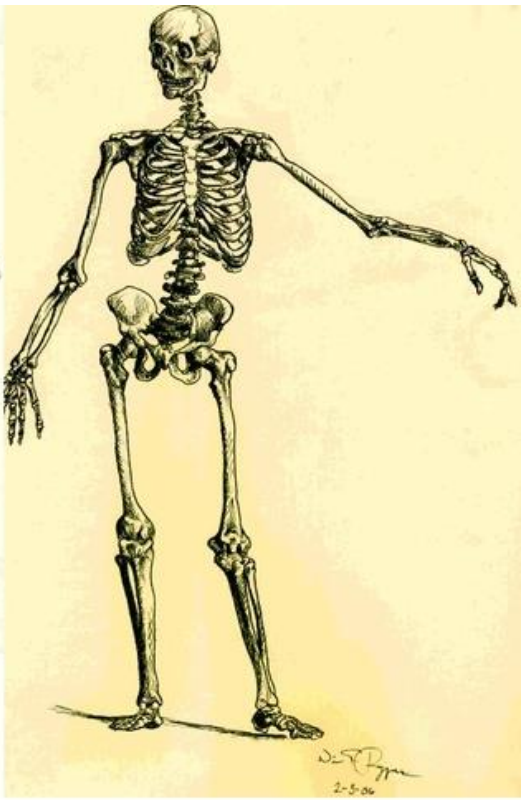
Level 3 BTEC Applied Science Summer Homework

The Musculoskeletal system



Student name: ……..

Tutor name: ……

Student Instructions

- This workbook incorporates elements of Unit 8 Learning Aim A: Understand the impact of disorders of the musculoskeletal system and their associated disorders.

- Complete all of the tasks outlined in the following pages to prepare yourself for the assignment brief.

- You can use diagrams where appropriate (for example when describing the classification of bones, joints, etc).

- You should hand-write the information.

- If you do not have enough room in the workbook, you can add additional sheets as necessary and slot them in or use the notes pages at the end of the workbook.

- If you make a large mistake or numerous small ones, you can print off the relevant page and stick it over the page containing the errors.

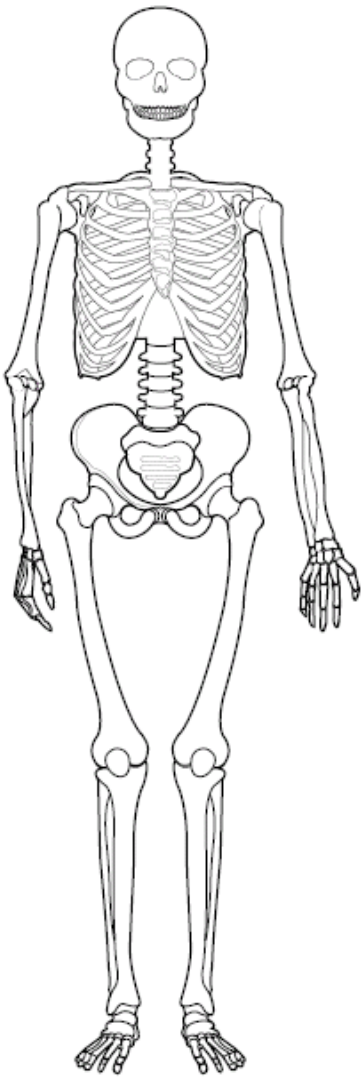
TASK 1

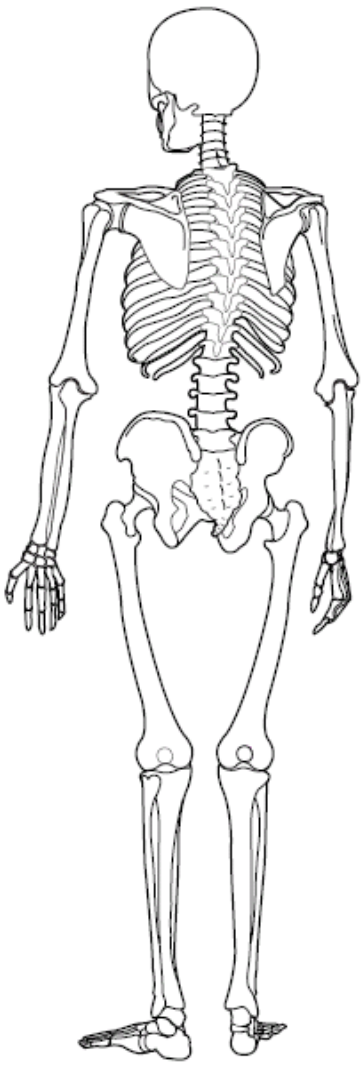
Using the following checklist and diagrams, label all of the bones on the skeleton below.

(Tick against the bones once you have labelled them onto the diagram.)

Bones	Tick when labelled
Cranium	
Mandible	
Maxilla	
Ribs	
Sternum	
Humerus	
Radius	
Ulna	
Scapula	
Clavicle	
ilium	
Pubis	
Ischium	
Carpals	
Metacarpals	
Phalanges	
Femur	
Patella	
Tibia	
Fibula	
Tarsals	
Metatarsals	
Phalanges	
Calcaneus	

The skeletal system:

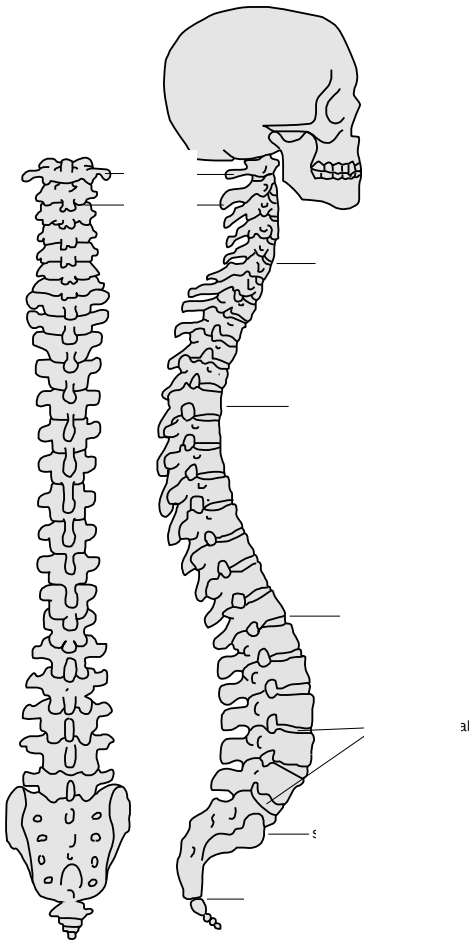




TASK 2

Using the following checklist and diagram, label all of the bones on the vertebral column.

Bones	Tick when labelled
Cervical	
Thoracic	
Lumbar	
Sacrum	
Coccyx	



TASK 3

Describe the five types of bone.

1 – Long bones

2 – Short bones

3 – Flat bones

4 – Sesamoid bones

5 – Irregular bones

TASK 4

Bone composition

Describe the composition using the following headings of bone

Periosteum

Spongy/compact bone

Bone Marrow

Mineral Use

TASK 5

Describe the structure and function / movement available of the three classifications of joints found in the human body with examples. Diagrams may help here.

Joint type 1 - Fibrous
Structure:

Function / movement available:

Joint type 2 - Cartilaginous
Structure:

Function / movement available:

Joint type 3 - Synovial
Structure:

Function / movement available:

TASK 6

Describe the functions of the skeleton.

1 – Support

2 – Protection

3 – Movement (providing attachment for skeletal muscle)

4 – Source of blood cell production

5 – Store of minerals and maintaining mineral homeostasis

TASK 7

Draw each of the six types of synovial joints describing their shape and give an example of each.

Ensure you describe the types of movement allowed at each of the synovial joints. Diagrams may help here.

1 – Hinge

2 – Saddle

3 – Ball & Socket

4 – Condyloid

5 – Pivot

6 – Gliding

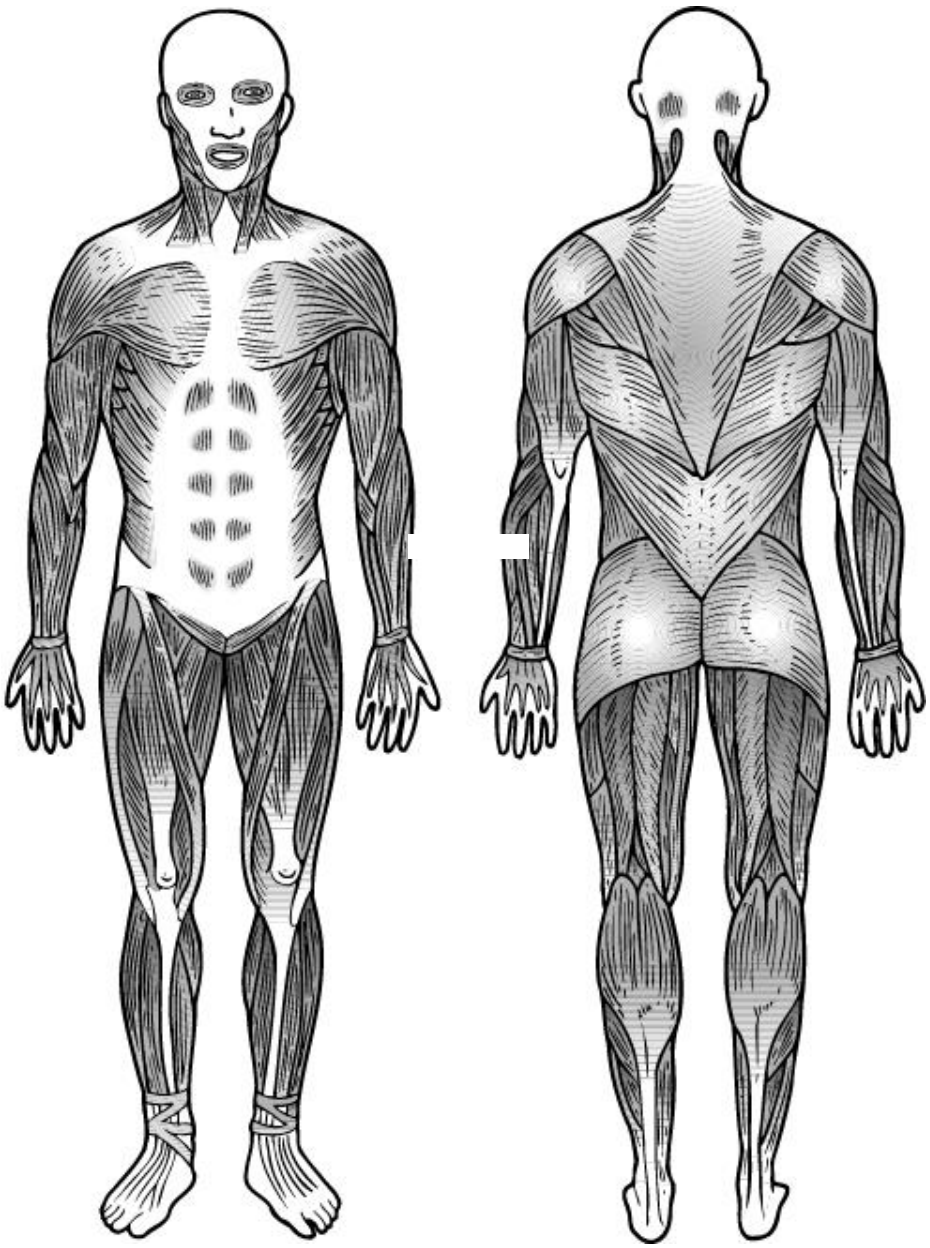
TASK 8

Using the following checklist and diagrams, label all of the major muscle groups and muscles on the diagram below.

Tick against the muscles once you have labelled them onto the diagram.

Muscle Name	Tick when labelled
Trapezius	
Deltoids	
Pectoralis major	
Latissimus dorsi	
Teres major	
Triceps	
Biceps	
Rectus abdominis	
Obliques	
Erector spinae	
Gluteus maximus	
Quadriceps 1. Rectus femoris 2. Vastus lateralis 3. Vastus medialis 4. Vastus intermedius	1. 2. 3. 4.
Hamstrings 1. Biceps femoris 2. Semitendinosus 3. Semimembranosus	1. 2. 3.
Gastrocnemius	
Tibialis anterior	
Soleus	

The muscular system



TASK 9

Describe the 3 types of muscle found within the human body to include the role that they have in the body.

Cardiac –

Smooth –

Skeletal –

TASK 10

Using an illustration identify the location of ligaments and tendons

Describe the composition and role of;

a) Ligaments

b) Tendons

Additional Page if needed

TASK 11

Describe the process of a muscle contraction including the terms slow and fast twitch fibres

TASK 12

Describe the following movements due to the interaction between muscles, bones and joints and their attachments (ligaments and tendons)

Flexion and Extension

Adduction and Abduction

Internal and External

Rotation

Circumduction

TASK 13

Describe the causes, symptoms and common treatments involved in the common disorders or dysfunctions listed below;

Arthritis

Hip Dysplasia

Hypermobility

Bone Fracture and Dislocation

Repetitive Strain Injury (RSI)

Muscle, Ligament and Tendon trauma

Examples of the treatments for the above should include;
Physiotherapy
Arthroscopy
Joint replacement
R.I.C.E