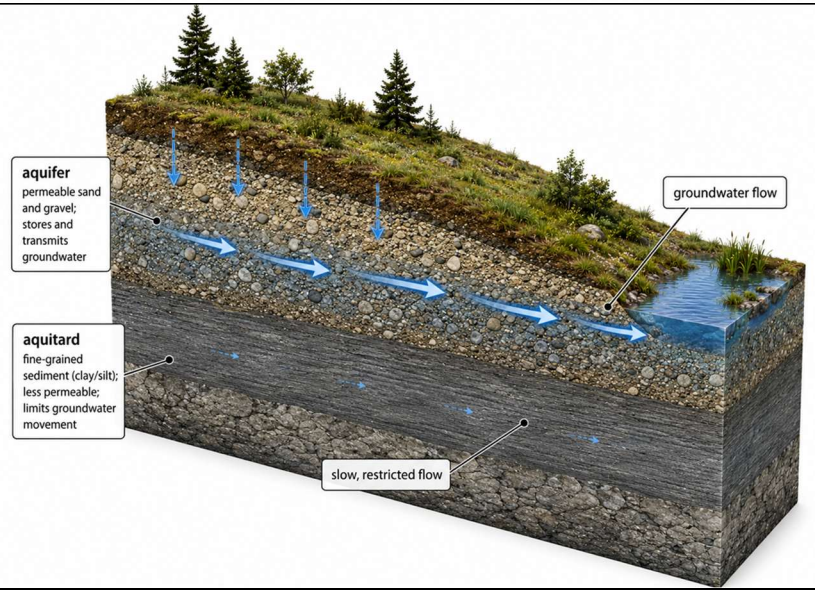
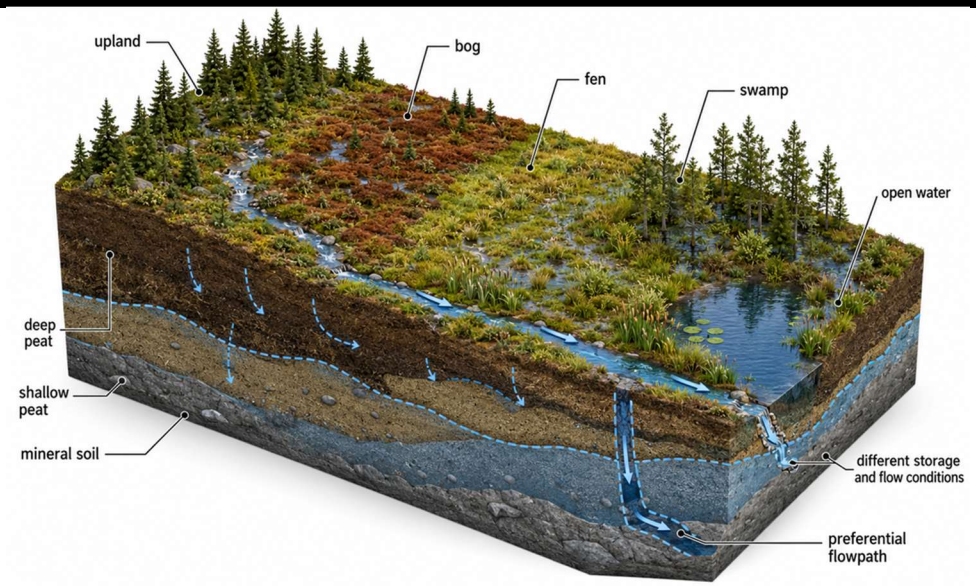
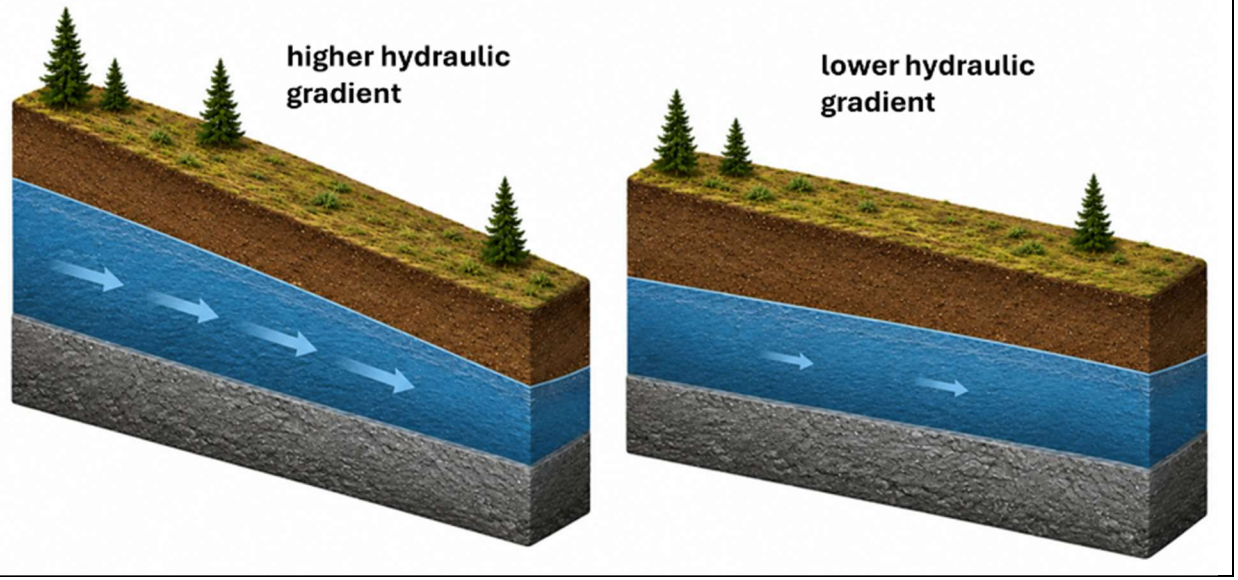
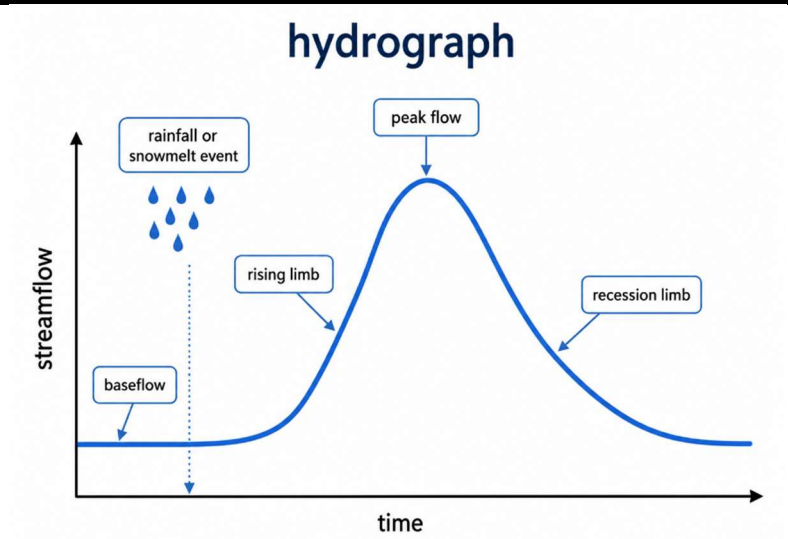
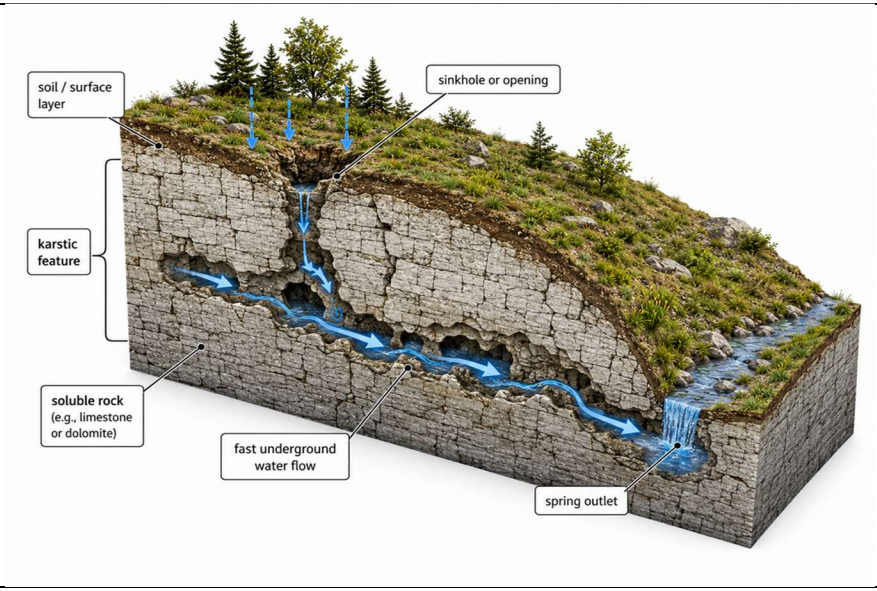
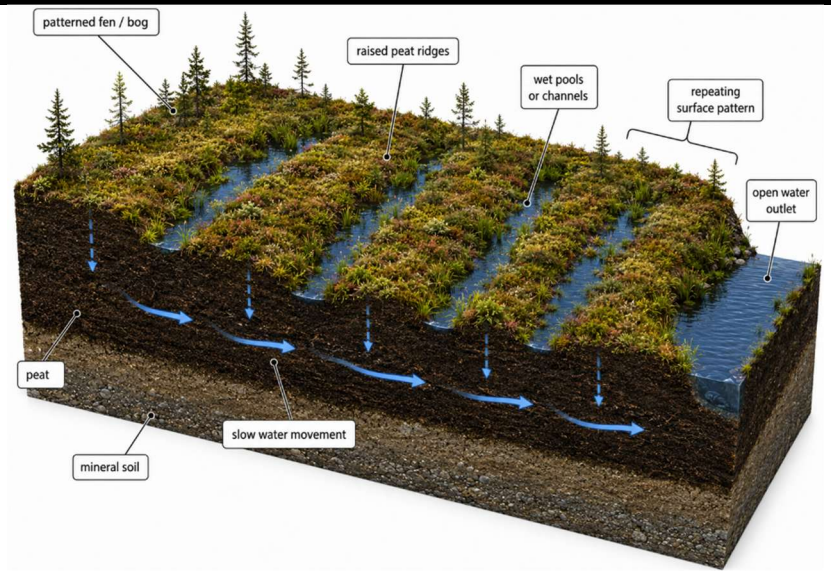
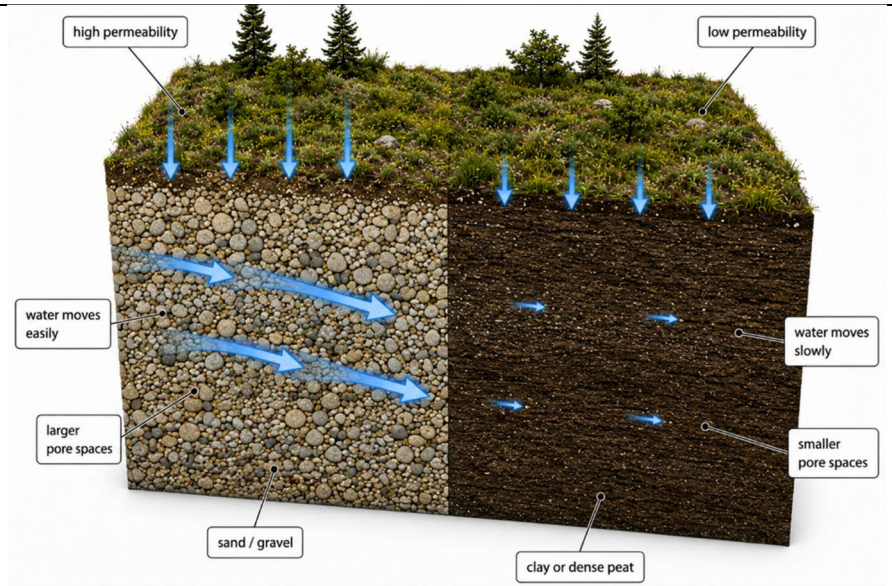
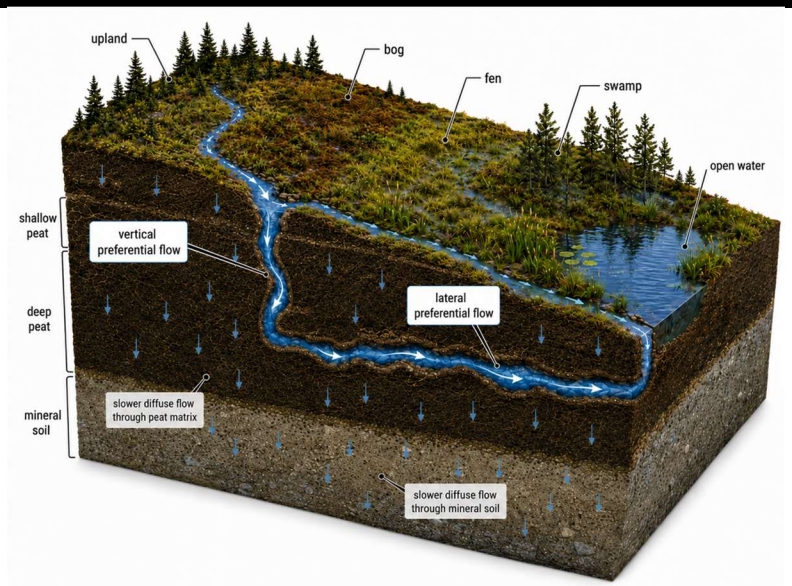
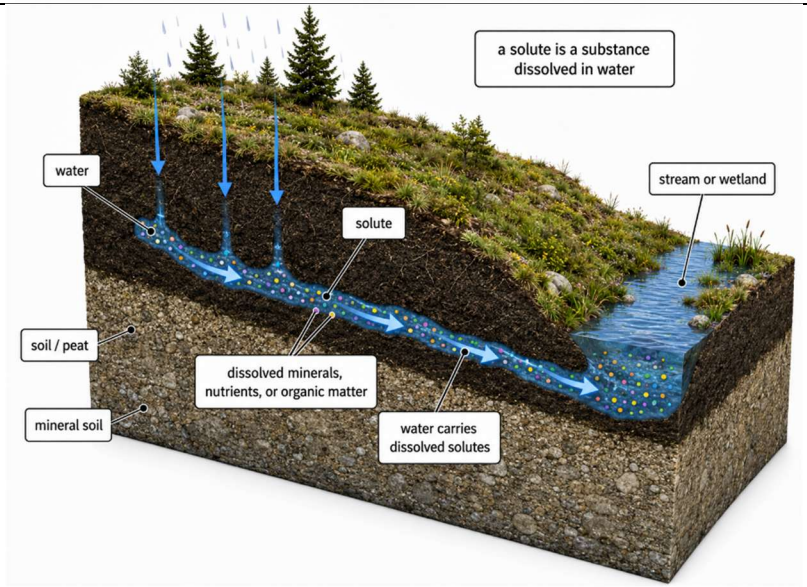
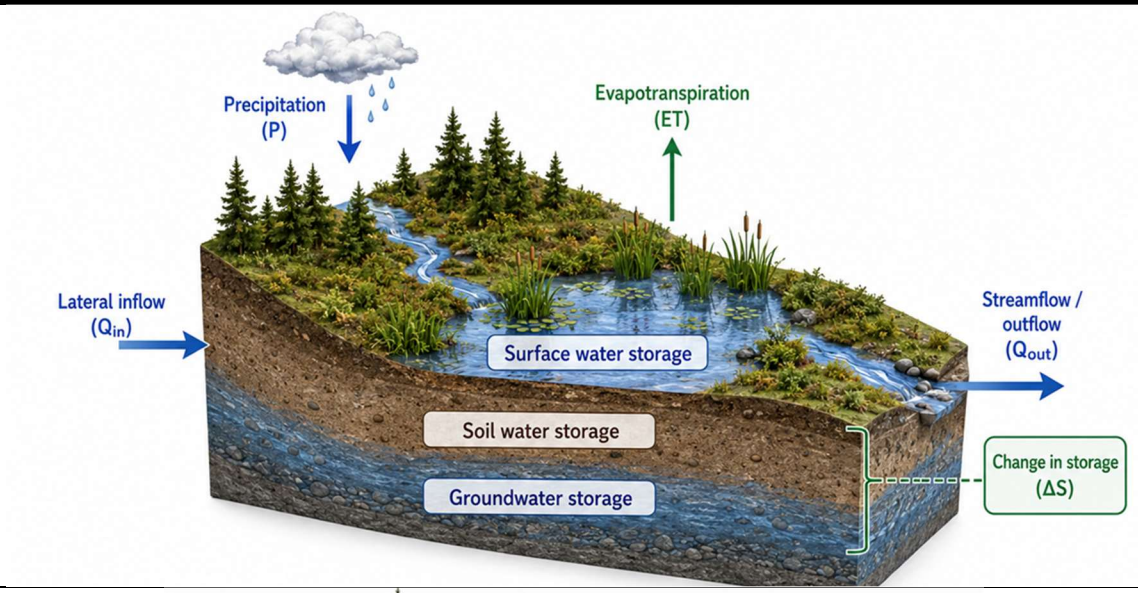
Term/ Definition	Illustration
The **active layer** is the seasonally thawed layer of ground above permafrost. Its thickness controls how much liquid water can be stored and transmitted near the surface during the thaw season, and it reaches its maximum thickness in the summer.	
An **aquifer** is a subsurface layer of soil, sediment, or rock that stores water and allows it to move relatively easily. An **aquitard** is a less permeable subsurface layer that slows or restricts water movement. Together, aquifers and aquitards help control where groundwater is stored, how quickly it moves, and how connected different parts of the landscape are.	

Term/ Definition	Illustration
Heterogeneous/ heterogeneity refers to differences in the physical, ecological, or hydrological characteristics of a system across space or time, for example different types of soil and land cover within a defined area (shown in the illustration). In hydrology, these differences affects how water is stored, moves, and connects different parts of the landscape. This is the opposite of **homogeneous** which means only a single characteristic exists, for example the land entirely being a bog or soil being the same type of gravel everywhere.	
The **hydraulic gradient** is the difference in water level between two places. It can help us know which direction water will move and how fast, because water usually flows from higher water levels toward lower water levels. A steeper gradient means water has a stronger push to move.	

Term/ Definition	Illustration
A **hydrograph** is a graph that shows how the amount of water flowing in a river or stream changes over time. It is often used to show how streamflow rises after rain or snowmelt, reaches a peak, and then slowly decreases as water drains from the landscape. Hydrographs can help show how quickly water moves through a watershed, how long high flows last, and whether flow patterns are changing because of weather, seasons, land disturbance, or water management.	
A **karstic feature** is a natural opening or pathway in the ground that forms when flowing water slowly dissolves certain types of rock, such as limestone or dolomite. These features can include cracks, caves, sinkholes, underground channels, or springs, and they can let water move quickly below the surface.	

Term/ Definition	Illustration
A **patterned fen/ bog** is a wetland with a repeating surface pattern of slightly higher, drier ridges and lower, wetter pools or channels. These patterns form over long periods as water movement, peat buildup, plants, ice, and ground slope interact. In patterned fens, water often moves slowly through the wetland in connected pathways, while patterned bogs are usually more rain-fed and may be less connected to groundwater or streams. These patterns can affect where water is stored, how it flows, and where different plants and wildlife are found.	
Permeability is how easily water can move through soil, peat, sediment, or rock. Materials with high permeability, such as sand, gravel, or fractured rock, let water pass through more easily. Materials with low permeability, such as clay, dense peat, or solid unfractured rock, slow water movement down or block it. Permeability helps control how quickly water can soak into the ground, move below the surface, or reach wetlands, streams, lakes, and groundwater systems.	

Term/ Definition	Illustration
Preferential flow paths are natural pathways where water moves faster than expected through the landscape because the soil, peat, or underlying material is more open or connected than the surrounding area.	
A **solute** a substance that is dissolved in water. Solutes can include natural materials, such as salts, nutrients, organic carbon, or minerals, as well as human-related substances, such as metals, road salt, wastewater chemicals, or other contaminants. As water moves through soil, peat, rock, wetlands, streams, and lakes, it can pick up, carry, transform, or release solutes, which can affect water quality and ecosystem health.	

Term/ Definition	Illustration
A **water balance approach** is a method used to account for the water entering, leaving, and being stored within a defined hydrological system over a specific area and time period. This approach helps identify whether a system is gaining, losing, or storing water, and provides a foundation for understanding how hydrological conditions may change in response to climate, land cover, infrastructure, or other disturbances.	
A **water table** is the level below the ground where soil, peat, sediment, or rock becomes fully filled with water. Above the water table, spaces in the ground may contain both air and water; below it, those spaces are saturated. The water table can move up after rain or snowmelt and move down during dry periods, and it helps control how wet the land is, how water moves underground, and how connected wetlands, streams, lakes, and groundwater are.