

**INSTRUCTIONAL EQUIPMENT REQUEST**

**Due in Dean/Unit Head's Office on October 15, 2010 (FALL) and February 11, 2011 (SPRING)**

The Definition of Instructional Equipment can be found in the California Community College's Budget and Accounting Manual. A copy of these definitions is on the PBC webpage at:  
<http://grapevine.laspositascollege.edu/pbc/InstructionalEquipment.php>

Name of Requestor:  Ext:

Division/Unit :

Brief title of request (equipment or materials being requested must be similar, related or part of a system):

**Request amount** (unit cost and total cost, including tax and shipping;. please include all costs, such as installation, modification to existing facilities to accommodate new equipment, etc...; this information should come from the vendor quote):

Item (s) cost	\$1809.00
Tax (.0975)	\$176.38
Shipping	\$90.45
Installation	\$
Facilities Modification	\$
Other	\$
<b>Total Cost</b>	<b>\$2075.83</b>

**Attach copy of quote(s), estimate(s) and requisition(s).**

(Must attach quote & requisition; absence of either will delay processing)

**Please provide a brief description of the specific equipment or materials requested, including the # of pieces being requested, and what they will be used for (e.g., 10 crayola crayons, sky blue, etc...) in 250 words or less:**

Visual images of geologic features are the most intensively effective method for students to learn geologic material. The 3638 images detailed in this request are currently in 35mm form and have been highly effective teaching and learning tools. Unfortunately, the 35mm projectors are soon to be no-longer supported as the replacement parts and lamps are becoming harder and harder to find. As a result, the images need to be replaced with digital images. These digital image CD's will reside on reserve in the LPC LRC and will be accessible to both students for studying and instructors for their presentations. Purchasing the digital images will be cheaper than attempting to pay for the thousands of hours that it would take to digitize and digitally correct the digitized images.

Is this in your Program Review? Yes  No

**Please describe how this request is incorporated into your Program Review:**

The Geology Program Review includes reference to the upkeep, maintenance and development of both lecture and lab materials, supplies and equipment. A Program Review Development form for the purchase of these slides on CD was filled out and submitted.

Is it a replacement? Yes  Upgrade? Yes  New technology? Yes

**Please explain?**

Replacing the 35mm slides used for the past 20 years in the LPC Geology program.

**Teaching & Learning/Impact on Enrollment (Total = 10 points for A& B)**

**A. How will this item have a positive impact on instruction and/or teaching and learning in the classroom?  
Is this for use by the Instructor or students, or both?**

These digital images will be used in both instructor classroom presentations and for student study use in the LPC Learning Resource Center. These digital images are essential for student learning and comprehension. These geologic images were acquired by geologists from vantage points that are only available with special permission and/or equipment.

These images were taken for the express purpose of student learning from the digital image at the same time that the concepts and features are introduced. As a result, students who have no fore-knowledge of each particular concept are able to see and understand what they are looking at while being introduced to the geologic aspect for the first time.

Three dimensional geologic features in two-dimensional images are often not easily discernible to new geoscience students. As a result, many new geoscience students are often extremely frustrated (and/or they feel stupid) that they can not 'see' what the instructor is describing and explaining.

The digital images listed in this proposal are expressly for teaching geologic features to these new geoscience students, using images that highlight the features so that most students can easily and clearly understand the features and concepts.

These digital images will replace the now-technologically outdated LPC 35mm geology slides. These digital images are cheaper to purchase than it would cost to digitize and then photo-adjust the old slides.

There are currently very few 35mm slide projectors on campus, and the few that are still operational will not be replaced. In addition, the replacement parts for the few, remaining 35mm projectors are becoming harder and harder to acquire.

These CDs will allow the instructors to continue to show clear professional quality images of the many geologic formations and processes studied in geology and oceanography courses. Students love the many quality photos used and always cite them as a major help in learning on their end of the semester surveys. Students can see the concepts in action and then understand the processes in a deeper way. Science courses are challenging for most students and these materials will help foster learning and enjoyment of their geology courses.

**B. How will the equipment impact enrollment, attract, or increase the number of students participating in a course or program?**

Pedagogically effective images with effective visual impact will increase student learning, success and retention. This will, in turn, allow students to effectively explain and advertise LPC geology courses to their family, friends and fellow students, thereby intriguing and enticing them to become geology students themselves.

Discussions with former students typically reveals that the geologic material and concepts that they retain the longest are those where there were visually striking and/or quintessential images or videos. Years later, these former students will bring up these geologic images, and will often add in what they have personally seen or witnessed or read about that is geologically related.

**Outcomes (Total = 10 points)**

**How does this equipment enable or enhance SLOs? What are the consequences related to learning outcomes if request is not funded?**

These digital images cover a wide range of geologic topics, features and material, and will therefore, cover and relate to dozens and dozens of potential SLO topics. Acquiring these digital images will allow student to perform much more successfully on SLO assessments on geologic topics such as geomorphology, glaciation, aeolian systems, groundwater and karst topography, plate tectonics, sedimentology and stratigraphy, mass wasting, hydrologic systems, natural disasters, etc.

These beautiful images on CD are vital especially to non science majors, who may struggle with the amount of material to be learned in a transferable physical science course. Clearly seeing the concept encapsulated in an appropriately photographed image helps students put the pieces together. The LPC slides being used currently are also old, scratched, and faded in color. The images on the new CDs will be true color and scratch free.

Helping non science majors succeed and retain what they learn in their Geology courses is a crucial part of our mission. These images have a huge impact in making geology clear and memorable- students comment over and over how the use of photos helped them remember and understand the processes they were studying. SLOs include plate tectonics questions that are best explained using these kinds of photo images. Better long term learning is served when the students can tie the explanation to examples, which these photos provide. It is important that we continue to have access to these extraordinary images for future students, as the 35mm slide projectors will no longer be a viable option in the very near future.

Current access to similar images is dependent on 35mm slide projector availability and functionality. Most no longer work and have been removed from classrooms. These CDs will help ensure continued high quality images are available for future students regardless of where the class is taught. The images on these CDs are true to color and superior to the now faded 35mm slides, and have no scratches.

**Total Cost of Ownership (Total = 5 points)**

*(This section attempts to identify what the ongoing costs of purchasing this equipment will be to the institution)*

- a) What is the lifespan of the equipment? 5 years? 10 years? 20 years?
- b) Is there sufficient current/planned space available for the storage and use of this equipment? If so, where will it be housed? If not, is there a proposed location and are there any costs associated with installation or modifications to the space?
- c) Are there operating costs and how will they be covered by the department?
- d) What will be required to maintain the equipment, such as regular servicing or upkeep? Who will perform maintenance, and what will the estimated costs be?

- a) lifespan: unlimited (as far into the future as our campus technology supports the display of digital images)
- b) housing: the digital images will reside on CDs, which can be housed at the LPC LRC
- c) there should be no additional operating costs
- d) there should be no additional maintenance or servicing or upkeep costs after the images are purchased

**Health and Safety (Total = 2 points)**

**Explain if this equipment responds to a security or health and safety need for faculty and students:**

Proper and effective student understanding of geologic features, processes and natural disasters will allow these students to integrate their geologic knowledge into the communities that they live in, thereby allowing our society to develop and maintain more effective natural disaster preparedness and protections. Students who take courses where these natural hazards are properly and effectively presented will be better able to identify regional natural hazards themselves, as well as explain them to their fellow citizens and city council members. These students will be more likely to be prepared as individuals for natural disasters, as well as be more likely to support their community's efforts at natural disaster preparation and planning.

**Visibility/Profile within Community (Total = 1 point)**

**Is this a “flagship” item that will bring recognition/notoriety to the College or raise the stature of the program? Will it attract students and/or enhance the image of the College in the community because of its rare, one-of-a-kind status?**

Pedagogically effective images with effective visual impact will increase student learning, success and retention. This will, in turn, allow students to effectively explain and advertise LPC geology courses to their family, friends and fellow students, thereby intriguing and enticing them to become geology students themselves. Over the years, it is not perhaps surprising to have the children of former students take classes based on their parent's recommendations. What is exceptionally rewarding, however, is when a student's parent enrolls at Las Positas and takes a course based on the excited enthusiasm that their young adult children displayed after a class session where they were struck by the images and topics in their classes of the day. Our students definitely intrigue and entice their friends and family into enrolling and becoming students themselves. In the field of geology, this is most often and most effectively done through properly (and professionally) acquired images.

Discussions with former students typically reveals that the geologic material and concepts that they retain the longest are those where there were visually striking and/or quintessential images or videos. Years later, these former students will bring up these geologic images, and will often add in what they have personally seen or witnessed or read about that is geologically related.

**Commitment to Sustainability (Total = 1 point)**

If the equipment exceeds basic sustainability goals or provides renewable resources to the College, provide specific details:

These digital images would be extremely long-lasting and not require additional maintenance, upkeep or servicing (unlike the present 35mm slides, which are now deteriorating and which require out-dated equipment for presentation).

The digital images will be usable decades from now, in the same form that they are now, without image degradation.

**Access (Total = 1 point)**


Provide evidence that the requested equipment is consistent with universal design\* and will ensure access above and beyond standard capability.

These digital images will be accessible to both instructors for presentations and to students for studying and practice. In contrast, the current 35mm slides are only accessible with the set-up and operation of an old 35mm projector. These 35mm slides are part of the LPC LRC materials, and years ago, students may have occasionally requested that these materials be set up for them to use at the LPC LRC. These instances were rare, however, because the equipment was too unwieldy for most students to feel comfortable asking to deal with. With the acquisition of the digital images, however, students will be able to access the digital images at the LRC easily (on CDs or DVDs which will be on reserve). Most students are fairly comfortable using CDs and DVDs and accessing digital images on the computer, as most students have daily interaction with these materials in their own homes (unlike 35mm slides and projectors). The acquisition of these digital images will greatly enhance and expand student access and ease of use with the images used to teach and learn basic geologic concepts and features.

*\*Universal design is an approach that addresses and redresses the primary barrier to making expert learners of all students. Some examples include: light switches with large flat panels rather than small toggle switches; buttons and other controls that can be distinguished by touch; bright and appropriate lighting, particularly task lighting; auditory output redundant with information on visual displays; visual output redundant with information in auditory output; contrast controls on visual output; use of meaningful icons with text labels; clear lines of sight to reduce dependence on sound; volume controls on auditory output; speed controls on auditory output; choice of language on speech output. Items incorporating the principles of universal design feature: equitable use; flexibility in use; simple and intuitive; perceptible information; tolerance for error; low physical effort; and size and space for approach and use. (Wikipedia)*

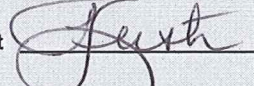
**Signatures (required)**

(If requesting computer-related equipment/software, LPC IT Department Review is required.)

Requested by 

Dean/  
Unit Head 

IT Department Signature \_\_\_\_\_

Vice President 

LPC VP Admin. Svcs/President \_\_\_\_\_

LPC Business Office Use (Account Number) \_\_\_\_\_

# LAS POSITAS COLLEGE Equipment, Apparatus and Service Requisition

#R

#P

Track #

FOR OFFICE USE ONLY

FOR REIMBURSEMENT: List payee name & ssn. TAX ID#

SUGGESTED VENDOR: **JLM Visuals (262) 377-775**

NAME OF STAFF MEMBER	DATE WRITTEN	DATE REQUIRED	DIVISION/ DEPARTMENT	For inventory purposes include Room # where equipment will reside:	UNIT	QTY	UNIT PRICE	Air
DESCRIPTION (PRODUCT, TYPE, SIZE, COLOR, STOCK NUMBER)					UNIT	QTY	UNIT PRICE	Air
R.Hanna	11-Mar-11		GEOLOGY		EA	1	\$ 39.00	\$ 39.00
JLM Visuals Digital Slides								
Evolution					EA	1	\$ 39.00	\$ 39.00
Introduction to Fossils					EA	1	\$ 39.00	\$ 39.00
Life of the Precambrian and Lower Paleozoic					EA	1	\$ 35.00	\$ 35.00
Life of the Middle and Upper Paleozoic					EA	1	\$ 35.00	\$ 35.00
Life of the Mesozoic					EA	1	\$ 35.00	\$ 35.00
Life of the Cenozoic					EA	1	\$ 35.00	\$ 35.00
Geology Diagrams I					EA	1	\$ 39.00	\$ 39.00
Geology Diagrams II					EA	1	\$ 35.00	\$ 35.00
Geology Diagrams III					EA	1	\$ 35.00	\$ 35.00
Geology Diagrams IV					EA	1	\$ 39.00	\$ 39.00
Mineral Identification					EA	1	\$ 35.00	\$ 35.00
Minerals					EA	1	\$ 39.00	\$ 39.00
Rocks					EA	1	\$ 39.00	\$ 39.00
<b>Comments:</b>					Subtotal			\$ 479.00
<b>INSTRUCTIONAL EQUIPMENT - SPRING 2011</b>					Tax		\$ 0.0975	\$ 46.70
<b>Page 1 of 3</b>					Shipping (if available):			

**BT#**

Original invoices and receipts must be attached for payment. Include current taxes unless incorporated in price. **TOTAL COST \$ 525.70**

ACCOUNT # \_\_\_\_\_ FUND \_\_\_\_\_ ORG \_\_\_\_\_ ACCT \_\_\_\_\_ PROGRAM \_\_\_\_\_ Business Office

APPROVALS *Paul Sly* 3/18/11 Date \_\_\_\_\_ Dean

*[Signature]* VP/President



# LAS POSITAS COLLEGE Equipment, Apparatus and Service Requisition

#R

#P

Track #

FOR OFFICE USE ONLY

FOR REIMBURSEMENT: List payee name & ssn. TAX ID#

SUGGESTED VENDOR: **JLM Visuals (262) 377-7775**

NAME OF STAFF MEMBER: **R.Hanna** DATE WRITTEN: **11-Mar-11** DATE REQUIRED: **GEOLOGY** DIVISION/DEPARTMENT: **GEOLOGY** For inventory purposes include Room # where equipment will reside: **L.Camino C.Edson**

DESCRIPTION (PRODUCT, TYPE, SIZE, COLOR, STOCK NUMBER)	UNIT	QTY	UNIT PRICE	Air
Sedimentary Features	EA	1	\$ 35.00	\$ 35.00
Weathering & Erosion	EA	1	\$ 39.00	\$ 39.00
Wind Erosion & Desert Features	EA	1	\$ 39.00	\$ 39.00
Rivers	EA	1	\$ 39.00	\$ 39.00
Active Glaciers	EA	1	\$ 39.00	\$ 39.00
Alpine Glaciation	EA	1	\$ 39.00	\$ 39.00
Continental Glaciation	EA	1	\$ 39.00	\$ 39.00
Ground Water and Karst	EA	1	\$ 39.00	\$ 39.00
Shorelines	EA	1	\$ 39.00	\$ 39.00
Diastrophism	EA	1	\$ 39.00	\$ 39.00
Igneous Activity	EA	1	\$ 39.00	\$ 39.00
Geothermal Features	EA	1	\$ 35.00	\$ 35.00
Landforms and Topographic Maps	EA	1	\$ 29.00	\$ 29.00
Major Landforms	EA	1	\$ 39.00	\$ 39.00
<b>Subtotal</b>				\$ 528.00
<b>Tax</b>				\$ 0.0975
<b>Shipping (if available):</b>				
<b>BT#</b>				

Comments:

**INSTRUCTIONAL EQUIPMENT - SPRING 2011**

Page 2 of 3

Original invoices and receipts must be attached for payment. Include current taxes unless incorporated in price.

TOTAL COST \$ **579.48**

ACCOUNT #

FUND \_\_\_\_\_ ORG \_\_\_\_\_ ACCT \_\_\_\_\_ PROGRAM \_\_\_\_\_

Business Office

APPROVALS

*Head Ely* 3/18/11  
Date

*Just*  
VP / President

# LAS POSITAS COLLEGE Equipment, Apparatus and Service Requisition

#R

#P

Track #

FOR OFFICE USE ONLY

FOR REIMBURSEMENT: List payee name & ssn. TAX ID#

SUGGESTED VENDOR: **JML Visuals (262) 377-7775**

NAME OF STAFF MEMBER: **R.Hanna** DATE WRITTEN: **11-Mar-11** DATE REQUIRED: \_\_\_\_\_ DIVISION/DEPARTMENT: **GEOLOGY** For inventory purposes include Room # \_\_\_\_\_ where equipment will reside: \_\_\_\_\_

RETURN COPY OF REQUISITION TO: **L.Camino C.Edson**

DESCRIPTION (PRODUCT, TYPE, SIZE, COLOR, STOCK NUMBER)	UNIT	QTY	UNIT PRICE	AMT
Icelandic Geology Item # GDV34	EA	1	\$ 49.00	\$ 49.00
National Parks & Monuments - Geology Item # GDV04	EA	1	\$ 59.00	\$ 59.00
Earth Resources Item # SCD05	EA	1	\$ 39.00	\$ 39.00
Physiographic Regions of North America Item # SDV25	EA	1	\$ 89.00	\$ 89.00
Clouds & Optical Sky Effects Item # WCD35	EA	1	\$ 39.00	\$ 39.00
Atmospheric Disturbances & Observations Item # WCD36	EA	1	\$ 39.00	\$ 39.00
The Solar System Item # ACD06	EA	1	\$ 29.00	\$ 29.00
Tools of Astronomy & the Constellations Item # ACD07	EA	1	\$ 35.00	\$ 35.00
Deep Space Item # ACD08	EA	1	\$ 29.00	\$ 29.00
John Shelton's Geology Photographs Item # JS100	Set	1	\$ 395.00	\$ 395.00
<b>VENDOR'S QUOTE (ATTACHED)</b>				
<b>Quote No. LPC01</b>				
<b>Comments:</b>				
<b>INSTRUCTIONAL EQUIPMENT - SPRING 2011</b>				
<b>Page 3 of 3</b>				
<b>BT#</b>				
Subtotal				\$ 802.00
Tax			\$ 0.0975	\$ 78.20
Shipping (if available):				\$ 90.45
<b>TOTAL COST \$</b>				<b>970.65</b>

Original invoices and receipts must be attached for payment. Include current taxes unless incorporated in price.

ACCOUNT # \_\_\_\_\_ FUND \_\_\_\_\_ ORG \_\_\_\_\_ ACCT \_\_\_\_\_ PROGRAM \_\_\_\_\_

Business Office

APPROVALS Heal Ely 3/18/11 Date

VP / President [Signature]

ITEM NO.	PRICE
SCD09	\$39
PCD02	\$39
PCD21	\$35
PCD22	\$35
PCD23	\$35
PCD24	\$35
GCD61	\$39
GCD62	\$35
GCD63	\$35
GCD64	\$39
GCD01	\$35
GCD03	\$39
GCD10	\$39
GCD15	\$35
GCD17	\$39
GCD30	\$39
GCD40	\$39
GCD50	\$39
GCD53	\$39
GCD57	\$39
GCD60	\$39
GCD70	\$39
GCD80	\$39
GCD90	\$39
GCD93	\$35
GCD95	\$29
GCD96	\$39
GDV34	\$49
GDV04	\$59
SCD05	\$39
SDV25	\$89
WCD35	\$39
WCD36	\$39
ACD06	\$29
ACD07	\$35
ACD08	\$29
JS100	\$395
SUBTOTAL	\$1809.00
S&H	\$90.45
<b>TOTAL</b>	<b>\$1899.45</b>

**TO: LAS POSITAS COLLEGE**

**FROM: JLM VISUALS  
 920 SEVENTH AVE.  
 GRAFTON, WI 53024  
 (262)377-7775  
 FAX (262)377-7750**

**QUOTE TOTAL: \$1899.45**

**SIGNED: RICHARD P. JACOBS**

*Quote does not include taxes, but I did include taxes on requisition.*

The prices shown above are those that will be quoted, plus 5% shipping and handling.

Richard P. Jacobs, JLM VISUALS

# JLM VISUALS DIGITAL SLIDE PROGRAMS

**SCD09 EVOLUTION** Evidence and features of evolution, including the fossil record, geographical isolation, homologous and analogous structures, vestigial organs, convergence and divergence, variation, competition and adaptations, mutations, and polymorphism. (2008, 79 images, \$39)

**PCD02 INTRODUCTION to FOSSILS** Illustrates the various ways that fossils are formed, and what they can tell us about earth's history. Includes examples of trace fossils, replacement, permineralization, preservation, carbonization, molds, casts, and others. Also shows a representative sampling of common fossils. (2005, 62 images, \$39)

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**LIFE of the PAST - SERIES** Each of the following four programs shows representative fossils of the plant and animal life that existed during the indicated geologic time span. Also included are detailed paintings and dioramas showing reconstructions of the life that was typical of the time.

**PCD21 LIFE of the PRECAMBRIAN and LOWER PALEOZOIC** (2005, 62 images, \$35)

**PCD22 LIFE of the MIDDLE and UPPER PALEOZOIC** (2005, 72 images, \$35)

**PCD23 LIFE of the MESOZOIC** (2005, 70 images, \$35)

**PCD24 LIFE of the CENOZOIC** (2005, 62 images, \$35)

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**GEOLOGY DIAGRAMS - SERIES** Each program consists of diagrams, charts, and maps commonly used in the teaching of geology. Many resemble simple "chalkboard drawings" dealing with a single concept; Others are more elaborate. If the instructor chooses, these digital images may be copied onto transparency sheets, and also used on an overhead projector.

**GCD61 GEOLOGY DIAGRAMS I** Contains crystal systems, mineral features, weathering, erosion, sorting, rock types, rock cycle, sedimentary features, soil profiles, historical geology, contour maps, and others. (2008, 65 images, \$39)

**GCD62 GEOLOGY DIAGRAMS II** Includes types of mass wasting, erosional and depositional features of rivers, river types, features of glaciers, and products of alpine and continental glaciation. (2008, 54 images, \$35)

**GCD63 GEOLOGY DIAGRAMS III** Erosional and depositional features of ground water and wind, dune types, desert features, wave action, shoreline and deep ocean features, currents and tides. (2008, 54 images, \$35)

**GCD64 GEOLOGY DIAGRAMS IV** Jointing, faulting, folding, extrusive and intrusive volcanism, volcano types, earthquake features, isostasy, plate tectonics, converging and diverging plates, and others. (2008, 70 images, \$39)

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**GCD01 MINERAL IDENTIFICATION** Includes methods of mineral identification such as color, luster, cleavage, fracture, crystal shape, streak, hardness, density, along with other properties including magnetism, radioactivity, acid reaction, fluorescence, and double refraction. (2005, 41 images, \$35)

**GCD03 MINERALS** Common rock-forming minerals, along with useful metallic and non-metallic minerals. Includes quartz, orthoclase and plagioclase feldspar, biotite and muscovite, hornblende, augite, olivine, pyrite, chalcopyrite, magnetite, hematite, bauxite, galena, sphalerite, cinnabar, cassiterite, silver, gold, copper, sulfur, talc, kaolin, diamond, graphite, fluorite, topaz, barite, and others. Specimens of most are shown in the form and variety the student is most likely to encounter. (2005, 71 images, \$39)

**GCD10 ROCKS** Hand specimens, closeup, and *in situ* photos of rocks discussed in most introductory courses. Includes conglomerate, breccia, sandstones, shales, limestones, rock salt and gypsum, granite, basalt, diorite, diabase, gabbro, rhyolite, obsidian, scoria, pumice, felsite, marble, slate, quartzite, gneiss, schists, and serpentine, along with other sedimentary, igneous, and metamorphic rock. (2005, 71 images, \$39)

**GCD15 SEDIMENTARY FEATURES** Features seen in sediment and sedimentary rock. Includes ripple mark types, cross-bedding, stratification, graded bedding, mud cracks, sorting, concretions, septarium, fossils, geodes, flute casting, raindrop impressions, and others. (2005, 47 images, \$35)

**GCD17 WEATHERING & EROSION** Includes examples of the various types of physical and chemical weathering of rock. Shows the breakdown to sand and clay particles, and the formation of soils. Examples of mass wasting, such as slumping, creep, rock slides and falls, mudflows, and others. (2005, 71 images, \$39)

**GCD30 WIND EROSION & DESERT FEATURES** Erosional and depositional features commonly found in desert regions. Includes ventifacts, desert pavement, pedestal rocks, dune types, sand shadows and barriers, deflation basins, dust storms, ripple marks, loess deposits, yardang, bajadas, salt lakes, inselbergs, arroyos, and others. (2005, 69 images, \$39)

**GCD40 RIVERS** Aerial and ground views illustrate the erosional and depositional features associated with high- and low-gradient streams. Includes images of v-shaped valleys, canyons, flood plains, natural and artificial levees, waterfalls, rapids, potholes, terraces, water gap, bars, braided streams, meanders, meander scars, oxbow lakes, fans and deltas, divides, flooding, drainage patterns, entrenched meanders, and others. (2005, 71 images, \$39)

**GCD50 ACTIVE GLACIERS** Images showing features of alpine and continental glaciers from the zone of accumulation through the terminus. Included are moraine types, erratics, striations, chatter marks, roche moutonnee, hanging glaciers, bergschrund, crevasse types, calving, annual layers, meltwater streams, ice caves, open channels, snow bridges, and others. (2005, 62 images, \$39)

**GCD53 ALPINE GLACIATION** Shows erosional and depositional features caused by alpine glaciation. Includes end, medial and lateral moraines, erratics, striations and grooves, polish, roche moutonnee, hanging valleys, cirques, horns, arete, glacial lakes, U-shaped valleys, fjords, till, outwash, and others. (2005, 72 images, \$39).

**GCD57 CONTINENTAL GLACIATION** Aerial and ground images of the features caused by continental glaciation, including striations and grooves, chatter marks, polish, drumlins, drumlin swarms, moraine types, erratics, till and outwash, kames, eskers, crevasse fills, kettles and kettle lakes, outwash plains, varves, remnants of glacial lakes, and others. (2005, 72 images, \$39)

**GCD60 GROUND WATER and KARST** Aerial and ground views of springs, sinkholes, sink lakes, lapies, pepino hills, solution caves, dry valleys, sinking rivers, tower karst, and other features. (2005, 66 images, \$39)

**GCD70 SHORELINES** Aerial and ground views of coastal types, wave refraction, breakers, sea cliffs, stacks, caves, arches, platforms, reefs, atolls, uplifted terraces, estuaries, tides, tidal flats, beach types, berms, bars, barrier islands, tombolo, spits, cusps, lagoons, mangrove swamps and salt marshes, deltas, groins, and other features. (2005, 72 images, \$39)

**GCD80 DIASTROPHISM** Includes normal, reverse and strike-slip faults, slickenside, fault breccia, fault surfaces and scarps, grabbens, rift valleys, jointing, unconformities, earthquake damage, seismograph, seismogram, anticlines, synclines, drag, recumbent and chevron folds, monoclines, boudinage, domal structures, along with other features of diastrophism. (2005, 68 images, \$39)

**GCD90 IGNEOUS ACTIVITY** Images from the ground and air of volcanic eruptions, cinder cones, shield volcanoes, composite cones, craters and calderas, domes, fissure flows, ash, lava tubes, fumaroles, spatter cones, pahoehoe, aa and pillow lava, pyroclasts, tuff, volcanic bombs, pumice plain, volcanic breccia, Pele's hair, devastation, laccoliths, dikes, sills, stocks, xenoliths, and other igneous features. Also includes views of Mt St Helens before and after recent eruption. (2005, 71 images, \$39)

**GCD93 GEOTHERMAL FEATURES** Includes geysers, geyser basins, hot springs and pools, mud geysers, fumaroles, travertine terraces, harnessing geothermal energy, and other geothermal features from around the world. (2005, 54 images, \$35)

**GCD95 LANDFORMS and TOPOGRAPHIC MAPS** Images from portions of topographic maps are used to illustrate such concepts and features as location, distance, direction, symbols for natural and man-made objects, contour lines, elevation, and slope. Glacial landforms, along with volcanic, structural, stream, ground water, and others are shown on the maps. (2005, 82 images, \$29)

**GCD96 MAJOR LANDFORMS** Aerial and ground views of the major types and erosional stages of mountains, plains, and plateaus. Shows the characteristics and associated features of each. (2009, 72 images, \$39)

**GDV34 ICELANDIC GEOLOGY** Images showing a wide variety of geologic features in a "tour" of Iceland. Emphasis is given to those resulting directly from the country's location on the Mid-Atlantic Ridge. (2009, 157 images, \$49)

**GDV04 NATIONAL PARKS & MONUMENTS - GEOLOGY** Representative geologic features of 58 national parks and monuments in the U.S.. Illustrates such topics as erosion and deposition by wind, streams, glaciers, ground water, and wave action. Shows the characteristic rock formations and features, and depicts associated folding, faulting, and volcanism. (2006, 206 images, \$59)

**SCD05 EARTH RESOURCES** Includes renewable and non-renewable energy sources, building material, soil, ores of useful metallic and non-metallic materials, methods of obtaining the resources, and others. (2008, 74 images, \$39)

**SDV25 PHYSIOGRAPHIC REGIONS of NORTH AMERICA** Images representing the physiographic regions of North America, with emphasis on the U.S. and Canada. Aerial, satellite and ground images are used to show the topography and landform features typical of the regions. (2010, 320 images, \$89)

**WCD35 CLOUDS & OPTICAL SKY EFFECTS** Includes the common cloud types and their many variations, along with the more unusual clouds. Most were photographed from the earth's surface, but a few are satellite or high altitude photos. Optical sky effects such as rainbows, haloes, sun dogs, sun pillars, and other phenomena are also included. (2005, 71 images, \$39)

**WCD36 ATMOSPHERIC DISTURBANCES & OBSERVATIONS** Ground, aerial and satellite views of thunderstorms, ice and snowstorms, waterspouts, dust devils, tornadoes, hurricanes, and other disturbances are included. Basic meteorological instruments are also shown, with weather features and patterns on US Weather Service maps. (2005, 77 images, \$39)

**ACD06 The SOLAR SYSTEM** Includes photos taken through telescopes from the Earth's surface, from satellites in space, and from space probes. Shows overall and close-up views of our sun and moon, the planets, comets and meteors. (2005, 93 images, \$29)

**ACD07 TOOLS of ASTRONOMY & the CONSTELLATIONS** Types of optical and radio telescopes are shown. Actual photographs of the major constellations of the Northern Hemisphere are shown as they appear to the unaided eye. Constellation diagrams and mythology figures are also included. (2005, 86 images, \$35)

**ACD08 DEEP SPACE** An image collection of deep space objects, many obtained by the Hubble Space Telescope. Included are polar and equatorial star trails, globular and open star clusters, diffuse and planetary nebula, nova, various types of galaxies, and others. (2005, 99 images, \$29)

**JS100 JOHN SHELTON'S GEOLOGY PHOTOGRAPHS** on two CCD's. (500 images, \$395)