PiXL Independence:

PE – Student Booklet

KS4

Applied Anatomy and Physiology

Contents:

I. Quizzes

Complete the quizzes.

10 credits.

Multiple Choice Quiz

1. Which one of the following statements is false?

    a. The scapula, cranium and tibia are bones in the body.
    b. Rotation occurs at ball and socket joints.
    c. Ligaments attach bone to muscle.
    d. The skeleton stores minerals in the body.

2. What are the two bones in the lower arm?

    a. Ulna and radius
    b. Ulna and humerus
    c. Radius and humerus
    d. Humerus and clavicle

3. What type of movement is used at the elbow when a basketball player is releasing the ball to take a set shot?

    a. Rotation
    b. Extension
    c. Flexion
    d. Abduction

4. Which of the following statements is false?

    a. The skeleton gives body shape and support.
    b. The skeleton gives protection to vital organs.
    c. The skeleton produces red and white blood cells
    d. The skeleton is made up of three different skeletons- axial, appendicular and articular.

5. Which are the following statements is true?

    a. The quadriceps and triceps are a muscle pair.
    b. The deltoid is situated in the shoulder.
    c. The hamstring is situated in the lower leg.
    d. There are two types of muscle in the body.

6. The agonist is:

    a. The working muscle that produces the movement.
    b. A stabiliser for the origin of the prime mover.
    c. Also known as the secondary mover.
    d. An insertion point where a muscle attaches to a bone.

7. What is the muscle in the upper back called?

    a. Latissimus Dorsi
    b. Pectorals
    c. Trapezius
    d. Gluteals

8. What muscle causes the knee to bend whilst a hockey player is dribbling with a ball and running down the pitch?

    a. Gastrocnemius
    b. Quadriceps
    c. Hamstring
    d. Gluteals

9. What order does a first class level follow?

    a. Fulcrum Load Effort
    b. Load Fulcrum Effort
    c. Load Effort Fulcrum
    d. Load Fulcrum Load

10. When bowling in cricket the movement at the shoulder travels through which plane of movement?

    a. Frontal
    b. Sagittal
    c. Transverse
    d. Multi- planar

11. When performing a cartwheel in gymnastics which axes of rotation is being used?

    a. Frontal
    b. Longitudinal
    c. Multi axes
    d. Transverse

12. Which of the following statements is false?

    a. Second class levers have the load in the middle.
    b. The sagittal plane splits the body into left and right sides.
    c. The axes of rotation for a somersault is frontal.
    d. The effort is in the middle of a third class lever.

13. Blood vessels that carry blood away from the heart to the body are:

    a. Veins
    b. Capillaries
    c. Arteries
    d. Venules

14. Haemoglobin is found in:

    a. Red Blood Cells
    b. White Blood Cells
    c. Plasma
    d. Platelets

15. The pathway of air through the respiratory system is:

a. Nasal passage Alveoli Pharynx Bronchi
b. Nasal passage Pharynx Alveoli Bronchi
c. Nasal passage Pharynx Bronchi Alveoli
d. Nasal Passage Bronchi Alveoli Pharynx

16. What sport is most likely to be an anaerobic exercise?

a. 100m race
b. Hockey match
c. Handball match
d. 800m race

17. Which of the following statements is false?

a. Lactic acid builds up in the muscles.
b. Heart rate increases during exercise.
c. Tidal volume decreases during exercise.
d. Vascular shunt mechanism takes effect during exercise.

18. Cardiac hypertrophy is:

a. The heart becoming weaker
b. The heart becoming stronger
c. The arteries becoming weaker
d. The arteries becoming stronger

19. Exercising makes bones to become stronger. A lack of exercise could result in?

a. Arthritis
b. Osteoporosis
c. Kyphosis
d. Asctoporosis

20. Which of the following statements is false?

a. Muscles get bigger the more you exercise
b. Exercise increases tendon strength
c. Breathing rate increases during exercises
d. The more you exercise the higher your resting heart rate

Fill in the Gap Quiz

1. One function of the body is to produce _____.

2. The joint type at the knee is a _____ joint.

3. The _____ and the _____ are two bones situated in the lower arm.

4. The role of _____ is to reduce friction and act as a shock absorber.

5. The muscles situated in the upper leg are _____ and _____.

6. The _____ is the end of the muscle attached to a bone that is stable.

7. The _____ causes adduction and flexion at the shoulder joint.

8. When two muscles work together to create movement- it is called an _____.

9. When the fulcrum sits in the middle of the lever system is called a _____.

10. When completing a sprint race the leg action in running works in the _____ plane.

11. The _____ axis runs vertically through the midpoint of the body.

12. _____ is when you can move a large output with a smaller effort.

13. _____ carry blood away from the heart to the rest of the body.

14. The _____ valve is between the left atria and left ventricle.

15. Gas exchange takes place in the _____ where oxygen moves into the body and carbon dioxide is removed.

16. During anaerobic exercise _____ is produced.

17. _____ takes place when the body does not have enough oxygen and therefore oxygen is delivered to working muscles instead of non-essential organs.

18. When muscles become bigger and stronger this is known as _____.

19. When you exercise for a long period of time one long term effect of exercise is that resting heart rate _____.

20. When we exercise our breathing rate increases. Alongside this _____ also increases. This is the volume of air either inspired or expired per breath.

Open Ended Question Quiz

1. Describe the role of the ligaments.

2. What is the difference between flexion and extension? Give an example for each.

3. Give two examples of a ball and socket joint and how they can be used in a sporting movement.

4. Describe three functions of the skeleton.

5. Using an example from sport, describe how the quadriceps and hamstrings work as an antagonistic pair?

6. Explain the function of the trapezius?

7. Describe the role of the antagonist?

8. Explain the function of the triceps?

9. Draw a diagram of a second class lever.

10. Using a practical example, explain the longitudinal axis.

11. Using a practical example, explain the sagittal plane.

12. What is meant by the term ‘mechanical advantage’?

13. Describe the role of the capillaries.

14. Using a practical example, explain what is meant by aerobic exercise?

15. Describe the term ‘stroke volume’.

16. Outline the role of white blood cells.

17. Describe two long term effects of exercise on the respiratory system?

18. Describe the term ‘hypertrophy’?

19. Explain the ‘vascular shunt’ mechanism.

20. Describe the short term effects of exercise on the muscular system?

II. Reading Task

Read and summarise the key ideas within the article – ideally in ten points. Create 5 questions relating to both the article and your specification.

50 credits.

http://www.telegraph.co.uk/news/health/children/10719886/Playing-sport-while-young-keeps-bones-stronger-in-old-age.html

http://indianexpress.com/article/technology/science/new-technique-to-make-prosthetic-limbs-feel-more-natural-4690306/

http://www.mensfitness.com/training/pro-tips/7-ways-step-your-fitness-game

https://www.eurekalert.org/pub_releases/2017-09/mu-rbc092217.php

https://www.thelocal.de/20171018/results-of-a-25-year-long-study-show-those-who-exercise-regularly-remain-younger-longer

III. Research Task

Research and find an article which supports or disclaims the ideas in the original article. Write a paragraph to summarise your findings. In this paragraph you must provide a sporting example to support your findings.

30 credits.

IV. Website Task

Website task: Select a website and design a power point presentation you could give to a group of students just beginning the GCSE PE course. Include of each slide key notes you could discuss.

80 credits.

1. https://www.brianmac.co.uk/physiol.htm

2. http://www.innerbody.com/image/musfov.html

3. http://www.teachpe.com/resources/gcse/gcse-movement-analysis/levers

4. http://www.fitness-central.co.uk/health-and-fitness/your-body/circulatory-system/cardiorespiratory-system/index.php

5. http://www.bbc.co.uk/schools/gcsebitesize/pe/exercise/2_exercise_effectsoftraining_rev1.shtml

V. Long Answer Questions

Choose a longer answer question from the question bank below. Write a response to the question. You must include a plan of what you are going to include, a key word board and your final written answer which is completed in full sentences and paragraphs.

100 credits

1. A ball and socket joint can be found at the shoulder within the body and allows rotation as its main method of movement.
   Give two practical examples of using a hinge joint within sport and assess two ways in which the joint creates movement.

2. Using examples from sport, describe the role of antagonist pairs and how it produces movement within the body.

3. Using three different practical examples, describe the planes of movement.

4. Using practical examples; analyse aerobic and anaerobic exercise.

5. One long term effect of exercise is resting heart rate decreases. Using this information describe how cardiac output is affected in both short term effects of exercise and long term.

VI. Videos

Produce a video that shows the use of the body in a practical way. The video must include key sporting examples and clear explanations of what is occurring within the video.

Try to include the whole unit topic in one video.

50 credits per topic.

- The structure and function of the skeletal system
- The structure and function of the muscular system
- Movement analysis
- The cardiovascular and respiratory systems
- The effects of exercise on the body systems

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