1. What is scientific knowledge?

a. Knowledge – (Webster’s Dictionary, 1989) 1. acquaintance with facts truths, or principles, as from study or investigation; general erudition: a little knowledge of many things. 2. familiarity or conversance, as with a particular subject, branch of learning, etc.: A knowledge of physics was necessary for the job. 3. acquaintance or familiarity gained by sight, experience, or report: a knowledge of human nature. 4. fact or state of knowing; perception of fact or truth; clear and certain mental apprehension. 5. awareness, as of a fact or circumstance: She was pleased by their knowledge of her good fortune. 6. that which is or may be known; information: To the best of my knowledge, she never arrived. 7. the body of truths or facts accumulated by mankind in the course of time: Man’s knowledge of the origin of the universe is largely theoretical. 8. the sum of what is known: Knowledge of the true situation is limited.

b. Science – (Webster’s Dictionary, 1989) 1. a branch of knowledge or study dealing with a body of facts or truths systematically arranged and showing the operation of general laws: the mathematical sciences. 2. systematic knowledge of the physical or material world. 3. systematized knowledge in general. 4. knowledge, as of facts or principles; knowledge gained by systematic study.

c. Science – (Dictionary) -- The observation, identification, description, experimental investigation, and theoretical explanation of natural phenomena.

d. Scientific Method -- (Webster’s Dictionary, 1989) a method of research in which a problem is identified, relevant data are gathered, a hypothesis is formulated from these data, and the hypothesis is empirically tested.

e. Scientific Method – (Encyclopedia Britannica, 1967) -- 1) Careful observation usually involving quantitative measurement (special instruments are usually required); 2) Elaboration of a hypothesis by inductive reasoning (a guess based upon observation); 3) Conducting experiments based upon the hypothesis; 4) If the predictions of the hypothesis are borne out by the experiments, the hypothesis may be elevated to the status of theory; 5) The theory with other theories may evolve into a general law that explains all phenomena within a given field of study and offers a basis for the prediction of all phenomenological changes.