Classification

What is classification?

Classification is the ordering of organisms into groups on the basis of their relationships. The groups are known as *Taxon's*.

Why do we classify?

Biologists classify species to allow better communication and to avoid confusion. With so many different species, it makes sense to organise them into sensible groups.

Classification is important for projects such as MoorLIFE, it allows species to be identified during monitoring and for ecologists to understand better the relationships between species and the conditions groups of species require.

Exercise 1

Commonly found on Blanket Bogs a number of different plants from the Ericaceae family

Common Heather (*Calluna vulgaris)* is the sole species from the genus Calluna. It is a low-growing shrub, (20-50cm high), which grows on acidic soils. It is the dominant plant in some bog vegetation.

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Complete the table below to show the classification of Heather:

Kingdom	
	Angiosperms
	Eudicots
	Ericales
Family	
Genus	
Species	

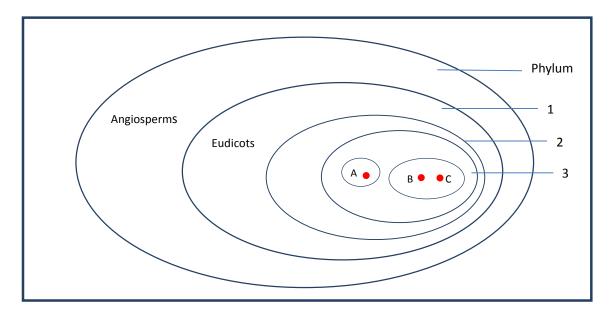**Exercise 2**

Below is a diagram showing the groups to which Common Heather belongs. Two other plants commonly found in Blanket Bogs; *Erica tetralix* and *Erica cinerea* are also included. The three plants are labelled as A, B and C.

1. Name the taxonomic groups labelled 1, 2 and 3.

2. Which of the plants, A, B or C is Common Heather? How can you tell?

3. Which two of the three plants are most closely related? How can you tell?

4. How could you verify that these two closely related plants are not from the same species?

5. Bilberry (*Vaccinium myrtillus*) is another plant in the Ericaceae family that grows in Blanket Bogs.

   Add a D to the diagram to show where Bilberry should be in relation to the other three species already shown.

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Statistical exercise:

The table below shows an extract of the data collected by MoorLIFE research assistants in 2011. The MoorLIFE project aims to restore Blanket Bogs on the South Pennine moors. In order to measure the success of the restoration program, vegetation has been monitored. Four sites have been studied, each at a different stage in the restoration process. Five quadrats were placed in each area and the percentage cover for Wavy-hair grass (*Deschampsia flexuosa*) was found in each quadrat.

Site	Quadrat	Per cent cover of *Deschampsia flexuosa*
Penguins (intact site- no need for restoration)	1	15
	2	20
	3	20
	4	25
	5	5
Control (bare peat –site never treated)	1	0
	2	25
	3	0
	4	0
	5	0
Woodhead (Partially brashed, will receive restoration in 2012)	1	0
	2	0
	3	0
	4	0
	5	0
Joseph's Patch (restored 2003)	1	30
	2	35
	3	15
	4	15
	5	15

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For each of the sites calculate the average per cent cover of Wavy-hair grass and the standard deviation. Plot these results on a suitable graph then answer the questions below.

1. During the monitoring of the restoration a control site has been used. Why was it important to record vegetation on a bare peat site that has never been treated?

2. Using your graph and data, is it possible to conclude whether there is a significant difference between a site that has not yet been treated (Woodhead) and Joseph's Patch which was treated in 2003? Explain your answer.

3. Using your data and graph, is there a significant difference between a restored site and the intact site? Has the restoration been successful yet? Explain your answer.

4. Which of the four sites has the greatest variation in per cent cover? What may cause this variation?