Narrative – Peer assessment (stretching springs)

Llywodraeth Cymru
Welsh Government

Year group and curriculum area	Year 9 or 10. Science/physics/mathematics.
Activity	This activity is based on assessing the work of others.
Topic	Forces/stretching springs/Hooke's law; assessing the work of others; graphs and drawing conclusions.
Possible strategy/solution	The purpose of the activity is for learners to assess the work of peers, develop strategies to interpret graphs and evaluate the validity of conclusions. **Requirements** • Activity sheet 'Looking at the work of others'. • Activity sheet 'Peer assessment', showing the work of three learners in drawing graphs, processing data and drawing valid conclusions. Learners study the work of others and evaluate whether or not the work is of appropriate quality. Several misconceptions and common errors in learner work have been incorporated into the work to be evaluated. Learners work either individually or in groups and complete three tasks. Comments on the graphs include: • heading on graph to indicate what is being investigated • clearly identified variable labelled on axis with units • appropriate uniform scale on each axis • points plotted indicated clearly • line of best fit accurately drawn with ruler. **Conclusions** • Conclusion based on evidence from graph. • Data processed appropriately. • Intercepts and gradients calculated accurately with correct units. • Original length of spring and spring constant calculated and identified. • Qualitative conclusion. • Quantitative conclusion.

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Links with the LNF	**Skills** • Generating and using a strategy to solve problems. • Working collaboratively to solve a problem. **Numeracy component** **Strand: Developing numerical reasoning (Year 9/10)** **Element: Identify processes and connections (Year 9/10)** Learners are able to: • transfer mathematical skills across the curriculum in a variety of contexts and everyday situations • prioritise and organise the relevant steps needed to complete the task or reach a solution • choose an appropriate mental or written strategy and know when it is appropriate to use a calculator • use a scientific calculator to carry out calculations effectively and efficiently using the available range of function keys • identify, measure or obtain required information to complete the task • identify what further information might be required and select what information is most appropriate • select appropriate mathematics and techniques to use • estimate and visualise size when measuring and use the correct units. **Element: Review (Year 9/10)** Learners are able to: • select and apply appropriate checking strategies • interpret answers within the context of the problem and consider whether answers, including calculator, analogue and digital displays, are sensible • verify and justify results or solutions, including discussion on risk and chance where relevant • interpret mathematical information; draw inferences from graphs, diagrams and data, including discussion on limitations of data • draw conclusions from data and recognise that some conclusions may be misleading or uncertain. **Strand: Using number skills (Year 9)** **Element: Calculate using mental and written methods (Year 9)** Learners are able to: • use efficient written methods to add and subtract numbers and decimals of any size, including a mixture of large and small numbers with differing numbers of decimal places • multiply and divide whole numbers and decimals • use the order of operations including brackets and powers.

Element: Estimate and check (Year 9)
Learners are able to:

- make and justify estimates and approximations of calculations
- choose the appropriate degree of accuracy to present answers.

Literacy component

Strand: Reading across the curriculum (Year 9)

Element: Responding to what has been read (Year 9)

Aspect: Comprehension (Year 9)
Learners are able to:

- read with concentration texts, on-screen and on paper, that are new to them, and understand the information in them
- follow up and use additional material in texts to extend understanding
- gain a full understanding of texts using inference, deduction and analysis.

Aspect: Response and analysis (Year 9)
Learners are able to:

- synthesise and analyse information to gain in-depth understanding, *e.g. of causes, consequences, patterns*, using different sources.

Strand: Writing across the curriculum (Year 10)

Element: Organising ideas and information (Year 10)

Aspect: Meaning, purposes, readers (Year 10)
Learners are able to:

- write both extended pieces, which include detailed evidence and information, and shorter pieces which summarise concisely, showing clear awareness of the reader or intended audience
- construct responses that connect and develop ideas to fully cover the topic.

Aspect: Structure and organisation (Year 10)
Learners are able to:

- write independently in an appropriate form with increasing confidence, ensuring content is organised, detailed and relevant, *e.g. how best to present opinions, information and explanations*
- organise writing in an appropriate form, ensuring content is detailed within and between paragraphs or sections.

	Aspect: **Language (Year 10)** Learners are able to: • use a wide range of technical terms, appropriate vocabulary, and expression for different purposes and to create different effects, *e.g. to persuade, inform, entertain*. **Aspect**: **Grammar, Punctuation, Spelling, Handwriting (Year 10)** Learners are able to: • use the full range of punctuation in order to vary pace, clarify meaning, avoid ambiguity and create deliberate effects • use a variety of strategies and resources to accurately spell an increasing range of familiar, unfamiliar and subject-specific words • present their handwritten or on-screen work effectively, choosing form, images and graphics to enhance meaning • Welsh-medium statement: write grammatically accurate sentences ensuring that the verb tense and person is correct in context • Welsh-medium statement: use a range of mutations correctly (soft, nasal and aspirate mutations) in context.