

Topic 18: Artificial Intelligence

Keyword sheet - Cambridge AS & A Level Computer Science 9618. Tick each term once you can define it from memory.

Keyword	Definition	Know it?
Artificial intelligence	Systems that perform tasks associated with human intelligence.	
Graph	Set of nodes (vertices) connected by edges, which may have weights or directions.	
Dijkstra's algorithm	Finds the shortest path from a source to all other nodes in a weighted graph with non-negative weights.	
A* algorithm	Finds shortest path using $f(n)=g(n)+h(n)$: cost so far plus a heuristic estimate to the goal.	
Heuristic	Rule of thumb giving an estimate that guides a search.	
Machine learning	Systems that improve performance on a task from data.	
Supervised learning	Learns from labelled data to predict outputs.	
Unsupervised learning	Finds structure in unlabelled data, e.g. clustering.	
Reinforcement learning	Agent learns actions that maximise reward through trial and error.	
Artificial neural network	Layers of connected nodes with weights, trained to model complex relationships.	
Back-propagation	Method of adjusting weights by propagating the output error backwards.	
Deep learning	Neural networks with many hidden layers.	
Regression / classification	Predicting a continuous value / assigning to a category.	
Bias in AI	Systematic unfairness arising from unrepresentative training data or design.	