

**GOVAN HIGH SCHOOL**  
**INTERMEDIATE 1**

**PREPARATION OF THE BODY**



**GYMNASTICS**

Name.....

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Key Concept	Key Feature
<p><b>KC 1: Fitness assessment in relation to personal performance and the demands of activities</b></p>	<p>Consider how fitness assessment can contribute to performance and training through either of the following:</p> <ul style="list-style-type: none"> <li>• the accurate collection and recording of data in standard tests or in full performance context.</li> </ul> <p>For example:  <b>Physical</b> - 12 min Cooper, Leger, Sit and Reach  <b>Skill-related</b> - Ruler drop, Alternate hand throw</p> <ul style="list-style-type: none"> <li>• identifying strengths and weaknesses in relation to physical, mental or skill-related fitness.</li> </ul>
	<p>Consider the use of test results to help planning and monitoring of training programmes for performance improvement.</p>
<p><b>KC2: Application of different types of fitness in the development of</b></p>	<p>Consider the differences between general and activity specific fitness for selected activities.</p>

<p><b>activity specific performance</b></p>	<ul style="list-style-type: none"> <li>• selected activities</li> <li>• role within the activity</li> </ul>
<p><b>KC3: Physical, skill-related and mental types of fitness</b></p>	<p>Consider the benefits of activity specific training programmes</p> <p>All types of fitness should be covered, as well as 2 aspects of fitness from each type which are to be studied in depth</p> <p>Physical Aspects: Cardio Respiratory Endurance, Muscular Endurance, Strength, Speed, Power, Flexibility.</p> <p>Skill Related Aspects: Reaction Time, Agility, Coordination, Balance</p> <p>Mental Aspects: Mental Rehearsal, Managing Emotions</p> <p>Look at the relationship between different types/aspects of fitness and the development of performance,</p>
<p><b>KC 4: Principles and methods of Training</b></p>	<p>Know and understand the relevant principles of training (SPORT)</p> <p>Specificity: activity/person/performance</p>

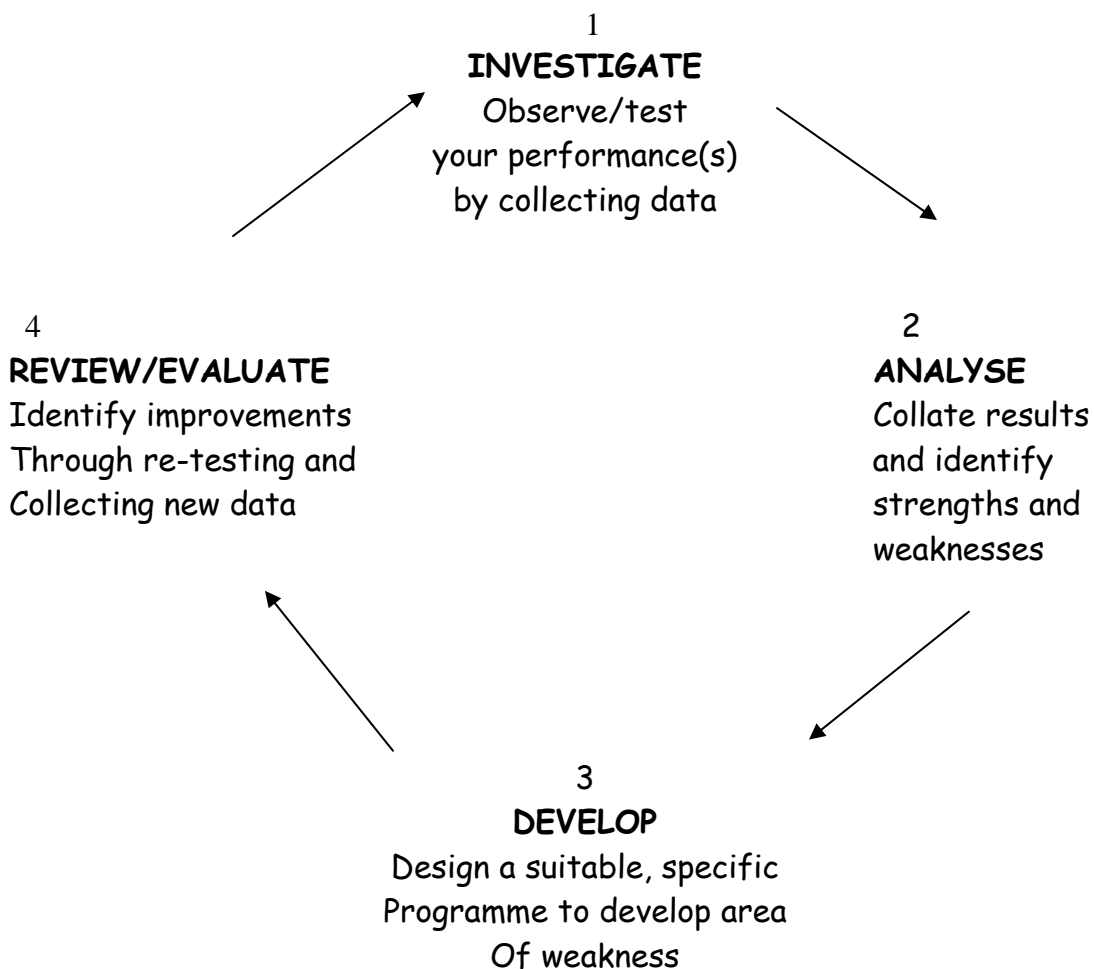
	<p>Progressive Overload: frequency/intensity/duration/adaptation</p> <p>Select different training methods to improve physical, mental and skill related fitness (eg. circuit training, weight training, conditioning, relaxation)</p>
<p><b>KC 5: Planning, implementing and monitoring training</b></p>	<p>Different phases of training, including phase within a single training session and in the longer term (eg. Pre-season, competition, close season)</p> <p>Understand the importance of planning and monitoring progress in pursuit of personal goals using one or more of the following methods:</p> <p>Methods: Video/observation sheets/ training diary/personal evaluation/game analysis</p>

## THE CYCLE OF ANALYSIS

The Cycle of Analysis is useful for analysing and developing your performance as part of your performance improvement programme. Using the Cycle of Analysis, you collect information about your performance in an organised way.

Study the six stages of the Cycle of Analysis in diagram 1. These six stages can be applied effectively to badminton. By using the Cycle of Analysis, you can continue to improve your performance and so avoid reaching a **learning plateau** - a stage of no apparent progress.

## Cycle of Analysis



## INTRODUCTION

In *Preparation of the Body* we look to improve our performance in Gymnastics through improved fitness.

We will look at various *aspects of fitness* and how they relate to achieving our peak performance.

We will collect *data* based on the whole performance and from standardised tests in order to identify our *strengths and weaknesses*. Furthermore we will use this data to *monitor and evaluate* our performance in order to identify improvements.

We will design a *training programme* based on the results of our evaluation. The training programme will be created using different *methods of training, mid-testing* and *end testing*. We will also apply the *principles of training* to ensure our training is *progressive*.

## FITNESS DEMANDS

Fitness demands will vary enormously between different activities. For example, if you are a professional footballer, this does not mean you have the same fitness as a professional gymnast.

There are **3 types of fitness**:-

**Physical**

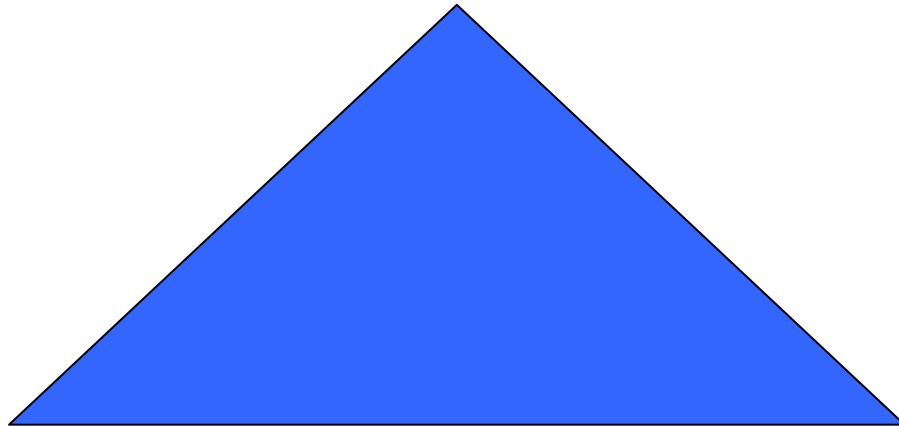
**Mental**

**Skill Related**

Each type of fitness has several aspects of fitness within them that can be tested individually in order to identify which are strengths and which are weaknesses.

## TYPES OF FITNESS

**PHYSICAL**



**SKILL RELATED**

**MENTAL**



## ASPECTS OF FITNESS

MENTAL	PHYSICAL	SKILL-RELATED
<b>Determination</b> Motivation Level of Arousal <b>Concentration</b> Managing Emotions	Cardio-Respiratory Endurance (CRE) <b>Power</b> Strength <b>Flexibility</b> Speed <b>Muscular Endurance</b>	<b>Agility</b> <b>Balance</b> <b>Co-ordination</b> Reaction Time

Each type of fitness is made up of different aspects of fitness.

Your ability and participation in *Gymnastics* will depend of the level of each type of fitness you possess.

Each aspects of fitness contributes to your overall fitness.

## PHYSICAL ASPECTS OF FITNESS

The table below outlines the 6 Physical Aspects of fitness. During the course you will perform these tests and should complete the results section.

ASPECT	DEFINITION	STANDARDISED TESTS	MY RESULTS
1. <b>Cardio Respiratory (cardio-vascular) endurance</b>	The ability of the heart (Cardio) and lungs (Respiratory) to maintain a plentiful supply of oxygenated blood to the muscles enabling the athlete to maintain near maximal effort over a long period of time.	<ul style="list-style-type: none"> <li>• 20 metre shuttle run (bleep) test.</li> <li>• Cooper 12 minute run.</li> <li>• T5 Swim Test</li> <li>• 10m Multistage Swim test (MSST)</li> </ul>	
2. <b>Local Muscular Endurance</b>	The ability to use the same muscle or group of muscles repeatedly without getting tired.	<ul style="list-style-type: none"> <li>• 30 second sit up test</li> <li>• 2 minute push up test</li> <li>• Harvard Step test (5mins)</li> </ul>	
3. <b>Speed</b>	The ability to contract a muscle group or muscle quickly -whole body and part body speed.	<ul style="list-style-type: none"> <li>• 50 metre sprint (leg speed)</li> </ul>	
4. <b>Strength</b>	The maximum amount of force a muscle or group of muscles can exert in a single effort.	<ul style="list-style-type: none"> <li>• Hand dynamometer (hand strength)</li> <li>• Leg dynamometer (leg strength)</li> </ul>	
5. <b>Power</b>	The ability to release maximum force very quickly - a combination of strength and speed.	<ul style="list-style-type: none"> <li>• Standing Broad Jump (leg power)</li> <li>• Standing vertical Jump (Leg Power)</li> <li>• Throwing a ball/discus (Arm Power)</li> </ul>	
6. <b>Flexibility</b>	The ability to move muscles through their full range of movement and to move joints with ease.	<ul style="list-style-type: none"> <li>• Sit and Reach test (Hamstrings and Lower back)</li> <li>• Arm and Shoulder Reach.</li> <li>• Trunk extension test.</li> </ul>	

## SKILL RELATED ASPECTS OF FITNESS

As with the Physical Aspects of fitness it is possible to test objectively the skill-related aspects of fitness. Look at the information sheets, "skill related aspects of fitness" in the Fitness Gym which describe these tests and when you have performed them fill in your results in the table below.

SKILL RELATED ASPECT OF FITNESS	DEFINITION	TEST	RESULT
<b>Co-ordination</b>	The ability to control movements smoothly and fluently	Alternate Hand Wall Test	
<b>Agility</b>	The ability to move the body quickly and precisely	The Illinois Agility Test	
<b>Balance</b>	The ability to retain the centre of gravity over your base of support-static and dynamic balance.	Stork Test	
<b>Reaction Time</b>	The time taken between the recognition of a signal and the start of a movement	Ruler Drop Test	

## MENTAL ASPECTS OF FITNESS

Mental preparation is important in many activities. In some cases performers will attempt to "visualise" their performance and to mentally "rehearse" what they have to do.

MENTAL ASPECT	DESCRIPTION
<b>Determination</b>	Determination to challenge and win the race/ball/competition, determination to remain focussed. Determination to improve performance level through training
<b>Motivation</b>	Motivation and desire to win the game/competition. Motivation to attend training. Motivation can also be external factors - such as trophies/rewards.
<b>Level of Arousal</b>	Must be optimum to produce the right climate for the game/race/competition.
<b>Managing Emotions</b>	Keep calm and focussed on what you have to do. Do not let the competition/fans/opposition affect your behaviour or performance.
<b>Concentration</b>	Allows players to focus on the important aspects of the competition as ignore unimportant negative factors.

## PERFORMANCE FITNESS REQUIREMENTS FOR GYMNASTICS

Depending on the specific event you are competing in the fitness emphasis will shift. Floor routines will require strength and flexibility, whilst a vaulting event will require more speed and power. However all of the following are important to some degree.

### PHYSICAL ASPECTS OF FITNESS

**Flexibility** is extremely important especially of the shoulder and hip joints. This allows a wider range of movement and also allows you to place the limb or limb segment in the most mechanically advantageous position, and hold it still. This will increase the skill efficiency and improve the aesthetic value of each skill. **Resulting in better marks from the judges.**

**Power or explosive strength** is required for vaults/floor springs. The maximal force to propel them upwards and forwards at speed to gain an advantage height into the skill/vault.

**Muscular endurance** Gymnastics requires repeated contractions of our arm muscles (biceps and triceps), shoulder muscles (deltoids), back muscles (trapezius and lats) and our leg muscles thighs (quadriceps), hamstrings, gluteals (buttocks) and calves. To hold the body in position Therefore **muscular endurance is vital to delay the onset of fatigue**, which prevents our muscles from working to full capacity thus affecting our ability to perform basic skills and execute them effectively. Having effective muscular endurance also delays the production of lactic acid and delays fatigue.

**Speed** is important in run ups to vaults and during floor routines to gain your maximal pace to cover the distance as quickly as you can. It helps gain momentum and contributes to create power.

**Strength** is required in the shoulders (deltoids) arms (biceps and triceps) abdominals, thighs (quadriceps) and back (trapezius and lats) to support the body in various position, and pull the body up (eg on to bars).

**Cardio respiratory endurance** is more important for floor events when your body is working at a steady pace over a longer period of time. The energy required to do this is supplied **aerobically** (this will be explained in detail later), which requires your heart, lungs and blood system to supply O<sub>2</sub> to the working muscles throughout the swim. Therefore **a high level of CRE delays the onset of fatigue**. This means that your performance level doesn't drop allowing you to complete the event in the same high quality.

## SKILL RELATED ASPECTS OF FITNESS

**Coordination** of the gymnast is required to use arms and legs in a specific order. Therefore coordination of these movements is vital for the flow and efficiency of the skill/routine.

**Balance** is important in every gymnastics event. Marks are given for the quality of a move, and the stillness and controlled nature in which they are performed.

**Agility** is important when performing as you need to change your body position quickly and neatly.

## MENTAL ASPECTS OF FITNESS

**Determination** is important for any athlete. They must be determined to succeed.

**Motivation** it is important that you are motivated to do your best if not you will lack the desire to try hard and will give up too easily when the going starts to get tough.

**Level of arousal** it is important to be in the right frame of mind to perform. If you are not "up for the race" then you will not perform to the best of your ability and lack enthusiasm. However, if you are too psyched up or anxious you will also not perform to your best, for example false starting or increased muscle tension leading to poor stroke production.

**Managing Emotions** is important for anyone performing in a competitive environment. You must be able to 'tune out' the crowd, and anything negative **from the opposition**. You must not let the atmosphere and occasion affect your performance in any way.

**Concentration** it is important to remain focused on your goal throughout your performance. It is also important to concentrate on the quality of each skill.

## TASK 1: GYMNASTICS FITNESS DEMANDS

There are many different events in gymnastics. Each event/discipline requires different levels of fitness.

Fill in the table below by ticking the aspect(s) of fitness that relates to that particular event.

<b>Event</b>	<b>Speed</b>	<b>Power</b>	<b>CRE</b>	<b>LME</b>	<b>Flexibility</b>	<b>Strength</b>
<b>Floor</b>						
<b>Beam</b>						
<b>Vault</b>						
<b>Asym- metric Bars</b>						

## Stage 1 - INVESTIGATE

### Data Collection

Look back to the Cycle of Analysis (p6). The first thing we need to do is INVESTIGATE our performance, so we know what our strengths and weaknesses are.

Investigating means that we must **collect data** (information) about our performance and fitness levels. This is done through **standardised tests** (look back at p10-12) and in a full performance context (observation schedules).

#### *Why do we test ourselves?*

1. So you can identify your strengths and weaknesses physically, mentally or skill related.
2. So you can compare to standard tests and norms.
3. So you can compare your results throughout your training programme and monitor any improvements you have made.

## Stage 2 - ANALYSE

Test all the aspects of fitness and keep a record of the results. Then analyse the results by comparing them to the norms.

You will now be able to identify your strengths and weaknesses.



## Stage3 - DEVELOP

### Designing Your Training Programme

When you are designing a training programme for any activity you must make sure the training programme is **SPECIFIC** to the activity. This means you must train to meet the demands of the activity.

You must also apply the Principles of Training in order to make the programme *progressive*.

We need to establish our current level of fitness, our training goals and consider the principles of training as a pre-requisite for creating a Training Schedule to improve our fitness for football.

### PRINCIPLES OF TRAINING (SPORT)

<b>SPECIFICITY</b>	Specific to the demands of the activity and level of fitness of the performer.
<b>PROGRESSIVE</b>	Gradual overload over a set period of time. Making the training gradually harder and more challenging
<b>OVERLOAD</b>	Increasing the Frequency (how often), Intensity (how hard) And Duration (how long) throughout the training programme
<b>REVERSIBILITY</b>	"Use it or lose it!" If you stop training your fitness will decrease
<b>TEDIUM</b>	Boredom. Keep your training interesting/add fun games.

## METHODS OF TRAINING

### **INTERVAL**

Alternating activity with period of rest (eg 10 x 50m sprints with 15 secs rest OR 5min runs with 1 min rest in between them)

Can improve CRE and speed.

### **FLEXIBILITY**

A whole body workout where joints are moved and muscles stretched for upwards of 10 secs each. Sessions can focus of specific muscle/joint groups or be general.

**This will improve flexibility.**

### **CIRCUIT**

A variety of different exercises which can be adapted depending on the activity or muscles wishing to be used. The performers move around the exercises. Each exercise is done for 1 min at 100% effort. **This will improve LME and strength in working muscles.**

### **CONTINUOUS**

A whole body activity (such as running, cycling, rowing, swimming) that is performed without a rest. Normally done at a low intensity (50-80%) and lasting a minimum of 20mins.

Can improve CRE.

### **FARTLEK**

The pace of activity is varied (eg jog, sprint, walk). Particularly good for games players as it reflects the short bursts of intense activity.

### **CONDITIONING**

Training through the game. This method incorporates skills training into games training. This develops skills and fitness at the same time. It can be designed to meet specific needs.

## PLANNING, IMPLEMENTING and MONITORING YOUR FITNESS PROGRAMME.

Now that you know:

- how to assess your fitness level
- The fitness demands of your chosen activity
- the types/methods of training available to you

It is now necessary to plan, implement and monitor your training programme.

To do this you will need to assess

- When you wish to reach your peak level of performance. In some activities, e.g. Athletics, Gymnastics, elite performers will need to peak for particular competitions, e.g. Olympic Games, World Championships. In other activities, especially team activities such as Football, Rugby and Hockey the requirement for peak performance may be spread out over a long season of 6 - 7 months.

This long term planning is called Periodisation. A periodised training year can be broken down into 3 main phases of training.

1. Preparation - e.g. Pre-season training.
2. Competition - This can be season long but may contain times when you will want to peak for individual competitions. For these you may need to taper down i.e. reduce the intensity of your training immediately before each competition to avoid fatigue.
3. Transition - This follows the competition phase and can be thought of as active rest when a general level of physical fitness is maintained

## TRAINING PROGRAMME

Design an 6-week training programme to improve the POWER in your legs for your VAULT.

You will have tested your POWER before the training programme has started therefore you must make sure that your programme is **specific** to your current level of fitness.

An example programme of weeks 1, 3 and 6 have been done for you.

<u>Date</u>	<u>Muscle Group</u>	<u>Method of Training</u>	<u>Time</u>
Week 1+2	Quadriceps Hamstrings Calves	Circuit (1 min working 1 min rest)	20mins
		Continuous	10mins
Week 3+4	Quadriceps Hamstrings Calves	Circuit (1min working 30secs rest)	20mins
		Continuous	12mins
Week 5+6	Quadriceps Hamstrings Calves	Circuit (1min 30secs working 30secs rest)	20mins
		Continuous	15mins

## TRAINING DIARY

Date	Activity	Thoughts, feelings (positive + negative)	/10

"...I kept a record of my training in order to monitor my improvement in practice. Keeping an accurate training log allowed me to set regular, realistic short term targets for improvement in football..."

**CLASS TASK 1**

ACTIVITY	ROLE	PHYSICAL FITNESS DEMANDS
<b>ATHLETICS</b>	10,000 metres/Marathon runner	(1)
		(2)
		(3)
	100 metre sprinter	(1)
		(2)
		(3)
<b>FOOTBALL</b>	Midfielder	(1)
		(2)
		(3)
	Striker	(1)
		(2)
		(3)
<b>GYMNASTICS</b>	Vault	(1)
		(2)
		(3)
	Floor	(1)
		(2)
		(3)

Fitness demands will vary enormously between different activities/different roles. Complete the principal physical fitness demands of the above activities/roles

**CLASS - TASK 2**

Look at the sheet "Physical Components of Fitness" and from your chosen activity give an example of how each Component is important to your activity.

**My activity** \_\_\_\_\_

(a) Power

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(b) Flexibility

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(c) Strength

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(d) Speed

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### **CLASS TASK 3**

Key Concept 1- Fitness assessment in relation to personal performance and the demands of the activity.

**Discuss the methods of collecting data you have used in swimming and describe the information you can derive from your results (5 Marks)**

### **HOMEWORK QUESTION 4**

Key Concept 2- Application of different types of fitness in the development of activity specific performance.

**Discuss the aspects of fitness relevant to you chosen activity and the effect they have on your overall performance. (5 marks)**

### **HOMEWORK QUESTION 5**

Key Concept 3- Physical, skill-related and mental types of fitness

**List the aspects of fitness relevant to your activity under each heading**

**Physical**

**Skill-Related**

**Mental**

## **HOMEWORK QUESTION 6**

Key Concept 4- Principles and methods of training.

**Explain how you used the principles of training to develop a training programme to improve your performance (4 marks)**

## **HOMEWORK QUESTION 7**

Key Concept 5- Planning, implementing and monitoring training

**Discuss how you monitored your progress during your training programme (4 marks)**

