



# Function Finders

## Activity Guide

Discover how DNA sequences code for proteins with different roles and functions.

Suitable for: age 14+

Estimated duration: 30-45 minutes

### You will need:

- Worksheets
- Protein Profiles
- Codon Wheels
- Pen/Pencil

### Introduction

Function Finders is a paper-based activity that demonstrates the concept of genes encoding proteins.

Learners translate DNA sequences into amino acid chains and use this information to search their booklet for a protein that contains that sequence. The activity can be used as a basis to discuss the role of proteins in the human body and other organisms, and the different functions they serve.

It is important to stress that for all the DNA Sequences, that these are not the entire sequence, but a subset that we can use to search online databases.

### Running the activity

#### How to complete the activity

1. Learners translate their DNA sequence into an amino acid chain using the Codon Wheel.
2. Learners match up the translated sequence with the relevant protein in the Protein Profiles printout.
3. Learner discuss their answers, using the discussion points and prompts.

#### How to use the codon wheel

1. Identify your first 'codon' or 'triplet' - three DNA letters in a row.
2. Start in the middle of the codon wheel and work outwards, each time using the next DNA letter to guide you through the wheel.
3. For example, for the codon CAT, find C in the inner most circle, then follow out to A, then to T. This gives the letter H.

#### Discussing the answers

In Discussion Guide we provide some prompt questions and additional information about the proteins to encourage a group discussion about the role and relevance of difference proteins.