Edexcel GCSE
Physical Education

A brand new course to support the new 2016 Edexcel specification
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GCSE Physical Education is changing. For the first time, use of data will be embedded into exam questions and you’ll also see more theory in the new 2016 specification. We have created brand new resources to ensure you are fully supported and have everything you and your students need for 2016.

- Written by experienced and practising teachers, Maarit Edy and Matthew Hunter
- A brand new course to support the new 2016 Edexcel specification
- Expert support on how to teach theory through practical activities
- Presented visually to ensure the content is accessible to all
- Additional support by popular demand – an online digital resource and a printed pack of worksheets
- The Edexcel GCSE Physical Education Student Book has been entered into the endorsement process with Edexcel

Specification support
Turn to pages 3 and 4 to see how Edexcel GCSE Physical Education supports the new 2016 Edexcel specification.

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The Edexcel GCSE Physical Education Evaluation Pack contains:
- Student Book
- Worksheet and Workbook Resource Pack sample material
- Access to sample resources on Kerboodle

Fill out the order form at the back of this guide to order your Evaluation Pack.
Maarit Edy

Maarit Edy has experience of teaching at two high-achieving secondary schools as Head of Department and Advanced Skills teacher at The Grey Coat Hospital School in Westminster and more recently The Ashcombe School in Dorking, Surrey. Currently she is teaching Physical Education and Science across all key stages.

Throughout her teaching career, Maarit has delivered challenging, engaging and differentiated lessons to many highly successful GCSE PE students. She believes an inspiring and thought-provoking learning environment is important to engage all types of learners. Through her many different roles over the years, she has learned the importance of working with students individually in order to maximise their potential and to develop them into independent learners.

Maarit is an enthusiastic, proactive teacher who leads by example. By providing resources for both teaching staff and students, she hopes to encourage others to be successful and share her passion for sport and physical activity.

Matthew Hunter

Matthew Hunter has fostered a love of teaching and learning over 10 years at the highly achieving Roundwood Park School in Harpenden, Hertfordshire.

As Head of PE, Matthew’s teaching time is shared across all three key stages. He gains huge reward from the vast array of extra-curricular activities that his team of teachers are able to offer and is fully immersed in educational life and school sport.

During his career, Matthew has designed, resourced and delivered courses to many successful GCSE PE cohorts. He fully understands the demands that are placed on staff to deliver dynamic, engaging and differentiated lessons whether in a classroom or on the sports field.

Matthew is keen for young, enthusiastic PE students to be as successful in their study of Physical Education as they are in their sporting participation. By writing resources for staff and students, he is hoping to support busy PE teachers and help their students to reach their full potential.
Increased theory

The new specification has more theory content than the previous specification. If you have taught A Level before, then you will probably be familiar with most of it. If any of it is new to you, then we’ve got it covered.

- The structure and function of the musculo-skeletal system is discussed in Chapter 1
- The structure and function of the cardio-respiratory system is also discussed in Chapter 1
- Movement analysis is covered in Chapter 2
- Guidance and feedback on performance is discussed in Chapter 4
- Mental preparation for performance is also discussed in Chapter 4
- Engagement patterns of different social groups in physical activity and sport is discussed in Chapter 6.

The key terms included in the specification and the definitions of these key terms provided in the subject-specific vocabulary provided by Edexcel will be used throughout the resources.

Use of data embedded into exam questions

The amount of maths content within the new GCSE is increasing. For the first time, use of data will be embedded into exam questions. Students will be expected to demonstrate an understanding of how data is collected, presented, interpreted, analysed and evaluated in the context of sport and physical activity.

We have included activities throughout the book to provide students with the practice they need to tackle exam questions involving data with confidence.
Plenty of exam practice

Following feedback from you we have included resources that focus on helping students practice for their exams.

- Each chapter ends with exam-style questions, including multiple choice questions, shorter answer questions and extended writing questions, to give students lots of practice at answering questions themselves.
- We have written a mark scheme for each exam-style question, to help you mark students’ answers or for you to give to students to help them understand how questions are marked or to facilitate peer marking.
- Two sample answers – one perfect and one not so good – are provided in two formats for each exam-style question. The questions by themselves can be used, with or without the mark schemes, to give students an opportunity to mark answers. Or the questions with commentary can be used to help students understand what is required and develop a technique for answering exam questions confidently.

We’ll also be adding more exam practice resources to Kerboodle in future.

Differentiation

Many of you will need to cater for a range of different abilities in your classes so we’ve built in plenty of support to these new editions.

- Activities in the Student Book are differentiated, where appropriate, through the provision of a worksheet for less able students.
- The majority of the pages in the Workbook and Worksheet Resource Pack are also differentiated, with extra support provided on the ‘plus’ pages for less able students.
Planes and axes can be used when describing movement patterns. A plane is an imaginary line or surface that divides the body into two. Movement occurs in a plane. An axis is an imaginary line around which the whole body or part of the body can turn.

**Key terms**

**Plane:** An imaginary line dividing the body into two.

**Axis:** An imaginary line around which a body or body part can turn. ‘Axes’ is the plural of axis.

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**2.3 Planes and axes of movement applied to sporting actions**

Planes and axes can be used when describing movement patterns. A plane is an imaginary line or surface that divides the body into two. Movement occurs in a plane. An axis is an imaginary line around which the whole body or part of the body can turn.

**Planes** and **axes** are both drawn through a body standing in the anatomical position (upright, with arms by the side of the body and palms facing forwards). All movements are then described from this starting point.

**Key terms**

**Plane:** An imaginary line dividing the body into two.

**Axis:** An imaginary line around which a body or body part can turn. ‘Axes’ is the plural of axis.

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**Frontal plane**

- Divides the body vertically from front to back. Movement occurs in the frontal plane about the sagittal axis.
- The sagittal plane divides the body vertically into left and right sides. Movement occurs in the frontal plane about the sagittal axis. The sagittal axis passes horizontally through the body from side to side, allowing abduction and adduction.

**Sagittal plane**

- Divides the body vertically into left and right sides. Movement occurs in the sagittal plane about the frontal axis. The frontal axis passes horizontally through the body from front to back, allowing flexion and extension.

**Activity**

**a)** Make a model of a person standing in the anatomical position. The model should be made from Plasticine or Play-Doh. You can use an axis and a plane. Push your pencil through your model and attach a piece of card at either side to represent the corresponding plane. If you spin your pencil, your model will rotate around the axis.

**Study tip**

A wheel on a bike spins around a central point. This is how an axis works. If you had an axis through your belly button, you’d spin like a wheel.

Think of a plane as a thick sheet of glass that you’re trapped tightly inside. Movements that take place in that plane can only occur in the direction that the sheet of glass allows.

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By looking at the diagrams and photographs together, we can see that:

- A cartwheel in gymnastics or dance takes place in the frontal plane, around the sagittal axis.
- A full twist jump in trampolining takes place in the transverse plane around the vertical axis.
- A somersault in gymnastics or diving (front/back and piked/tucked) takes place in the sagittal plane around the frontal axis.

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**Concise and visually engaging Student Book**

Written to support the new 2016 Edexcel specification and presented concisely and visually to engage all your students, ensuring they achieve their full potential.

Theory is contextualised through a wide range of sports to help students apply their knowledge.

Visual, double-page design helps students of all levels access and understand the theory.

Built-in activities include active ‘doing and discussion’ tasks ensuring all your students remain fully engaged.
Planes and axes can be used when describing movement patterns. A plane is an imaginary line or surface that divides the body into two. Movement occurs in a plane. An axis is an imaginary line around or about which the axes are both drawn through a body standing in the anatomical position (upright, with arms by the side of the body and palms facing forwards). All movements are then described from this starting point.

**Frontal plane**

**Planes and axes of movement**

- **Sagittal axis**
  - Divides the body vertically into left and right sides.
  - Movement occurs in the sagittal plane about the frontal axis.
  - The frontal axis passes horizontally through the body from left to right, allowing rotation around the vertical axis.

- **Vertical axis**
  - Axial (central axis)
  - All movements occur in the sagittal plane around the frontal axis.

**Key terms**

- **Plane:** Imaginary line or surface that divides the body into two.
- **Axis:** Imaginary line around which movement occurs.
- "Axes" is the plural of axis.

**By looking at the diagrams and photographs together, we can see that:**

- A cartwheel in gymnastics or dance takes place in the frontal plane.
- A full twist jump in trampolining takes place in the transverse plane.
- A somersault in gymnastics or diving (front/back and piked/tucked) takes place in the sagittal plane.

**Activity**

6a) Figure 2 shows a high jumper during take-off.

6b) Figure 1 shows a high jumper clearing the bar.

6c) Figure 4 shows the leg and where the foot contacts the ground, allowing the high jumper to drive up and over the bar.

6d) Figure 3 shows a second-class lever system.

**Exam-style questions**

1. Which one of the following describes a third class lever?
   - A car jack
   - A nutcracker
   - A wheelbarrow
   - A pair of tweezers

2. Which one of the following is an example of a first class lever?
   - A car jack
   - A nutcracker
   - A wheelbarrow
   - A pair of tweezers

3. Which one of the following puts the correct plane and axis together?
   - Sagittal plane with vertical axis
   - Sagittal plane with frontal axis
   - Transverse plane with sagittal axis
   - Fronto/plane with frontal axis

4. Which one of the following provides mechanical advantage?
   - First class lever where the fulcrum is exactly in the middle
   - First class lever where the fulcrum is nearer to the effort
   - Third class lever
   - Second class lever

5. Identify the axis of movement for the cartwheel shown in Figure 1.

6. Following a series of graphs, what do they tell you about the history of the Paralympic Games?

Study tips

- Works if you had an axis through a central axel. This is how an axis works. If you had an axis through a central axel, this is how an axis works.
- Direction that the sheet of glass is trapped is how the glass that you're trapped tightly through the model will rotate around that axis and in line with the plane.
- Each plane and axis can only occur in the plane and axis that is appropriate depth.

Content is presented concisely and to the appropriate depth.
Fully differentiated photocopiable worksheets

The *Workbook and Worksheet Resource Pack* provides a coherent set of fully differentiated worksheets to help your students organise their learning. This pack can be printed and bound into a workbook or photocopied individually if you require more flexibility. It includes plenty of opportunities to practice exam-style questions in a format that mirrors the exam and enables students to track their progress using self-assessment checklists.

### 2.1 Levers

A lever system is a rigid bar or object that moves around a fixed fulcrum with two forces applied to it. All levers have three key elements to them. Explain, in your own words, the role of each of the elements in a lever.

**Fulcrum:**

**Effort:**

**Load:**

There are three classes of lever. It is the positioning of each element that determines which type of lever it is. Sketch out a lever diagram for each class of lever, labelling the fulcrum, effort and load and giving an example from the human body.

#### First class lever

Example from the human body:

#### Second class lever

Example from the human body:

#### Third class lever

Example from the human body:

### 2.3 Levers concept spiral

Starting in the middle of the concept spiral and working outwards, write down everything you know about levers. The further you get from the middle, the more detailed your knowledge should become. Use a pencil, so that you can make corrections.

Revision technique: concept spiral

Writing down everything you know about a topic helps you commit it to memory, and using a concept spiral, or something similar, encourages you to think about what you know in a logical order beginning with general information and getting more specific and detailed.

Do you like this technique? Does it work for you? 

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A coherent set of fully differentiated worksheets to help your students organise their learning and prepare for revision.
2.6 Planes and axes: extended writing answer analysis

Let’s have a look at an extended writing question for planes and axes of movement. Read the high-level answer provided below and:

1) Highlight the key terms and important information.
2) Add notes around the outside to define key terms, and add any extra detail and comment on things you like about the style of the answer. Imagine you are marking this person’s answer for them.
3) Use the 2.7 Planes and axes: extended writing planning sheet to reverse plan an answer. Transfer the key information from the answer into the planning sheet. This will help you think about how you might approach answering a similar question in a structured way.

Using examples, evaluate how knowledge of different movement planes and axes can assist a gymnast in performing specific movements correctly.

There are three planes and three axes, which are used to describe movements. A plane is an imaginary line dividing the body into two, and an axis is an imaginary line around which the body can turn. Movements occur around axes and within planes.

When looking at planes, there is the frontal plane, dividing the body into front and back, the transverse plane, which divides the body into top and bottom, and the sagittal plane, which splits the body into left and right. The axes are the sagittal axis, which passes through the body front to back, the frontal axis, which passes from head to toe, and the transverse axis, which passes through from side to side.

Writing down everything you know about a topic helps you commit it to memory, and using a concept spiral, or something similar, encourages you to think about what you know in a logical order beginning with general information and getting more specific and detailed.

Do you like this technique? Does it work for you?

Helps students engage with and apply the theory they have been introduced to.

Activities to help students perfect their technique for answering extended-answer questions
Online support for the 2016 Edexcel GCSE Physical Education specification

Kerboodle contains a wealth of resources to support the teaching and learning of the new 2016 Edexcel PE specification.

**Exam Practice**

Editable mark schemes and annotated model answers for all exam-style questions in the Student Book

**Assessment**

End-of-chapter interactive quizzes to test knowledge and understanding. Quizzes are automatically marked for you and scores stored in the Markbook.

Interactive quizzes for students to work through for homework or revision

Sample answers with feedback

Sample answers

Mark scheme
**Planning and Resources**

Editable lesson presentation to accompany each chapter in the Student Book

Collects together all the resources linked to the chapter, topic by topic, including links to YouTube clips and weblinks

**Kerboodle Book**

An online version of the Student Book with an added bank of tools for students to truly personalize the book. This resource is accessible on a wide range of devices, including tablets.
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