SCIENTIFIC THOUGHT - ORIGINAL CREATIVITY

PART A: SCIENTIFIC THOUGHT - 45%			PART B: ORIGINAL CREATIVITY - 25%			
EXPERIMENT	INNOVATION	STUDY	RANK 1 (Low)	RANK 2 (Fair)	RANK 3 (Good)	RANK 4 (Excellent)
Definition: An investigation undertaken to test a scientific hypothesis using experiments. Experimental variables, if identified, are controlled to some extent.	**Definition:** The development and evaluation of innovative devices, models or techniques or approaches in technology, engineering, or computers (hard/software).	**Definition:** A collection and analysis of data to reveal evidence of a fact or a situation of scientific interest. It could include a study of cause and effect relationships or theoretical investigations of scientific data.	Little imagination shown. Project design is simple with minimal student input. A textbook or magazine type project.	Some creativity shown in a project of fair to good design. Standard approach using common resources/ equipment. Topic is a current or common one.	Imaginative project. Good use of available resources. Well thought-out above ordinary approach. Creativity in design &/or use of materials.	A highly original project or a novel approach. Shows resourcefulness, creativity in design, use of equipment and/or construction of project.
Level 1 (low) Duplicating of a known experiment to confirm the hypothesis. The hypothesis is totally predictable.	Level 1 (low) Building models (devices) to duplicate existing technology.	Level 1 (low) Study of existing printed material related to the basic issue.	THOUGHT 5 + 15 = ___ CREATIVITY 5 + 10 = ___	THOUGHT 5 + 15 = ___ CREATIVITY 10 + 15 = ___	THOUGHT 5 + 15 = ___ CREATIVITY 15 + 20 = ___	THOUGHT 5 + 15 = ___ CREATIVITY 20 + 25 = ___
Level 2 (fair) Extend a known experiment through modification of procedures, data gathering, and application.	Level 2 (fair) Make improvements to, or demonstrate new applications for existing technological systems or equipment and justify them.	Level 2 (fair) Study of material collected through compilation of existing data and through personal observations. The display attempts to address a specific issue.	THOUGHT 15 + 25 = ___ CREATIVITY 5 + 10 = ___	THOUGHT 15 + 25 = ___ CREATIVITY 10 + 15 = ___	THOUGHT 15 + 25 = ___ CREATIVITY 15 + 20 = ___	THOUGHT 15 + 25 = ___ CREATIVITY 20 + 25 = ___
Level 3 (good) Devise/carry out an original experiment with controls. Variables identified. Some significant variables are controlled. Analysis such as graphs/simple statistics.	Level 3 (good) Design and build innovative technology or provide adaptations to existing technology that will have human benefit and/or economic applications.	Level 3 (good) Study based on observations and literary research illustrating various options for dealing with a relevant issue. Appropriate analysis (arithmetic, statistical, or graphical) of some significant variable(s).	THOUGHT 25 + 35 = ___ CREATIVITY 5 + 10 = ___	THOUGHT 25 + 35 = ___ CREATIVITY 10 + 15 = ___	THOUGHT 25 + 35 = ___ CREATIVITY 15 + 20 = ___	THOUGHT 25 + 35 = ___ CREATIVITY 20 + 25 = ___
Level 4 (excellent) Devise and carry out original experimental research which attempts to control or investigate most significant variables. Data analysis includes statistical analysis.	Level 4 (excellent) Integrate several technologies, inventions or designs and construct an innovative technological system that will have human and/or commercial benefit.	Level 4 (excellent) Study correlating information from a variety of significant sources which may illustrate cause and effect or original solutions to current problems through synthesis. Significant variable(s) are identified with in-depth statistical analysis of data.	THOUGHT 35 + 45 = ___ CREATIVITY 5 + 10 = ___	THOUGHT 35 + 45 = ___ CREATIVITY 10 + 15 = ___	THOUGHT 35 + 45 = ___ CREATIVITY 15 + 20 = ___	THOUGHT 35 + 45 = ___ CREATIVITY 20 + 25 = ___