

# Lesson Plans: Lesson 2 Comparing Across Events

## Goals of Lesson

- To distinguish between high and low quality enquiries
- To find ways of comparing improvements across events.

## Features of the Lesson

- Pupils use their homework reflections to develop the detailed features of a high quality enquiry
- Pupils will identify whether or not women have been improving faster than men for their event, then identify the need to measure relative improvement so that comparisons can be made across events.

## Summary

### **Part 1: Deciding what is needed for a good enquiry**

As a class, pupils reflect on what they understand to be the features of a high quality enquiry. (15 minutes).



### **Part 2: Moving from absolute to relative improvement**

Pupils share their results from Part 1 with the class; this shows the need for a measure of relative improvement so that comparisons can be made across events. (15 minutes).



### **Part 3: Using relative improvement to compare results**

Pupils return to their initial answers to add to their measure of relative improvement so that comparisons can be made across events. (15 minutes).

## Preparation

- You may want copies of the **enquiry process solutions**. (see Activity 1 below). Similarly you will need copies of either the **assessment rubric template** or of a template you have developed.
- You need to be familiar with what the data indicates for the six different events (**TL5**).

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### Part 1: Deciding what is needed for a good enquiry (10 minutes).

Pupils draw on their homework to complete the enquiry process handout and develop a rubric for a high quality enquiry.

Activities	Teaching and Learning Notes
<p>1. Conduct a brief class discussion on what makes a poor, good or excellent enquiry.</p> <p>Key question:</p> <ul style="list-style-type: none"> <li>• <i>What did we learn from the samples about what makes a good enquiry?</i></li> </ul>	<p>The sample enquires were written with the view that number 1 was the best and number 2 the worst. There are some irrelevant comments in number 3.</p> <p>As appropriate, complete the third column of the Enquiry process handout, this may involve giving out copies of the <b>Enquiry process solutions</b>, but you may prefer to use this as a teacher guide to help shape the discussion.</p>
<p>2. Following this, use the <b>assessment rubric template</b> generate together, a rubric which will be used to assess each enquiry that pupils' complete during this Case.</p>	<p>There are significant advantages of the pupils sharing ownership over the criteria for a good assignment (see <b>TL8: Sharing ownership over our criteria for quality</b>). However if time is an issue, this activity may be skipped and the teacher could provide pupils with an assessment rubric that is already prepared.</p> <p>In the trialing, one teacher spent a whole lesson with her class discussing the features of a good enquiry and developing, with her pupils, an Enquiry Rubric. She knew that this meant she would not complete the case in three lessons, but felt that this investment of time was worth it as she intended that her class would complete other enquiries where this time would not be needed again.</p>

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### Part 2: Moving from absolute to relative improvement (15 minutes).

Pupils come to realise absolute differences do not allow different events to be compared.

Activities	Teaching and Learning Notes
<p>3. Pupils share with the class their fair comparison for their event. This shows the need for a measure of relative improvement so that comparisons can be made across events.</p> <p>Key questions:</p> <ul style="list-style-type: none"> <li>• <i>Have women improved faster than men?</i></li> <li>• <i>Why are absolute improvements inadequate for comparing across events?</i></li> </ul>	<p>Ask each group to discuss and share their response to the Case question, for their event together with a margin for improvement. The events have been chosen as a set where the relative improvement of women and men varies substantially. See <b>TL5: Key features in the improvements of selected events.</b></p> <p>As groups provide their different conclusions and margins, highlight that to produce a more conclusive response, a comparison across events would be necessary. Some pupils may have already realised a value of calculating percentage changes and you will need to react accordingly. Point out (if needed) that, comparison across events is difficult with the data expressed in absolute differences.</p>
<p>4. Class reaches consensus on a common approach</p> <p>Key questions:</p> <ul style="list-style-type: none"> <li>• <i>In what ways could relative improvements be measured?</i></li> <li>• <i>Which way will we use?</i></li> </ul>	<p>Discuss with pupils how improvements in performances might be measured in a 'fair' way, and so that they can also be compared across events.</p> <p>See <b>TL9: Fair comparisons which can be used across events</b> for suggestions on running this discussion. Point out that, while there is not a single right or best way to measure relative improvement, the class will need to agree on one common approach so that the original question can be answered.</p>
<p>5. As with all Bowland cases, it is important that pupils realise that they have been doing maths and to reflect on what maths they have been doing. Refer to Bowland CPD module 'Where's the maths in this?'</p>	<p>Sometimes the opportunity to do this will come from a student comment (or complaint) see: <b>TL10: Miss, this isn't maths (Vignette)</b></p>

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### Part 3: Pupils use relative improvement to compare results (15 minutes).

Pupils arrive at an answer to the original question by looking at relative improvements across events

Activities	Teaching and Learning Notes
<p>6. Pupils return to their initial answers and use a common approach to measure relative improvement so that comparisons can be made across events.</p> <p>Key questions</p> <ul style="list-style-type: none"> <li>• <i>Have women improved faster than men in our event?</i></li> </ul>	<p>Allow pupils time to return to their enquiry and develop it further, by completing some further calculations around relative improvements, to allow comparisons across events.</p>
<p>7. Collect and compare results across all the events.</p> <p>Key question</p> <ul style="list-style-type: none"> <li>• <i>Is the answer similar across different events?</i></li> </ul>	<p>After appropriate time, collate the data from all groups on the board, and get pupils to record this for use in their final reports. Provide groups with time to analyse these data to produce a more general response to the Case question considering all events, not just the one they analysed.</p> <p>The concept of using relative improvements to compare across events/contexts is one of the key ideas of this Case. Reflect with pupils on the key principles of comparing across events/contexts.</p>
<p>8. Optional extension to other events</p>	<p>As a teacher resource, we have included detailed lists of track and field and swimming performances in many more events than the six selected. It may be that some pupils are keen to explore others events and these resources will allow this.</p>

### Homework

- Pupils finish this portion of their final report. You may include a task where they select and explore another event from the full list of performances.