

Macro Habitats Jigsaw

JIGSAW DIRECTIONS

1-The class is numbered into however many members in a group is appropriate. For example if groups of 3 are appropriate, divide the number of students in the class by 3 Give each student the number 1 2 or 3

2-Repeat the numbering around the class.

3- All 1s will work together, all 2s and so on. Each group carries out their task and members report back to the whole grade.

The group then collates and discusses information in terms of the whole task. During the process, you can move around from group to group observing or facilitating progress.

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Student 1

Intertidal rockpools

Intertidal rockpools are exposed to the force of breaking waves as well as daily variations in water cover, temperature changes and salinity caused by the movement of the tides.

Many animals have adaptations such as a hard shell and tight muscular foot allowing them to cling tightly to the rocks preventing dislodgment and drying out. Plants are also often firmly attached to rocks. Some have a structure called a "holdfast".

Student 2

Habitats and environments: Macro

Deserts | Polar regions | Freshwater pond | Marine habitats | Intertidal rockpools

Certain habitats of the world have specific major environmental features which are worthy of study so that we can analyse the adaptations of the organisms living there.

Student 3

Deserts

Deserts cover about a third of the Earth's land area. Cold deserts are usually found at high altitudes, and hot deserts in subtropical zones, but both exhibit extremes of temperature and an absence of permanent water. Insects, reptiles, some birds and small mammals are the most common animals. Adaptations to prevent water loss include waterproof exteriors, reduced surface area to minimise evaporation, diurnal activity (dawn and dusk), burrowing behaviour, efficient kidneys to concentrate urine, ability to store water (e.g. desert frog), short reproductive life cycle and the ability to become dormant during dry periods (e.g. brine shrimp).

Desert plants have adaptations including extensive root systems, shiny waxy leaf cover, fewer stomata to reduce transpiration, thin spiky leaves to reduce surface area for water loss and drought resistant seeds.

Student 4

Polar regions

Polar regions are extremely cold with Antarctic winters recording minimum temperatures of -80°C . Almost no vegetation grows due to the extreme cold and the six months of darkness in winter, so most food chains are sea-based.

Mammalian adaptations for keeping warm include fat layers, thick fur and winter migration behaviour. Swimming ability is essential for gathering food and travel between ice masses.

Student 5

Freshwater pond

A freshwater pond is a relatively stable habitat with light and water abundant for plant growth, which in turn provides both food and oxygen for animal life. The water contains dissolved nutrients for plant uptake, and oxygen in solution is available to all organisms for respiration. The water temperature remains fairly constant relative to the widely-fluctuating surrounding air temperature.

The majority of photosynthesis is due to microscopic producers (phytoplankton) in the water. Other plants are usually present in distinct zones. The emergent plants of the water's edge give way to free-floating and deep-rooted plants as well as submerged plants, which use the sunlight filtering down to the bottom. Food chains include microscopic consumers (zooplankton), small crustaceans, insects (nymphs, larvae as well as adults), small molluscs (snails and mussels), fish and birds. In the muddy bottom, worms, fungi and bacteria are found, which decompose the remains of plants and animals.

Student 6

Marine habitats

Marine habitats include the open sea (approximately 80% of the world's surface), tidal estuaries and mangrove swamps, the coastal intertidal rockpools and the sandy beaches.

The ocean food chains are based on microscopic plants and animals (plankton) that drift in the surface waters. Light intensity and temperature decrease with depth but bottom-dwelling consumers can still survive on other animals or decomposing matter.

Water provides buoyancy (uplift) supporting the body weight of even the world's largest organisms such as whales, which on land would collapse under their own weight. Due to the great size of the ocean, water temperature fluctuates very little except on the shore line and in rock pools.