

NAPPY CHANGING CHALLENGE AND CLASSROOM OLYMPICS: COMPETITIVE AND COOPERATIVE HANDS ON DATA COLLECTION ACTIVITIES

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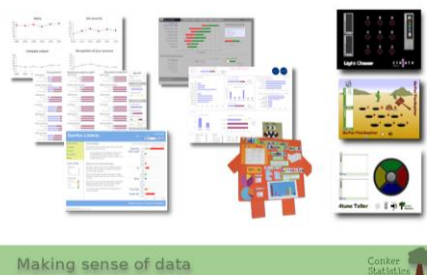
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ABSTRACT

It is well recognised that hands-on school activities can encourage engagement and learning. However, for many years such activities with a competitive element have taken a back seat to the promotion of activities that encourage cooperation. With careful consideration to the inclusion of all class members at KS3 level, Conker Statistics have worked closely with secondary school teachers in developing two themed sets of activities that have elements of competition and cooperation. The Nappy Changing Challenge, designed to raise awareness of childcare, uses realistic baby dolls and real nappies. A well designed data collection form provides the necessary guidance to perform the three stages of the activity including estimation, opinions and measurement. Analysis of the data collected motivates class discussion and presentation of the key results. Classroom Olympics, launched at the English Institute of Sports in 2010, encourages all pupils, regardless of their athletic ability, to take part in competitive activities such as the bean bag shot put and standing start triple jump. To date over 2000 students have taken part in these activities within the classroom and at school events. We discuss our experiences of The Nappy Changing Challenge and Classroom Olympics.

BACKGROUND

Conker Statistics are involved in a variety of projects, ranging from surveys in the pharmaceutical industry to the development of data resources for schools. Many of the conker games, including 'Go for the Gopher' promote data analysis with a competitive element. Now in its 5th year Conker Statistics also run the statistics poster challenge, SPoC, www.SPoc4Schools.org, with The University of Sheffield.



STATISTICS HAS A BAD NAME

At the school level, maths/statistics often has a bad name. Students switch off at the every mention of the subject. At the heart of the problem statistics is perceived as *not cool, boring, difficult and dull*. We therefore feel there is a need to provide a positive experience at an early age:

- How to make statistics engaging?
- How to make statistics cool?
- How to make students want to/need to use statistics?



In some cases the problem lies with the teachers as children are turned off the subject by lessons that are routine and paper based or the teaching often fails to inspire, challenge and engage. Furthermore there is evidence to suggest the teacher has a poor grasp of the subject. From working closely with teachers, we found that a newly qualified teacher (NQT) or young teacher is possibly more adventurous in their teaching practices and that many teachers have great ideas – they just need developing.

In 2008, Conker Statistics were commissioned to develop a range of themed activities, including 'Childcare and the early years' and 'Leisure'. The project brief included the following:

- Ensure investigation is fun, engaging and with a purpose
- Adopt a competitive element to motivate specific comparative investigations e.g. are boys better at estimating, are girls faster at doing a task
- Involve teachers in the activity development

To focus and engage the teacher group we adopted the following activity development process for a one day workshop. This approach encouraged the teachers to have an active role in the activity development.

1. Participate in completed themed activity
2. Finish off partially complete activity
3. Discuss ideas and plan for new activity

NAPPY CHANGING CHALLENGE

With the objective to intrigue and captivate, the Nappy Changing Challenge has proved a huge success. Aimed at school events, but equally possible in the classroom, the Challenge is made up of 3 tasks provided on an activity sheet. (Note props are needed for the activity)



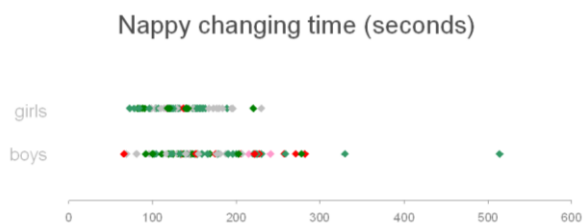
Task 1 involves the students estimating the weight of baby Alexander by passing the realistic weighted baby doll carefully between them. For reference, two further items such as a tin of beans and a bag of potatoes are passed amongst the group. The estimate together with opinion questions are recorded on the activity sheet.

Task 2 involves following instructions to fold a terry towelling nappy in preparation of a nappy change.

Task 3 is the timing element where students take it in turn to perform a timed nappy change using their prepared nappy. In addition to the time to change the quality of the change is recorded.

A guideline to the possible data investigations is provided, however in most cases where a competitive element was introduced the students are motivated to perform their own investigation, driven by a desire to obtain evidence to support their claim. i.e. Boys are faster than girls at changing a baby's nappy.

The following is typical of many challenges run so far. Boys adopt a gun-ho approach where speed is of the essence and girls are steady and careful. The results shown indicate that although a boy has the fastest time, the girls' nappy change is less varied and overall the quality of the change is much better.



CLASSROOM OLYMPICS

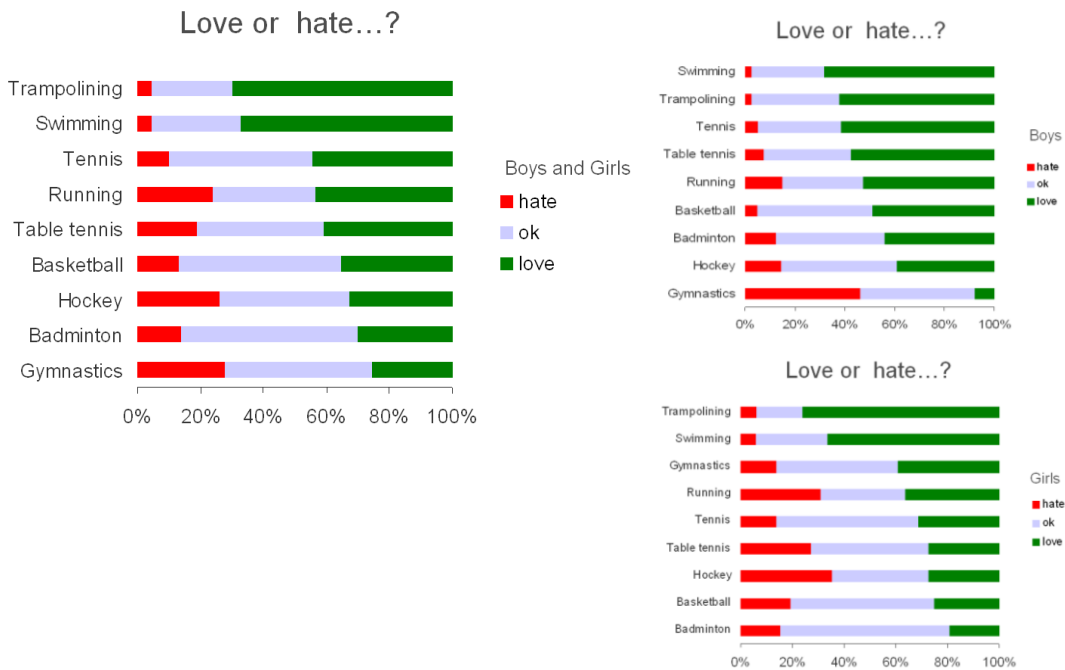
Classroom Olympics was developed along similar lines to the Nappy Changing Challenge. It was launched at the English Institute of Sports in 2010 and once again promotes a competitive element to motivate the investigations.

Modified realistic shot-put and triple jump activities can be used at special school events or within the classroom together with the specially designed data collection form asking opinions on sports at school.



Examining the data collected at an event of over 200 Key Stage 3 students shows that trampolining and swimming are the most loved sports and gymnastics is possibly the most hated.

Looking closer reveals many interesting results; contrary to common belief many girls do not like playing hockey; although gymnastics is shown as the least loved sport for the combined boys and girl's data set, it is in fact loved by girls and hated by boys.



COOPERATIVE AND COMPETITIVE ELEMENTS

Even though the competitive element is the main driving force motivating the activities and the investigations there is also much cooperative work that takes place. Students will help each other performing the activity, whether it is help in preparing the nappy, helping with measuring or timing and recording results. Once all the data is collected, students typically work in groups to investigate the data and provide evidence to support their claims and conclusions.

CONCLUSION

Too many data resources used at school are not engaging or fun. The Nappy Changing Challenge and Classroom Olympics, although not scientific studies, are certainly fun and engaging and can provide some interesting data sets that allow statistical thinking and analysis to



be applied. Incorporating the competitive element into the activities worked well and certainly motivated the students.

The activities are appropriate to teaching statistics in the classroom, promoting statistics at events, and for the professional development of teachers. Whether young or old, the activities certainly provide a positive experience in the learning of statistics.