

KEY STAGE 4 – NCFE LEVEL 1/2 TECHNICAL AWARD IN HEALTH & FITNESS – YEAR 10

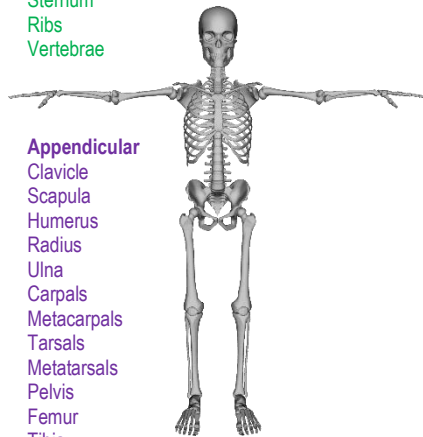
CONTENT AREA 1.1 – SKELETAL SYSTEM

Big Picture: To Develop a Broad Understanding of the Structure and Function of the Body Systems

Structure

The learner will understand how to locate the bones in the 2 sections of the skeleton:

Axial
Cranium
Sternum
Ribs
Vertebrae



Appendicular
Clavicle
Scapula
Humerus
Radius
Ulna
Carpals
Metacarpals
Tarsals
Metatarsals
Pelvis
Femur
Tibia
Fibula
Phalanges

Types of Bones

The learner will understand the types of bones in the body, their primary function and how they relate to movement (where applicable):

Long
- Humerus
- Femur
- Clavicle
- Radius
- Ulna
- Metacarpals
- Metatarsals
- Tibia
- Fibula
- Phalanges

Flat
- Ribs
- Sternum
- Scapula
- Pelvis
- Cranium

Irregular
- Vertebrae

Short
- Carpals
- Tarsals

Sesamoid
- Patella

Types of Joints

The learner will understand the function of joints and the different types of joints in the body:

Fixed joints: Skull and Pelvis

Slightly moveable joints: Vertebrae

Synovial joints:

- Ball and socket: Shoulder/Hip

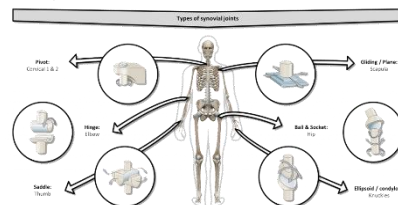
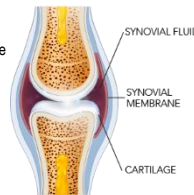
- Hinge: Elbow/Knee

Pivot: Atlas and Axis

Saddle: Thumb

Condyloid: Wrist

Gliding: Fingers



Joint Actions

The learner will understand types of movement, how they relate to ball and socket and hinge joints and their application to specific actions in health and fitness:

Flexion

A decrease in the angle of a joint.

Extension

An increase in the angle of a joint.

Rotation

Revolves a bone or limb around a single axis.

Abduction

A movement of a limb away from the mid-line of the body.

Adduction

A movement of a limb towards the mid-line of the body.

Plantarflexion

Movement of the foot in a downward motion.

Dorsiflexion

Raises the foot upwards towards the shin.

Skeletal Functions

The learner will understand the functions of the skeletal system and how they assist during sport/activity:

Support

Movement

Protection of Vital Organs

Storage of Minerals

Blood Cell Production

Shape/Structure

Synovial Joints

The learner will understand the structure of a synovial joint, the function of each component and how to identify the articulating bones of each synovial joint:

Articulating Cartilage

Provides a smooth lubricated surface to absorb shock and aid movement.

Ligaments

Stabilise joints during movement.

Tendons

Connect muscle to the bones to allow movement.

Synovial Membrane

Lines the joint cavities and makes synovial fluid.

Synovial Fluid

Lubricates the joint to reduce friction between the articular cartilages.

Joint Capsule

Surrounds & seals the synovial joint to provide stability.

The Spine

The learner will understand how to locate the different regions of the vertebral column:

- cervical: atlas/axis
- thoracic
- lumbar
- sacrum
- coccyx

The learner will understand the effects posture can have when performing health and fitness activities and how to recognise postural changes:

Good Posture

- prevents back ache, fatigue, improves technique

Bad Posture

- impairs lung function, causes back, neck and shoulder pain, impairs technique, postural changes:

1. **kyphosis**
2. **lordosis**
3. **scoliosis**

KEY STAGE 4 – NCFE LEVEL 1/2 TECHNICAL AWARD IN HEALTH & FITNESS – YEAR 10

The key questions, key vocabulary & assessment level guidance below can all be used for Homework/Home learning on this topic

HOMEWORK / SUPPORT / UNDERSTANDING

Key Questions

Name the bones of the 'Axial' Skeleton.
Name bones of the 'Appendicular' Skeleton.
List the six functions of the skeleton.
Name bones that protect vital organs and state what they protect.
Name the core of long bones that produces blood cells.
Names the five types of bone.
What is the definition of a joint?
Name a slightly moveable joint in the body.
What are the six types of freely moveable synovial joints in our body?
List the movements possible at the knee joint?
List the movements possible at the shoulder joint?
What is the role of articulating cartilage?
What is the role of ligaments at a joint?
What is the role of the synovial membrane at a joint?
What does synovial fluid do?
What is the role of tendons at a joint?
List the regions of the spine.
Justify why good posture is of benefit to an individual participating in health and fitness activities.
Describe the difference between the following spinal conditions
lordosis, scoliosis or kyphosis.

Key Vocabulary

Abduction – Movement away from the centre line of the body.
Adduction – Movement back towards the centre line of the body.
Appendicular – To add, supplement the part of the skeleton that includes the arms, legs, and the bones that connect them to the trunk.
Axial – Relating to, of, on, around the central axis of the body.
Ball and socket joint – Joint which allows movement in nearly all directions; ball like bone fits into the socket end of another bone.
Bone – The dense, semi-rigid, porous, calcified connective tissue in the body.
Cartilage – Tough, flexible tissue which covers the ends of bones and acts as a shock absorber.
Cervical – Relating to the neck area.
Coccyx – Relating to the tail area of the spine.
Extension – Straightening of a limb at a joint.
Fixed joint – Joint which does not move.
Flat bones – The flat design of these bones helps protect internal organs.
Flexion – Bending of limb at a joint.
Gliding joint – Joint which allows bones to slide forward, backward, and sideways.
Hinge joint – Joint which allows a back and forth movement.
Joint – The place where two or more bones connect.
Kyphosis – Abnormality of the spine causing excessive curvature of the upper back.
Ligaments – Ligaments are the strong white fibrous tissues that connect bone to bone.
Long bones – Cylinder shaped bones which support weight and aid in movement.
Lordosis – Excessive inward curvature of the lumbar region of the spine.
Lumbar – Relating to the lower back area of the spine.
Marrow – Red or yellow tissue in bones which produces red and white blood cells.
Pivot joint – Joint which produces a rotating or rolling motion.
Rotation – Circular movement at a ball and socket joint.
Sacral – Relating to the rump area of the spine.
Short bones – Small bones which slide easily over one another to allow for movement.
Skeleton – The skeleton is the framework of hard tissue which gives the body support and protects soft tissues.
Scoliosis – A condition characterised by sideways curvature of the spine or back bone.
Synovial fluid – Lubricates the joint to reduce friction between the articular cartilages.
Synovial membrane – Lines the joint cavities and makes synovial fluid.
Tendons – Tendons are dense cord like tissues that connect the muscles to the bones.
Thoracic – Relating to the shoulder area of the spine.
Vertebrae – Relating to the spinal column.

Assessment Method

Written Examination - 40% of the technical award

Written examination:

- 80 marks.
- 1 hour 30 minutes.
- a mixture of multiple-choice, short-answer and extended-response questions.

The written examination is a terminal assessment and will assess the learner's knowledge and understanding of all content areas.

The examination is set and marked by NCFE. The assessment assesses learners' knowledge and understanding of the content areas of this qualification.

A variety of assessment questions will be used, including multiple-choice, short-answer and extended response questions. This will enable learners to demonstrate their breadth of knowledge and understanding of the subject and ensure achievement at the appropriate level, including stretch and challenge. Questions will be written in plain English and in a way that is supportive and accessible to learners of all abilities.

The examination date is expected to take place in May/June every year. Please refer to the external assessment timetable available on the NCFE website.

(Remaining 60% is the internal assessment is at school)