Contents

Welcome 2
In the Zone kit box list 6
How to use the equipment in the box 7

Ages 11–14
Introduction 12
Lesson plan 14
Experiment A Teacher sheet 16
Experiment A Student sheet 20
Experiment B Teacher sheet 22
Experiment B Student sheet 25
Experiment C Teacher sheet 26
Experiment C Student sheet 28
Experiment D Teacher sheet 30
Experiment D Student sheet 32
Lesson 3 Teacher sheet 35
Lesson 3 Student sheet 37
Technician notes 40

Ages 14–16
Introduction 42
Lesson plan 44
Experiment A Teacher sheet 46
Experiment A Student sheet 49
Experiment B Teacher sheet 51
Experiment B Student sheet 53

Ages 16–19
Introduction 72
Lesson plan 76
Experiment A Teacher sheet 78
Experiment A Student sheet 80
Experiment B Teacher sheet 82
Experiment B Student sheet 85
Experiment C Teacher sheet 88
Experiment C Student sheet 91
Experiment D Teacher sheet 93
Experiment D Student sheet 96
Lesson 3 Teacher sheet 99
Lesson 3 Student sheet 101
Technician notes 106
Answers 109
General safety guidance 114
Acknowledgements 115

www.getinthezone.org.uk
Welcome to the In the Zone experiments for secondary schools

In the Zone is the Wellcome Trust’s major UK-wide initiative inspired by the London 2012 Olympic and Paralympic Games. It provides a fun, free and fascinating way to discover how our bodies work during sport, activity, movement and rest.

In the Zone has the London 2012 Inspire Mark and is part of Get Set+, the official London 2012 education programme, run by LOCOG, the London Organising Committee of the Olympic Games.

To be a top sportsperson you need to be in the zone both mentally and physically. When I competed at the Olympics I had a huge team around me; including top scientists who helped me to understand how I could perform to be the very best that I could be.

This In the Zone kit has been designed to inspire children to get in the zone and find out more about how their bodies work. I hope you enjoy using it in your school.

Sir Steve Redgrave CBE
In the Zone Ambassador and five times Olympic Gold Medallist

What are the major elements of In the Zone?

- **Free science investigation kits for schools**
  A box of physiology-related experiments delivered to every UK school, supported by exciting scientific equipment and teaching resources, containing everything you need, including this Teacher guide, to teach practical investigations.

- **Touring exhibition** Engaging people of all ages with the science of our amazing human bodies relating to sport and movement. The In the Zone exhibition will tour the UK over summer 2012. Check www.getinthezone.org.uk for tour dates.

How are the In the Zone experiments organised?

The In the Zone experiments for 11–19 year olds are divided into three age ranges:

1. **Ages 11–14 – On your marks… get set… breathe** Students use lung volume bags, peak flow meters and pulse oximeters to explore how their lungs work. They will collect and compare results in order to find out how different activities affect their breathing.

2. **Ages 14–16 – From strength to strength** Students carry out a range of experiments investigating their muscle size, strength and endurance. They will analyse their results to explore questions such as whether fatiguing one set of muscles impacts the performance of different muscles.

3. **Ages 16–19 – I’ve got the power** In these experiments students investigate how their bodies use ATP for muscle contraction and movement. Using respirometers, pulse oximeters and blood pressure monitors they will explore the physiological effects of exercise on their bodies.

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For each age range in this Teacher Guide you will find the following:

- **Introduction** by a scientist who will set the context for the experiments.
- **Lesson plans** giving you an at-a-glance overview of the lessons and the experiments and what you will need to run them.
- **Teacher sheets** followed by **Student sheets** containing the experimental protocol for each experiment.
- **Technician notes** covering all the experiments for the age range.

**What other resources are in the kit box?**

The box contains exciting scientific equipment you will need to run the experiments. (See page 6 for a list of kit supplied and what to do if you need to order more of any item.) You may need a few other pieces of equipment such as stopclocks but these should be readily available in your school. They are indicated on the teacher sheets for each experiment and technician notes for each age range.

All the equipment in the kit box is labelled so that you know which experiment each piece of kit is for. You may notice that two items of kit (pulse oximeter, and tape measures) need to be used in experiments in more than one age range so some coordination is required between teachers planning these experiments.

In the box you will also find:

- **Laminated Knowledge Cards**, one set for each age range. These cards give context to the lesson and can be used as stimulus material with your students.

- **Curriculum Matching Charts** The In the Zone kit box has been delivered to all schools in England, Northern Ireland, Scotland and Wales. We have provided full curriculum references to each of these countries’ curricula on a separate curriculum guide, so that you can see how the experiments fit into your teaching plans and schemes of work.

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[Image of the kit box and the curriculum guide]

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[Website URL: www.getinthezone.org.uk]
What resources are on the In the Zone website?

The In the Zone website is packed full of extra resources to help you run the experiments successfully and engage your students in a memorable experience: www.getinthezone.org.uk.

On the website you will find:

- **'Live Data Zone'** where students can upload data they have gathered from the experiments, to allow them to interrogate and analyse the data, and to let them compare their results to other students’ across the UK.
- **PowerPoints** to use as front-of-class stimulus material during the lessons, including photos, and ideas for starters and plenaries.
- **Photos** and information on the different experts, scientists and sportspeople who are referred to throughout the resources.
- **Editable Word files** of the teacher and student sheets contained in this guide, so you can customise them to suit the needs of your classes.
- **PDFs** of the Knowledge Cards.
- **Editable certificates** as rewards for student effort/performance.
- **Further links** and support, to help your teaching.

Sharing and reusing the resources

In the Zone resources are, unless otherwise stated, licenced under a Creative Commons Attribution-NonCommercial-ShareAlike 3.0 UK:England And Wales License. This means that you can copy, share and adapt the materials as much as you like, as long as it is not for commercial use. When adapting lessons, however, please carry out your own risk assessments.

Where material is owned by a third party, e.g. some photographs, certain restrictions may apply that you have to comply with. In particular, where a copyright line is included on a photograph you must not modify, adapt, or remove that photo from its context.

How are the experiments linked to contemporary science?

In the Zone gives students a real taste of scientific investigation. Each age range is introduced by a different physiologist who will explain the importance of understanding how our bodies work. They will show how the experiments relate to real-life scientific experiments and investigations being carried out by scientists and sports scientists.

The materials also feature other experts including sportspeople, sports psychologists and trainers. These experts will show students how the experiments not only help them understand how their bodies work but also how they relate to the real world of sport training and performance.

How do the experiments fit into my lessons?

Many of the experiments require students to take part in physical/sporting activities. You may like to work with your PE department to run the activities, as many could be carried out in the gym or outside as well as in the science classroom. Working with your PE department will allow you to share running the experiments and students will be able to reinforce their learning in both their PE and science lessons.

As the students will be working in groups, some may prefer to take measurements or time the activities, plot graphs, etc., rather than take part in the physical/sporting activities themselves.
The resources are very flexible and can be adapted to fit in with your own particular school and students. Ultimately you can decide how many experiments you wish to run during any given lesson, but it is envisaged that each suite of experiments would last for three one-hour lessons:

- **Lesson 1**: introduction to In the Zone and whole class doing Experiment A.
- **Lesson 2**: a carousel of experiments B-D.
- **Lesson 3**: upload of data to the website, evaluation of results and extension questions.

**How can I link the experiments to sport and use the resources post-2012?**

Links to the London 2012 Olympic and Paralympic Games are included in the PowerPoints and laminated Knowledge Cards. You can add more depending on the interests of your students and news about London 2012. The kit can also be used in the context of other sporting activities all year round, as well as non-sport activities like dance and yoga, so it should be possible to keep the interest of the less sports-inclined students and to ensure that the experiments and the kit remain relevant beyond 2012.

**What about the safety of the experiments?**

All the experiments have been safety checked but the responsibility for how they are run rests with your school. You must carry out a risk assessment before running any of the experiments. Please read the safety notes on pages 7–9 and 114 and on the individual teacher sheets before you start the experiments. Chemical safety sheets for the hazardous substances used in the investigations are available on the In the Zone website. Further safety information can be found at www.cleapss.org.uk and www.sserc.org.uk.

**Measuring peak flow.**

**Measuring blood pressure.**

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