# Explain the effects of a warm up and cool down.

|                | Warm Up   |      |         |
|----------------|---|------|---------|
| Description    | - 3 Stages:   |      |         |
|                | light jog   |      |         |
|                | dynamic stretching  |      |         |
|                | sport specific skills   |      |         |
|                | - Improves performance  |      |         |
|                | - Delays fatigue  |      |         |
| Effects on     | - Decrease risk of injury   |      | ō       |
| skeletal       | - Increased force of muscular contraction                             | H,C  |         |
| muscle         | - Greater speed of nerve impulses to muscles                          |      |         |
|                | - Increased temperature   | 2    |         |
| Effects on     | - Increased venous return   | ż-   |         |
| cardiovascular | - Increased blood flow to working muscles                             | НООЕ |         |
| system         | - Increased dissociation of Oxygen from Hb                            |      |         |
|                | - Decreased blood viscosity   |      |         |
|                | Cool Down   |      | ·       |
| Description    | - 2 Stages:   | 2    | 2 2 2 2 |
|                | light jog   | V    | 7       |
|                | static stretching   |      | 1       |
|                | - Speeds up recovery  |      |         |
|                | - Ice baths/compression skins help to remove lactic acid.             |      |         |
| Effects on     | - Decrease levels of DOMS   |      |         |
| skeletal       | - Increase in the speed of removal of lactic acid and                 |      | N.      |
| muscle         | carbon dioxide.   |      | Y       |
|                | <ul> <li>Oxygen rich blood is flushed through muscles</li> </ul>      |      | W.      |
| Effects on     | - Maintains blood flow to supply oxygen                               | #    |         |
| cardiovascular | <ul> <li>Keeps metabolic activity elevated which gradually</li> </ul> |      |         |
| system         | decrease HR and Respiration rate.                                     |      | PB      |
|                | - Maintains respiratory/muscle pumps which prevent                    |      |         |
|                | blood pooling in veins, and maintain venous return.                   |      |         |

|  |         |               | -<br>OR |
|--|---------|---------------|---------|
|  | 0       | 4             |         |
|  | H,C C H | PUUURRERRERRE |         |

# BONE HEALTH AND BONE DISORDERS

### **OSTEOPOROSIS SUMMARY**

- Bone disorder caused by low bone density and deterioration of bone
- It weakens bone makes it prone to fracture e.g. caused by impact in a contact sport
- Effects bones in the hip/spine/wrist joints
- It generally effects older people and women
- Its caused by:
  - -An inactive childhood
  - -Having a serious injury leading to a sedate lifestyle
- How to reduce the chances of developing osteoporosis:
  - -During childhood having a balanced diet and taking part in physical activity
  - -Doing high impact activities, strength training and weight-bearing activities

# GROWTH PLATE INJURIES SUMMARY

- Growth plate area between the epiphysis and the diaphysis in long bones in children and adolescents
- Easy area to cause injury weak area
- Growth plate fractures are caused by:
  - -Force travelling through bone in impact activities e.g. rugby/hockey
  - -Repetition of skills e.g. tennis player constantly trying to perfect volley

# JOINT HEALTH AND JOINT DISORDERS

### **OSTEOSARTHRITIS SUMMARY**

- Degenerative disease loss of articular cartilage at the end of long bones in a joint
- Causes pain, swelling, reduced motion and flexibility
- Friction between bones bone spurs forming
- Osteoarthritis is caused by:
  - -Being overweight which increases mechanical strain on the joint
  - -Injuries to joints when you are younger leads to osteoarthritis in later life
  - -Impact to joints whilst taking part in impact or contact sports can lead to osteoarthritis
- Physical activity can reduce the chances of developing osteoarthritis:
  - -Exercise increases aerobic capacity/manages weight/reduces body fat reducing mechanical strain on the joint
  - -It increases the strength of the muscles around the joint increasing joint mobility

# JOINT STABILITY SUMMARY

- A stable joint compressed and stretched without injury
- Deeper joints with a larger surface area of connecting bone are the most stable type of joint e.g. Ball and socket – weight pushes the head of the femur into the acetabulum
- The more ligaments a joint has the more stable it is
- Muscle tone keeps the tendons around joints tight e.g. rotator cuff in shoulder
- Physical activity:
  - -Strengthens the joint
  - -Without regular exercise ligaments shorten and become less elastic prone to injury
  - -Without exercise synovial fluid will not be released into a joint
  - -Impact sports can cause ligament damage and dislocation of stable joints
  - e.g. the shoulder joint is shallow it could dislocate

### **BONE HEALTH AND BONE DISORDERS QUIZ**

- 1. What is osteoporosis?
- 2. What is osteoporosis caused by?
- 3. What is the growth plate?
- 4. What causes growth plate fractures?

### JOINT HEALTH AND JOINT DISORDERS ACIVITIES

- 1. What is osteoarthritis?
- 2. What causes osteoarthritis?
- 3. What strengthens joints?