**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°C  Receives 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 CO2  Produces more than 20% of the world’s O2  In danger due to farming, logging |
| **Boreal forest** | Diverse wildlife  Conifers and forest floor covered with moss and lichen  Green forest | Long, cold winters and warm short summers | Acidic, nutrient poor soil because of moss and lichen on forest floor  Poor decomposition of plants and animals  Vegetation still thrives because of 18 hours/day sunlight in the summer | More than 1/4 of all forests in world  Over logging  Sensitive to fire insects and disease  Has many lakes and marches |
| **Temperate forest** | Many mammals  Mix of coniferous and deciduous trees  Multi-colored forest | Average temperature between 8-10°C  High 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 developments  Many towns and cities were once temperate forests |
| **Grasslands and shrublands** | Grazing animals and their predators  Lots of grass, but very little trees  Enough moisture to avoid being a desert, but not  enough to sustain trees | Depends on region of the world and type | Nutrients and water deep in the soil are absorbed by  extensive plant root systems  Grass is able to survive drought and fire | Three types  Temperate grasslands: warm summers and cold winters  Savannas: hot all year long  Derived grasslands: was grassland, but has been converted to farmland |
| **Arctic tundra** | Migratory birds in the summer to reproduce and feed, caribou  Polar bears, arctic fox and caribou live there year round  Has limited grass, bushes, moss and lichen | Long cold winters  Average 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 deserts  Total 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 altitude  As altitude increases, life and temperature  decreases | For every 100 meters in altitude gain, the  temperature drops by 0.6°C | Nutrients in soil become scarce with increasing altitude  Ground remains frozen for more than half the year | Defined by altitude  Divided 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 precipitation  Shore vegetation acts like a filter, provides habitat and attracts species  Threatened 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 wetland  Plants grow in water saturated soil  They 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 sediment  Very rich in nutrients and home to many species | Where a river opens into the sea.  St-Lawrence Estuary is known for whale watching  Salt content will vary between 0.05% and 3% |
| **Oceans** | Largest ecosystem  Plants and animals vary according to depth of water (sunlight, food sources) | Deeper it is the darker and colder it gets  Oceans 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 species  Usually in warm waters | Corals skeleton made up of CaCO3 and feed on plankton and algae  Some may up to 200 million years old  Pollution, overfishing and global warming puts them at risk  When diving, you are asked not to touch the corals because too much touching will eventually kill them. |