"G" REQUIREMENT ELECTIVES

PHYSICAL GEOLOGY AB
Annual Course—Grades 11–12
Prerequisite: Geometry AB or concurrent enrollment is recommended

36-13-07 PHYSICAL GEOLOGY A
36-13-08 PHYSICAL GEOLOGY B

Course Description
The major purpose of this course is to develop students' understanding of Earth's history, its processes, and its effects on human society. Laboratory and field investigations are used to demonstrate geologic processes and the related chemical and physical laws that drive them. **Physical Geology AB meets one year of the University of California *'g'* requirement for an elective science class**.

Instructional Units and Pacing Plans

INSTRUCTIONAL UNITS	*SUGGESTED WEEKS	
History and Structure of the Earth	2	2
Matter and Minerals	2	3
Igneous Activity	2	3
Weathering and Sedimentary Rocks	2	2
Metamorphic Rocks	2	2
Geologic Time	3	3
Topographic Maps	2	3
Mass Wasting	2	3
Streams and Landscapes	3	4
Deserts, Wind Erosion and Deposition	2	3
Glaciers	2	2
Structural Geology	3	3
Earthquakes and Plate Tectonics	5	5
Total	***32 year-round**	***38 traditional**

* Suggested weeks are to be used as an estimate only.

Representative Performance Outcomes and Skills
In accordance with their individual capacity, students will grow in the ability to:

- Demonstrate process skills of scientific thinking: observing, communicating, comparing, ordering, categorizing, relating, inferring, and applying.
- Demonstrate skills in the areas of speaking, listening, writing, reading, graphing, mapping skills, and mathematics.
- Handle safely the equipment and materials common to chemistry laboratory.
- Evaluate the contributions of science and technology and their relevance to improving our daily lives in preparation for the future.
- Establish the relevance of science and its applications to careers and real-life situations.
- Select and use appropriate tools and technology (such as computer-linked probes, spreadsheets, and graphing calculators) to perform tests collect data, analyze relationships, and display data.*
- Identify and communicate sources of unavoidable experimental error.*

- Identify possible reasons for inconsistent results, such as sources of error or uncontrolled conditions.*
- Formulate explanations by using logic and evidence.*
- Solve scientific problems by using quadratic equations and simple trigonometric, exponential, and logarithmic functions.*
- Distinguish between hypothesis and theory as scientific terms.*
- Recognize the usefulness and limitations of models and theories as scientific representations of reality.*
- Read and interpret topographic and geologic maps.*
- Analyze the locations, sequences, or time intervals that are characteristic of natural phenomena (e.g., relative ages of rocks, locations of planets over time, and succession of species in an ecosystem).*
- Recognize the issues of statistical variability and the need for controlled tests.*
- Recognize the cumulative nature of scientific evidence.*
- Analyze situations and solve problems that require combining and applying concepts from more than one area of science.*
- Investigate a science-based societal issue by researching the literature, analyzing data, and communicating the findings. Examples of issues include irradiation of food, cloning of animals by somatic cell nuclear transfer, choice of energy sources, and land and water use decisions in California.*
- Know that when an observation does not agree with an accepted scientific theory, the observation is sometimes mistaken or fraudulent (e.g., the Piltdown Man fossil or unidentified flying objects) and that the theory is sometimes wrong (e.g., the Ptolemaic model of the movement of the Sun, Moon, and planets).*
- Investigate a societal issue by researching literature, analyzing data and communicating findings and discuss possible future outcomes.
- Demonstrate interconnections between the many disciplines of science.
- Demonstrate the interdisciplinary connections between science and other curricular fields.

Assessments
Instruction in our district is assessment-driven. The Framework states "that effective science programs include continual assessment of student's knowledge and understanding, with appropriate adjustments being made during the academic year (p.11)."[1] Assessments can be on demand or over a long period of time. The District Periodic Assessments and STAR State Testing play a significant role in Student Assessments.

The chart on the following page, adapted from *A Guide for Teaching and Learning*, NRC (2000), gives some examples of on demand and over time assessment.

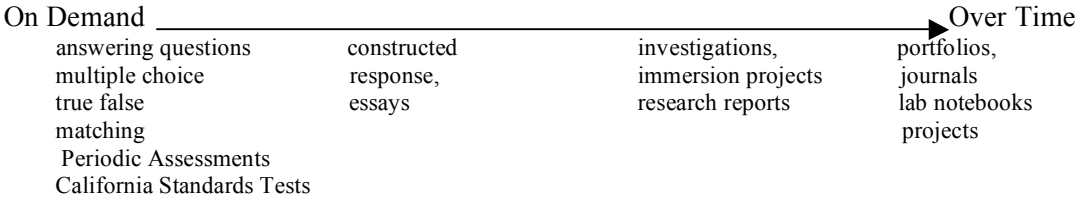

Chart 1 - Assessment Examples

Texts/Materials

- *Science Framework for California Public Schools*
- Authorized Textbooks and ancillary materials
    - Glencoe/McGraw-Hill, *Earth Science: Geology, the Environment, and the Universe*, CA edition Hess, et al. 2005
    - Holt, Rinehart and Winston Holt, *Earth Science*, CA Edition Allison, et al. 2007
    - Pearson/Prentice Hall Earth Science, CA Edition Tarbucks, Lutgens 2006
- *Science Safety Handbook for California Public Schools*
- Appropriate science laboratory materials