**A-level Biology required practical No. 12**

**Student Sheet**

**Investigation into the effect of a named environmental factor on the distribution of a given species**

**Learning Objectives**:

1. To develop practical skills **a, b, k and l,** and begin to demonstrate **competencies 2c and 4a**
2. To investigate the effect of different woodland management techniques on species diversity
3. To use a statistical test to discover the effect of trampling on soil depth/plant height/leaf size/species richness

**Investigation 1: Comparison of coppiced and thinned woodland.**

Summarise your findings below. You should refer to your measurements of air temperature, soil temperature (if recorded), Light levels, canopy cover soil pH and species diversity.

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What were the limitations of your investigation? How would you minimise the effect of these limitations?

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**Simpson’s Diversity Index:**

Below is a sample of data collected by students in the morning activity. Use the results to calculate Simpon’s Diversity Index:

Coppiced Woodland

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| --- | --- | --- | --- |
| **Species** | **Number (n)** |  |  |
| Feathered Moss | 91 |  |  |
| Star Moss | 54 |  |  |
| Wood Sorrel | 13 |  |  |
| Birch Seedling | 3 |  |  |
| Sycamore Seedling | 2 |  |  |
| Ash Seedling | 1 |  |  |
| Bracken | 5 |  |  |
| Ground Ivy | 3 |  |  |
| Chickweed | 26 |  |  |
| Total |  |  |  |

Thinned Woodland

|  |  |  |  |
| --- | --- | --- | --- |
| **Species** | **Number (n)** |  |  |
| Feathered Moss | 31 |  |  |
| Star moss | 15 |  |  |
| Sycamore sapling | 19 |  |  |
| Bracken | 7 |  |  |
| Dogs mercury | 2 |  |  |
| Ground Ivy | 31 |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| Total |  |  |  |

**Investigation 2: Effect of trampling on grassland**

You will have calculated Spearman’s Rank Correlation Co-efficient for one dependent variable. Describe what variables you were investigating, what your statistical test tells you, and suggest an explanation for your results

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| Competencies demonstrated |
| 2. Applies investigative approaches and methods when using instruments and equipment | c. Identifies and controls significant quantitative variables where applicable, and plans approaches to take account of variables that cannot readily be controlled.  |
| 4. Makes and records observations | a. Makes accurate observations relevant to the experimental or investigative procedure. |

|  |  |
| --- | --- |
|  | Apparatus and techniques |
| AT a | use appropriate apparatus to record a range of quantitative measurements (to include mass, time, volume, temperature, length and pH) |
| AT b | use appropriate instrumentation to record quantitative measurements, such as a colorimeter or potometer |
| AT k | use sampling techniques in fieldwork |
| AT l | use ICT such as computer modelling, or data logger to collect data, or use software to process data |