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| **Learning Planner** |
| **Subject** | Agriculture | **Week** | 8 | **Duration** | 120 minutes | **Form** |  1 |
| **Strand** | Modern Technical and Mechanised Agriculture | **Sub-Strand** | Modern Mechanized Agriculture |
| **Content Standard** | Demonstrate knowledge and skills of operating and repairing simple farm machines and implements in Agricultural production.  |
| **Learning Outcome(s)** | Use the knowledge and skills acquired to operate and maintain simple farm machines and implements in Agricultural production. |
| **Learning****Indicator(s)** | 1. Identify the principal parts of farm machines and implements and state their functions.
2. Operate and maintain farm machines and implements in Agricultural production.
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| **Essential Question(s)**  | 1. How will the knowledge and skills will gain in operating and repairing simple farm machines help increase Agricultural production?
2. What pedagogical strategies will be employed to identify the principal parts of farm machines and implement and state their functions?
3. How will the operation and maintenance of farm machine and implements and state their functions?
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| **Pedagogical Strategies** | Experiential learning, Inquiry-based learning, Experiential learning,Project-based learning, etc. |
| **Teaching & Learning Resources** | Pictures, charts, pictures or real examples of plough, harrow, tractor, harvester, planters, petrol engine, diesel engine, etc. |
| **Key Notes on Differentiation** |
| Theme/Focal Area 1i. Learning Tasks* Identify the major parts of farm machines and implements.
* Describe the major parts of the internal combustion engine and their function.
* Describe the major parts of farm machines and implements and state their functions.

ii. Pedagogical Exemplars* Experiential learning: In mixed-gender groups, learners visit a mechanic shop or watch videos/pictures on Agricultural implements and machines, and with the help of a master craftsman learners identify the principal parts of some farm machines and implements. Teacher should ensure that learners observe all the safety protocol at the mechanic shop. If videos/picture are used it should not portray gender biases. Learners with difficulties should given the needed support.
* Inquiry-based learning: Learners in ability groups surf the internet to come up with the description and functions of the parts of farm implements and machines and present a report on their findings. Teacher should provide learners with websites to help them gather information on the description and functions of the parts of farm implements and machines. Learners with abilities should assist others who might help. Teacher should ensure learners do not veer off to watch unapproved contents.

iii. Key Assessments* Assessment Level 1: Identify at least three (3) parts of the disc plough.
* Assessment Level 2: Discuss the functions of at least three (3) parts of a harrow.
* Assessment Level 3: Describe the importance of the transmission and control system of a tractor.
* Assessment Level 4: What are the similarities and differences between the ignition system of a petrol engine and a diesel engine.

Theme/Focal Area 2i. Learning Tasks* List farm machines and implements used in Agricultural production.
* Demonstrate the operation of at least one (1) farm implement in Agricultural production.
* Describe how a farm machine and implements can be maintained after use.

ii. Pedagogical Exemplars* Experiential learning: With the help of a master craftsman/technician, learners in gender-based groups discuss the step-by-step operation of simple farm machines and implements. The master craftsman demonstrates the operation of the simple farm machine and implements observing all the necessary safety measures. Learners in turn operate some of the simple farm machines and implements to perform an Agriculture activity. Teacher should ensure that all safety measures and protocols are strictly adhered to by learners before the operation of the farm machine and implements. Learners should be assisted to do risk assessment of the machine and implements to avoid accidents. Learners with difficulties in operating the machines should be assisted. All learners should be given the opportunity to operate the machine or implement and this can be done on a rota basis.
* Experiential learning: All learners watch videos/pictures on the operation of complex farm machines and implements such as tractors, combined harvesters, etc. Teacher should ensure that videos that portray gender biases are not used. Learners with hearing or visual difficulties should be seated in such a way that they can benefit from the video.
* Project-based learning: Master craftsman discusses with learners in gender-based groups the procedures for maintaining simple farm machines and implements. The master craftsman demonstrates the procedures for the maintenance of some simple farm machines and implements. Learners in gender-based groups practice the maintenance of a chosen farm machine and an implement. The teacher should ensure that all safety protocols are strictly adhered to. All learners should encourage actively participate in the activity. Learners with difficulties should be given the needed support.

iii. Key Assessments* Assessment Level 1: List at least three (3) ways of maintaining farm machines and implements in Agricultural production.
* Assessment Level 2: Describe the step-by-step procedure for operating any one of the following farm machines/implements: a) Mist blower b) Knapsack sprayer c) Lawn mower.
* Assessment Level 3: Explain the importance of reading the manufacturer's manual before using a farm machine/implement.
* Assessment Level 4: Practically demonstrate the operation and cleaning of one (1) selected farm implements.
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| **Keywords** | Farm machines, farm implements, Agriculture production, Engines, etc. |

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| **Lesson 1** |
| **Main Lesson drawing on Concepts, Skills and Competencies to reinforce as in the Subject Teacher Manual** |
| **Teacher Activity**  | **Learner Activity** |
| **Starter Activity (e.g., 10 minutes)**Lead learners in the “Have you seen or heard” activity. |
| **Introductory Activity (e.g., 10 minutes)**Let learners list at least 3 farm machines and what they are used for and share with a peer.**Activity 1 (e.g., 40 minutes)*** Put learners in mixed-gender groups,
* Let learners watch videos/pictures on Agricultural implements and machines.
* Assist learners to identify the principal parts of some farm machines and implements.

**Hint**:Ensure that videos/picture do not portray gender biases and learners with difficulties should be given the needed support.**Activity 2 (e.g., 50 minutes)*** In their ability group, let learners surf the internet to come up with the description and functions of the parts of farm implements and machines.
* Let learners present a report on their findings to the whole class.

 * Provide learners with websites to help them gather information on the description and functions of the parts of farm implements and machines.

**Hint:*** Learners with abilities should assist others who might need help.
* Ensure learners do not veer off to watch unapproved contents.
 | **Introductory Activity**  List at least 3 farm machines and explain their uses and share with a peer**Activity 1** * In the mixed gender groups, watch video/pictures on agricultural implements and machines
* Identify the principal parts of agricultural machines and implements.

**Activity 2** * In the ability groups, surf the internet to come up with the description and functions of the parts of farm implements and machines.

Present a report on the findings to the whole class |
| **Assessment DoK aligned to the Curriculum and Subject Teacher Manual** |
|  **Level 1:** Identify at least three (3) parts of the disc plough.  **Level 2:** Discuss the functions of at least three (3) parts of a harrow. **Level 3**Describe the importance of the transmission and control system of a tractor. **Level 4:** What are the similarities and differences between the ignition system of a petrol engine and a diesel engine? |
| **Lesson Closure** **In completing this part, refer to the Essential Questions to check that learning has taken place.** |
| **Activity (e.g., 10 minutes)**1. Ask learners questions on what they have learnt and whether it has links with the essential questions.
2. Summarize key points and fill in gabs left by learners

Ask learners to read on food production and natural resource conservation |
| **Reflection & Remarks** |
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| **Lesson 2** |
| **Main Lesson drawing on Concepts, Skills and Competencies to reinforce as in the Subject Teacher Manual** |
| **Teacher Activity**  | **Learner Activity** |
| **Starter Activity (e.g., 10 minutes)****Review learners’ previous knowledge using real life examples from their community by asking them to identify the principal parts and functions of farm machines and implement**s, in mixed-gender groups. Ask learners to present their findings in class using whole -class discussion.   |
| **Introductory activity (e.g., 10 minutes**Lead learners in whole class discussion to list the various farm machines and implements. **Activity 1 (e.g., 40minutes)**With the help of a master craftsman/technician, learners in gender-based groups discuss the step-by-step operation of simple farm machines and implements. Hint: 1. Ensure that all safety measures and protocols are strictly adhered to by learners before the operation of the farm machine and implements. 2. Learners should be assisted to do risk assessment of the machine and implements to avoid accidents.3. Learners with difficulties in operating the machines should be assisted. All learners should be given the opportunity to operate the machine or implement and this can be done on a rota basis. **Activity 2 (e.g., 50 minutes)** 1. Demonstrates the operation and maintenance of the simple farm machine and implements observing all the necessary safety measures to the Learners.2. In turns learners operate some of the simple farm machines and implements to perform an Agriculture activity. **Hints**: learners should observe all the necessary safety measures as they operate the simple farm machines and implements.  | **Introductory activity** In Whole class discussion list the various farm machines and implements.  **Activity 1**In gender-based groups observe and discuss the step-by-step operation of simple farm machines and implements.**Activity 2** In turns, operate some of the simple farm machines and implements to perform an Agriculture activity in mixed gender groups.  |
| **Assessment DoK aligned to the Curriculum and Subject Teacher Manual** |
| * Level 1: List at least three (3) ways of maintaining farm machines and implements in Agricultural production.
* Level 2: Describe the step-by-step procedure for operating any one of the following farm machines/implements: a) Mist blower b) Knapsack sprayer c) Lawn mower.
* Level 3: Explain the importance of reading the manufacturer's manual before using a farm machine/implement.
* Level 4: Practically demonstrate the operation and cleaning of one (1) selected farm implements.
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