



## Project-Based Learning and Assessment (PBLA)

### Scenario Bank - Math

2025 -2026

Grade 8   Math   Adv & General Reveal	
<b>Module</b>	<b>Module 5 - Functions</b>
<b>Lessons</b>	L1: Identify Functions L2: Function Tables L3: Construct Linear Function
<b>Learning Outcomes</b>	<ul style="list-style-type: none"> <li>Determine whether a relation is a function by identifying the number of outputs assigned to each input.</li> <li>Generate function tables from function rules and use the sets of ordered pairs to graph the functions.</li> <li>Write linear functions from graphs, tables, and verbal descriptions by finding the rate of change and initial value.</li> </ul>
<b>Theme</b>	 <i>Artificial Intelligence: Technology and Human Jobs</i>  <i>Sustainability: Eco-friendly Communities</i>
<p> <b>Scenario 1: UAE AI Job Growth Model</b></p> <p>In today's world, Artificial Intelligence (AI) is becoming part of everyday life — in phones, factories, hospitals, and schools. As technology grows, many jobs are changing some disappear, and new ones appear that need different skills.</p> <p>This leads to an important question: <b>Should we start preparing and developing our AI skills now?</b> You and your team will use the displayed data showing AI-related job postings from 2020 to 2025 to explore this problem. After analyzing your data and graphs, explain what your results suggest about future jobs, and discuss possible ways students and schools can prepare for these changes.</p> <p>Use your math skills to: <b>Identifying</b> if the relation is a function, <b>finding</b> and <b>applying</b> a function rule to predict future job values (2026–2030), and presenting your results through tables, equations, and graphs.</p>	

UAE AI Job Growth Model	
Year	AI Related Job Postings
2020	3000
2021	4800
2022	6600
2023	8400
2024	10200
2025	12000

AI-related job postings from 2020 to 2025

### Scenario 2: AI in UAE Smart Classrooms

Education is shifting toward **AI learning platforms** that adapt practice to each student. You are a Platform Evaluator working with the MOE to review a new system that gives **AI Score** according to the Questions Completed.

Your Task: Using the provided dataset, you need to determine the score required for Level 10 (starting of **Level 10**), find the equation of the **function**, represent the relationship with a function table, and graph it.

**Remember:** while working, apply every math skill in the Learning Outcomes.

Finish with a concise recommendation to the MOE on how schools can use this AI system to support learning and include one **fairness/ethics note**.

AI in UAE Smart Classrooms		
Input- Questions Completed	Output- AI Score	Levels
0	0	1
5	25	
10	50	
15	75	2
20	100	
25	125	3
30	150	
35	175	4
40	200	
45	225	5
50	250	

### Scenario 3: Smart Water Saving

You are a TAOA Water-Savings **Analyst** studying smart-meter data for a standard shower (**11.4 L/min**) that relates Shower Duration (minutes) to Water Used (liters). Using the provided table. Your task is to predict the water used for a **20-minute** shower by finding the equation of the function, then representing the relationship with a function table, and finally graphing the relationship.

Next, apply one water-saving tool (e.g., low-flow showerhead, pause valve) and assume/define its flow rate. Using that rate, predict the **20-minute** usage, and compute the liters saved after using the water-saving tool.

As you work, apply every math skill in the Learning Outcomes (identify functions, determine rate and rule, make tables, graph, and explain).

Conclude with a concise, evidence-based recommendation to TAOA: propose an appropriate shower duration for households and list **2-3 practical ways** to save water, supported by your tables, graphs, and calculations.

Smart Water Saving	
Minutes	Liters
2	22.8 L
4	45.6 L
6	68.4 L
8	91.2 L
10	114.0 L
12	136.8 L

### Scenario 4: School Solar Power

Schools in the UAE still rely heavily on fossil-fuel electricity, which is costly and increases carbon emissions; you are a **Solar Feasibility Evaluator** exploring solar energy as a cleaner alternative source and providing math-based evidence.

Assume a reasonable daily energy demand for your school (state your kWh estimate), choose one installation space on campus (e.g., the main roof) and note its usable area, then select a solar panel model and search its **full-potential** daily energy per panel (ideal conditions).

Using these, build a function table (**Panels** → **Energy**) for  $n = 1 \dots 10$  from your table, confirm the mapping is a **function**, identify the **rate of change**, and write the **equation**. Use the equation to find the number of panels needed to meet the school's demand.

Next, check the selected area and **decide** if the number of panels you computed can realistically (no calculation required) fit in that space.

**Represent & recommend** after graphing the points for 1–10 panels, give a short, evidence-based recommendation on whether the school should adopt solar panels. As you work, apply every math skill in the Learning Outcomes (identify functions, create tables, write/interpret rules, graph relationships, and explain your reasoning).