



Sample Pearson Set Assignment Brief

Single Part Assessment

Unit 1 – Principles and Applications of Biology I

For use with:

Pearson International BTEC Level 3 Qualifications in Applied Science

Certificate / Subsidiary Diploma / Foundation Diploma / Diploma / Extended Diploma

Advised Supervised hours	15 Hours
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For completion by the centre

Qualification (select as appropriate)	Certificate / Subsidiary Diploma / Foundation Diploma / Diploma / Extended Diploma
Assessment date	



Instructions to Teachers/Tutors and/or Invigilators

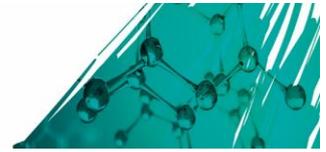
The Pearson Set Assignment should be undertaken in conditions that assure the authenticity of outcome. This may require supervision.

We advise that the Pearson Set Assignment be completed in sessions that come to a total of 15 hours. The Pearson Set Assignment should not be shared with learners prior to the start of the assessment period. Teachers/tutors are responsible for security of the Pearson Set Assignment and materials.

Outcomes for Submission

Learners may submit handwritten or word-processed evidence plus labelled biological drawings where appropriate.

Learners must submit their own, independent work as detailed in the set assignment, together with notes prepared. Each learner must complete an authentication sheet.



Instructions to Learners

You will be asked to carry out specific activities using the information provided. You will be given a specific time period to complete the assignment. Read the Set Assignment Brief carefully.

Your notes should:

- be individually and independently prepared by you
- use short, bullet-point style information, and cannot contain long narrative pieces of text.

At all times you must work independently and must not share your work with other learners. You must complete an authentication sheet and submit this along with your work. This document contains the information you need to prepare for the set assignment.



Set Assignment

You must complete ALL activities

ACTIVITY 1

You are applying to study for a BSc in Cell Biology and your chosen University expects you to be able to demonstrate your knowledge and understanding of the development of specialised eukaryotic cells and tissues when you are interviewed for a place on the course.

You are required to carry out independent research into the process of gastrulation leading to the formation of the three embryonic germ cell layers. You will use your research to analyse the process of differentiation from each of the individual germ cell layers to the formation of different human tissue types and ultimately, the development of body organs and systems.

You must also carry out research so that you are able to describe and compare human tissues types (muscle, nervous, epithelial and connective tissues). You must also research the ultrastructure of animal cells; be able to produce biological drawings of the organelles present in an animal cell and describe the function of each of these organelles.

Complete your research by exploring the structure and function of ground tissues in plants (parenchyma, collenchyma and sclerenchyma).

ACTIVITY 2

Produce an illustrated report that:

1. Includes appropriately labelled biological drawings of the following cellular organelles that can be found within eukaryotic cells:
 - **Golgi apparatus**
 - **Rough endoplasmic reticulum**
 - **Mitochondria**
2. Describes the functions of the three organelles illustrated
3. Illustrates the following types of body tissue:
 - **Skeletal muscle tissue**
 - **Nervous tissue**
4. Describes and compares skeletal muscle tissue and nervous tissue
5. Describes **parenchyma** tissue in plants



This activity covers learning aim A:
A.P1, A.P2, A.M1, A.D1

ACTIVITY 3

Using research that you have carried out into how the musculoskeletal disorders **rotator cuff tendonitis** and **osteoarthritis of the knee** affect the normal structure and function of the musculoskeletal system, produce a report that includes:

- explanation of the structures and functions of the human skeletal system. This must include the following functions of the skeletal system: support, leverage and movement, protection of body organs, production of blood cells, storage of minerals.
- explanation of the normal anatomy and physiology of the **tibiofemoral (knee) joint** and the **glenohumeral (shoulder) joint**. You must fully explain the importance of their structure and role in enabling normal movement at these joints. You must include bones, muscle groups and the associated ligaments and tendons involved in bringing about normal movement of each joint.
- a description and comparison of the conditions **rotator cuff tendonitis** and **osteoarthritis of the knee** that affect different aspects of the musculoskeletal system.
- a detailed evidence describing how normal movement (flexion/extension, adduction/abduction, internal/external, rotation, circumduction) is compromised in **rotator cuff tendonitis** and **osteoarthritis of the knee**. Include an overview of the available treatments health care professionals might utilise to alleviate the symptoms of these disorders.
- a description and comparison of the corrective treatments that are used for **rotator cuff tendonitis** and **osteoarthritis of the knee**.
- a detailed evaluation of how **osteoarthritis of the knee** affects bones, joints and muscle groups and consequently, the normal movement and functioning of the affected joint
- a detailed evaluation of the corrective treatments associated with **osteoarthritis of the knee**. You must include the scientific rationale behind choosing one treatment in preference to others.

This activity covers learning aim B:
B.P3, B.P4, B.M2, B.D2



ACTIVITY 4

You must produce a report relating to the anatomy and physiology of the lymphatic system. Your report will describe the normal functioning of the lymphatic system and the changes that occur when normal functioning is disrupted by disease or disorder. For this activity, your report will focus on the lymphatic disorder **Hodgkin Lymphoma**.

Your report must include:

- a diagram of the anatomy of the lymphatic system which you have labelled independently. (As a minimum you must include the following primary and secondary lymphoid organs; lymph vessels, lymph nodes (axillary and supratrochlear, abdominal, inguinal, and popliteal), valves, thymus, tonsils, lacteals and spleen).
- a description of the formation of lymph and its role in body defence mechanisms.
- a description of how each of the structures included in, or associated with, the lymphatic system work in the healthy state.
- a description of how the normal functioning of the lymphatic system is impaired in the diseased state.
- evaluation and description of the effects of **Hodgkin Lymphoma** and evaluation and description of the corrective treatments associated with the disorder.
- a detailed explanation of the physiological reasoning behind the treatments prescribed in an attempt to correct **Hodgkin Lymphoma** must be included.
- in choosing treatment methods, medical professionals need to take into account the likely benefits to the patient and the potential risks and problems the prescribed treatments may bring. Include these factors in your report.

This activity covers learning aim C:
C.P5, C.P6, C.M3, C.D3