

Drexel University Mathematics Methods
Instructional Explanation Evaluation

	<i>missing</i>	<i>developing</i>	<i>evident</i>	
Characteristics of Effective Instructional Explanations	1	2	3	4
Provides an overview of the question/task, goals, and solutions process				
Explains the thought process step-by-step without skipping steps • Explanations move beyond numbers, operations, and calculations • Explanations include references to connections and how ideas and calculations fit together				
Makes the transitions between successive steps clear				
Defines key terms and concepts appropriately				
Emphasizes context and meaning of quantities, variables <u>and</u> calculations				
Uses suitable examples and representations, if possible, and uses them appropriately (e.g., when explaining a mathematical procedure, each step in this procedure is clearly mapped onto the visual representation used)				
Draws on and highlights key mathematical ideas				
Clarifies the question under consideration and shows how it is answered				
Is meaningful and easy to understand				
Has the audience in mind; uses appropriate language for the audience*				
Explanations contain evidence of curiosity (wondering), intellectual engagement and reflection				

Total Score	
--------------------	--

* Note: for this class, your audience is school students NOT your classmates or instructor. You should NOT assume that your audience has any prior knowledge with this specific task and/or the related mathematical ideas. You may assume they have general understanding of the pre-requisite ideas and concepts, but with varying levels of understanding and ability.

Adapted from

- Charalambous, C.Y., Hill, H.C. & Ball, D.L. Prospective teachers' learning to provide instructional explanations: how does it look and what might it take?. *J Math Teacher Educ* **14**, 441–463 (2011).

- Thompson, A.G., Philipp, R.A., Thompson, P.W., & Boyd, B.A. (1994). Computational and conceptual orientations in teaching mathematics. In A. Coxford (Ed.), *1994 Yearbook of the NCTM* (pp. 79-92). Reston, VA: NCTM.