Inquiry Learning and the Nature of Science, Plus Assignments

Assignments

The following two assignments provide for you to earn an additional 3 hours of professional development credit. Both assignments need to be submitted, in Microsoft Word format, within 2 months of the seminar date.

Assignment 1 addresses the need for science teachers to provide more opportunities in their courses for students to engage in activities that require them to use the scientific method and associated terminology to answer causal questions by investigation. Assignment 2 requires you to research, or devise, learning activities that are suitable for sequencing in the form of a 7E learning cycle.

Assignment 1

Describe an investigation that answers a descriptive question (either one that your students presently carry out or another) that lends itself to being reconceptualised in the form of an investigation, suitable for students at a particular year level (e.g., Year 6), that begins with a causal question. Describe how the causal investigation might proceed.

Suggestions. The starting point for designing a causal investigation is for students to experience a puzzling observation. Strive to explicate more than one hypothesis for testing and describe how each might be tested (either experimentally or as a thought experiment).

Assignment 2

Consider a series of lessons that presently do not incorporate the 7E Learning Cycle but that could be enhanced by the use of such pedagogy. Describe the present approach and then describe the revised learning cycle approach.

Suggestions: If necessary, phases may be combined (e.g., *elaborate* and *extend*). Evaluation need not be included/made explicit.

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Mastery Checklist: Assignments

To achieve an overall mastery classification (over both assignments), and hence credit for completing the 5-hour course, every element of the following checklist needs to be met, please.

Assignment 1

Criterion	Element	Self-evaluation (check)	
Descriptive investigation	1. Seeks to answer a descriptive question. 2. Investigation clearly described.		
Year level and suitability	3. Year level specified. 4. Descriptive investigation is suitable for reconceptualising as a causal one at this year level.		
Causal investigation	5. Describes a puzzling observation. 6. At least one hypothesis is advanced. 7. Describes how at least one hypothesis is tested experimentally. 8. Addresses each of the steps of the scientific method.		
Submission	9. Assignment submitted within 2 months of the seminar date.		

Assignment 2

Criterion	Element	Self-evaluation (check)	
Present approach	10. Lessons described clearly.		
7E Learning Cycle approach	11. Learning activities described clearly. 12. All phases of learning cycle, except evaluation, addressed. (If necessary, some phases may be combined.)		
Submission	13. Assignment submitted within 2 months of the seminar date.		

Classification: Mastery ☐ Non-mastery ☐

In the event you receive a non-mastery classification, you are invited to resubmit one or more revisions based on the feedback provided in order to receive credit for course completion. A revision needs to be submitted within 1 month of the previous feedback being provided.