

Essential Features of Classroom Inquiry and Its Variations

Essential Feature	Variations			
1. Learner engages in scientifically oriented questions	Learner poses a question	Learner selects among questions, poses new questions	Learner sharpens or clarifies question provided by teacher, materials, or other source	Learner engages in question provided by teacher, materials, or other source
2. Learner gives priority to evidence in responding to questions	Learner determines what constitutes evidence and collects it	Learner directed to collect certain data	Learner given data and asked to analyze	Learner given data and told how to analyze
3. Learner formulate 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 and how to use evidence to formulate explanation
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	
5. Learner communicates and justifies explanations	Learner forms reasonable and logical argument to communicate explanations	Learner coached in development of communication	Learner provided broad guidelines to use sharpen communication	Learner given steps and procedures for communication
More ----- Amount of Learner Self-Direction ----- Less Less ----- Amount of Direction from Teacher or Material ----- More				

National Research Council. (2000). *Inquiry and the National Science Education Standards: A Guide for Teaching and Learning*. National Academy Press: Washington, DC.

SK Science Curriculum Learning Contexts

- **Scientific Inquiry**
 - Reflects an emphasis on understanding the natural and constructed world using systematic empirical processes that lead to the formation of theories that explain observed events and that facilitate prediction.
- **Technological Problem-Solving**
 - Reflects an emphasis on addressing human and social needs by designing and building to solve practical problems.
- **STSE Decision Making**
 - Reflects the need to engage citizens in thinking about human and world issues through a scientific lens in order to inform and empower decision-making by individuals, communities, and society.
- **Cultural Perspectives**
 - Reflects a humanistic perspective on examining and understanding the knowledge systems that other cultures use, and have used, to describe and explain the natural world.

Levels of Inquiry

(Banchi and Bell, 2008)

Level	Students are provided with:	Useful for:
Confirmation	Question Procedure Results are known in advance	Reinforcing previously introduced ideas Introducing students to experiments Having students practice a specific skill
Structured	Question Procedure	Observing and recording data Creating conclusions based on evidence
Guided	Question	Observing and recording data Developing procedures Creating conclusions based on evidence
Open		Observing and recording data Developing questions Developing procedures Creating conclusions based on evidence

Banchi, H., & Bell, R. (2008, October).
The Many Levels of Inquiry, *Science and Children*, 46(2), 26-29