


Teaching, Learning and Assessing using Problem Solving Approach

Table: Mapping learning objectives into two way table

		Cognitive Process Dimension 					
		Remember	Understand	Apply	Analyze	Evaluate	Create
Knowledge Dimension 	Factual knowledge	<p>To be able to list the four stages of the problem solving approach</p> <p>To be able to distinguish between discrete and continuous variables</p> <p>To know the implications of variable type for the data collection method (collection sheets)</p>	<p>To be able to identify and list what constitutes each stage of the problem solving approach</p>	<p>To be able to calculate summary statistics</p>	<p>To be able to identify the four stages and explain how they fit together as the problem solving approach</p>	<p>To be able to compare numerical data values</p>	<p>To be able to evaluate the relevance of conclusions to (wider) population</p>
	Conceptual knowledge	<p>To be able to list the four stages of the problem solving approach</p>	<p>To be able to give an overview of the problem solving approach and its purpose.</p> <p>To be able to summarise the problem</p> <p>To be able to summarise requirements for data from the plan</p> <p>To be able to explain what can be inferred from each numerical summary/table and graph/plot</p> <p>To be able to articulate conclusions as a result of discussion</p>	<p>To be able to distinguish between the need for primary and secondary data</p> <p>To be able to use summarised data (including plots) in support of the conclusion</p>	<p>To be able to organise data into appropriate tables/summaries</p>	<p>To be able to explain what can be inferred from each numerical summary/table and graph/plot</p>	<p>To be able to identify variables that may be relevant to the questions/problem</p> <p>To be able to articulate conclusions as a result of discussion</p>

		Cognitive Process Dimension →					
		Remember	Understand	Apply	Analyze	Evaluate	Create
Knowledge Dimension ↓	Procedural knowledge	<p>To be able to identify and list what constitutes each stage of the problem solving approach</p> <p>To be able to recognise availability of primary and/or secondary data</p> <p>To know the implications of variable type for the data collection method (collection sheets)</p> <p>To be able to organise data into appropriate tables/summaries</p> <p>To be able to construct summary tables appropriate to the data and the questions from the plan</p> <p>To be able to calculate summary statistics appropriate to the data and the questions from the plan</p> <p>To be able to relate the plan and questions raised to desirable graphical presentations</p> <p>To be able to construct appropriate graphical representations</p>	<p>To be able to organise data into appropriate tables/summaries</p> <p>To be able to construct summary tables appropriate to the data and the questions from the plan</p> <p>To be able to calculate summary statistics appropriate to the data and the questions from the plan</p> <p>To be able to relate the plan and questions raised to desirable graphical presentations</p> <p>To be able to construct appropriate graphical representations</p>	<p>To be able to undertake data collection appropriate to the above</p> <p>To be able to construct summary tables appropriate to the data and the questions from the plan</p> <p>To be able to calculate summary statistics appropriate to the data and the questions from the plan</p> <p>To be able to relate the plan and questions raised to desirable graphical presentations</p> <p>To be able to construct appropriate graphical representations</p>	<p>To prepare a plan for organising and recording the data</p> <p>To determine an appropriate source(s) for the data</p> <p>To be able to design data collection sheets appropriate to the variable type</p> <p>To be able to organise data into appropriate tables/summary</p>	<p>To be able to construct summary tables appropriate to the data and the questions from the plan</p> <p>To be able to calculate summary statistics appropriate to the data and the questions from the plan</p> <p>To be able to relate the plan and questions raised to desirable graphical presentations</p> <p>To be able to construct appropriate graphical representations</p>	<p>To be able to construct/develop a list of data that needs to be collected</p> <p>To be able to design data collection sheets appropriate to the problem questions</p>

		Cognitive Process Dimension					
							
		Remember	Understand	Apply	Analyze	Evaluate	Create
Knowledge Dimension	Metacognitive knowledge	<p>To be able to identify the four stages and explain how they fit together as the problem solving approach</p>	<p>To be able to give an overview of the problem solving approach and its purpose.</p> <p>To be able to relate inferences from tables and plots to questions raised and original problem decisions</p> <p>To be able to make decisions/come to conclusions about the original questions</p>	<p>To be able to construct summary tables appropriate to the data and the questions from the plan</p> <p>To be able to calculate summary statistics appropriate to the data and the questions from the plan</p> <p>To be able to relate the plan and questions raised to desirable graphical presentations</p> <p>To be able to construct appropriate graphical representations</p>	<p>To be able to evaluate the relevance of conclusions to (wider) population</p>	<p>To be able to decide if data was appropriate for the questions</p> <p>To be able to relate inferences from tables and plots to questions raised and original problem decisions</p> <p>To be able to make decisions/come to conclusions about the original questions</p> <p>To be able to evaluate the relevance of conclusions to (wider) population</p>	<p>To be able to articulate and construct questions that the problem raises</p> <p>To be able to decide/conceive if additional problems/questions are raised</p>