

Announcement of changes to the Science Contest:

First off Dr. Jennifer Fritz (Lecturer in Biology at UT Austin) is the new Biology Contest Director. Although not in the C&CR yet, Dr. Fritz has recommended the following resources for study:

texts:

Biology, by Campbell, et.al. specifically the 8th or 9th editions
Principles of Life, by Hillis & Saldava

online:

University of Texas Bio 311C site: <http://bio311.biosci.utexas.edu/>

Learn Genetics University of Utah: <http://learn.genetics.utah.edu/>

Kimball's Biology Pages: <http://users.rcn.com/jkimball.ma.ultranet/BiologyPages/>

Dr. Fritz has also identified the main Biology topics to be reviewed:

1. Structure Relates to Function
 - Basic Biochemistry
 - Basic Cell Biology
 - Biological Membrane
2. Energy is Stored, Used and Transformed in Living Systems
 - Respiration and Photosynthesis
 - Metabolism
 - Enzyme Kinetics
3. Gene Expression
 - DNA, RNA, and Proteins
 - Protein synthesis
 - Regulation of gene expression
 - DNA Technology
4. Genetics and Inheritance
 - Mendelian inheritance
 - Molecular inheritance-Chromatin, chromosomes, chromatids
 - Genome Structure/Human Life Cycle
 - Cell Division-Mitosis and Meiosis
5. Evolution
 - Microevolution: Selection, Mutation, Migration and Genetic Drift
 - Evidence of Macroevolution
 - Speciation and Extinction
6. Origin and Diversity of Life on Earth
 - 3 Domains of Life
 - Animal and Plant Behavior
 - Biological Hierarchy
7. Ecology and the Environment
 - Population Biology
 - Community Dynamics
 - Biogeochemical Cycles

Furthermore there have been several changes to both the Science Contest in general and the Physics portion in particular. The first change to the Science Contest is that the purpose of the Science Contest has been updated in the C&CR:

“The purpose of the Science Contest is to challenge students in the basic fundamental principles of science, to promote learning in biology, chemistry, and physics, to foster a sense of enthusiasm about advanced topics and courses in the sciences and to help prepare students for the rigor of college level courses.”

The Science Contest Directors believe that this better describes what is currently being done in the Science Contest.

Additionally, starting this season on the Science Contest the number of answer options will not be restricted to just 5! In general the number of answer options will depend upon the type of question. This will allow questions where the answer options are greater than, equal to, or less than a particular quantity. Also the answers will no longer need to be separated by $\pm 5\%$. This will allow for additional wrong answers that follow from common mistakes to be included as answer choices. More importantly this will allow for more realistic pH problems in chemistry and will better model actual college-level exams.

On the Physics portion of the contest there will be no restriction on the topics that can be asked. This will allow problems that require Calculus to be asked on the contests. This will better model the introductory Physics classes taken by science majors at most universities, and will also serve to help differentiate the scores for the top students. Also questions on reactive ac circuits will be allowed and could include phasor diagrams.

Good luck on the Science Contest this year!

Dr. Jennifer Fritz – Biology

Dr. Paul McCord – Chemistry

Dr. James Friedrichsen – Physics