

# Year 11

## Unit R042 Applying Principles of Training

### Spring 1 Blended Learning Booklet



Name:

**PRINCIPLES OF TRAINING**

When a coach/performer designs a training programme the following principles should be applied:

|          |  |  |
|----------|--|--|
| <b>S</b> | <b>SPECIFICITY</b><br>Training programmes must be specific to the needs of the sport and the performer.<br>For example, the training needs of a cross country runner will be different from those of a weight lifter.  |  |
| <b>P</b> | <b>PROGRESSION</b><br>To improve and continue to develop, the training programme must be made progressively harder.<br>As the athlete/performer becomes fitter the training needs to be made more difficult.   |  |
| <b>O</b> | <b>OVERLOAD</b><br>To become fitter the body must work harder than normal. This can be achieved by applying the <b>FIT</b> principles:<br>① <b>frequency</b> - how often do you exercise?<br>② <b>intensity</b> - how hard do you exercise?<br>③ <b>time</b> - how long do you exercise for?<br>④ <b>type</b> - is the exercise suitable for your sport? |  |
| <b>R</b> | <b>REVERSIBILITY</b><br>Exercise improves fitness. If we stop exercising our fitness levels will drop.<br>If we train, our muscles get bigger (hypertrophy). Alternatively, if we stop training, our muscles get smaller (atrophy).  |  |
| <b>T</b> | <b>TEDIUM</b><br>Training must be varied to ensure the athlete/performer maintains motivation.<br>If the same activity is performed frequently, training will become repetitive and boring.  |  |

**REMEMBER** - To avoid injury, all training programmes should include a full warm up and cool down.

*Aim to complete two lessons each week.*

*All video links and content are also uploaded on ClassCharts*

*The knowledge organisers have all the key information and vocabulary to help with this unit.*

*Upload all work onto ClassCharts for feedback*

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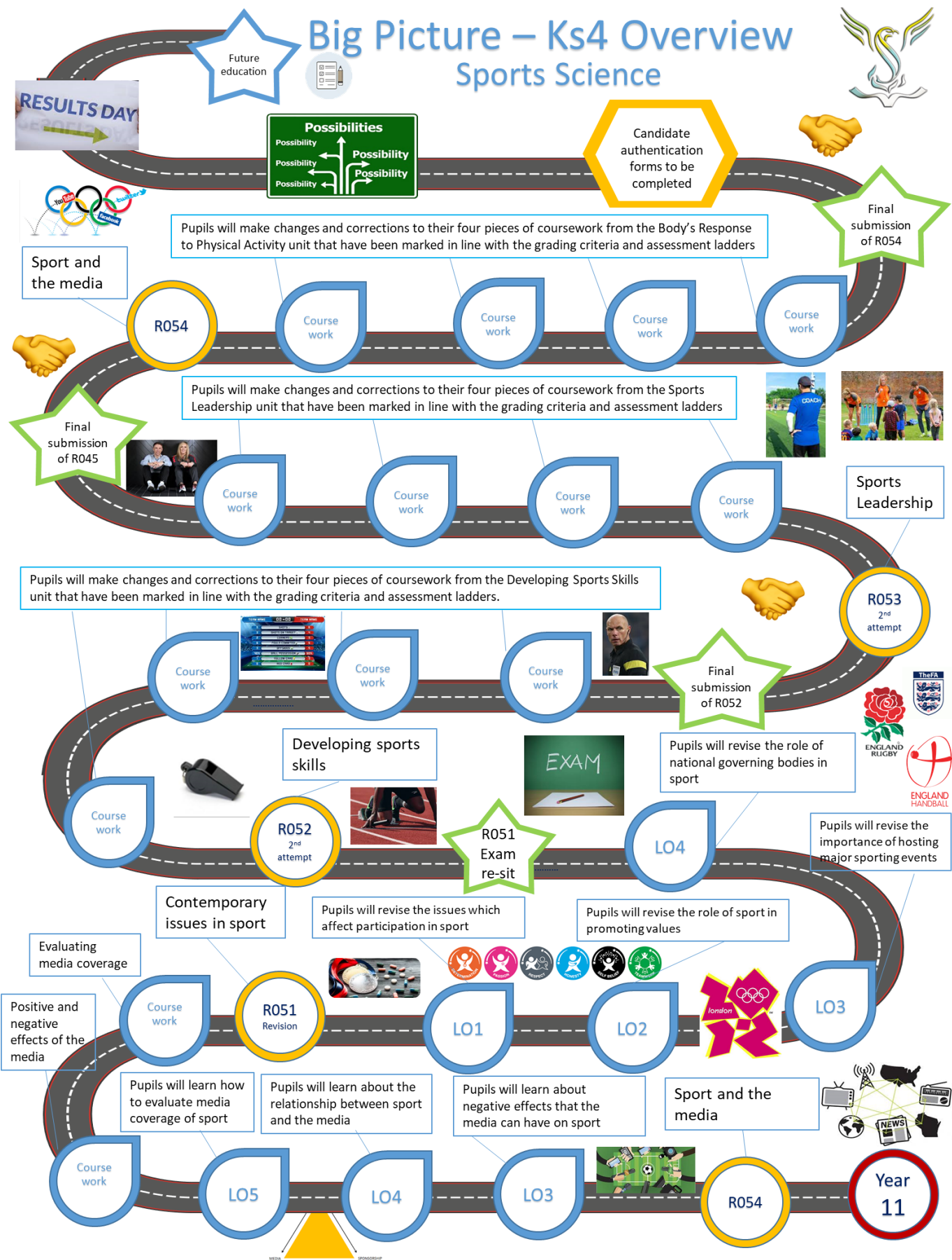
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# Big Picture

## Big Picture – Ks4 Overview Sports Science



## Zoom in

# **ZOOM IN...** **MY LEARNING JOURNEY:**

Subject: Sports Science Year: 11 Unit: R042 Applying Principles of Training

**AIMS**

To introduce students to

- Know the principles of training in a sporting context.
- Know how training methods target different fitness components.
- Be able to conduct fitness tests.
- Be able to develop fitness training principles.

## DEVELOPING COURAGE

- C Writing, speaking and listening to others  
Using body language to help communication.
- O Freedom to speak safely in class  
without fear of failure.
- U Showing respect for others in the team  
and valuing their contributions.
- R Staying with a problem until it is resolved.
- A Monitoring performance and sharing in  
successes.
- G Taking on roles and responsibilities that  
support others in the learning environment.
- E Working in a positive atmosphere.

## PREVIOUS LEARNING

- Factors that influence injury.
- Warm ups
- Cool downs
- Responding to injuries in a sporting context.
- Responding to common medical conditions.

## WHAT WE KNOW/ REMEMBER

- 

## RECOMMENDED READING

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

## UP NEXT

- Sports nutrition
- The role of nutrients.
- What is a healthy balanced diet.
- Effects of a poor diet on sports performance.
- Developing diet plans for sports performers.
- Evaluating the effectiveness of diet plans.

## CAREERS

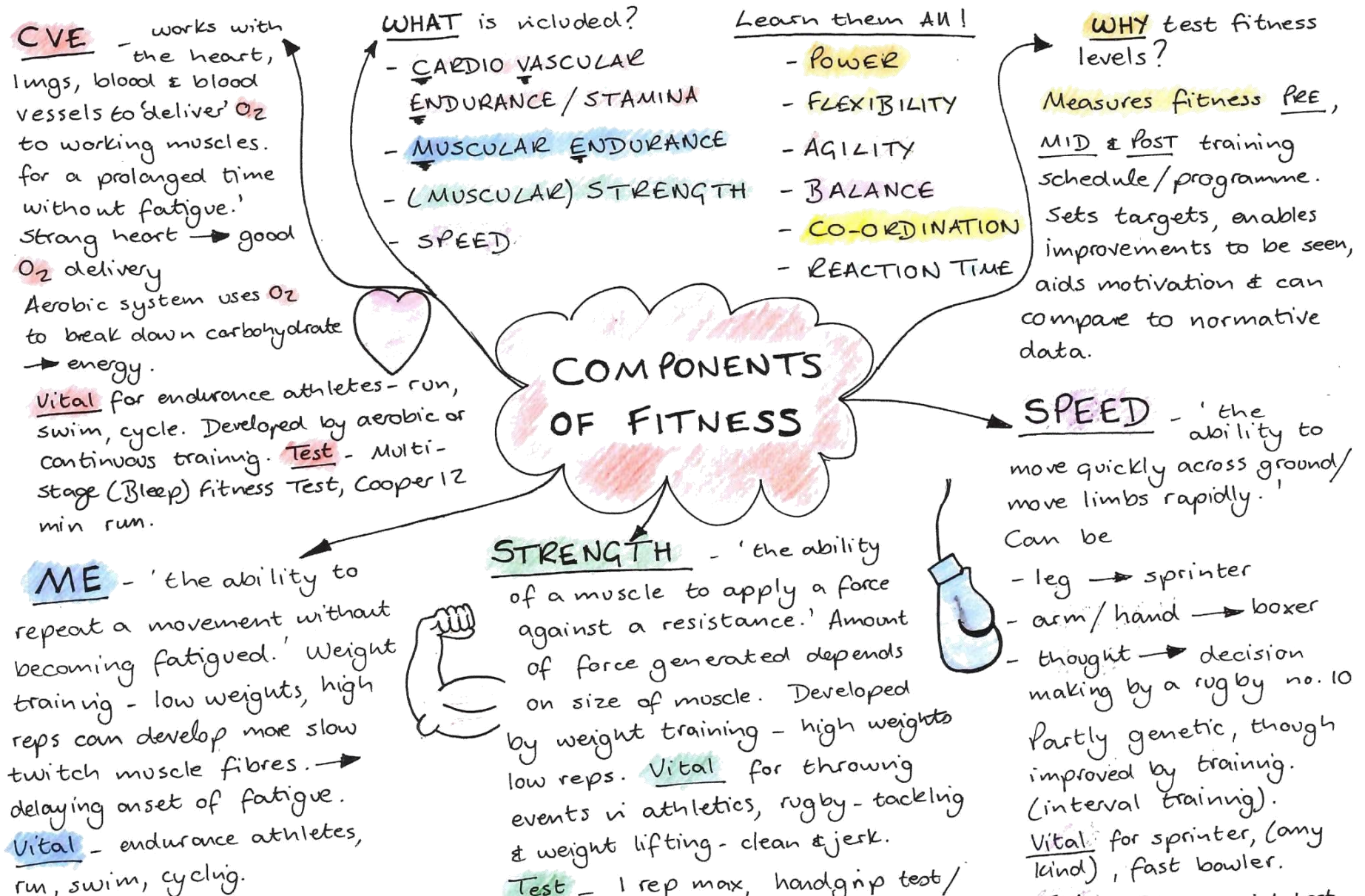
- Physiotherapy
- Sports coach
- PE teacher
- Personal trainer



## PERSONAL OBJECTIVES

-

# Knowledge Organiser





CO-ORDINATION

'the ability to use 2 or more body parts at the same time.'

can be - HEAD  
- HAND } EYE  
- FOOT

Head/Eye → heading a football  
Hand/Eye → catching a netball  
→ moving hand to hit a ball in tennis  
Foot/Eye → taking a conversion in rugby.

Vital in racquet sports - badminton, tennis.

Test - wall throw test / alt hand wall toss

REACTION TIME

'the time taken to respond to a given stimulus.' Vital in sprinting, be it running, swimming or cycling.

Test - Ruler Drop.

Learn all TEN & be able to link with Methods of Training (MoT)

AGILITY - 'the ability to change direction quickly & in control.' 3 main areas

- Core - lower to upper body
- Balance - full control
- Flexibility - efficient movement.

Vital - for a football/rugby winger. Test Illinois Agility

## COMPONENTS OF FITNESS

BALANCE - 'the ability to keep your centre of mass over a base of support.'

- Can be - static (still) eg holding a handstand
- dynamic (moving) tumbling in gymnastics

Vital - in gymnastics, dance

Test - the standing stork Test

POWER

speed x strength.

'the ability to perform a strength movement quickly.' The ability to move an object or athlete up or forward

Vital - throwing in athletics, high jump, sprint starts. Developed by Plyometrics & Weight Training.

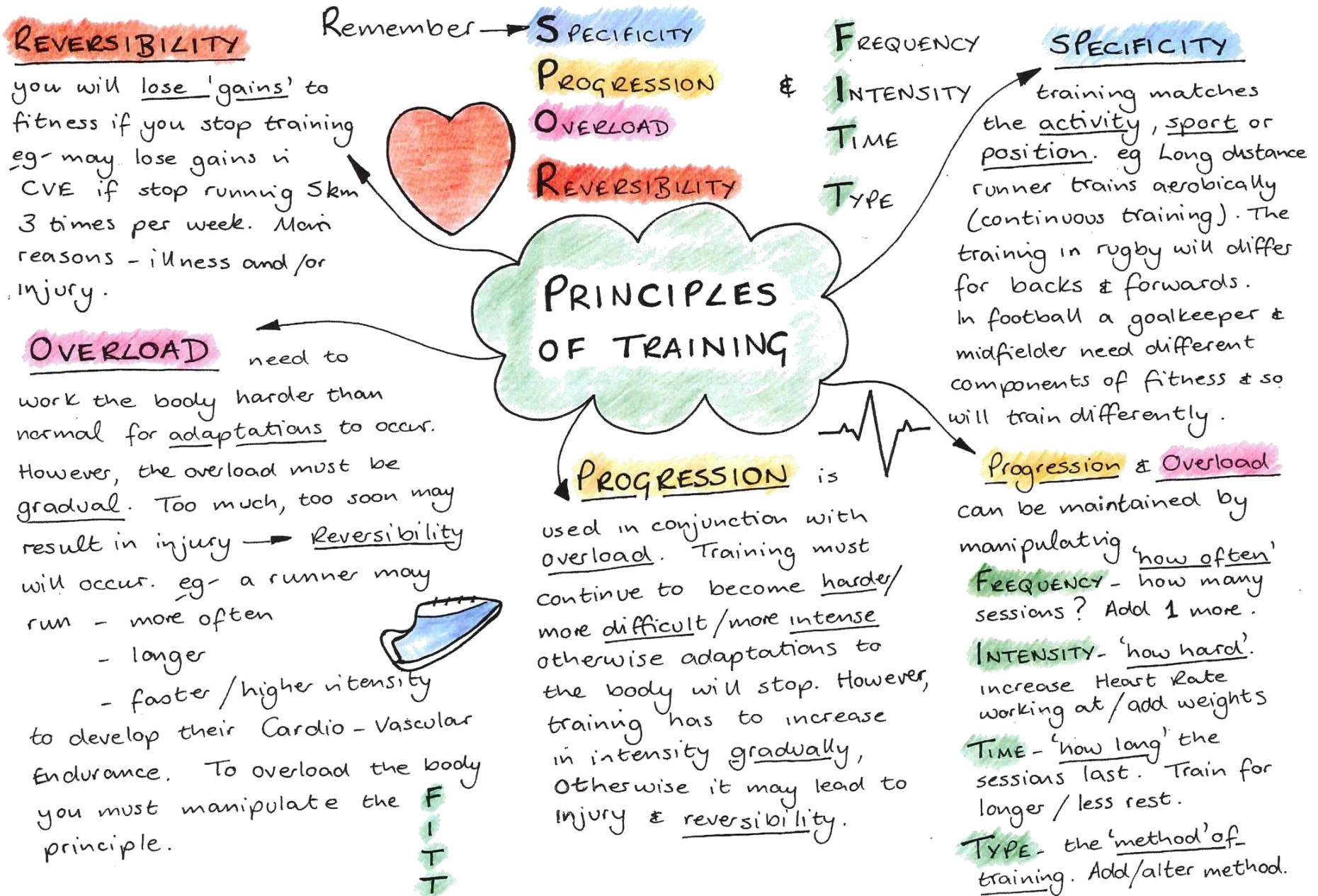
Test - standing long jump, vertical/Sargeaun Jump.

FLEXIBILITY

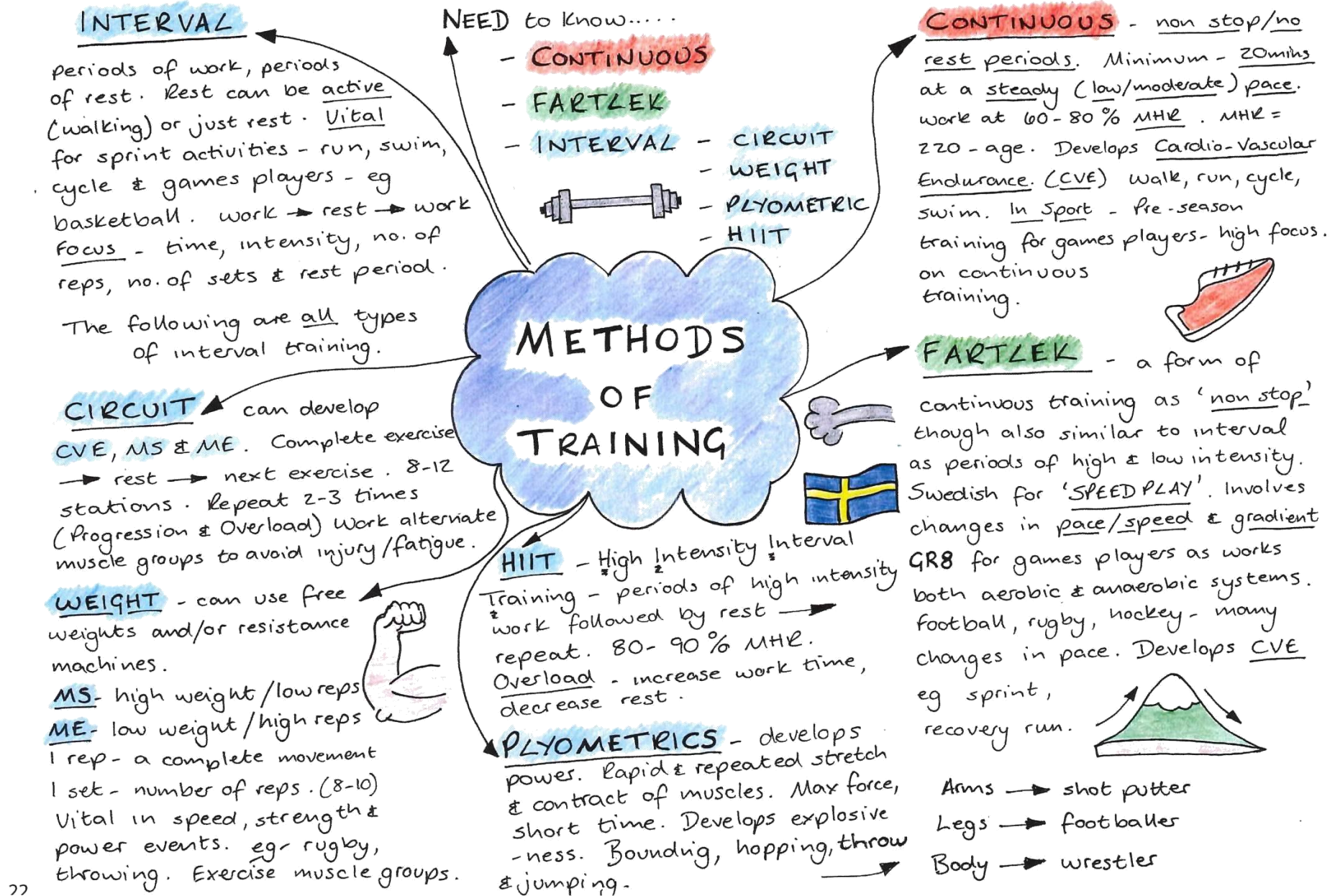
'the range of movement at a joint.' Reduces risk of injury. Less likely to pull/strain a muscle. Increases reach/stretch, due to stronger ligaments & more blood flow → muscles.

Vital - hurdling, dance gymnastics.

Test - Sit & Reach.









## **Lesson 1 and 2**

### **Know the principles of training in a sporting context**

L1: understand the principles of training in a sporting context

#### **Starter**

What is a training programme?

.....

.....

.....

*Define principles of training*

The principles of training are:

- 
- 
- 
- 
-

| Principle of training         | What is it? | Things to consider:                   | Sporting example |
|-------------------------------|-------------|---------------------------------------|------------------|
| Progression                   |             | F<br><br>I<br><br>T<br><br>T<br><br>A |                  |
| Specificity                   |             |                                       |                  |
| Reversibility /<br>Regression |             |                                       |                  |

|                   |  |  |  |
|-------------------|--|--|--|
| <b>Moderation</b> |  |  |  |
| <b>Variance</b>   |  |  |  |

Complete the table to show the principle of **Progression** in an athletes training programme:

|                               | Week 1 | Week 2 | Week 3 | Week 4 |
|-------------------------------|--------|--------|--------|--------|
| <b>Frequency</b><br>How often |        |        |        |        |
| <b>Intensity</b><br>How hard  |        |        |        |        |
| <b>Time</b><br>How long       |        |        |        |        |
| <b>Type</b><br>What type      |        |        |        |        |



## Adherence

commitment

How does using the FITTA principle ensure an athlete is progressing in their chosen sport?

.....

.....

.....

Link the following training activities to the **Specific** sports:

**100M SPRINT**

**10KM RUNS 3 TIMES A WEEK**

**RUGBY**

**RUN, REST, RUN, REST ,RUN REST ETC...**

**FOOTBALL**

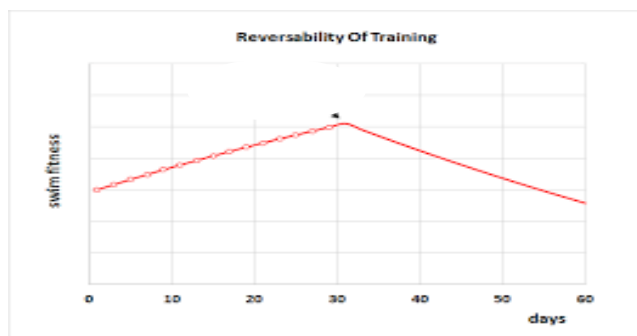
**REACTION TRAINING OVER 30M**

**MARATHON**

**UPPER BODY WEIGHT TRAINING**

### Reversibility / Regression:

Identify on the graph below where the athlete has **Reversed / Regressed** in their training and explain what is now happening to their performance.



Complete the table to show how often a professional footballer and a beginner would **moderate** their training. Write down whether they would:

Train

Rest

Play a game

|              | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
|--------------|--------|---------|-----------|----------|--------|----------|--------|
| Professional |        |         |           |          |        |          |        |
| Beginner     |        |         |           |          |        |          |        |

What different methods of training could an athlete use to show **variance** in their training programme?

Think about the different things you do when you train.

.....

.....

.....

Create a 2 week basic training programme that shows your understanding of **variance**.

|        | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday | Sunday |
|--------|--------|---------|-----------|----------|--------|----------|--------|
| Week 1 |        |         |           |          |        |          |        |
| Week 2 |        |         |           |          |        |          |        |

**Lesson 3 and 4****Be able to conduct fitness tests**

LI: how different training methods target the different components of fitness

**Starter**

List as many fitness components sportsman/sportswomen would need in your chosen sport.

SPORT: .....

|  |
|--|
|  |
|--|

**Task 1**

Describe each of the following components of fitness:

| Component of fitness | Definition | Sporting Example |
|----------------------|------------|------------------|
|                      |            |                  |
|                      |            |                  |
|                      |            |                  |
|                      |            |                  |



|  |  |  |
|--|--|--|
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

## **Task 2**

Create a player profile that identifies the importance of each component in order for your chosen player to be successful in your chosen sport.

**1 = no important at all**

**10 = essential**

*e.g. Usain bolt, 100m sprint, power = 10, cardiovascular endurance = 1, agility = 1, muscular endurance = 3, balance = 7, strength = 8, flexibility = 5.*

**Players name:.....Courtney Laws.....**

**Sport:.....Rugby.....**

| COMPONENT | SCORE | COMPONENT | SCORE |
|-----------|-------|-----------|-------|
|           |       |           |       |
|           |       |           |       |

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|  |  |  |  |

## Lesson 5

### Applying principles of training

LI: know the equations of aerobic and anaerobic exercise

#### Starter

Link each of the components of fitness with the correct definitions.

STRENGTH

An even distribution of weight enabling someone or something to remain upright and steady

POWER

Is the ability of a **muscle** or group of **muscles** to repeatedly exert force against resistance.

MUSCULAR  
ENDURANCE

The ability to quickly change body position or direction of the body.

CARDIOVASCULAR  
ENDURANCE

The range of motion of your joints or the ability of your joints to move freely.

BALANCE

The maximal force you can apply against a load.

FLEXIBILITY

The ability of the heart, lungs and blood vessels to deliver oxygen to your body tissues over a prolonged period of time.

AGILITY

Is the ability to exert maximum force as quickly as possible, as in jumping, accelerating and throwing.

There are two types of training we can do that are controlled by our breathing:

○



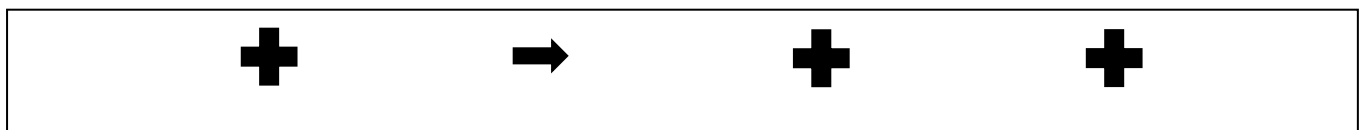
○

**Aerobic** exercise uses oxygen to fuel the body, can be maintained for

..... periods of time. It includes activities like .....,

....., ..... and ..... The

intensity of the exercise is..... and the duration is .....



**Anaerobic** exercise uses no oxygen to fuel the body as energy is produced from the supplies already in the body and is used for ..... powerful bursts.

Activities are usually less than ..... seconds. It includes activities like

..... and

..... The intensity is ..... and duration is .....



**Lesson 6****LI: Identify a variety of training methods**

| TARGETED COMPONENT OF FITNESS | SPECIFIC TRAINING METHOD | DEFINITION/ WHAT IS INVOLVED  | PRACTICAL EXAMPLE OF EXERCISES OR A SESSION                               |
|-------------------------------|--------------------------|---|---|
| Cardiovascular training       | Continuous training      | Continuous training is a type of physical training that involves activity without rest intervals. | Running/ swimming/ cycling/ rowing for 30minutes at a moderate intensity. |
|                               | Fartlek training         |   |   |
|                               |                          |   |   |

|  |                     |  |  |
|--|---------------------|--|--|
|  | Interval training   |  |  |
| Resistance training<br>(muscular endurance & strength) | Resistance machines |  |  |
|  | Free weights        |  |  |
|  | Circuit training    |  |  |
| Power training   | Interval training   |  |  |

|                      |   |  |  |
|----------------------|---|--|--|
|                      |   |  |  |
|                      | Plyometric training                         |  |  |
|                      | Repetition and acceleration sprint training |  |  |
| Flexibility training | Static stretching                           |  |  |

|                  |                    |  |  |
|------------------|--------------------|--|--|
|                  |                    |  |  |
|                  | Dynamic stretching |  |  |
|                  | Passive stretching |  |  |
| Agility training | Agility ladders    |  |  |
|                  |                    |  |  |

|                  |                 |  |  |
|------------------|-----------------|--|--|
|                  | Agility hurdles |  |  |
| Balance training | Balance board   |  |  |
|                  | Exercise ball   |  |  |



# Pre coursework tasks

## Assessment preparation

Think about the tasks that your teacher may set you to assess your knowledge of the principles of training. Make sure you:

- know what the principles of training are and can relate them to different activities
- are clear about what is meant by:
  - progressive overload
  - specificity
  - reversibility/regression
  - moderation
  - variance.

How will you demonstrate the application of each of these to different sporting activities?

## Mark scheme

| L01: Know the principles of training in a sporting context                     |  |  |
|--|--|--|
| Mark band 1  | Mark band 2  | Mark band 3  |
| Outlines <b>most</b> of the principles of training with a <b>few</b> examples. | Describes <b>most</b> of the principles of training with a <b>range</b> of <b>relevant</b> examples. | Describes <b>all</b> of the principles of training with a <b>range of developed</b> examples which are applied to <b>specific</b> sporting contexts. |

## Assessment preparation

Think about the tasks that your teacher may set you to assess your knowledge of training methods. Make sure you:

- know what the components of fitness are
- are clear about what is meant by:
  - cardiovascular training
  - resistance training
  - power training
  - flexibility training
  - agility training
  - balance training.

How will you demonstrate how each of these training methods can be used to improve certain fitness components?

How will you demonstrate that you understand how training methods can be used to target a combination of fitness components?

## Mark scheme

| L02: Know how training methods target different fitness components   |  |  |
|--|--|--|
| Mark band 1  | Mark band 2  | Mark band 3  |
| <b>Outlines</b> aerobic and anaerobic exercise supported with a <b>few</b> examples of training methods.<br>Identifies <b>some</b> of the components of fitness and a <b>limited range</b> of specific training methods which target them. | <b>Describes</b> aerobic and anaerobic exercise supported with <b>some relevant</b> examples of training methods.<br>Identifies <b>some</b> of the components of fitness and describes a <b>range</b> of specific training methods and how they can target fitness components, both individually and in combination. | <b>Comprehensively describes</b> aerobic and anaerobic exercise supported with a <b>wide range of relevant</b> examples of training methods.<br>Identifies <b>most</b> of the components of fitness and describes a <b>wide range</b> of specific training methods and how they can target fitness components, both individually and in combination. |



## Assessment preparation

Think about the tasks that your teacher may set you to assess your knowledge of fitness testing. Make sure you:

- know how to carry out a range of fitness tests
- are clear about what is meant by:
  - reliability
  - validity
  - maximal tests
  - sub-maximal tests
  - normative data.

How will you demonstrate that you understand how to interpret the results of fitness testing?

## Mark scheme

| L03: Be able to conduct fitness tests  |  |   |
|--|--|---|
| Mark band 1  | Mark band 2  | Mark band 3   |
| Carries out fitness tests which produce <b>basic</b> results, which are recorded with <b>limited</b> accuracy. Consideration of protocols and guidelines is <b>superficial</b> . Interpretation of the results is <b>limited</b> . | Carries out fitness tests which produce a <b>range</b> of results, which are recorded with <b>some</b> accuracy. <b>Some</b> consideration of protocols and guidelines is evident. Interpretation of the results is <b>clear</b> with <b>some</b> reference to normative data, reliability and validity. | Carries out fitness tests to produce an <b>extensive range</b> of results, which are recorded with <b>precision</b> . Consideration of protocols and guidelines is <b>clearly</b> evident. Interpretation of the results is <b>clear</b> and <b>detailed</b> reference to normative data, reliability and validity is made. |

## Assessment preparation

Think about the tasks that your teacher may set you to assess your knowledge of fitness training programmes. Make sure that you know:

- how to design a fitness training programme
- how to evaluate a fitness training programme.

How will you demonstrate that you have interpreted results appropriately and thought about how training could be suitably amended in the future?

## Mark scheme

| L04: Be able to develop fitness training programmes  |   |   |
|--|---|---|
| Mark band 1  | Mark band 2   | Mark band 3   |
| The programme aims show <b>some relevance</b> to <b>some</b> of the initial data gathered. There has been <b>limited</b> application of principles of training in its design. The programme meets <b>few</b> of the specific needs and requirements identified in the aims. Needs <b>some</b> individual support to design the fitness training programme. | The programme aims show <b>relevance</b> to <b>most</b> of the initial data gathered. <b>Most</b> of the principles of training have been applied with <b>some effectiveness</b> in its design. The programme meets <b>most</b> of the specific needs and requirements identified in the aims. May need <b>minimal</b> individual support to design the fitness training programme. | The programme aims show <b>relevance</b> to <b>all</b> of the initial data gathered. <b>All</b> of the principles of training have been applied <b>effectively</b> in its design. The programme meets <b>all</b> of the specific needs and requirements identified in the aims. Fitness training programme is designed <b>independently</b> . |
| Mark band 1  | Mark band 2   | Mark band 3   |
| Evaluation is <b>brief</b> with <b>limited</b> reflection on the design and delivery of the programme; suggestions for improvement are general rather than specific.   | Evaluation is <b>detailed</b> and reflects on <b>many</b> aspects of the design and delivery of the programme. Ideas for improvement are <b>mostly relevant</b> and <b>considered</b> .   | Evaluation is <b>comprehensive</b> and reflects on <b>most</b> aspects of the design and delivery of the programme. Ideas for improvement are <b>specific</b> and <b>justified</b> .  |

# Assessment Ladder

| Current Pathway | Unit 1: Applying principles of training Learning objective 1  |   |
|-----------------|---|---|
|                 | Knowledge and Understanding   | Skills  |
| MB3 8-10 marks  | Describes all of the principles of training with a range of developed examples which are applied to specific sporting contexts. | <p>Ability to work independently to create to create high standard of coursework</p> <p>Extensive use of principles of training examples to back up discussion.</p> <p>Extensive and correct use of principles of training terminology.</p> |
| MB2 5-7 marks   | Describes most of the principles of training with a range of relevant examples.   | <p>Ability to produce some coursework with some comprehension of the task</p> <p>Wide use of principles of training examples to back up discussion.</p> <p>Wide and correct use of principles of training terminology.</p>                  |
| MB1-4 marks     | Outlines most of the principles of training with a few examples   | <p>Ability to create some coursework.</p> <p>Some principles of training examples used.</p>   |

| Current Pathway | Unit 2: Applying principles of training Learning Objective 2   |   |
|-----------------|--|---|
|                 | Knowledge and Understanding  | Skills  |
| MB3 12-15 marks | <p>Comprehensively describes aerobic and anaerobic exercise supported with a wide range of relevant examples of training methods.</p> <p>Identifies most of the components of fitness and describes a wide range of specific training methods and how they can target fitness components both individually and in combination.</p> | <p>Ability to work independently to create to create high standard of coursework</p> <p>Extensive use of component of fitness examples to back up discussion.</p> <p>Extensive and correct use of component of fitness terminology.</p> |
| MB2 7-11 marks  | <p>Describes aerobic and anaerobic exercise supported with some relevant examples of training methods.</p> <p>Identifies some of the components of fitness and describes a range of specific training methods and how they can target fitness components both individually and in combination.</p>                                 | <p>Ability to produce some coursework with some comprehension of the task</p> <p>Wide use of component of fitness examples to back up discussion.</p> <p>Wide and correct use of component of fitness terminology.</p>                  |
| MB1 1-6 marks   | <p>Outlines aerobic and anaerobic exercise supported with a few examples of training methods.</p> <p>Identifies some of the components of fitness and a limited range of specific training methods which target them.</p>  | <p>Ability to create some coursework.</p> <p>Some component of fitness examples used.</p>   |