Strands in progression from the level descriptions for science Key Stages 2 and 3

This poster has been produced to aid teachers in planning for progression in science and to identify characteristics of level descriptions. It is not designed as a prompt for learners. The use of numbers in everyday classroom assessments, as in the level descriptions, is against the fundamental principles of assessment for learning. It is strongly suggested that if elements of this poster are used to demonstrate to learners their progression, the numbers are removed.

Planning

Level Characteristic	1	2	3	4	5	6	7	8	EP
Find evidence, information and ideas	Listen and respond to scientific ideas and react appropriately.	Choose from given options where to find evidence, information and ideas.	Suggest where to find evidence, information and ideas.	Find and use a variety of evidence, information and ideas.	Find and use relevant evidence, information and ideas.				
Methods and strategies	Take part in simple activities and through a variety of experiences explore the world around them.	Talk about the steps needed to carry out their enquiries.	Plan, with support, the method to be used for their enquiries.	Use scientific knowledge and skills to plan their enquiries.	Systematically plan their enquiries.	Suggest a variety of methods or strategies for their enquiries.	Give some justification for the methods and strategies they plan to use.	Justify their methods and strategies in view of the reliability of the information and/or the data to be gathered and the accuracy of the equipment to be used. Identify any possible problems with the method/strategy.	Justify their methods and strategies making multiple links to prior learning and independent research and taking account of possible problems.
Predict			Talk about their ideas and using their everyday experience they make simple predictions.	(Use scientific knowledge and skills to) predict outcomes.	Making predictions based on scientific knowledge and understanding, including simple models.	Make predictions using abstract scientific ideas.	Make qualitative predictions using linked scientific knowledge and understanding gained from a variety of sources.	Make quantitative predictions, where appropriate, using detailed scientific knowledge and abstract ideas.	Justify their predictions by making multiple links between scientific models, theories and systems.
Fair testing				Recognise, with support, the variables to change and measure and those to be kept the same.	Identify key variables and distinguish between independent and dependent variables and those that they will keep the same.	Plan how to control the variables that they need to keep the same and make decisions about the range and values of the independent variable.	Identify key variables that may not be readily controlled explaining why this is the case.		Plan to track changes in more than one dependent variable.
Determine success criteria		(Talk about) what is needed to be successful.	Agree on some basic success criteria.	Decide upon some basic success criteria.	Give some justification for their success criteria.	Justify their success criteria.			

Developing

Level Characteristic	1	2	3	4	5	6	7	8	EP
Observe and measure	Observe . . . simple features of organisms, objects, materials and events.	Make enough observations to be able to sort, group and compare organisms, objects, materials, and events.	Follow a simple series of instructions safely to gather their findings, and where appropriate make observations that they could measure using simple equipment.	Follow the planned method . . . make qualitative observations and use standard equipment to measure within a given range using S.I. units.	Select measuring instruments that allow them to make a series of accurate measurements.	Make precise observations and accurate measurements using equipment with fine divisions.	Systematically observe and measure.		
Monitor progress				Making amendments where necessary.	Regularly check progress and revise the method where necessary.	Regularly check progress, make ongoing revisions when necessary and begin to justify any amendments or improvements made.	Justifying any amendments made to the method/strategy.		
Communicate findings	Describe (simple features of organisms, objects, materials and events) through talking, drawing, mark-making or writing simple words.	Make simple records of their findings by talking, drawing, writing simple sentences, constructing tally charts or pictograms.	Begin to organise their findings and display them in a given format, to include simple tables and bar charts.	Organise and communicate their findings using relevant scientific language and display these in tables, bar charts and in simple line graphs when the axes and scales are given.	Organise and communicate their findings integrating different forms in various presentations and record these systematically, using S.I. units where appropriate. Select the most appropriate type of graph or chart to display data.	Organise and communicate their findings in a variety of ways fit for purpose and audience. Use appropriate axes and scales for graphs to show data effectively. Begin to use some quantitative definitions.	Draw lines of best fit on line graphs. Use some quantitative definitions and perform calculations using the correct units.		Develop an organised system to record findings clearly conveying points of interest.
Review findings			Begin to identify simple patterns and trends. Begin to distinguish between scientific 'facts', beliefs and opinions.	Identify patterns and trends. Distinguish between 'facts', beliefs and opinions and begin to recognise bias.	Use line graphs to describe relationships between two continuous variables. Identify bias and start to consider reliability.	Assess bias, consider reliability. Offer some explanations for any anomalies.	Begin to evaluate their findings in order to gauge bias, reliability and validity.	Evaluate their findings in order to gauge levels of bias, reliability and validity. Identify and explore uncertainties and explain anomalies.	
Explaining	Recognise and name a range of common organisms, objects, materials, light sources and sound sources.	Describe the basis for their groupings using simple differences between organisms, objects, materials and physical phenomena.	Give an explanation, based upon their everyday experiences, for their findings, including any patterns. Give simple explanations for differences between and changes to organisms, objects, materials and physical phenomena.	Use some scientific knowledge and understanding to explain their findings . . . . . . and differences between, or changes to, organisms, materials and physical phenomena.	Use scientific knowledge and understanding, including simple models, when explaining their findings . . . . . . and differences between, or changes to, organisms, materials and physical phenomena.	Use abstract scientific knowledge and understanding, including models, when explaining their findings . . . . . . and differences between, or changes to, organisms, materials and physical phenomena. Recognise that a number of factors and/or processes may have to be considered when explaining changes.	Explain to what extent their findings are consistent with scientific knowledge and understanding, using abstract ideas at times. In explanations they apply abstract ideas and make links between processes or systems. Begin to use their explanations to make predictions.	Explain to what extent their findings are consistent with abstract scientific ideas. Explain the impact of one system on another.	Use complex abstract ideas or combinations of models/systems to explain their findings. Use their knowledge and understanding to critically evaluate predicted effects on systems.
Conclusions and decisions			Say what they have found out from their work and make their own decisions by weighing up pros and cons.	Begin to draw conclusions, form considered opinions and make informed decisions.	Draw conclusions that are consistent with the findings and consider others' views to inform opinions and decisions.	Consider a wider range of perspectives to inform opinions and decisions.	Describe how they might collect more information in order to check the validity of their conclusions.	Draw conclusions showing an awareness of the degree of uncertainty and a range of views.	Use detailed evidence to form consistent conclusions/opinions.

Reflecting

Level Characteristic	1	2	3	4	5	6	7	8	EP
Review success		Respond to questions about what worked and what didn't.	Link outcomes to success criteria and identify what worked and what didn't. Beginning to think about how the method could be improved.	Decide whether their method was successful by referring to their success criteria. Say how they could improve it (their method).	Begin to evaluate how far success criteria fully reflect successful outcomes.	Evaluate how far success criteria fully reflect successful outcomes.	Refine success criteria in the light of experience for future occasions.		
Evaluate learning				Describe how they have learned and identify the ways that worked the best.	Identify the learning/thinking strategy they have used.	Identify the learning/thinking strategies being used.	Review their strategies in light of results obtained or the information gathered.	Suggest alternative learning/thinking strategies.	Evaluate the likely effectiveness of alternative strategies and refine learning/thinking strategies for future occasions.
Link learning			Link the learning, with support, to familiar situations.	Link the learning to similar situations.	Link the learning to dissimilar but familiar situations.	Link the learning to unfamiliar situations.	Link the learning to more abstract situations.	Link the learning to make further predictions.	

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