

國立彰化師範大學 97 學年度博士班招生考試試題

系所：科學教育研究所

組別：乙/丙/丁/戊組

科目：科學教育

☆☆請在答案紙上作答☆☆

共 1 頁，第 1 頁

一、名詞解釋（以下八題任選五題回答，多答不給分，每題 8%，共 40%）

1. Bloom's Taxonomy of educational objectives
2. Metacognition
3. Posner's Conceptual Change Model
4. Authentic scientific inquiry
5. Cogenerative dialogues
6. Science Writing Heuristic
7. Criterion-referenced assessment
8. Achievement motivation

二、請翻譯成中文（不需逐字翻譯，但須保留原意）（10%）

A teacher's pedagogical content knowledge includes models, analogies, equations, graphs, diagrams, pictures, and simulations that can help the learner understand an idea. These representations may be exhibited in a variety of forms such as verbal, mathematical, visual, and actional-operational. (Abell & Lederman, 2007, p.379)

三、論證（argumentation）是目前許多科教學者研究的主题，請閱讀以下文字：

Research suggests that collective discourse is fundamental to students' construction of meaning and identity. Researchers have recognized the importance of the role of discourse in learning, and have more recently focused on engaging students in scientific argumentation, which engages students in using scientific theory, data, and evidence to oppose or confirm proposed claims. (Gross, Taasobshirazi, Hendricks, & Hickey, 2008, p.838)

1. 請說出上段文字的大意。（10%）
2. 請說明你對論證的了解為何？論證與科學學習的關係為何？（15%）

四、您認為在現在的科學課室裡，科學教師面臨最大的困難為何，為什麼？（10%）有哪些理論可以提供解決的方法？（15%）