



# Comparison of *Benchmarks* and *NSES Benchmarks* Topics Not Included in *NSES*

- Historical exclusion of women and minorities
- Feedback and control in technological systems
- Technological failure and ways of reducing it
- Issues of maintenance in technology
- Distances between earth and stars
- Light from distant stars shows universality of elements, principles
- Unique ability of planet earth to support life
- Existence of yet smaller components of protons, neutrons, and electrons
- Poor heat conductors can be used to reduce heat loss
- All motion is relative to frame of reference chosen
- Biological variation increases likelihood of some surviving individuals
- New gene combinations can be helpful, harmful, or neutral
- Increased mutation rate (and cancer risk) from chemicals and radiation
- Cell's watery composition accounts for many of its properties
- Proteins as long folded chains of smaller molecular units
- Most cells function best within a narrow range of temperature and acidity
- Cyclic fluctuations and equilibrium in ecosystems
- Selective breeding (as application of science in agriculture and as a model for natural selection)
- Bush-like nature of evolution
- Aging (*NSES* has other aspects of human life cycle)
- HUMAN IDENTITY—whole section
- LEARNING—whole section
- MENTAL HEALTH—whole section
- Specific principles of reasoning
- “Emergent” properties of complex systems
- Unpredictable effects of changing some part of the system
- Symmetry as an aspect of constancy
- Characteristics of cycles
- Maintaining equilibrium (in general, though *NSES* has homeostasis)
- Unpredictability of some systems
- Expressing very large or very small magnitudes with powers of ten