Classify!

Activity Guide

In this activity learners will explore ideas around classification, using keys to classify some of the animals being sequenced by the Wellcome Genome Campus. It also encourages them to think about the use of DNA in identifying different species.

Suitable for: age 7-11
Estimated duration: 30 minutes

You will need:

- **Worksheet**
- **Glue**
- **PowerPoint Slides**
- **Scissors**
- **Laminating pouches (optional)**

Introduction

Scientists from the Wellcome Genome Campus are sequencing the genomes of all species living in the British Isles – that's a lot of life forms! From birds, mammals, fish and even plants, there are a wide range of species being studied.

Every life form has a genome, a set of DNA instructions that make up all living things. DNA sequencing is a method used to decode DNA, taking it from a gloopy substance in a tube and translating it into a sequence of DNA letters. Studying the DNA of different plants, animals and fungi can help us identify different animals and understand how they are adapted to the environments in which they live. It can also help us understand how they are related to other organisms and how they have evolved over time.

Classification is the method used by scientists to sort and organise living organisms. Some species are harder to classify then others so classification keys can be used to ask a series of questions to help identify a particular animal or plant.

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Running the activity

Set up

1. Print out the worksheets and load the PowerPoint before the session starts. Remember, you can make the activity reusable by printing and laminating the classification key worksheet as well as cutting out and laminating the animal images.

Warm up

1. Use the PowerPoint slides provided to introduce the topic of classification. Ask everyone if they have heard of classification. Can they suggest any similarities or differences that animals can be classified by, or observations that help scientists sort animals into different groups? Examples can include: Do they have a backbone?

2. Use slide 2 to introduce the idea of vertebrates and invertebrates. Can anyone think of any other vertebrates or invertebrates?

3. Using slide 3 and 4 explain that scientists can use both observations and DNA to identify species. Ask everyone how they think DNA can help identify species.

Run the activity

1. Using the final PowerPoint slides show the group how to use a classification key. Check that everyone understands how to follow the yes / no questions.

2. Hand out the worksheets, scissors and glue.

3. When everyone has completed their sheets, reveal the answers.

Reflect on it

Ask the group if there were any creatures they found hard to classify? Ask what they think it means for how related the different creatures are to each other?

Highlight how creatures like bats and birds might appear very similar but they are actually really different. Explain this by highlighting how much more similar different birds are to each other compared to bats (even though both can fly). Get the group thinking about how behaviour and things you can't necessarily see are also more similar between certain creatures.

Take it further

Now everyone is confident with classification keys, set the challenge of identifying five other UK species being sequenced in the Darwin Tree of Life project. Can you create your own classification key by choosing a number of their favourite creature features and then sorting a list of creatures based on that?

Want to explore what gives creatures their features further? Have a go at cracking some DNA codes to work out what features it can give.

Code crackers: https://www.yourgenome.org/theme/code-crackers/

Find out more

- What is DNA: https://www.yourgenome.org/theme/what-is-dna/
- Wht is a genome: https://www.yourgenome.org/theme/what-is-a-genome/
- Classification and classification keys by BBC Bitesisze:

https://www.bbc.co.uk/bitesize/articles/zyq9r2p#zhdvvwx
https://www.bbc.co.uk/bitesize/topics/z6wwxnb/articles/zdt2jsg

- The Darwin Tree of Life project: https://www.darwintreeoflife.org/