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| **Essential Features of Inquiry** | **1****Full Inquiry Teaching****(Can Use Learning Cycle)** | **2****Coupled Inquiry****(Can Use Learning Cycle)** | **3****Guided Inquiry** | **4****Directed Inquiry** | **5****Verification** | **6****Expository** |
| 1. Learner **engages in**scientifically oriented **questions** | Learner poses a question | Learner selects amongquestions, poses newquestions | Learner sharpens orclarifies question provided by teacher, materials, or other source |  Learner engages in question provided by teacher, materials, or other source | Learner engages in question that replicates one provided by teacher, materials, or other source  | Learner engages in no question to investigate |
| 2. Learner gives priority to **evidence** inresponding to questions | Learner determines whatconstitutes evidence andcollects it | Learner directed tocollect certain data | Learner given data and asked to analyze | Learner given data and told how to analyze | Learner given data and told how to analyze that replicates one provided | Learner given no data just conclusions |
| 3. Learner **formulates explanations** from evidence | Learner formulates explanation after summarizing evidence | Learner guided in process of formulating explanations from evidence | Learner given possible ways to use evidence to formulate explanation | Learner provided with evidence | Learner provided with evidence that replicates conclusions already given | Learner provided with no evidence, only conclusions |
| 4. Learner **connects****explanations** to scientific knowledge  | Learner independently examines other resources and forms the links to explanations | Learner directed toward areas and sources of scientific knowledge | Learner given possible connections | Learner provided with connections | Learner provided with connections that replicates one provided | Teacher reports connections |
| 5. Learner communicatesand **justifies****explanations** | Learner forms reasonableand logical argument tocommunicate explanations | Learner coached in development of communication | Learner provided broad guidelines to sharpen communication | Learner given steps and procedures for communication | Learner reports how close to the textbook the conclusions were | Learner reports no conclusions  |

 **More \_\_\_\_\_\_\_\_\_\_\_\_\_ Amount of Learner Self-Direction \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Less**

 **Less \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Amount of Direction from Teacher or Material \_\_\_\_\_\_\_\_\_\_ More**

Dennis W. Sunal (2013), Modified from National Research Council. (2000). *Inquiry and the* *National Science Education Standards.* National Academy Press, p. 29 and Sunal, D. Sunal. C., Sundberg, C., and Wright, E. (2008). The importance of laboratory work and technology in science teaching. In Sunal, D. & Wright, E. (Eds*.*)*,* *The impact of the laboratory and technology on learning and teaching science K-16*. Greenwich, CT: Information Age Publishing, 1-28.