Chapter 11 (pp. 306 – pp. 343)

Evaporation – The process by which water changes from a liquid into a vapour
Transpiration – The process by which water is taken up by plants passes directly into the atmosphere
Condensation – The process by which water changes from a vapour into a liquid or a solid
Precipitation – The process by which water that has condensed in the atmosphere falls back to the surface as rain, snow, or hail
Surface runoff – Precipitation that drains over the land or in stream channels
Infiltration – The process by which water works its way into the ground through small openings in the soil
Stream - A stream of water that flows downslope along a clearly defined natural passageway
Channel – The clearly defined natural passageway through which a stream flows
Gradient – The steepness of a stream channel
Discharge (1) – The amount of water passing by a point on a channel's bank during a unit of time
Discharge (2) – The process by which subsurface water leaves the surface zone and becomes water
Load – The suspended and dissolved sediment carried by a stream
Floodplain – The relatively flat valley floor adjacent to a stream channel, which is inundated when the stream overflows its banks
Alluvium – Unconsolidated sediment deposited in a recent geologic time by a stream
Delta – A sedimentary deposit, commonly triangular, that forms where a stream enters a stranding body of water
Drainage basin – The total area from which water flows into a stream
Divide – A topographic high that separates adjacent drainage basins
Flood – An event in which a water body overflows its banks
Groundwater – Subsurface water contained in pore spaces in regolith and bedrock
Water table – The top surface of the saturated zone
Porosity – The percentage of the total volume of a body of rock or regolith that consists of open spaces (pores)
Permeability – A measure of how easily a solid allows fluids to pass through it
Percolation – The process by which groundwater seeps downward and flows under the influence of gravity
Recharge – Replenishment of groundwater
Spring – A natural outlet for groundwater that occurs where the water table intersects the land surface
Aquifer – A body of rock or regolith that is water saturated, porous, or permeable (latin: water carrier)
Aquiclude – A layer of impermeable rock
Cave – An underground open space, a cavern is a system of connected caves

Water Cycle (Hydrologic cycle) – How water moves about the geosphere, hydrosphere, atmosphere and biosphere.
Hydrology – The scientific study of water
Residence time – The average length of time that a water molecule spends in a reservoir
Overland Flow (Sheet flow) – Initial movement of precipitated water over a hill, which takes the appearance of a thin, broad sheet
Streamflow – After traveling a short distance as overland flow, they become concentrated into well-defined passageways
Runoff – One of the main pathways of the water cycle, comprised of Overland flow and Streamflow
Straight channels – usually occur over short distances
Upstream areas – headwaters or source of the stream, where the gradient is high and the channel deeply incised
Meandering channels – tend to develop where the stream gradient is low, typically in the lower, or downstream parts
Downstream areas – close to the mouth of the stream, where the gradient is typically low
Cut bank – As water sweeps around a turn, it undercuts and steepens the outer bank
Point bar – The inner side of each meander where the water is shallow and the velocity is low
Oxbow lake – When the former meander is cut off, it is converted into an Oxbow lake
Braided channels - form when a streams ability to carry sediment varies over time
Natural levee – a buildup of a broad, low ridge of alluvium atop each bank
Alluvial fan – dispersal of material with larger chunks closer to the source, and smaller material further away
Tributary – a river or stream flowing into a larger river or lake
Catchment (watershed) – Every stream surrounded by a drainage basin
Continental divide – a major divide, separating streams that drain toward one side of the continent toward the other side
Lakes – Standing bodies of water that have open surfaces, in direct contact with the atmosphere
Reservoir – a large natural or artificial lake used as a source of water supply
Wetland – A lake that has filled with organic matter, with little or no free water surface
Eutrophication – runoff of fertilizer or sewage into a lake, which kills most life in a lake
Storm runoff - the extra water flowing in the channel, caused by excess precipitation
Hydrograph – A graph that shows the stream's discharge as a function of time
Crest - When the peak flow passed the hydrologic station where the measurements were made
Storm surge – a rising of the sea as a result of atmospheric changes and wind associated with a storm
Subsidence – A drop in the surface of the land
Flood-frequency curve – Created by plotting the frequency of past floods of different sizes
Recurrence interval – The average time interval between two floods of the same magnitude
Geographic information systems (GIS) – computer system for capturing, storing, checking and displaying data related to the Earth's surface
Channelization – method of river engineering that widens or deepens rivers to increase the capacity for flow in specific river sections
Water-scarce – lack of water resources to meet demands
Interbasin transfer – man-made conveyance schemes which move water from one river basin where it is available, to another basin

Briny – rich in mineral salts, not well-suited for human use
Zone of aeration (vadose zone) – spaces between the grains of the regolith or bedrock, filled with air, but may be moist to the touch
Saturated zone (phreatic zone) – spaces in which openings are filled with water
Unconfined aquifer – An aquifer in which water is free to rise to its natural level
Confined aquifer – Overlain by impermeable rock units, known as confining layers or aquicludes
Artesian well – If a well is drilled into the aquifer, the pressure due to the change in elevation causes water to rise or flow without having to be pumped
Cone of depression – a cone shaped dip in the water table
Groundwater mining – if the rate of withdrawal of groundwater regularly exceeds the rate of natural recharge, the volume of stared water steadily decreases, this is known as groundwater mining
Compaction – When its mineral grains collapse on one another because the pore water that held them apart is removed
Karst topography – characterized by underground drainage system with sinkhole and caves
Sinkholes – a small, closed cavity (basin) in the ground
Stalactites – hanging from the ceiling
Stalagmite – projecting upward from the floor

Additional info:
Most water is in oceans (salt water), second most is in glaciers (fresh water), third most is groundwater (majority of unfrozen fresh water).

Composition of the atmosphere, Nitrogen, Oxygen, water vapour etc.

Chapter 12 (pp. 344 – pp. 383)

Salinity – A measure of salt content of a solution
Thermohaline circulation – The deep-ocean global "conveyor belt" circulation, driven by differences in water temperature, salinity, and density
Tides – A regular daily cycle of rising and falling sea level that results from the gravitational action of the Moon, the sun, and Earth
Surf – The 'broken' turbulent water found between a line of breakers and the shore
Longshore current – A current within the surf zone that flows parallel to the coast
Beach drift – The movement of particles along a beach as they are driven up and down the beach slope by wave action
Wave-cut cliff – A coastal cliff cut by wave action at the base of a rocky coast
Beach – Wave-washed sediment along a coast
Barrier island – A long, narrow, sandy island lying offshore and parallel to a lowland coast
Reef- A hard structure on a shallow ocean floor, usually but not always built by coral
Air – A mixture of 78% nitrogen, 21% oxygen, and trace amounts of other gases, found in the Earth's atmosphere. Next largest is Argon (0.93%), CO_2, Ne, He.. etc.
Troposphere – The lowest layer of the Earth's atmosphere, extending (variably) to about 15 km in altitude
Greenhouse effect – The absorption of long-wavelength (infrared) energy by radiatively active gases in the atmosphere, causing heat to be retained near Earth's surface
Stratosphere – The layer of the Earth's atmosphere above the troposphere, extending to about 50 km altitude
Ozone layer – A zone in the stratosphere where ozone is concentrated
Wind – Air in motion
Coriolis force – An effect due to Earth's rotation, which causes a freely moving body to veer from a straight path
Cyclone – A wind system that is circulating around a low-pressure center
El Nino – A regional weather system that involves an unusual warming or equatorial Pacific surface water

World ocean – the world's largest reservoir of water
Surface layer – top-most layer in the ocean, warmest because it is directly exposed to sunlight
Thermocline – transitional layer, underneath the surface later, in which the temperature drops rapidly to just above the freezing point of water
Deep layer – underneath the thermocline, where the water temperature is cold and nearly constant
Upwellings / Downwellings – regions where the layers of the ocean mix
Westerly winds – flowing *from* the west
North Atlantic Deep Water – Dense water off the coast of Greenland, in which the fresh water had been removed to form sea ice
Antarctic Bottom Water – Water mass in the Southern Ocean surrounding Antarctica
Gulf Stream – A warm and swift Atlantic ocean current that originates in the Gulf of Mexico and stretches to the tip of Florida
High tide – As the Earth rotates, the coast passes through the highest point of the tidal bulge (2x/day)
Low tide - As the Earth rotates, the coast passes through the lowest point of the tidal bulge (2x/day)
Runup height – The highest elevation reached by the incoming water
Tidal Range – The difference between high tide and low tide
Tidal bore – A steep-fronted wall of water that can move faster than the average person can run
Breakers – the line of breaking waves
Surf zone – zone between the line of breakers and the shore
Rip currents – Water that has filed up against the shore returning seaward in localized narrow channels, can sweet swimmers out to sea
Refraction – Gradual trend of waves to parallel the contours of the seafloor
Swash – uprushing water on an exposed beach
Benches – terrace-like landforms, former seafloor elevated above sea level by two stages of tectonic uplift
Headlands – rocky coasts that jut out into the sea
Pocket beaches – beaches that form in the bays between the headlands
Tidal inlets – Formed by surf washing across low places, eroding them in the process
Spits – Elongated ridges of sand or gravel that project from land into the open water of an embayment along the coast
Tombolos – Spit-like ridges of sand and gravel that join an island to the mainland
Lagoon – Elongated bay lying inshore from a barrier island or other low, enclosing strip of land
Estuaries – The wide, fan shaped mouth of rivers in the tidal zone where fresh water and salt water meet
Fringing reefs – Form coastlines that closely border the adjacent land
Barrier reefs – Separated by the land by a lagoon
Atmosphere – Generic term for a gaseous layer that surrounds a planet or other celestial body
Primary atmosphere – An envelope of gaseous components, with additional volatiles trapped in the interior of the planet. Stripped away by intense solar wind associated with young Earth
Secondary atmosphere – Formed through volcanic outgassing of some of the volatile constituents from its interior
Aerosols – liquid droplets or solid particles suspended in air
Humidity – Amount of water in the air
Relative humidity – Proportion of water vapour that air can carry

Dew points – point at which relative humidity is 100%
Dry air – When water vapor and aerosol contents are ignored, the relative proportions of the remaining gases in the air is called Dry air
Pauses – the distinct boundaries between the four major atmospheric layers (Menopause, Stratopause, Tropopause, etc.)
Radiatively active gases (Greenhouse gases) – The heat-absorbing gases in the atmosphere
Mesosphere - Beyond the stratosphere, which comprise only about 1% of the mass of the atmosphere. Absorbs intermediate ultraviolet wavelengths
Thermosphere – Beyond the stratosphere, which comprise only about 1% of the mass of the atmosphere. Absorbs short ultraviolet wavelengths
Atmospheric pressure (air pressure) – A measure of how much of the mass of the atmosphere overlies a particular location
Pressure gradient – A movement of air from a zone of high atmospheric pressure toward a zone of low atmospheric pressure
Intertropical convergence zone (ITCZ) – Warm air rises at the equator, creating a low-pressure zone, characterized by cloud cover
Hadley cells – low-latitude cells created by the circulation pattern of air rising at the equation, and sinking at medium latitudes (about 30 degree south or north)
Northeasterlies – flowing from the northeast, toward the southwest
Southeasterlies – flowing from the southeast, toward the northwest
Trade winds – Winds that turn to flow along the equator, due to their consistent direction
Polar cells - A belt of convecting air cells that lay across the polar regions
Polar easterlies - dry, cold prevailing winds that blow from the high-pressure areas of the polar highs at the North and South Poles towards low-pressure areas within the Westerlies at high latitudes
Ferrel cells – Mid-latitude cells, between 30 to 60 deg N, and 30 to 6 deg S, that blow from the west in the northern hemisphere
Climate – an average of weather patterns over a long period of time
Weather – wind, rain, sleet, snow, storms, whatever
Heat capacity – an indicator of a materials ability to store heat
Latent heat – the energy that the ocean absorbs when water evaporates
Tropical cyclones – the most intense and damaging of cyclones
Cyclone – formed over the Pacific Ocean
Typhoon – formed over the western Pacific of Indian Ocean
Hurricanes – formed over the Atlantic Ocean
Extra-tropical (mid-latitude cyclone) – "outside of" the tropics
Thunderstorm / Tornado – pretty self explanatory
Tropical storm (tropical depression) – basically a hurricane with wind speeds below 119 km/hr
Storm surge – a local, exceptional flood of ocean water onto coastal areas
La Nina – Unusual cooling along the equatorial Pacific surface water
Easterlies – blowing from the east

Other terms:

The tidal bulge on the side of the earth facing the moon is caused by **gravity**

The tidal bulge on the side of the earth away from the moon is cause by the Earth's **inertia** as it moves around the center of mass of the Earth-Moon system

The depth at which a wave will touch the bottom (one half its wavelength) is called the **wave base**

Sand is moved by the wind in a series of bounces, in a process called **saltation**

The Sahara, Kalahari and Great Australian deserts are all examples of **subtropical** deserts.

Dry areas downwind from mountain belts are called **rain shadow** deserts

Windblown dust occurring in large deposits is called **loess**

A sand dune's internal structure is predominantly **cross-bedded**

Sliding sand on the slip-face of a dune comes to rest at the angle of **repose**

A cirque glacier that expands outward and downward becomes a **valley** glacier

In a glacier the difference between ice accumulation and ablation is a measure of its **mass balance**

When the surface of a moving glacier cracks and opens it forms a(n) **crevasse**

Long narrow scratches in bedrock produced by glaciers are called glacial **striations**

The poorly sorted debris deposited by a glacier is called **till**

A ridge of sediment along the side of a valley glacier is called a(n) lateral **moraine**

The mound of sediment which accumulates where a glacier ends is called a(n) **terminal moraine**

When a glacier melts back, stream channels filled with sand and gravel in the glacier will be deposited forming a sinuous ridge called a(n) **esker**

The eccentricity of the earth's orbit, its tilt and precession all combine to produce long lasting (30,000 year) warm/cold alternations called **Milankovitch cycles**

Lakes formed when debris-covered ice slowly melted away are called **kettles**

The type of dune that forms in any particular area is a function of sand supply, wind direction and **vegetation**