N5 Biology LE2 Distribution of Organisms LEARNING OUTCOMES

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| -+\* | by the end of each lesson you should know (including meanings of **key words**) |
| **Biotic & Abiotic Factors** |  | * I can give examples of **biotic** factors, including competition for resources, disease, food availability, grazing and predation.
* I can give examples of **abiotic** factors, including light intensity, moisture, pH and temperature.
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| **Measuring Abiotic Factors** |  | * I can measure **abiotic** factors such as light intensity using a **light meter**, soil moisture using a **moisture meter**, pH using a **pH meter** and temperature using a **thermometer**.
* I can state a **source of error** in measuring each of light intensity, soil moisture, pH and temperature.
* I can state how to **minimize error** when measuring each of light intensity, soil moisture, pH and temperature. E.g.
* using a light meter take readings at same time of day and ensure no one is shading the light sensitive panel
* using a **moisture meter** wipe the probe between uses, to avoid moisture from one reading affecting the next
* using **pH meter** wipe the probe between uses, to avoid one sample affecting the next reading
* using a **thermometer** wait until the liquid has stopped moving before taking the reading
* I can state that when measuring abiotic factors results will be more **reliable** if more than one reading is taken and an average is calculated.
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| **Sampling organisms** |  | * I can sample plants using quadrats.
* I can sample animals using pitfall traps.
* I can describe potential sources of error in the use of quadrats and pitfall traps and how to minimize them. E.g.
* to avoid unrepresentative results the quadrats should be placed **randomly**
* a pitfall trap should be buried in the soil, its upper edge at the same level as the soil.
* a pitfall trap may have **ethanol** added to kill the trapped organisms and prevent animals being eaten by another trapped animal
* a pitfall trap may have a **lid** resting above the upper edges, allowing insects to be trapped but preventing birds eating them
* I can explain the need to take samples which are **representative** of the habitat and the need to **replicate** the sampling adequately.
* I can describe the **effect of biotic and abiotic factors on biodiversity** and the distribution of organisms, such as stating the factors which can cause an increase or a decrease in biodiversity.
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| **Keys** |  | * I can use **paired-statement keys** to identify organisms.
* I can construct **paired-statement keys** to identify organisms.
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| **Indicator Species** |  | * I can state that **indicator species** are organisms that by their presence or absence show environmental quality/levels of pollution
* I can state that indicator species can indicate pollution in **water and air**.
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