

## Purpose

This activity is designed to introduce pupils to the taxonomic research that goes on in the Natural History Museum. Using botanical and entomological examples in the Darwin Centre, pupils will gather information to be used in their own expedition plan.

## Activities

- Using the Natural History Museum's resources to explore how scientists collect, share and interpret evidence
- Visiting *Cocoon* in the Darwin Centre
- Making an expedition plan for investigating malaria or leishmaniasis

## Learning objectives

- To develop knowledge and understanding of how taxonomic research has implications for medical research
- To understand how scientists share, interpret and collect evidence on a global scale
- To select and identify relevant information to use in an expedition plan aimed at persuading a funder to support their trip

## Organisation

- Whole class starter and visit review
- Individual, group or pair work to research malaria or leishmaniasis expedition plan
- Research can be used as homework
- Funding board scenario to review projects
- You may wish to select a winner, depending on your class.

## Differentiation

The malaria option is more straightforward – information is easier to source within the exhibition and online. A paper abstract is provided for summary. This choice is more relevant for medical research. Leishmaniasis is more complex to investigate. Information is less easy to locate and interpret. A full project report is provided for summary.



## Syllabus links

### 2. Aims

- a) Encourage students to develop their interest in and enthusiasm for the subject, including developing an interest in further study and careers in the subject.
- d) Encourage students to develop and demonstrate a deeper appreciation of the skills, knowledge and understanding of How Science Works.

### 3. Specification content

#### 1.3 Biodiversity

- c) Biodiversity can be measured, for example within a habitat or at the genetic level.
- d) Classification is a means of organising the variety of life based on relationships between organisms and is built around the concept of species.
- e) Originally classification systems were based on observable features but more recent approaches draw on a wider range of evidence to clarify relationships between organisms.

#### 1.9

- c) Transfer of genetic information from one generation to the next can ensure continuity of species or lead to variation within a species and eventual formation of new species.
- f) Gene technologies allow study and alteration of gene function in order to better understand organism function and to design new industrial and medical processes.

## Resource List

- Word expedition example and template

## Suggested Equipment

- Interactive whiteboard for whole class introduction
- Computer suite if you wish pupils to work independently in school

## Challenges

Pupils have to collect evidence to produce an expedition plan. The plan needs to cover the following:

- species they would be studying
- background information about disease
- location of expedition
- evidence to link the species with a medical disease (either malaria or leishmaniasis)
- how they would assess the impact of the disease in the human population
- cost estimate

## Assessment

### Most learners

Learners explain how scientists collect specimens to study and classify. They link this research to medical research, and communicate this clearly including reference to molecular methods. Learners identify relevant information to make a well presented expedition plan.

### Some learners will not have made so much progress

Learners understand scientists collect specimens. They use some examples from their research.

### Some learners will have progressed further

Learners evaluate scientific evidence and working methods to reach their own conclusions. They will use scientific language and show where their proposal relates to a scientific research project. They will communicate clearly in an excellently presented research plan with original elements.

## Page notes

1. Why study DNA?	First pre-visit task. Whiteboard whole class discussion.
2a) Malaria 2b) Leishmaniasis	Pre-visit: Pupils choose disease to focus on: <ul style="list-style-type: none"> <li>• malaria</li> <li>• leishmaniasis</li> </ul> <p>Ideally this stage working independently or in groups at computer</p>
3. Cocoon information	Whole class instructions to visit Cocoon, including collecting NaturePlus cards to gather information.
4. Review what you learnt	Post-visit: Whole class review: pair discussion then sharing to discuss learning from Cocoon, then research time.
5. Submit your plan	Post-visit: Present expedition plan to funding board. Plans are assessed using criteria list. Feedback.