

WORLD MISSION HIGH SCHOOL

ASSIGNMENT OF WIRELESS NETWORK OUTDOOR

DATE:21 November,2025

SUBMISSION DATE: Monday, **24 November,2025**

TRAINER: Urban RURANGISA

Scenario Background

World Mission High School wants to provide **internet access to outdoor and semi-outdoor areas**. These areas include:

- Classrooms
- Theater Hall
- Playground
- Multimedia Studio
- Kitchen
- Staff offices
- Open outdoor spaces

The ICT department has decided to install a **wireless network** that covers all these areas using:

- Outdoor Access Points (APs)
- Point-to-Point (PtP) wireless links for long distances
- Outdoor-rated network cables
- Surge protectors
- Solar backup or UPS for areas without direct electricity

You are a **student technician** tasked with planning, selecting, and justifying the materials and equipment needed for this installation.

Student Tasks

1. Tools Identification (Understanding & Analysis)

List **five (5) essential tools** required for outdoor wireless installation.
Explain the **purpose of each tool**.

2. Equipment Selection

Identify **four (4) key outdoor wireless network equipment** needed in this scenario.
For each, explain **its function and importance**.

3. Access Point Decision (Problem Solving)

Some areas like the **playground** and **open outdoor spaces** are far from the main building.

- Should you use an **omni-directional AP** or a **point-to-point directional AP**?
- Give **two reasons** for your choice.

4. Cable and Material Selection (Application)

The installation requires reliable connections in outdoor conditions.

- Which type of network cable should be used (Cat5e or Cat6 outdoor-rated)?
- Name **two other materials** needed to protect the cabling.
- Explain why these choices are important.

5. Power and Protection Scenario

Some outdoor areas (e.g., playground, open spaces) **lack direct electricity** and are exposed to **weather hazards**.

- Recommend a **power solution** for these APs.
- List **two safety/protection measures** to protect the equipment from weather or electrical issues.
- Explain **why each solution or measure is necessary**.

6. Mounting and Alignment

Describe **two tools** needed to mount and properly align outdoor APs or PtP bridges. Explain **how each tool helps during installation**.

7. Testing and Verification

After installation, describe **two tests** you would perform to confirm that:

- Wireless coverage is adequate
- The connection is stable
- Internet speed is acceptable for all areas

BONUS QUESTION

If the school wants to also **support outdoor CCTV cameras** on this wireless network:

- Recommend **one additional equipment**
- Explain **its purpose and how it improves performance or safety**