameras, calculators,
Minimum Required Materials and Consumables or Equivalent	Stationary, electricity, sanitizers, first aid kit, internet,
Special Notes	• Customers are always the king therefore customer care is so paramount. • Financial discipline

3.0 ATP- PART III

Assessment Instruments for MOTORCYCLE MECHANIC

3.1 Assessment of occupational competence is the procedure by which evidence is gathered and judged to decide if an individual (candidate) has met the stipulated assessment standards.

3.2 Assessment of occupational competence should comprise of both practical (Performance) testing and written (theory/knowledge) testing.

3.3 Based on the Occupational Profile and Training Modules, a combined panel of job practitioners and Instructors reviewed a substantial number of test items for assessing (practical) performance as well as items for assessing occupational knowledge (theory) all stored in an electronic Test Item Bank (TIB) at the Directorate of Industrial Training.

3.4 Performance (Practical)Test Items (PTI)are closely related to typical work situations in Ugandan business enterprises. They comprise of a test assignment for candidates and assessment criteria and/or scoring guides for assessors' use.

3.5 Written Test items (WTI) for written testing of occupational theory, (knowledge) are presented in different forms which include: Short answer test items. Multiple choice test items, Matching test items.

These WTIs herein focus on functional understanding as well as trouble-shooting typically synonymous with the world of work.

3.6 Composition of assessment/test papers will always require good choices of different types of WTI in order to ensure the assessment of relevant occupational knowledge required of candidates to exhibit competence.

3.7 The test items contained in the Test Item Bank may be used for continuous/formative assessment during the process of training as well as for summative assessment of candidates who have acquired their competences non-formally or informally.

3.8 In this document, samples of test items for assessing both performance (practical) and occupational knowledge (theory)of a MOTORCYCLE MECHANIC included a larger selection of test items can be obtained as electronic or printed copies from the UVQF Secretariat or designated outlets.

Overview of Test Item Samples

No	Type of test Items	Numbers included
1	Written (Theory)- Short Answer	2
2.	Written (Theory)- Multiple Choice	2
3.	Written (Theory)- Matching (Cause & Effect)	2
5.	Written (Theory)- Matching (Work sequence)	1
6.	Written (Theory)- Matching (Generic)	1
6.	Performance (Practical)Test Items	1
Total		**9**

WRITTEN TEST ITEMS (SAMPLES)

<table>
<tr><td>DIT/ QS</td><td colspan="4">Test Item Database
Written (Theory) Test Item- no. 1</td></tr>
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<tr><td>Competence level:</td><td colspan="4">Level 1</td></tr>
<tr><td>Code no.</td><td colspan="4">MCM</td></tr>
<tr><td>Test Item type:</td><td colspan="4">
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<tr><td>Short answer</td><td>√</td><td></td><td></td></tr>
<tr><td>Multiple choice</td><td colspan="3"></td></tr>
<tr><td rowspan="2">Matching item</td><td>Generic</td><td>Cause-Effect</td><td>Work-sequence</td></tr>
<tr><td></td><td></td><td></td></tr>
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</td></tr>
<tr><td>Complexity level:</td><td colspan="4">C1</td></tr>
<tr><td>Date of OP:</td><td colspan="4">January 2022</td></tr>
<tr><td>Related module:</td><td colspan="4">M1.6</td></tr>
<tr><td>Time allocation:</td><td colspan="4">2 minutes</td></tr>
</table>

Test Item	State two causes of a plug overheating.
Answer spaces	(i) ..... (ii) .....
Expected key (answers)	(i) Loose fitting of the plug (ii) Weak mixture (iii) Defective cooling system (iv) Poor type of plug used (v) Too much advanced ignition timing (vi) Improper closing of valves

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Written (Theory) Test Item- no. 2</td></tr>
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<tr><td>Test Item type:</td><td colspan="4"><table>
<tr><td>Short answer</td><td colspan="3">√</td></tr>
<tr><td>Multiple choice</td><td colspan="3"></td></tr>
<tr><td rowspan="2">Matching item</td><td>Generic</td><td>Cause-Effect</td><td>Work-sequence</td></tr>
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<tr><td>Related module:</td><td colspan="4">M1.2</td></tr>
<tr><td>Time allocation:</td><td colspan="4">2 Minutes</td></tr>
</table>

Test Item	Which lever / pedal must be activated on a motorcycle in order for the starter motor to operate in the first gear?
Answer spaces	……..…….....……
Expected key (answers)	Clutch lever

DIT/ QS	Test Item Database Written (Theory) Test Item no.3
Occupational Title:	MOTORCYCLE MECHANIC
Competence level:	Level 1
Code no.	MCM
Test Item type:	Short answer: Multiple choice: ✓ Matching item: Generic / Cause-Effect / Work-sequence
Complexity level:	C1
Date of OP:	January 2022
Related modules:	M1.6
Time allocation:	2 minutes

Test Item	What is the main purpose of lubricating oil? …….
Distractors and correct answers	A. Minimises wear in moving parts B. Helps in keeping the moving parts cool C. Washes and carries away dirt D. Cleans internal parts of a device

Key (answer)	**A**

DIT/ QS	Test Item Database Written (Theory) Test Item no.4
Occupational Title:	MOTORCYCLE MECHANIC
Competence level:	Level 1
Code no.	MCM
Test Item type:	Short answer:
	Multiple choice: ✓
	Matching item: Generic / Cause-Effect / Work-sequence

Complexity level:	C1
Date of OP:	January 2022
Related modules:	M1.6
Time allocation:	2 Minutes

Test Item	What type of mixture does the carburetor need to feed the engine for cold starting? ……
Distractors and correct answers	A. Cold B. Rich C. Hot D. Lean

Key (answer)	**B**

DIT/ QS	Test Item Database Written (Theory) Test Item- no.5
Occupational Title:	MOTORCYCLE MECHANIC
Competence level:	Level 1
Code no.	MCM
Test Item type:	Short answer:
	Multiple choice:
	Matching item: Generic: ; Cause-Effect: √ ; Work-sequence:
Complexity level:	C3
Date of OP:	January 2022
Related module:	M1.6
Time allocation:	3 Minutes

Test Item	Match the following engine faults to their effects on a motorcycle

Column A (FAULTS)	
1	Faulty spark plug
2	Overused oil
3	No coolant
4	Faulty mountings
5	Faulty intake system

Column B (EFFECTS)	
A	Too much vibration
B	Hard starting of engine
C	Engine jerking
D	Engine smoking
E	Abnormal engine sound
F	Engine overheating

Key (answer)	**1:C, 2:E, 3:F, 4:A, 5:B**

DIT/ QS	Test Item Database Written (Theory) Test Item- no.6
Occupational Title:	MOTORCYCLE MECHANIC
Competence level:	Level 1
Code no.	MCM
Test Item type:	Short answer: ; Multiple choice: ; Matching item: Generic: ; Cause-Effect: √; Work-sequence:
Complexity level:	C2
Date of OP:	January 2022
Related module:	M1.2, M1.3, M1.5
Time allocation:	3 Minutes

Test Item	Match the following precautionary measures to their corrections

Column A (precautionary measures)	
1	Dim head lamp
2	Low Electrolyte level
3	Wet fork
4	Worn out brake shoes
5	
6	

Column B (corrections)	
A	Replace hydraulic oil seals
B	Replace brake shoes
C	Tighten nut
D	Charge battery
E	Replace brake cable
F	Top up with distilled water

Key (answer)	**1:D, 2:F, 3:A, 4:B**

DIT/ QS	Test Item Database Written (Theory) Test Item- no. 7
Occupational Title:	MOTORCYCLE MECHANIC
Competence level:	Level 1
Code no.	MCM
Test Item type:	Short answer Multiple choice Matching item (Generic / Cause-Effect / Work-sequence: √)
Complexity level:	C3
Date of OP:	January 2022
Related module:	M1.4
Time allocation:	5 Minutes

Test Item	Re-arrange the following work steps carried out to service the fuel tank

Column A (chronology)	**Column B (Work steps) in wrong chronology order**	
1st	A	F. Clean tank
2nd	B	K. Re-install and reconnect tank
3rd	C	A. Remove side covers
4th	D	I. Solder tank in case of leakage
5th	E	E. Remove fuel tap and clean
6th	F	B. Remove the cushion
7th	G	C. Close fuel tap
8th	H	G. Unblock vent on the tank filler cap
9th	I	H. Inspect tank for leakages
10th	J	D. Remove tank and empty it
11th	K	J. Spray the tank

Key (answer)	**1:C, 2:F, 3:G, 4:J, 5:E, 6:A, 7:H, 8:I, 9:D, 10:K, 11:B**

DIT/ QS	Test Item Database Written (Theory) Test Item- no. 8
Occupational Title:	MOTORCYCLE MECHANIC
Competence level:	Level 1
Code no.	MCM
Test Item type:	Short answer:
	Multiple choice:
	Matching item: Generic √ ; Cause-Effect: ; Work-sequence:
Complexity level:	C2
Date of OP:	January 2022
Related module:	M1, M2, M3, M4, M5, M6
Time allocation:	3 Minutes

Test Item	Match the following devices to their uses

Column A (tools)	
1	Tachometer
2	Hydrometer
3	Multimeter
4	Bench vice
5	Micrometer screw gauge
6	Vernier caliper

Column B (Uses)	
A	Measuring external diameter
B	Measuring continuity
C	Measuring valve clearances
D	Determine specific gravity
E	Holds parts for filling or cutting
F	Determine speed of engine(rpm)

7	Feeler gauge	G	Measuring internal diameter

Key (answer)	**1 – F, 2 – D, 3 – B, 4 – E, 5 – A, 6 – G, 7 – C**

PERFORMANCE TEST ITEMS (SAMPLES)

DIT/ QS	Test Item Database Performance Test Item- no.9
Occupational Title:	MOTORCYCLE MECHANIC
Competence level:	Level 1
Code no.	MCM
Test Item:	Replace a rim of the front wheel of a Bajaj BM100 motorcycle
Complexity level:	P2
Date of OP:	January 2022
Related module:	M1.1
Related skills and knowledge:	• Know the parts descriptions and part numbers • Know the tolerances (standard limits) • Wheel alignment • Tyre specifications • Principles of wheels and tyres • Basic physics (pressure, motion, friction)
Required tools, Materials and Equipment:	Wheel spanners, motorcycle stand, tyre lever, valve keys, pressure source (compressor), pressure gauge, hammer, sand paper, sockets, tyre needle, file, pair of pliers, screw driver, ring spanner(offset wrench), spoke wrench, clamp
Time allocation:	2hrs
Preferred venue:	Workshop
Remarks for Candidate	• Observe rules and regulations
Remarks for assessors	• Provide all the required tools, equipment and materials for assessment.

#	Assessment criteria	Scoring guide	Max Score	
			Process	Result
1	Prepared before task	Wore PPE (safety shoes, overall, gloves)		3
		Selected tools for the task observed (Wheel spanners, motorcycle stand, tyre lever, valve keys, pressure source (compressor), pressure gauge, hammer,		4

		sand paper, sockets, tyre needle, file, pair of pliers, screw driver, ring spanner(offset wrench), spoke wrench, ramp)		
		Selected materials observed (Cotton waste, water, lubricants, detergents)		
2	Removed wheel	**Removed axle nut**		2
		• The threads on the axle bolt were not damaged		3
		• No damages on the edges of the axle bolt		3
		• Used the right spanner	1	
		Pulled out axle		2
		• No damage on the threads		3
		• Use the right procedure		2
		Removed tyre assembly		3
		• No damage on tyre		2
		• No damage on wheel		2
3	Removed tube	**Deflated tyre**		1
		Opened one side of tyre to access tube		2
		• No damage on tyre		2
		• Used tyre lever		2
		Removed valve nut		1
		Removed tube		2
		• No damage on tube		3
		• No damage on valve		3
4	Removed tyre	**Removed tyre completely**		2
		• No damage on tyre		3
		• No damage on rim		3
		Removed rubber band from rim		1
5	Removed spokes	**Opened spoke nipples**		2
		No damages on threads		4
		Used right tool		1
		Separated rim from spokes		1

6	Replaced rim	**Fixed spokes onto the new rim**		2
		Tightened spoke nipples		2
		Used right tools		2
		No damage on the spokes		3
		Checked for protruding spokes		1
		Filed protruding spokes		2
		Placed the band back onto the rim		1
		Checked for alignment		3
		No damage on the rim		2
8	Fitted tyre	**Observed right direction of rotation**		3
		Fitted tyre		3
		No damage to tyre		2
		No damage to rim		2
9	Fitted tube	**Fixed tube**		1
		No damage on tube		3
		No damage to valve		2
10	Inflated tyre	**Inflated tyre**		2
		Used pressure gauge		2
		Fixed valve nut		1
11	Fixed back wheel assembly	**Cleaned drum**		1
		Used clean cotton waste		2
		Fixed brakes onto front hub		1
		Re-fixed wheel		2
		Cleaned axle		1
		Oiled axle		1
		No damage to axle threads		2
		No damage to bearings		2
		No damage to nut		2
		Used proper tools		3
		Adjusted brakes		1
		Properly adjusted brakes		3
12	Tested performance	Did test for performance		2
13	Housekeeping	Cleaned tools	4	

		Clean tools secured in the tool box observed		4
			5	**129**
	TOTAL		**134**	

4.0 ATP- PART IV

INFORMATION ON DEVELOPMENT PROCESS

4.1 Occupational Profile Development (January 2022)

The Occupational Profile was exclusively developed by job practitioners who were working in the Motorcycle Mechanic occupation. The job expert panel, guided by UVQF Facilitators, defined duties and tasks performed and provided additional generic information regarding the occupation.

4.2 Training Module Development (January 2022)

Based on the Occupational Profile for Motorcycle Mechanic of January 2022, training modules were developed by job practitioners, guided by UVQF Facilitators.

4.3 Test Item Development (January 2022)

Based on the Occupational Profile for Motorcycle Mechanic of January 2022, and Training Modules, Test Items were developed by combined panels of instructors and job practitioners, guided by UVQF Facilitators.

4.4 Methodology

The rationale for the Assessment and Training Package development was to link vocational Education and Training to the real world of work by bridging Occupational Standards to Training Standards through industry- led Standards-Based Assessment.

Active participation of both instructors and job practitioners' panels consolidated the development philosophy.

The panelists worked as teams in workshop settings complemented by off-workshop field research and literature review activities including international benchmarking.

5 Development panel

The participating panels of Job Practitioners required at the Development stage were constituted by members from the following organizations:

Name	Institution/ Organization
Katende Charles	CK Auto Garage and Spare parts
Kawooya Ibra	Toyota Uganda
Kitenda Dennis	VERMA Bajaj Co.LTD
Ssamba Ashiraf	Yamaha Toyota
Ntalo Robert	UNEB Representative
Kigwana Alex	NCDC Representative
Apuatum George	Teacher Namilyango College
Anyizukire Ivan	Teacher Mary Hill High School
Palaasi Charles	Teacher Busoga college Mwiri
Nanyenya Ronald	Teacher St. Mary's College Kisubi

4.6 Facilitator team

This Assessment and Training Package was Developed by a Facilitator team listed below:

1. **Team Leader** – Ms Mukyala Elizabeth Ruth, DIT
2. **Facilitators** – Mr Ochwo Richard, Ms. Mutonyi Sharon, DIT
3. **Data Entrants** – Mr. Muwanga Willy, Ms. Nalubwama Joan, DIT
4. **ICT support** – Mr. Matovu Javiira, DIT
5. **Coordinated by** – Mr. Byakatonda Patrick Ag. Director, Ms. Mukyala Elizabeth DIT;

4.7 Reference time

The Assessment and Training Package was compiled in January 2022 and may be periodically revised to match the dynamic trends in the occupation and hence issued in different versions.

References:

1. **Andres, Guy (2014) Bike mechanic: Tales from the road and workshops, Vero press.ISBN 9781937715182**
2. **Barnett,John(2003). Barnett's manual: Analysis and procedures for Bike Mechanics. Vero press. ISBN1-931382-29-8**
3. **Ballantine, Richard (2001) Richards 21 century Bicycle book. Overlook TP. ISBN1-58567-112-6**
4. **Sutherland, Holland (1995). Sutherland's hand book for Bicycle mechanics. Sutherland publications. ISBN 0-914578-09-X**
5. **Zinn, Lenard (2013) Zinn and the art of Road Bike mentainance: the worlds best selling Bicycle repair and mantainance Guide. Vero press ISBN 9781934030981.**
6. **Baugus, Mickey; Fulkerson, Dan, Ed. Motorcycle Mechanic, mid America vocational curriculum consortium,1500 west seventh avenue, Stillwater. Guides-classroom use-guides for teachers.**