Primary Science & Technology *Bulletin*

Ideas and inspiration for teachers in Primary Schools and S1/S2

> Quick off the mark!

> Professional development @ SSERC

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Quick off the mark!

This summer has seen the excitement of the London 2012 Olympic and Paralympic Games [1] come and go and no doubt many inspirational stories and events will still be fresh in the minds of teachers and learners alike.

Figure 1 *- Fizzy Cole and Dizzy.*

We recently featured *In the Zone*, a major UK-wide initiative commissioned by the Wellcome Trust [2]. *In the Zone* [3], inspired by the London 2012 Olympic and Paralympic Games, was awarded the London 2012 Inspire Mark and kits were sent out to every primary and secondary school in the UK. The characters Fizzy Cole and Dizzy the Stopwatch Dog (Figure 1) appear throughout the resources for Primary schools and they support four units - Brilliant Bodies, Stupendous Steppers, Super Athletes and Heart Beaters.

Many learners will have had the chance to glimpse the Olympic Torch as it made its way through Scotland in June [4]. Hundreds of schools held Olympic inspired sporting events this year too, with many a sports day up and down the country having a distinctly international feel.

Now, with preparations for the Glasgow Commonwealth Games 2014 [5] in full swing, there is no need to pack your box of resources away! With links to a number of *CfE* experiences and outcomes [6], *In the Zone* resources will continue to provide science based activities to support a number of curricular areas:

- I recognise that we have similarities and differences but are all unique - *HWB 0-47a*.
- I am aware of my growing body and I am learning the correct names for its different parts and how they work - *HWB 0-47b*.
- I am developing my understanding of the human body and can use this knowledge to maintain and improve my health - *HWB 1-15a*.
- I have contributed to discussions of current scientific news items to help develop my awareness of science - *SCN 1-20a*.
- By investigating some body systems and potential problems which they may develop, I can make informed decisions to help me maintain my health and wellbeing - *SCN 2-12a*.

With many of the resources placing an emphasis on both exploring the human body and focussing on activity linked to heath and fitness we think that the *In the Zone* website [3] and associated resources will provide lots of relevant lesson ideas. In this Bulletin we have chosen one activity from the unit Fizzy's Stupendous Steppers and tried it out.

Quality Time

Can reaction times be improved through practice? Many learners will be aware of sprinters like Usain Bolt and the importance of training to achieve maximum fitness. However, just as vital to an athlete's performance is their reaction time. Reacting quickly to a starting signal can make a huge difference to the result of the race. The *In the Zone* website [3] has a number of engaging interactive games to test reaction times and the results from these are plotted onto simple graphs which can then be printed out.

One of the simplest and most popular investigations in this section involves the use of the reaction tester (Figure 2). This can be easily printed from the website onto card, and a paper clip attached to the base to act as a weight (Figure 3). Working in pairs, one person holds the reaction tester at the top while the other person places their thumb and forefinger (without actually touching it) at the 0 cm marker (Figure 4). Learners take it in turns to drop the reaction tester for each other, gripping the card as soon as they can after it is dropped. The quicker an individual's reactions the faster the card will be grasped and the shorter the distance reached on the tester card. A simple table in which to record results is also included on the website.

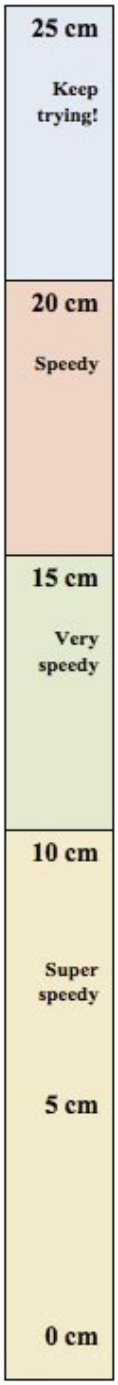

Figure 2

Figure 3

Figure 4

The distance the thumb and forefinger are held away from the card and a system of signalling to indicate when the reaction tester is dropped should be agreed by the class. This will allow comparison between groups. There could be a sports day style "on your marks, get set, go" or just a simple "now!"

Planning an investigation using this simple piece of equipment is a great way to get learners involved in aspects of science enquiry. Do reaction times improve with practice? Learners will have the chance to plan an investigation, collect data and draw conclusions from their results. An individual's data can be plotted as a graph (figure 5).

Learners could think of lots of other ideas to investigate, e.g. is a learner's reaction time faster when using their right hand or left hand and is this linked to the hand they write with? What if they close their eyes and a partner indicates verbally when the tester is released? What happens if they are distracted by something e.g. listening to music or someone speaking?

Figure 6

Figure 7

A greater challenge could be provided by using a standard 30 cm ruler instead of the reaction tester (Figures 6 and 7). Measurements recorded will be more accurate allowing for average distances to be calculated. When investigating whether reactions improve with practice, group data could be pooled and average distances from 1st, 2nd, 3rd, 4th and 5th drops calculated and displayed.

Remember that you can download extra paper resources, PowerPoint slides or use the interactive games on the *In the Zone* website long after the lights have gone out in the Olympic stadia!

If you would like to explore further aspects of sport and fitness, Millgate House Education [7] and the Association for Science Education have produced '*Concept Cartoons® - Talking Sport and Fitness*'. This is a science-focussed, cross-curricular resource full of topical problems that include mathematics, history, geography and ethical issues. The full set of 41 *Concept Cartoons®* is now available to order and four free samples can currently be downloaded from the website. Many teachers will already be familiar with *Concept Cartoons®*, finding them a simple and effective way to gauge understanding and highlight misconceptions. They are designed to intrigue, provoke discussion and stimulate thinking.

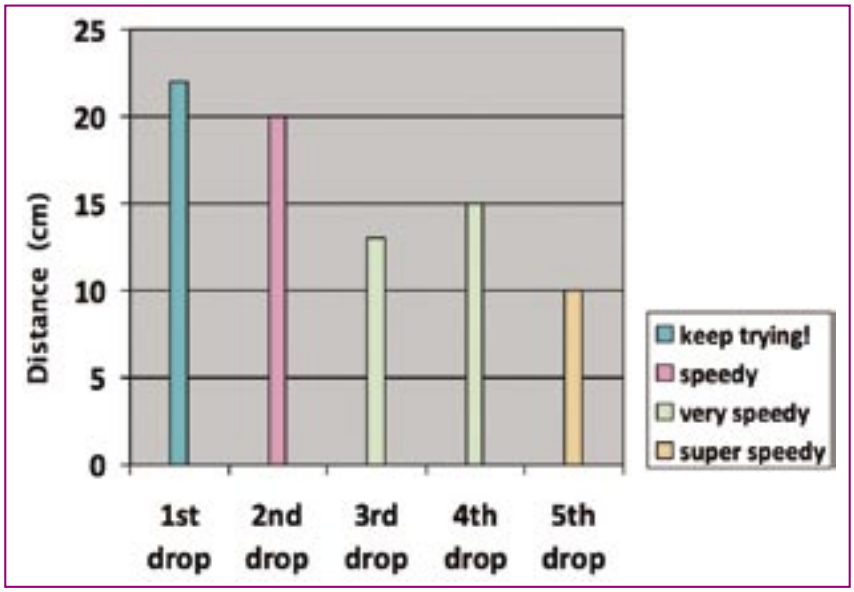

Figure 5 *- Do reactions improve with practice?*

References

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[6] Curriculum for Excellence Experiences and Outcomes. Available at: www.educationscotland.gov.uk/learningteachingandassessment/curriculumareas/sciences/eandos/index.asp (accessed 1st August 2012)
[7] www.millgatehouse.co.uk (accessed 1st August 2012)

Professional development @ SSERC

For a number of years SSERC has been receiving funding from the Scottish Government to support professional development activities for teachers, student teachers and technicians.

In previous issues of the SSERC Bulletin (see for example [1, 2]) we have highlighted aspects of our provision. More recently our collaboration with the National Science Learning Centre at York has allowed access to ENTHUSE and RCUK funding thereby increasing the range and scope of our support for science and technology practitioners. We like to think that we are pretty good at what we do and this has been borne out by a recent external evaluation of our CPD provision by the Scottish Council for Research in Education at the University of Glasgow [3].

So, what of the future? The most recent tranche of funding from the Scottish Government came to an end in March 2012. We are delighted to be able to report that as part of its response to the recent publication of a report [4] from the Science and Engineering Education Advisory Group, the Scottish Government has earmarked funds which will allow SSERC to continue its national programme of professional development. To support our work with the secondary sector a major investment of £1.8 M over a 3-year period, starting April 2012, has been announced. Our work with the primary sector is set to grow with Government investment of some £300 k for each of the next 3 years.

With this welcome news we are busy planning our programmes of activities for the new academic session. Fliers for a range of our courses have recently been sent to schools and colleges and bookings are already buoyant! So if you don't want to miss out contact us to see what we might have on offer to support you!

References

[1] CPD - Leading for Excellence in Science (2010), SSERC Bulletin, **232**, 8-9.

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