



# Exemplar: Component One

**GCSE (9-1) Physical Education**

**Pearson Edexcel Level 1/Level 2 GCSE (9-1) in Physical Education (1PE0)**

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# GCSE (9-1) Physical Education 2016 Exemplar on SAMs – component 1

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## Paper 1

### Question 1

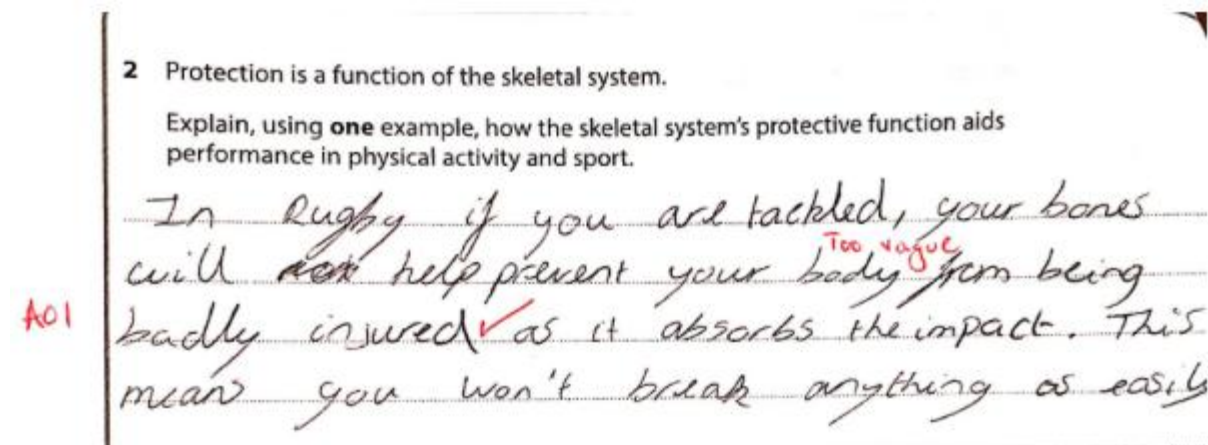
Learners should be encouraged to attempt all of the multiple choice questions rather than leave a 'blank' response. Learners should also be aware that if they select two options without clearly crossing through one of these, the response will be marked as incorrect.

Many learners were able to achieve maximum marks for this section. Where incorrect responses were given this was often in relation to Q1(b) which asked learners to identify the correct composition of inhaled air. Many opted for Option B 'oxygen 16%, carbon dioxide 4%, nitrogen 79%' which would have been correct had the question asked about exhaled air. It is possible that this error was due to lack of focus on key words or information given in the question, in this case 'inhaled air'. Many learners showed good practice through highlighting key words to emphasise the critical parts of the question.

### Question 2

This question was well answered overall. The question focused on the protective function of the skeleton and therefore overlaps with content from the current specification.

Marks were awarded for assessment objectives AO1 and AO2. In this example the learner gains one mark for AO1 – the knowledge that the skeleton will reduce the likelihood of injury. No further credit was given as the example is too vague for credit, i.e. what part of the skeleton is 'protecting', and what is it protecting during the rugby tackle?



2 Protection is a function of the skeletal system.

Explain, using **one** example, how the skeletal system's protective function aids performance in physical activity and sport.

In Rugby if you are tackled, your bones will ~~not~~ help prevent your body from being badly injured as it absorbs the impact. This means you won't break anything as easily.

AO1

Most learners achieved at least one mark for this response, either for AO1, or AO2. Some gained credit for simply saying that the skeletal system protects from injury in sport, whilst others went straight into an example of how this occurred, e.g. the ribs protecting the vital organs when tackled in rugby. In the example below the learner achieves two marks, for reference to injury and application to sport. The impact of this protection in terms of performance, however, is not given for the final mark.

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For example, in a rugby game you may get tackled and thrown to the ground. If it was not for your skeleton, your heart, lungs and other vital organs could get easily damaged as they would not be protected by your ribcage and general skeleton. It is also very important to protect the brain.

In the example below the learner gains maximum marks for identifying the reduction of risk of injury and applying this knowledge to performance. As the command word used in this question is 'Explain', learners are expected to provide a developed reasoned response. The command words that will be used in the assessments can be found in the specification, appendix 6, page 56.

Protection limits the chance of the sports player getting injured.  
Eg - the cranium protects the head in boxing when being punched.  
Therefore performers are prevented from being as easily knocked out.

### Question 3

Learners were asked to analyse the role of the ball and socket joints when throwing the discus. This question addressed each AO, awarding one mark for each. Learners needed to use the image to establish an appropriate joint and then link this to the range of movement allowed by the joint that was required when throwing. The image was given for those learners unfamiliar with the activity. Information about the movement could be gleaned from the position of the discus thrower.

In this example the learner gains one mark for the specific range of movement linked to the discus thrower.

Analyse, using **one** example, how **one** of the ball and socket joints in the body allows the athlete to throw the discus.

Shoulder is extension to flexion, the ball can move round the socket which allows the discus thrower to throw the discus.

The response below provides additional analysis, not only identifying the hip to allow a greater range of movement, but also the impact of this in generating greater power and therefore a further throw being achieved. This response achieves two marks.

The ball and socket joint in the hip allows more rotation from the body, therefore there is a wider range of movement in the body creating more power, so the discus can be thrown further. ✓ A02

In the final example below the learner achieves maximum marks. They identify the shoulder as being critical to the movement, the movement at the shoulder joint and the impact of this on performance. This learner clearly analyses the movement, breaking it down into its component parts.

The shoulder is a ball in socket joint this allows the shoulder to move around the joint so the arm can move and throw the discus. This enables them to throw the discus with the correct technique. The shoulder goes from flexion to extension.

#### Question 4

This question tested learners' ability to apply their knowledge of lever systems. This is a new area of specification content, therefore learner responses varied quite markedly, presumably reflecting their opportunity to study this new topic area. Physical activities will often be used to provide appropriate context for exam questions. Where these activities are 'non-mainstream' support will be provided in the question to ensure the learners have the information they need to be able to apply their knowledge. What was critical here was that learners were told this was a first class lever system, using their knowledge of first class lever systems learners could then address the question even though they may not have a knowledge of rowing.

Some learners were able to state the mechanical advantage of first class lever systems and therefore achieved a minimum of 1 mark. If they were able to apply this knowledge to the rower, they often achieved all three available marks.

The response shown below, whilst accurate, lacks the required detail for credit and therefore scored 0 marks.



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Analyse the role of the first class lever system in affecting the rowers' performance in Figure 4.

it makes it easier to row.

✓

In this example the learner gains one mark for identifying that the rowers would only need to produce a small amount of muscular effort.

Figure 4.

Rowers need a small amount of effort from the muscles to move the lever which is quite heavy.

✓

This learner also gains 1 mark, explaining that the lever multiplies the force exerted by the rower, i.e. a smaller effort is required so the boat can move faster through the water.

Figure 4.

~~The~~ lever This lever multiplies the force exerted by the rower to create a greater force at the end of the oar allowing the boat to travel at greater speeds.

This response gains two marks – the learner has identified the mechanical advantage of first class levers from a rower's perspective and has begun to describe the first class lever system in use.

The rower can apply a relatively small amount of effort to move a heavy boat. First class lever the fulcrum is between the load and effort.

✓

**Question 5**

This question asked learners to state the function of the triceps and quadriceps and provide a specific sporting movement where these actions would occur.

Many learners were able to gain marks here, however many failed to do so as their answers lacked the required detail. It is essential when describing muscle action to make reference to the joint action and the joint where this action is taking place. In the example below the learner omits reference to the joint in (a) therefore gains 0 marks for this part of the question. The examples provided by the learner in (b) are also vague, and referring to the follow through would have helped clarify the action.

Muscle	(a) Function	(b) Specific sporting movement
Triceps	Extension of arm. $\wedge$ (1)	throwing a ball in rounders. $\wedge$ . (1)
Quadriceps	<u>Flexion</u> of leg $\wedge$ (1)	sprinting $\wedge$ . (1)

This example gains three marks. The muscle function has been identified (joint action and joint) and a clear example given for rugby.

Muscle	(a) Function	(b) Specific sporting movement
Triceps	Extension at the elbow $\checkmark$ (1)	Hand over rugby. $\checkmark$ (1)
Quadriceps	extension at the knee. $\checkmark$ (1)	Running or jumping in the air. $\wedge$ (1)

Table 2

3

**Question 6**

This question asked learners to consider the role of two components of a third class lever system when lifting a weight. This was designed as a very accessible question which

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learners found more straightforward than the earlier question on first class levers. The quality of responses varied. In this example the learner achieves one mark for correctly identifying that the elbow takes on the role of the fulcrum during the movement.

Analyse how the following parts of the lever system allow the weight trainer in **Figure 5** to lift the weight.

(i) Fulcrum

Elbow ✓

(ii) Effort

Hard

This response gains maximum marks for correctly linking the component of the lever system to the body and its role in lifting the weight.

the elbow is the fulcrum and allows the arm to flex (2)

(ii) Effort

the biceps are the effort which allows the man to lift the weight. (2)

### Question 7

This question continues the theme of movement analysis. Learners are presented with two images. These images show a gymnast standing upright on a beam and then the same gymnast performing a splits position above the beam. This will be a standard format for this style of question i.e. learners will need to look at the first picture and



determine the muscle action at a specific joint(s) to move into the position shown in the second image.

Learners must clearly state which picture they are referring to when they answer the question so that examiners can determine whether the learner is able to analyse the image. Learners must also use appropriate technical language.

In this example the learner does not state whether this is in relation to position A or B, therefore it is not clear if the learner knows that position B is plantar-flexion and as a result no credit can be given for the first marking point on the mark scheme. In their description they make reference to the tibialis anterior extending, as this is not appropriate technical language, no credit is given.

the gastrocnemius is antagonistic to the tibialis anterior, as the gastrocnemius ~~flexes~~ contracts the tibialis anterior extends causing plantar flexion of the foot.

In this example the learner gains 1 mark for correctly identifying the action at position B.

The tibialis anterior and ~~basest~~ gastrocnemius are an antagonistic pair. In position B the ~~tibialis anterior~~ plantar flexion is caused by the gastrocnemius flexing and the tibialis anterior extending.

**Question 8**

Whilst the cardiovascular system is on the current specification, learners do not currently need to know about the structure of this system. This question tests a new area of knowledge and has resulted in lower scores being achieved than is likely, once learners have had the opportunity to study the content in more detail.

In this example the learner achieves 1 mark for correctly identifying that the blood flows out of this side of the heart to the body.

The structure labelled **A** in **Figure 7** is the CV system ✗  
This blood vessel carries new ✗ blood out  
of the heart to the body ✓

In the example below the learner correctly identifies the type of blood vessel but not its name therefore no credit can be given for this part of the question. However, they do correctly identify that the blood is oxygenated and that this blood is travelling to the muscles. Although the mark scheme states 'body', muscles in this context the response is acceptable as the learner clearly understands this is towards the body rather than lungs.

**Figure 7.**

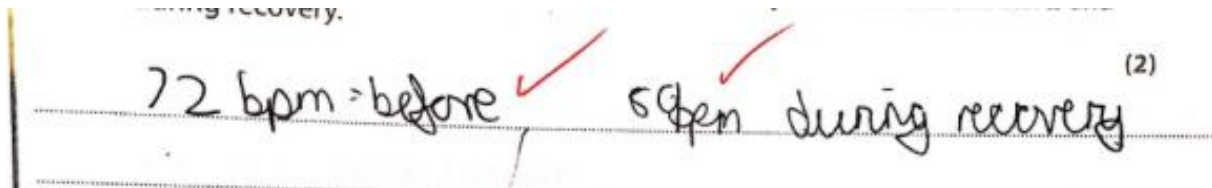
The structure labelled **A** in **Figure 7** is the artery  
This blood vessel carries oxygenated ✓ blood out  
of the heart to the muscles ✓

**Question 9**

Question 9 was again related to the cardiovascular system but covered familiar content for learners. Learners had to identify and then provide a rationale for their identification of the different heart rates (before and after exercise).

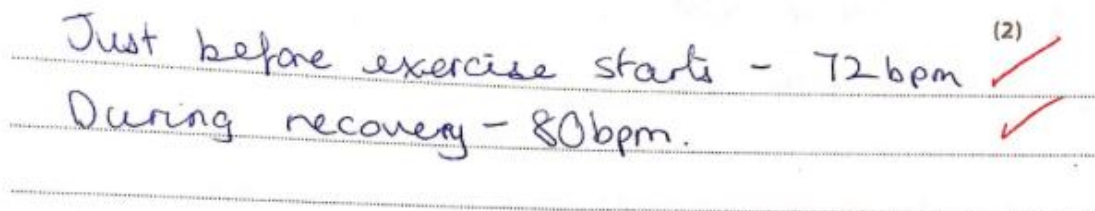
Learners tended to correctly identify the before and recovery heart rate thus scoring two marks in (a) but had more difficulty presenting a clear reason for their answers. For example, in this response the learner re-identifies the values (good practice so it is clear to the examiner).

In this example the learner gains the first two marks for (a).

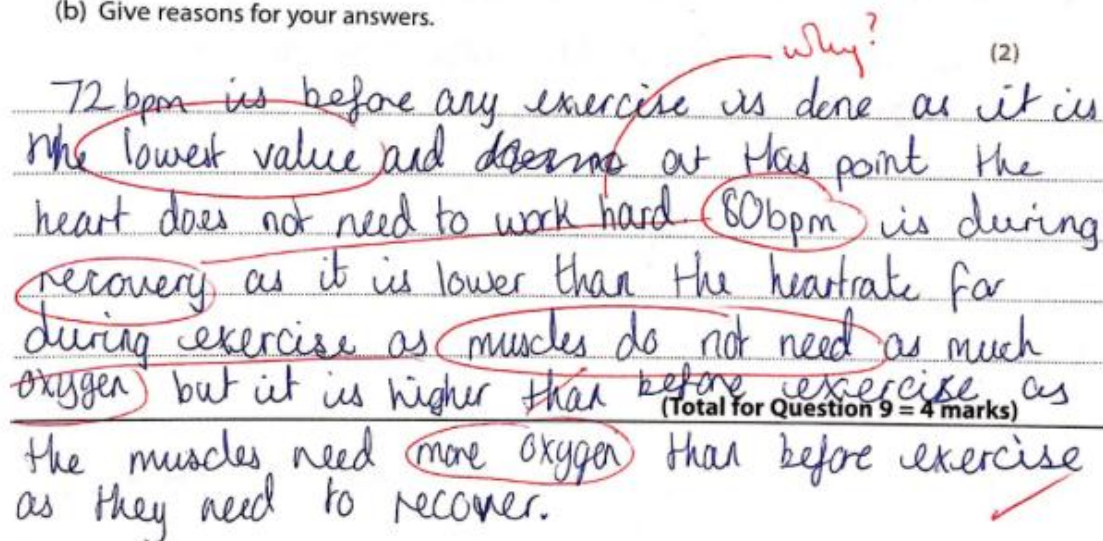


Of the two heart rates learners appeared to find it more straightforward to justify recovery heart rate than resting.

In this response the learner is able to provide a reason in both cases. The first reason is, however, considered too vague for credit; why doesn't the heart need to work as hard? The second reason for recovery of the heart is particularly clear. This response gains three marks.



(b) Give reasons for your answers.



### Question 10

This question asks learners to explain why tidal volume increases when a performer takes part in physical activity. As with the previous question this should be familiar content for learners as this topic features on the current specification.

Answers reflected on the increased demand for oxygen to meet the increased demands of the activity and/on on the increased energy requirement. Most candidates kept their responses within the question context, i.e. during physical activity rather than after, therefore there was little mention of oxygen debt.

In the example below the learner is able to achieve some credit despite incorrectly linking tidal volume to blood flow. Credit is given for the knowledge that during exercise we need more oxygen.

*physical activity.*  
Tidal volume is the amount of ~~the~~ blood that passes a certain point every second. When ~~the~~ you take part in physical activity the demand for oxygen is higher and the blood carries the oxygen. therefore ~~more~~ blood is pumped around your body quicker so tidal volume increases.

In this response the learner gains 2 of the available marks. They identify the need for increased energy due to the exercise and therefore the need for additional oxygen.

Tidal volume, which is the number of regular breaths taken in in a minute, increases because as exercise is done more oxygen is needed to respire more as more energy is needed. also more CO<sub>2</sub> is needed to get rid of.

In this final example the learner achieves all available marks.

Tidal volume increases because the muscles in the ~~so~~ body are working harder, which means they need more energy ~~meing~~ they need more oxygen. To satisfy this need tidal volume increases so more oxygen is taken in so can be transported to the muscles. 3



### Question 11

Learners experienced greater difficulty with this question than the previous question. Although the focus was still on the respiratory system the current specification does not cover gaseous exchange in the detail required to fully address this question, in particular reference to the relative concentrations of oxygen in the two structures resulting in the transfer of gases between them. Despite this some learners gave reasoned responses, possibly drawing on relevant knowledge from other subjects.

In the example below the learner gains 1 mark for recognition that oxygen is transferred between the alveoli and the blood.

11 Explain how the alveoli and capillaries work together to provide the muscles with the oxygen they need for recovery after a long-distance run.

The alveoli and capillaries are things in the lungs. The capillaries are very small tubes and the alveoli transfer oxygen into the blood. They provide the blood with oxygen when you breathe air into your lungs. The alveoli have large surface area so lots of oxygen can be put into the blood then, the capillaries transport the blood quickly so the oxygenated blood can reach the ~~the~~ muscles quickly.

This response gains 2 marks. The learner identifies the thin walls of the alveoli as key in allowing oxygen to move into the capillaries, and then the role of the capillary to carry the oxygen to the muscles. Without reference to the differences in oxygen gradient, learners cannot gain maximum marks as there needs to be some explanation regarding how oxygen transfer is possible.

Inside the lungs there are millions ~~are~~ <sup>of</sup> alveoli that carry the oxygen. Due to their large surface area and the thin wall ~~of~~ of the capillaries, the oxygen is absorbed into the capillaries. The capillaries transfer the oxygen to the blood then to the muscles.



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### Question 12

This question was designed to be an accessible question across ability ranges. Learners had to identify two by-products from aerobic respiration. Most learners were able to identify at least one by-product. A popular correct response was carbon dioxide.

12 Identify the **two** by-products released while producing energy aerobically.

Carbon dioxide

Popular incorrect responses were linked to lactate/lactic acid. These learners had not used the question context to guide their answer, i.e. that this was during aerobic respiration.

Lactic acid in muscles ✗  
carbon dioxide in respiration ✓

Many learners gained both available marks for this question.

Carbon dioxide ✓  
Water ✓

### Question 13

This is a 6-mark question. This question is split with 3 marks being awarded to each component of fitness. Learners were asked to assess the relative importance of muscular endurance and body composition to a 100 m sprinter. Although familiar content, the question was made more complex by use of the command word 'Assess'. This requires learners to reach a judgement, in other words they needed to decide how important each component of fitness was.

In the example below the learner is insufficiently clear to gain credit. In (i) they identify that muscular endurance is not very important but do not provide a clear enough reason to justify this, i.e. there is no explanation of the value of muscular endurance and therefore why it wouldn't be important to the 100 m sprinter. In (ii) 'right type of body' is too vague, does this mean somatotype? Credit is given however for link to need to be muscular (as a component of body composition).

(i) Muscular endurance

Muscular endurance is not very important to a 100m sprinter as they need speed not stamina. Muscular strength would be more important to them as it is a short distance.

(ii) Body composition

(3)

This is important as they must have the right type of body to run. Usually, slim but very muscular. It is important because a 3000m runner will have a very different composition to a 100m runner.

The response on the next page gains 4 marks. The learner begins by stating whether the component of fitness is important and then goes on to justify this. To gain maximum marks a little more detail was required. For example in (i) this could have been expanded by stating the race was over quickly and therefore muscles did not need to contract repeatedly. In other words something more about what the component of fitness was useful for, and then explaining why that wasn't needed in the 100 m sprint.

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A 100m sprinter doesn't need much muscular endurance because an 100m sprint isn't a long distance or long time therefore muscles don't need much endurance. 2

(ii) Body composition

(3)

Body composition is important as they need to be light to be able to run quickly but they also need to have enough muscle to give them the power and speed. 2

Question 14

Learners' knowledge and the ability to apply that knowledge was tested through this question. In (a) learners had to recall the meaning of the term agility and in (b) give an example of its use in basketball.

In part (a) learners often omitted a required part of the definition. In many cases this was 'control'. Part (b) of the question was answered well with the majority of learners scoring the available mark. Where this was not the case this was normally due to a lack of clarity in the example.

This response gains 1 mark for the example of use of agility but does not gain the mark in (a) as there is no reference to 'control'.

doing something at speed whilst being able to change direction. 1

(b) Give one example of when a basketball player would use agility in a game. (1)

Use agility when dribbling past an opponent quickly changing direction to fool opponent and get to the basket - break ankles!

This response gains both available marks. The definition makes reference to all the required elements of changing direction, at speed and with control and gives an example of the use of agility.

Agility is the ability to change direction  
swiftly and with control. ✓

(b) Give one example of when a basketball player would use agility in a game. (1)

When the player takes the ball off the  
opposition and needs to change direction  
to go the opposite way and go towards  
the post they are shooting ~~to~~ at. ✓

### Question 15

Part (a) asked learners to state two advantages of circuit training. This was a very open and accessible question as there were a number of ways that the learners could access the available marks. There were a range of appropriate responses. Some learners referenced the adaptability of this method of training whilst others referenced the variation it provided to prevent boredom, or the ability to work at high intensity, whilst varying muscles groups to avoid undue fatigue. Most learners scored at least one mark for this part of the question.

In this example the learner fails to gain credit due to lack of clarity in their response. For example, they do not emphasise that this training method can focus on any component of fitness. It is this fact that provides the advantage rather than just the components of fitness it can improve.

- 1 It <sup>can</sup> improve muscular endurance
- 2 It can improve cardiovascular fitness.



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In this response the learner gains two marks for 'easily changed to meet the performers ability' and for 'not boring'. Whilst the example below that gains the marks for identifying the versatility of the training method in relation to areas of fitness and the person's individual needs.

- 1 Can easily be changed to meet a performers ability level. ✓
- 2 Not boring like continuous training. ✓

- (2)
- 1 Improves different areas of fitness ✓
  - 2 Can be adapted for the person's needs ✓

Part (b) provides opportunity for learners to demonstrate their ability to use data. A table is given and learners are asked to analyse the data in the table to determine the trends for each fitness test. When asked to use data to determine a trend, learners simply need to identify the next likely data set, e.g. will 'Miriam' run a shorter distance, the same distance or further in the Cooper's run, based on the data available.

The majority of learners were able to provide some analysis of the presented data, most indicating whether fitness had improved or not. Ideally some evidence from the table would be used in the analysis to support any statements made.

This response fails to gain credit as specific tests are not identified and the global statement about all improving is incorrect as the 35 m sprint scores are slower.

(3)

Over the 6 weeks miriam improved in each aspect massively. She improved each week more or less the same in ~~the~~ each fitness test. ✓



This learner only makes reference to one of the fitness tests therefore limits their marks to one. It is important that learners use the question instructions to ensure they can access all marks, i.e. this question states 'determine the trends for each fitness test'.

The 35m sprint is ~~taking~~ taking longer longer to complete ✓  
 so she is ~~taking~~ taking longer to run the same distance so  
 she is slowing down. (1)

In this example the learner scores 2 marks. They clearly identify the trends for the Cooper run and vertical jump test. Reference to the increase and what is increasing, i.e. running distance and height jumped, shows good understanding of the tests and test data. However, they have misinterpreted the data for the 35 m sprint, indicating progress rather than a drop in performance.

The coopers run she ~~is~~ <sup>(3)</sup> ~~is~~ ~~run~~ 50m more each  
 week showing an increase in aerobic fitness. On the  
 vertical jump test she's ~~jumping~~ jumping 0.5cm higher each  
 time showing an increase in power. On 35m sprint  
 she increased a lot in the 1-2 week then stayed  
 the same, then made steady progress of going up 0.2  
 then stay at that for another week.

In the example below the learner scores all the available marks as they correctly comment on the data for each fitness test, (despite the error in the statement regarding the 35 m sprint time).

Over the six weeks, Miriam increased her coopers  
 run score by 50m and can now run 1950m. She also  
 increased her vertical jump score by 2.5cm. However, her  
 35m sprint time went ~~down~~ <sup>up</sup> by 9 seconds which means  
 she's getting slower. ✓ (3)

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For (b) (ii) learners were asked to justify a station that should be included in Miriam's circuit to improve her netball performance. Therefore, learners needed to first identify a relevant station and then justify its inclusion. To address this part of the question learners should be guided by the information already provided. For example, they might include shuttle runs as the fitness test scores indicate Miriam's speed is getting worse.

Many learners gained some credit for this question, often linking to aerobic endurance.

In this example the learner achieves 0 marks. Credit will not be given for use of fitness tests to increase fitness. Fitness tests are used to measure fitness, not as a training method.

The Cooper's run is great as it shall increase both her Cardiovascular System and muscular endurance at the same time, COV fitness is

Whilst the learner does not gain credit for identifying a suitable circuit, their justification for working on this aspect of fitness clearly links to the question context and provides a 'netball' advantage and therefore gains one mark for this section of the response.

<sup>(2)</sup>  
~~skipping~~ The vertical jump test means Miriam can increase her explosive power when jumping which would optimise her performance as she will be able to jump higher to catch the ball, intercept, block shots and also jump when shooting.  
Miriam adds a tricep dip station to her circuit.

In this final example the learner achieves both marks. They identify an appropriate station and qualify this in relation to her sprinting getting worse and justify the choice by giving a clear example of the benefit to netball performance.

she could sprint shuttle runs to improve her sprinting (because she is getting worse) so in netball she can sprint to catch or intercept a ball.

Part (c) of the question required learners to explain how progressive overload of a triceps dip station could be used to improve muscular endurance and muscular strength. Thus learners needed to consider the different ways one would normally increase muscular endurance (high reps, low loads) and then apply this to a triceps dip station, and repeat the process for muscular strength. Learner knowledge of how to improve muscular endurance was more readily applied than muscular strength to this question context.

It is very important that learners read questions carefully and ensure their response matches the question context. Credit was not given for other 'stations'.

She could do bicep curls of at a 5kg weight for 30 seconds as she gets stronger she can keep increasing the weight so she becomes stronger.

In the example below the learner gains one mark for identifying an increase in the number of the dips in (i). As a specific example is not given and no reference is made to 'gradually', the remaining marks are not achieved, as to apply progressive overload there needs to be a gradual increase in work load. The learner also gains two marks in (ii) for identifying how additional weight could be added and a reduction in the number of dips (20 in (i) reduced to 5 in (ii)).

She could start with 20 tricep dips with a 30 sec break after before she repeats it several times. To use over load she could increase the number of dips, decrease the time for rest or increase the number of sets.

(ii) the muscular strength in her arms.

(3)

she could have a weight attached to her body and do about 3-5 dips, each week she could increase the weight she uses.

The following response also scores 3 marks overall for this question, however, these marks are all achieved for part (c) (i).



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Each training session she could increase the ~~time~~ amount of tricep dips she does, so her triceps will gradually get used to ~~the~~ been used more. For example 1st session do 3 sets of 10 reps and each session after that do an extra set. 3

(ii) the muscular strength in her arms.

Each training session she could ~~either~~ increase the amount of times she does the tricep dips without a break, so her triceps are able to cope with more pressure on them. For example 1st session do 3 sets 10 reps and each session after that increase the reps by 5.

In this example the learner achieves two marks for each part of the question. In both instances they identify how to create overload and give an example. The only missing aspect is the link to 'gradually'.

Increase the repetitions from 12 to 15 to increase the overload. 2

(ii) the muscular strength in her arms.

She needs to use a heavier weight. This means she could change the technique to increase of body weight lifted. 2

**Question 16**

This question asked learners to state two ways that quantitative data from fitness testing can be used when planning a personal exercise programme (PEP). Whilst specific focus on data is new to GCSE PE, learners will have experienced using data to help inform their PEP's for the current specification. Overall learners used this knowledge well and tended to gain at least one of the two available marks for this question.

This response identifies the value of fitness test data so the performer knows their areas of weakness. No credit was given for the second statement, as this is too vague for identification of current fitness level and could easily be interpreted as a repeated point in relation to strengths/areas for improvement.

1. See what needs ~~improving~~ <sup>improving</sup>

2. See what you are capable of.

When addressing questions that ask for two reasons or examples, it is important that learners ensure their responses are sufficiently different to gain the available marks. In the example below the two statements are making the same point, i.e. that the data allows the individual to measure their strengths and areas of weakness and therefore only one mark is awarded.

See what your weaknesses <sup>are</sup> are so that you know what to improve on.  
 See which areas will ~~not~~ need working on in as much quality as others.

(Total for Question 16 = 1 mark)

In this example, however, the statements provide clearly different uses of fitness testing data and therefore both marks are achieved.

1. You can use it to decide which areas ~~to~~ your fitness your PEP is going to focus on to improve.

2. You can also use quantitative data to see how much you have improved by the end of the PEP.

(Total for Question 16 = 2 marks)



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### Question 17

For this question learners needed to apply their knowledge, and make a judgement about the best types of exercise class, from a choice of three, that would most benefit a cyclist. Provided learners gave valid responses for their selection, they would gain credit. Not surprisingly the most popular choice was spinning. The justification of the choice linked to the specificity of the class to cycling. Body pump and pilates were selected as a possible class with slightly more learners overall opting for body pump.

Class 1 Pilates

Justification for choice

Helps improve strength of the core which will help keep the correct posture and technique during races.

Class 2 Body pumping.

Justification for choice

Works on ~~endurance~~ endurance which means ~~to~~ he will ~~be able to~~ ~~sketch~~ have better stamina during races.

The response below gains one mark for the justification of body pump. The learner links the use of body pump to increasing muscular strength and muscular endurance, either component of fitness would have gained them credit. To gain the second mark, the potential increase in strength or muscular endurance needed to be linked to cycling. Credit is not achieved here as the link is between cardiovascular fitness rather than muscular endurance. One mark is also achieved for the justification of spinning as an appropriate exercise class due to the development of cardiovascular fitness or working the same muscles required in cycling to increasing their muscular endurance. The impact of this improvement is not given and therefore the response does not gain further credit.

Class 1 Body pump

Justification for choice

~~The~~ Body pump will increase muscle strength and endurance in all of the body to help Ashan be able to cycle for longer. **TV.**

Class 2 Spinning

Justification for choice

This uses the same ~~muscles~~ <sup>muscles</sup> as cycling so they will increase his muscular endurance and his cardiovascular fitness will ~~get~~ ~~to~~ also improve as you do spinning.

It is always a good idea when giving two examples within a question to ensure they are different; this learner does this as they link the exercise classes to muscular strength, muscular endurance and CV fitness.

The example below is awarded three marks. 'Spinning to improve his cardiovascular endurance so that he can cycle faster for longer'. The learner justifies the choice by linking to a relevant component of fitness and gives the impact of this on performance. In the second part of the response the learner gains one additional mark, to gain the fourth mark. There needed to be a clearer link between strength, power and cycling faster.

Class 1 Spinning

Justification for choice

This will improve his cardiovascular **✓** endurance meaning he will be able to cycle faster for longer **✓**

Class 2 Body pump.

Justification for choice

this will strength **✓** the muscles in his body, making him more powerful in his cycling, making him faster.

### Question 18

This is the first of the levels based questions on the paper. Learners are credited with a maximum of 9 marks: 3 marks for their knowledge of the topic area, 3 marks for their ability to apply this knowledge to the question context, and 3 marks for considering the impact of each of the applied points they make. The mark scheme provides some indicative content; parts of responses that form the basis of popular learner responses, however this content is not exhaustive and learners' may present other correct, relevant information and this would be credited.

This question asked learners to evaluate the extent to which the redistribution of blood flow is necessary during a hockey match; content that overlaps with the current specification.

In this example the response is placed at level 1. It gains 1 mark for AO1. The learner makes reference to vasodilation, stating that this increases the diameter of the arteries. Whilst there is an attempt to link to the game of hockey 'in match situations the intensity of the game varies' but this was not sufficiently expanded on, e.g. through link to how blood flow is affected, to gain further credit. Had the learner expanded this point successfully they would have gained credit under AO2 (application).

The redistribution of blood ~~re~~flow is necessary during a hockey match:

- \* widens the diameter of the arteries, so oxygenated blood is supplied
- \* low intensity and high intensity varies in match situations, and by the intensity varying redistribution of blood flow is affected. *How?*
- \* without vasodilation the diameter of the arteries won't widen, which means oxygenated blood can't be supplied, which will cause an increase in lactic acid.

In conclusion, if there wasn't any redistribution the players wouldn't be able to play games. *TV.*

The next example response is placed at level 2, 5 marks. It gains two available marks for AO1; more information could have been given regarding vasoconstriction and vasodilation. There is evidence of some application of knowledge, for example the redistribution of blood flow away from the digestive system during activity and the variation of rate of redistribution of blood flow as the intensity of the game varies.



Greater detail could have been given here about the impact of not being able to supply the required oxygen to the muscles in terms of performance. Overall the learner provides mostly accurate knowledge, uses some technical language, attempts to apply some knowledge to the question context and attempts to provide some impact/conclusion to the points being made and therefore meets the demands of a level 2 response.

18 Evaluate the extent to which the redistribution of blood flow is necessary during a hockey match?

*also known as vascular shunting*

Redistribution of blood flow is necessary because the arms and legs now need most of the blood in the body rather than the stomach where it all usually stays digesting food. The extra blood flow to the arms and legs results in faster carbon dioxide removal from these areas and more glucose and oxygen being put here to respire to release the energy needed for the muscles in this area as these blood vessels open up more.

However, the blood is not only needed in these areas. As hockey is a game that uses almost all of the body to play so not many blood vessels can close down around the non-major organs. Also the pace at which she plays constantly changes as she speeds up and slows down so the blood shunting shall increase or reduce whilst keeping enough blood to the brain and heart. This may affect tactical awareness at the end of a game. If ~~the~~ oxygen debt happens due to lactic acid then the vessels to this area will be open.

I think that it's vital as it helps the muscles to work well and play the best (Total for Question 18 = 9 marks)

## GCSE PE – Exemplar Component 1

The final example shown below achieves level 3, 7 marks. The learner is clearly knowledgeable about the topic of redistribution of blood flow, although there are some errors in knowledge, (for example, vasoconstriction is the closure of blood vessels), there are sufficient accurate and relevant statements, with a largely appropriate use of technical language to satisfy the requirements of AO1. Specific examples are given to demonstrate application of knowledge to the question context, for example, the learner describes the need for additional oxygen and therefore increased blood flow to the muscles during intense periods of play during the game, they also identify the impact of this on performance.

18 Evaluate the extent to which the redistribution of blood flow is necessary during a hockey match?

Vascular shunting  
Some blood vessels will close down, others will open up so during exercise blood is shunted to the muscles being used called vasodilation. The <sup>non-vital</sup> organs not being used have vasoconstriction so they ~~also~~ close forcing it to be redistributed.

During a hockey match when she's working at a high intensity her muscles need more oxygen so more blood is redirected there giving her muscles more energy. The advantages of it allows her to work at a higher intensity for longer and makes better use of the oxygen in her blood, therefore can work better for longer. The disadvantages of it can lead to stitches as blood is redirected from the stomach and also if her organs are getting less blood her decision making and awareness towards the end of the game to deteriorate. I think it is necessary as it helps performance and prevents fatigue by using blood which will be used efficiently anyway.

To gain a higher mark within the level more precise application and evaluation would be required.

Some candidates provided a bulleted list, whilst this might be sufficient to demonstrate knowledge this is unlikely to allow them to expand their responses to demonstrate application and evaluation therefore bulleted lists are not recommended.



### Question 19

This question also covers content that overlaps with the current specification. Learners were asked to evaluate whether a 50 m front crawl swimmer should use interval and weight training to improve their performance.

An evaluation requires learners to make an informed judgement. An effective approach to this type of question would be to consider the merits of each individual method and then if there were advantages of using both, i.e. if offering both methods of training would have a greater positive impact on performance than just using one of the training methods in isolation.

To gain maximum marks learners would need to clearly demonstrate their understanding of the two types of training methods, give specific examples of how each method could be used to aid swimming performance and then decide if there were greater advantages through using both methods.

The response below is an example of a level 1 response. The learner has demonstrated their knowledge through descriptions of both methods of training. There is an attempt to apply knowledge, but this would have been clearer had the learner given an example of a particular muscle/muscle group required in swimming.

19 Evaluate whether a 50 m front crawl competitive swimmer should use a combination of interval training and weight training to improve their performance.

They should use a combination this is because interval training can be made more specific than weight training by the fact that it can be done in the pool. Interval is series of work being done however with rest inbetween them times. This is useful to work on the technique of 50m front crawl. However weight training is used to increase muscular strength or endurance. This will help the swimmer be able to perform the 50m front crawl faster if their muscles are stronger and are able to perform at a high level for longer. Weight training can target certain muscles to help for specific muscles during swimming.

AO1

AO1/2

eg?

## GCSE PE – Exemplar Component 1

This response is placed at level 2. Some information is given about each method of training, although this is minimal. There are lots of specific examples where each method could be used to develop swimming fitness, and an attempt to conclude, providing a justification for the use of both methods of training.

19 Evaluate whether a 50 m front crawl competitive swimmer should use a combination of interval training and weight training to improve their performance.

A 50m front crawl race is a short, anaerobic event, A02  
meaning it ~~does not~~ requires alot of speed and power to  
complete it as fast as possible. A02

Weight training would be useful due to the fact that it  
could help improve muscular strength A01 meaning that the  
swimmer would be more powerful and able to push themselves  
further through the water with each stroke, A02 meaning that they  
can complete the 50m in a smaller amount of time. A02

Interval training is short periods of intense work followed  
by a period of rest and recovery. A01 Interval training  
is used to improve anaerobic fitness which is what required  
when doing a short intense race like the 50m. A02 An example of  
interval training would be swimming 50m and then resting for a minute A  
and this would help improve anaerobic fitness so that a swimmer  
can work at a higher intensity for longer. A02

To conclude, using both methods of training would be useful as  
they could improve their anaerobic fitness and their power so that  
they can swim at a faster pace for longer. A03

(Total for Question 19 – 8 marks)

A more detailed description of the two types of training and a greater focus on the advantage of using a combination of the methods of training was required to move this response into level 3.

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