**Biomes**

Biomes are large regions of the world with distinctive climate, wildlife and vegetation. They are divided by terrestrial (land) or aquatic biomes.

**Terrestrial biomes:**

Categorized by latitude, altitude, temperature, rain, soil type, sun exposure, winds and how close to water they are found.

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|  | **Fauna and flora** | **Climate** | **Soil** | **Other facts** |
| **Tropical forest** | 50-80 % of plant and animal species on Earth.High biodiversity | Average temp 20-34°CReceives rain all year long | Soil is rich in nutrients because optimum weather conditions allow for quick plant/animal decomposition | Important in regulation of climate because exchanges O2 and CO2Produces more than 20% of the world’s O2In danger due to farming, logging |
| **Boreal forest** | Diverse wildlifeConifers and forest floor covered with moss and lichenGreen forest | Long, cold winters and warm short summers | Acidic, nutrient poor soil because of moss and lichen on forest floorPoor decomposition of plants and animalsVegetation still thrives because of 18 hours/day sunlight in the summer | More than 1/4 of all forests in worldOver loggingSensitive to fire insects and diseaseHas many lakes and marches |
| **Temperate forest** | Many mammals Mix of coniferous and deciduous treesMulti-colored forest | Average temperature between 8-10°CHigh precipitation throughout the year | Soil is very rich in nutrients because of good decomposition of leaves | At risk due to human activity (farming) and new developmentsMany towns and cities were once temperate forests |
| **Grasslands and shrublands** | Grazing animals and their predatorsLots of grass, but very little treesEnough moisture to avoid being a desert, but notenough to sustain trees | Depends on region of the world and type | Nutrients and water deep in the soil are absorbed byextensive plant root systems Grass is able to survive drought and fire | Three typesTemperate grasslands: warm summers and cold wintersSavannas: hot all year longDerived grasslands: was grassland, but has been converted to farmland |
| **Arctic tundra** | Migratory birds in the summer to reproduce and feed, caribouPolar bears, arctic fox and caribou live there year roundHas limited grass, bushes, moss and lichen | Long cold wintersAverage summer temperature is only 10°C In winter can be as cold as -50°C | Thin top layer of soil (1 m) thaws in summer only…deeper other soil is permanently frozen (aka permafrost) | The arctic is warming up twice as fast as the global average which may lead to devastating consequences in the near future |
| **Deserts**  | Only a few animal and plant species that are highly adapted to the dry climate | Can be hot or cold desertsTotal annual precipitation less than 25 cm | Soil is nutrient poor | Hot deserts experience drastic temperature changes due to absence of clouds and humidity |
| **Alpine** | Animal and plant species vary depending on altitudeAs altitude increases, life and temperature decreases | For every 100 meters in altitude gain, thetemperature drops by 0.6°C | Nutrients in soil become scarce with increasing altitudeGround remains frozen for more than half the year | Defined by altitudeDivided into 5 zones depending on altitude |

**Aquatic biomes:**

Cover 75% of earth’s surface. Categorized by salinity, water clarity, temperature, strength of current, O2 and CO2 present in the water, sun exposure, nutrients and water depth.

**Freshwater biomes: 2.5% of aquatic biomes. Less than 0.05% salt content**

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|  | **Fauna and flora** | **Other facts** |
| **Lakes** | Limited species of microorganisms, plankton, fish, amphibians, reptiles, birds and aquatic plants | Lakes are surrounded by land, fed by springs or precipitationShore vegetation acts like a filter, provides habitat and attracts speciesThreatened by farming, industrialization and urbanization  |
| **Rivers** | Animals and plants that are adapted to current and high levels of O2 | Water quality at risk due to farming(phosphorus)Current flows rapidly in one direction |
| **Wetlands** | Home to many species depending on type of wetlandPlants grow in well saturated soilThey act as sponges that absorb rainwater and reduce the risk of flooding | **Marshes:** stagnant water and no trees**Swamps**: stagnant or slow moving water with trees or shrubs**Peat bogs**: Poorly drained soil covered in moss |

**Marine biomes**: 97.5% of aquatic biomes. More than 3% salt content. Temperature will vary due to location and depth. Deeper the water the colder and darker it becomes

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|  | **Fauna and flora** | **Other facts** |
| **Estuaries** | Plants and animals adapted to both fresh and salt water Water is very turbid (not clear) due to sedimentVery rich in nutrients and home to many species | Where a river opens into the sea.St-Lawrence Estuary is known for whale watchingSalt content will vary between 0.05% and 3% |
| **Oceans** | Largest ecosystemPlants and animals vary according to depth of water (sunlight, food sources) | Deeper it is the darker and colder it getsOceans at risk due to human activities(fishing, transport, oil industry)Benthos: organisms living on sea bed |
| **Coral reefs** | High biodiversity: up to 2 million plant and animal speciesUsually in warm waters | Corals skeleton made up of CaCO3 and feed on plankton and algaeSome may up to 200 million years oldPollution, overfishing and global warming puts them at riskWhen diving, you are asked not to touch the corals because too much touching will eventually kill them. |