StudentWorksheet- Hydro

Chapter 1

1. Where is Hydro Energy found

Task 1

Task 2

Hydro Energy and Energy Conversion

In _____ regions water can flow very fast, creating more energy.
Water stored behind a dam has _____ energy because of its height.
When water flows downhill due to _____, it gains _____ energy.
The moving water spins _____, which are connected to a _____ to create electricity.
The word "hydro" comes from the Greek word for _____.
Hydro energy is a _____ energy source. It uses the movement of water to perform _____.
_____ also inhabit hydro energy, which can be harnessed with innovative concepts.
_____ are large structures built to block and control the flow of water, aiding in hydroelectric energy production.

The Water Cycle

Fill in the blanks with the correct words from the word bank:
The _____ moves water around the Earth and atmosphere in different stages. First, water turns into vapor through _____ when the heat from the _____ warms it. Next, the vapor cools and turns into tiny droplets in the process called _____. These droplets come together to form clouds. Then, water falls back to the Earth as rain, snow, or hail, a process known as _____. Finally, the water collects in rivers, lakes, and oceans, completing the cycle.

Chapter 3

3.1 Effect of volume on the force of water

Volumen	Trial 1	Trial 2	Trial 3	Average
5 CM				
10 CM				
15 CM				
20 CM				

3.2 Effect of obstacles on the force of water

Water Level	Obstacle	Trial 1	Trial 2	Trial 3	Average
5 CM	No Obstacle				
5 CM	Type of Obstacle 1				
5 CM	Type of Obstacle 2				
10 CM	No Obstacle				
10 CM	Type of Obstacle 1				
10 CM	Type of Obstacle 2				
15 CM	No Obstacle				
15 CM	Type of Obstacle 1				
15 CM	Type of Obstacle 2				

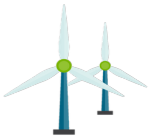
3.3 Effect of Head Height on Energy Generation in a Pelton Turbine

Height (cm)	Trial 1 Output (Volts/Hz)	Trial 2 Output (Volts/Hz)	Trial 3 Output (Volts/Hz)
140 CM			
170CM			
200 CM			

Chapter 4

Baseload and Reliability of PV, Wind and Hydro Energy

1 Hydropower is the most reliable renewable energy source for meeting baseload needs	10 Battery storage helps manage supply	4 It ensures that essential services, like refrigeration and streetlights, continue running.	6 Their output depends on weather and time, making them unreliable without backup storage
11 The minimum power the grid always needs	7 Combining sources like wind, solar, and hydro ensures a more stable and consistent energy supply	12 Hydro is better than solar for this	8 Hydropower < PV (Solar) < Wind.
9 Solar energy is predictable based on the time of day and weather, while wind is highly variable	2 Solar energy is only generated during the day and stops at night, making it unreliable for 24/7 power	13 Battery storage can store excess energy for use during low production times, helping solar and wind support baseload	3 Hydropower uses stored water in reservoirs to generate electricity continuously
15 Baseload energy provides a constant supply, while additional resources meet peak demand periods	**15** Diversification reduces reliance on a single source and mitigates risks from variability or outages	5 The grid can becomes unstable, leading to blackouts or system failures	16 Renewables have lower operational costs and reduce dependency on imported fossil fuels, saving money over time



Demand Center