Strengthened Senior High School

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DEPARTMENT OF EDUCATION

Learning Activity Sheets for Photovoltaic Systems Installation

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Learning Activity Sheet for Photovoltaic Systems Installation
Grade 11 – Term 1

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Table of Contents

Lesson Exemplar 1: Site Assessment Procedures for PV Installation 1

LEARNING ACTIVITY SHEET (LAS)

Learning Area:	PHOTOVOLTAIC SYSTEMS INSTALLATION	**Term:**	1
Lesson Exemplar:	1	**Date:**	
Lesson Title/ Topic:	**Site Assessment Procedures for PV Installation**		
Name:		**Grade & Section:**	

I. ACTIVITY NO. 1: The Solar Site Assessor: Four Criteria Challenge

II. OBJECTIVES:
After completing this learning activity sheet, you will be able to:

1. Calculate shading losses, verify orientation (azimuth and tilt), and test structural load capacity as critical criteria for PV site selection.
2. Use basic assessment tools and visual inspection techniques to evaluate a site's suitability for solar panel installation.
3. Present accurate site assessment findings with objectivity, attention to detail, and proper justification.

III. MATERIALS NEEDED:
- Printed copy of this Activity Sheet
- Pen or pencil
- Optional but helpful: Smartphone with Compass app and Clinometer app (e.g., "Angle Finder" or "Bubble Level")

IV. INSTRUCTIONS
Read each section carefully. You will analyze three real-world scenarios, then answer a short quiz. Write your answers in the spaces provided. Work independently or in pairs as your teacher directs.

Scenario 1: The Suburban Home
Description: A new house with a south-facing asphalt shingle roof. There's one large oak tree on the south side of the property, but it is 30 feet away. The roof peak clears the tree's shadow after 10:00 AM. The roof looks structurally sound.



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Criterion	Go	Caution	No-Go	Your Justification
Solar Resource & Shading				
Structural Integrity				
Orientation & Tilt				
Accessibility & Safety				

Overall, is this site suitable? (Circle one) **YES / NO / YES with conditions**

If conditions, explain: _____

Scenario 2: The Old Commercial Building
Description: A flat, rubber membrane roof on a 40-year-old commercial building. No shading from trees or buildings. However, there is visible ponding water (puddles that don't drain) on the roof. The client has no record of any roof inspection or repair.



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Criterion	Go	Caution	No-Go	Your Justification
Solar Resource & Shading				
Structural Integrity				
Orientation & Tilt				
Accessibility & Safety				

Overall, is this site suitable? (Circle one) **YES / NO / YES with conditions**

If YES with conditions, explain: _____

Scenario 3: The North-Facing Slope
Description: A north-facing roof (in the Northern Hemisphere) in good condition with a steep pitch. The roof is structurally sound, accessible, and has zero shading. The homeowner insists on installing panels here because it's the "only roof they have."



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Criterion	Go	Caution	No-Go	Your Justification
Solar Resource & Shading				
Structural Integrity				
Orientation & Tilt				
Accessibility & Safety				

Overall, is this site suitable? (Circle one) **YES / NO / YES with conditions**

If YES with conditions, explain: _____

Part B: Check Your Knowledge (Quiz)

Instruction: Answer the following questions in 1–2 complete sentences each.

1. What is the "peak solar window" time frame that a site should ideally be free from shading?

_____
_____

2. In the Northern Hemisphere, what is the optimal orientation (direction) for a fixed-tilt PV array to maximize energy production?

_____
_____

3. Why is assessing the age and condition of a roof a critical part of the site assessment process? (Hint: Think about the weight of panels and future repairs.)

_____
_____

4. Name two potential shading obstacles an installer should look for during a site visit.
   a. _____ b. _____

5. **Critical Thinking:** A client has a roof that is perfectly oriented (true south) and completely free of shade. However, a structural inspection reveals severe termite infestation affecting the roof rafters. Would you consider this site suitable for PV installation? Justify your answer in one sentence.

_____
_____
_____

V. Synthesis

Complete the following sentence based on what you learned in this activity:

"Before installing solar panels, a site assessment is essential because it ensures that the location is _____, the structure is _____, and the solar resource is _____ for a long-term, productive, and safe system."