Spring Term 1

B15 -Genetics and evolution

&

B16 Adaptations, interdependence, and competition.

Aiming for Grade 8

Extended Homework Assignment

Name: _____

Set: _____

Instructions

A printed copy should be handed into your teacher.

The knowledge required to complete this assignment will be supported in class in lessons of the half term.

Aiming for Grade 8

Aims

The aim of this homework is to help you revise the main topics in Chapter 15, Genetics and evolution and Chapter 16, Adaptations, interdependence, and competition.

Learning outcomes

After completing this homework, you should be able to:

- describe different theories of evolution
- describe some causes of extinction
- explain how antibiotic resistance develops in bacteria.
-
- state some abiotic and biotic factors
- calculate population size
- describe some things that animals and plants compete for
- explain some adaptations of animals and plants to their environment.

B15 Genetics and evolution

Task

There are three activities. Each activity will help you to revise different material from Chapter B15, *Genetics and evolution*.

Activity 1 – Theories of evolution

You will be completing a table on the ideas of Darwin, Lamarck, and Wallace.

Activity 2 – Fossils and extinction

You will be answering questions on fossils and extinction.

Activity 3 – Antibiotic resistance

You will be drawing a flowchart to explain how antibiotic resistance develops in bacteria, and describing ways to avoid antibiotic resistance developing and spreading.

Activities:

1 Theories of evolution

a Write a paragraph or create a table comparing the ideas of Lamarck, Darwin, and Wallace.

Remember to include:

- A description of their theories
- The evidence for their theories
- The similarities and differences between their ideas
- Was there any opposition to their theories? If so, explain why.

b Imagine you are a priest in a church. Write a letter to explain how you feel about the theory of evolution by natural selection.

2 Fossils and extinction

Answer the following questions about fossils and extinction.

a Describe how fossils form.

.....

.....

b Give reasons why we do not have a complete fossil record.

.....

c Explain why species might become extinct.

.....

.....

3 Antibiotic resistance

a Draw a flowchart to explain how antibiotic resistance develops in bacteria. You can draw diagrams to support your explanation.

b Explain how we can stop antibiotic resistance from developing and how we can stop antibiotic resistant bacteria from spreading.

.....

.....

.....

.....

B16 Adaptations, interdependence, and competition

Questions/task output

Task 1 – Abiotic and biotic factors

Write down all the abiotic factors you can remember. Check them against your notes/the digital textbook. Did you get them all? Repeat with biotic factors.

Give examples of how organisms are adapted to enable them to obtain the biotic and abiotic factors that they need.

Task 2 – Estimating population size

Ruby wanted to find the number of dandelions in her garden. She took 10 quadrat samples. The quadrat size was 1 m^2. Ruby's garden was 250 m^2. The table shows her results.

Quadrat number	1	2	3	4	5	6	7	8	9	10
Number of dandelions	6	0	2	1	7	0	3	2	0	9

Estimate the total number of dandelions in her garden by answering these questions:

1 Use the information in the table to estimate the total number of dandelions in Ruby's garden.

2 Explain why the actual number of dandelions would be different to the number you have calculated in question **1**.

3 Can you explain ways to make your estimate more accurate?

.....

.....

Task 3 – Competition

Without looking at your notes, make a list of the factors that animals compete for. When you can't think of anymore, check against your notes/digital textbook to see if there are any you have missed.

Repeat this with factors that plants compete for.

Can you think of examples of ways that animals have adapted to out compete each other for various factors?

Task 4 – Adaptations of animals and plants

Look at the photos of a camel, a polar bear, and a cactus.

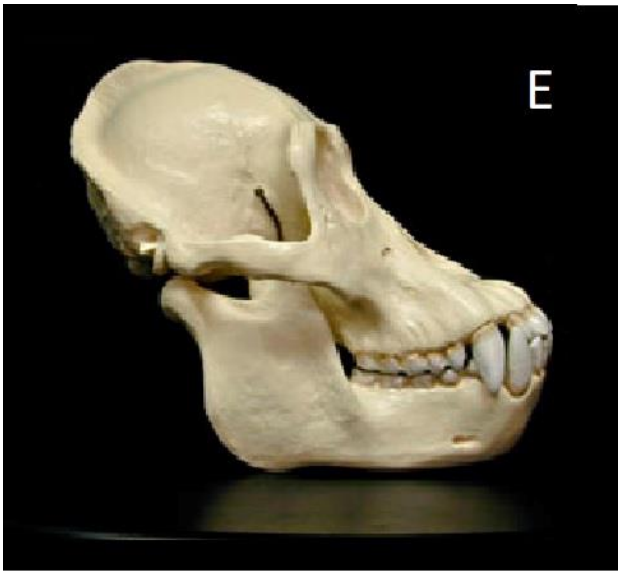
Write down as many adaptations to their environment that you can think of.
Can you explain how these adaptations enable them to survive in their environment?

Task 5 – Adaptations of teeth to diet

Look at the skulls / photos of teeth. Remember that herbivores are plant eaters that have flat teeth for grinding. Carnivores are meat eaters that have pointed teeth for tearing meat.

Sort the skulls into which ones you think are herbivores, carnivores or omnivores. Give reasons for your decisions.

A


E


F