

Image ID	Image Desc	Credit	Page
C300-01P-R-MSS12	wind tunnel NASA	NASA	NOS 02-03
C300-02P-	X-ray showing hand fracture, close-up (digital enhancement). 5th metacarpal fracture from punching a wall□	SMC Images/Getty Images	NOS 04
C300-03P-	circa 1900. Marie Curie, (Polish born French Physicist) 1867-1934, pictured in her laboratory.	Popperfoto/Getty Images	NOS 04
C300-05P-	A geologist collects a water sample inside Cueva de Villa Luz.□	Stephen Alvarez/Getty Images	NOS 05
C300-06P-	This photograph was taken of Dr. Taronna Maines, a microbiologist in the Influenza Branch at the Centers for Disease Control and Prevention, while she was conducting an experiment inside a biological safety cabinet (BSC) within the Biosafety Level 3-enhanced laboratory. The airflow within the BSC helps prevent any airborne virus from escaping the confines of the cabinet, and as part of her personal protective equipment; she was wearing a powered air purifying respirator (PAPR), which was filtering the air that she was breathing...Dr. Maines was inoculating a 10-day old emryonated hen's eggs with nasal secretions from a ferret that had been infected with an H5N1 avian influenza virus, in order to determine the amount of virus shed by the ferret. This experiment was part of a study to investigate the pathogenicity, and transmissibility of newly emerging H5N1 viruses. Identification of genetic markers affecting the ability of H5N1 viruses to transmit in a mammalian model will help in the early identification of emerging H5N1 viruses with pandemic potential. Information gained from	Science Source/Photo Researchers, Inc.	NOS 05
C300-07P-	Reducing copper (11) oxide to copper	Martyn Chillmaid/photolibrary.com	NOS 06
C300-08P-	NASA Press Release Archives as of 10/14/09	NASA	NOS 07
C300-100P-	Oporto Don Luis bridge in Portugal. Angle view of steel bridge showing strength	Carlos Casariego/Getty Images	NOS 21
C300-101P-	2nd phase: tetrahedron made with straws and string	Hutchings Photography/Digital Light Source	NOS 30

C300-102P-	2nd phase: four tetrahedrons. Two of them on a sheet of notebook paper. One student holding the other two about to place them on the notebook paper. A second student holding a sheet of cardboard.	Hutchings Photography/Digital Light Source	NOS 30
C300-103P-	2nd phase: Two students. One student is about to place a book on top of the first as the other student watches.	Hutchings Photography/Digital Light Source	NOS 31
C300-11P-	Pursuit cyclist testing bike for wind resistance in tunnel	Andy Sacks/Getty Images	NOS 09
C300-12P-	The Mice, NGC 4676	NASA, H. Ford (JHU), G. Illingworth (UCSC/LO), M.Clampin (STScI), G. Hartig (STScI), the ACS Science Team, and ESA	NOS 09
C300-13P-R-MSS12	Water Department Laboratory	Brand X Pictures/PunchStock	NOS 09
C300-14P-	Hisp JH girl wearing apron & safety goggles holds test tube in beaker with boiling water in science class V□	Michael Newman / PhotoEdit	NOS 11
C300-15P-	Examination of Crash Test Results ca. September 4, 1998□	Tim Wright/CORBIS	NOS 14
C300-18P-	2nd phase: Combo: C300-05A. A 250mL Erlenmeyer flask and a 25mL graduated cylinder, both filled with blue liquid	Hutchings Photography/Digital Light Source	NOS 16
C300-20P-	triple-beam balance taking the mass of an object	ASP / YPP/age fotostock	NOS 18
C300-21P-	Top-loading single-pan electronic balance	The McGraw-Hill Companies, Inc./Louis Rosenstock, photographer	NOS 18
C300-22P-	Chemicals, measuring, flasks, beakers	Blair Seitz/photolibrary.com	NOS 18
C300-23P-	Thermometer being used to take a temperature	The McGraw-Hill Comapanies	NOS 19
C300-24P-	scientific calculator isolated on white background□	photostock1 / Alamy	NOS 19
C300-25P-	Mixed race scientist working on computer in laboratory	Blend Images / Alamy	NOS 19
C300-26P-	pH paper	The McGraw-Hill Companies	NOS 20
C300-29P-	A laboratory hot plate	The McGraw-Hill Companies	NOS 20
C300-30P-	An aerial view shows the collapsed I-35W bridge 04 August 2007 in Minneapolis, Minnesota. Five people have been confirmed dead and 8 others missing following the 01 August bridge collapse during rush hour.	MANDEL NGAN/AFP/Getty Images	NOS 22

C300-31P-	Vehicles are scattered along the broken remains of the Interstate 35W bridge, which stretches between Minneapolis and St. Paul, after it collapsed into the Mississippi River during evening rush hour Wednesday, Aug. 1, 2007, sending vehicles, tons of concrete and twisted metal crashing into the water.	AP Photo/The Minnesota Daily, Stacy Bengs	NOS 25
C300-32P-	Mechanical engineering. Design office	Plus Pix/age fotostock	NOS 27
C300-33P-	Red foot bridge over stream. Japan, Shizouka□	Brian Stevenson/Getty Images	NOS 23
C300-34P-	Granville Bridge and Granville Island- Vancouver□	Hisham Ibrahim/Getty Images	NOS 24
C300-36P-	Mpls, MN - 35W bridge	Bordner Aerials	NOS 24
C300-37P-	Bent gusset plates on the Interstate 35 W bridge are seen (center) in this 2003 photo released by the National Transportation Safety Board.old photos of the Interstate 35W bridge show two gusset plates were visibly bent as early as 2003 _ four years before the span collapsed into the Mississippi River, killing 13 people. Photos released this month by the National Transportation Safety Board show the plates that hold beams together at two separate connecting points are slightly bent. The plates are in areas believed to be among the first points of failure, and the photos are stamped with the dates June 10, 2003 and June 12, 2003.	AP Photo/NTSB	NOS 24
C300-38P-	The I- 35W bridge collapse site is seen from a U.S. military helicopter in Minneapolis, Minnesota, August 4, 2007. Divers searched for bodies in debris in the murky Mississippi on Saturday as President George W. Bush toured the site of this week's deadly rush-hour bridge collapse and promised quick federal help in rebuilding.	LARRY DOWNING/Reuters /Landov	NOS 26
C300-39P-	Singer on stage standing in spotlight□	StockShot / Alamy	NOS 10
C300-40P-	South Pole, Antarctica. Scientists adjust a background infrared measuring instrument. The instrument measures radiation from the big bang. The South Pole's thin dry atmosphere affords scientists a clear window into space.□	Maria Stenzel/Getty	NOS 05

C300-41P-	in this undated photo made available by the National Transportation Safety Board, debris from the Minneapolis freeway bridge that collapsed Aug. 1, 2008 shows a section of the steel-truss framework known as the U10 node from the bridge's west side in. The NTSB said in an update on its investigation Monday March 17, 2008, that the steel plates at this section, known as gussets, were too thin for the loads the bridge carried.	ASSOCIATED PRESS	NOS 28
C300-60P-2 IN30	Water Slide Park and Pool	Daniel Mirer/CORBIS	NOS12
C300-61P-2 IN30	Rural water tower. Supplies good water to rural areas.	Photo by Lynn Betts, USDA Natural Resources Conservation Service	NOS12
C300-62P-2 IN30	Scientists Testing Polluted Water	Annie Griffiths Belt/CORBIS	NOS13
C300-63P-2 IN30	Report Published About Deformed Frogs	Getty Images	NOS13
FM-09P- 874183	Tools - Set -up - spiral bound notebook with lab notes and a pencil	Matt Meadows	NOS 18
MSS12_CAR DBOARD- MSS12P	Sheets of cardboard	Hutchings Photography/Digital Light Source	NOS 30
MSS12_RUL ER-	A thumbnail photograph of a plastic metric ruler. The photo will be a close up and the background should be contrasting to show the markings of the ruler. The markings do not have to be discernible. The ruler should have a groove down the center.	Hutchings Photography/Digital Light Source	NOS 21
MSS12_RUL ER-	A thumbnail photograph of a plastic metric ruler. The photo will be a close up and the background should be contrasting to show the markings of the ruler. The markings do not have to be discernible. The ruler should have a groove down the center.	Hutchings Photography/Digital Light Source	NOS 30
MSS12_STR AWS_STRAI GHT- MSS12P	flourescent colored straws on a white backgrounds, cut out	Hutchings Photography	NOS 21
MSS12_STR AWS_STRAI GHT- MSS12P	flourescent colored straws on a white backgrounds, cut out	Hutchings Photography	NOS 30

MSS12_STR ING-MSS12P	Ball of string	Hutchings Photography/Digital Light Source	NOS 21
PM_SCISSO RS_G36.PSD XPML08	Scissors G36	Macmillan/McGraw-Hill	NOS 21
PM_SCISSO RS_G36.PSD XPML08	Scissors G36	Macmillan/McGraw-Hill	NOS 30
C04-02P- 874185	figure 2 Set-up photo. The student would be wearing a pair of safety goggles. The student is a minority female between the ages of 13-15 years old. On a dark table should be 6 pieces of aluminum foil. The pieces should lay on the table in decreasing order. The pieces should be the following sizes: 1) 8 x8cm 2) 4x4cm 3) 2x2cm 5) 1/2x1/2cm 6) 1/4x1/4cm. Also on the table is a roll of aluminum foil and a pair of scissors. The student should be shown cutting a small piece of foil. Only hands should be shown-no full person	Horizons Companies	5
C04-02P- 874185-A	lesson 1 review visual summary Set-up photo. The student would be wearing a pair of safety goggles. The student is a minority female between the ages of 13-15 years old. On a dark table should be 6 pieces of aluminum foil. The pieces should lay on the table in decreasing order. The pieces should be the following sizes: 1) 8 x8cm 2) 4x4cm 3) 2x2cm 5) 1/2x1/2cm 6) 1/4x1/4cm. Also on the table is a roll of aluminum foil and a pair of scissors. The student should be shown cutting a small piece of foil. Only hands should be shown-no full person	Horizons Companies	13
C322-01P-	Chapter Opener: LARGE HADRON COLLIDER, CERN, GENEVA, SWITZERLAND, TUNNEL,	JAMES BRITAIN/Photolibrary	00-01

C322-02P-	LO inset: Spintronics research. Composite colored scanning tunneling micrograph (STM) showing ferromagnetic interactions (blue and yellow) between manganese atoms in a gallium arsenide semiconductor (white and yellow, shown as a molecular model). The spins of the atoms interact via a cloud of electrons. Gallium atoms in the semiconductor have been substituted by manganese atoms using the scanning tunneling microscope, which allows precise substitution one atom at a time. This creates a magnetic semiconductor that would be able to store data as well as process it. This research is being carried out by Prof. Yazdani at Princeton Nanoscale Microscopy Laboratory (PNML), Princeton University, USA. □	Drs. Ali Yazdani & Daniel J. Hornbaker / Photo Researchers, Inc.	2
C322-03P-	figure 1 OrangeFlames	Royalty-Free/CORBIS	3
C322-04P-	figure 1 Crashing Ocean Wave	Royalty-Free/CORBIS	3
C322-05P-	figure 1 Low angle view of a blue sky with clouds	DAJ / Getty Images	3
C322-06P-	figure 1 A fish eye lens view of the dry, cracked ground	Creatas/PunchStock	3
C322-08P-	table 1 Portrait of John Dalton (1766-1844) engraved by C. Turner (engraving), Lonsdale, James (1777-1839) (after)	The Royal Institution, London, UK / The Bridgeman Art Library	4
C322-09P-	figure 3 Spintronics research. Colored scanning tunneling micrograph (STM) of a manganese atom (yellow) in a gallium arsenide semiconductor (blue). Gallium atoms in the semiconductor have been substituted by manganese atoms using the scanning tunneling microscope, which allows precise substitution one atom at a time. This creates a magnetic semiconductor that would be able to store data as well as process it. This research is being carried out by Prof. Yazdani at Princeton Nanoscale Microscopy Laboratory (PNML), Princeton University, USA.	Drs. Ali Yazdani & Daniel J. Hornbaker / Photo Researchers, Inc.	5
C322-100P-	2nd phase lesson 1 launch. student with a pile of salt on wax paper	Hutchings Photography/Digital Light Source	3

C322-101P-	2nd phase lesson 1 mini lab. student holding marble at the top of a groove as if he is going to roll it toward the box top. Another student is drawing a like on the paper at the far side of the box	Hutchings Photography/Digital Light Source	10
C322-102P-	2nd phase lesson 2 launch. student with bag filled with three colors of interlocking building blocks.	Hutchings Photography/Digital Light Source	16
C322-103P-	2nd phase EOC inquiry lab. student interviewing another student dressed up like a 18th or 19th century scientist.	Hutchings Photography/Digital Light Source	24
C322-104P-	2nd phase: student presenting information on a poster board about atoms	Hutchings Photography/Digital Light Source	25
C322-10P-	inquiry mini lab 10 Pennies	The McGraw-Hill Companies	19
C322-10P--A	inquiry mini lab 10 Pennies: silo 1 penny, the top left heads-up penny	The McGraw-Hill Companies	19
C322-12P-	LO inset: Uranium or vaseline glass horn of plenty vase shown under normal lighting. □	Derrick Alderman / Alamy	15
C322-13P-	Switzerland - IBM's research laboratory □ An employee of IBM's research laboratory in Rueschlikon in the canton of Zurich, Switzerland, works on a scanning tunneling microscope, pictured on July 31, 2008. Since 1962 IBM conducts research in Rueschlikon, where today it employs around 300 collaborators.	Alessandro Della Bella/Keystone/Corbis	2
C322-14P-	figure 13 Discovery of radioactivity. This photograph led to the discovery of radioactivity by Antoine Henri Becquerel in 1896. Dark patches show where he put crystals of uranium salt on a photographic plate. His comments are above. Becquerel (1852-1908) was professor of physics at the Ecole Polytechnique in Paris. He put uranium salt on the plate expecting that when exposed to sunlight it would produce X-rays and fog the plate. But since it was cloudy he put the experiment in a drawer; three days later, on 1 March 1896, he developed the plate anyway. It had been fogged by uranium salt alone. Becquerel realized he had found a new form of radiation. He won the Nobel Prize for physics in 1903. □	SPL / Photo Researchers, Inc.	20
C322-15P-	Autunite, uranium mineral. Magnac, Haute-Vienne, France	figure 13 John Cancalosi/age fotostock	20
C322-16P-	figure 14 Chemists Pierre Curie and wife Marie Curie in their laboratory.	Time Life Pictures/Mansell/Time Life Pictures/Getty Images	20

C322-19P-	CO inset June 01, 1994 Aerial view of CERN and surrounding region. Three rings are visible. The smaller (L) shows the underground position of the PS, the middle ring is the SPS with a circumference of 7 km, and the largest ring (27 km) is one of the Large Electron-Positron Collider (LEP) rings, a particle accelerator. Founded in 1954, the European Organization for Nuclear Research (CERN) is the "European laboratory for particle physics", one of Europe's first joint ventures, which includes 19 member states. CERN is the world's largest particle physics center, where scientists unite to study the building blocks of matter and the forces that hold them together. To be able to see and study particles which are extremely tiny, scientists use special tools as accelerators, accelerating particles to almost the speed of light, and detectors to make the particles visible.	CERN PHOTO/Frédéric Pitchal/Sygma/Corbis	0
C322-20P-	LO: Uranium or vaseline glass horn of plenty vase shown under black light goes with C322-12P	Derrick Alderman / Alamy	15
C322-50P-	table 1 Giordano, Luca (1634-1705) □ Democritus. replaces C322-07P	Scala / Art Resource, NY	4
C322-54P-	Doctors Speaking with MRI Patient	Royalty-Free/CORBIS	14
MSS12_CRAFT_SUPPLIES-MSS12P	Shot of craft sticks, toothpicks, drinking straws, chenille stems, glue, brads, and markers	The McGraw-Hill Companies	24
MSS12_CREATIVE_CONSTRUCTION_MATERIALS-MSS12P	Inquiry Lab Creative construction materials	Hutchings Photography/Digital Light Source	24
MSS12_LAPTOP_COMPUTER-MSS12P	Inquiry lab Open laptop computer	The McGraw-Hill Companies	24
MSS12_OFFICE_SUPPLIES-MSS12P	Shot of transparent tape, stapler, scissors, ruler, paper clips, push pins, rubber bands, and 1 hole punch.	The McGraw-Hill Companies	24

C330-01P-R-MSS12	Sable Island, Nova Scotia. A man carries a weather balloon.	Nick Caloyianis/National Geographic/Getty Images	00-01
C330-02P-	Periodic table. Computer artwork of a periodic table of the elements arranged around an spiral galaxy. Each circle contains an element's chemical symbol and atomic number (the number of protons in the nucleus). The element neutronium (n), which has the atomic number 0, is at the center of the galaxy. Elements with similar chemistry occur in the same spoke and some of the different groups are color coded. Different configurations of the traditionally rectangular periodic table are produced in the hope of arousing interest in chemistry in the general public.□	P.J. Stewart / Photo Researchers, Inc.	2
C330-03P-	Fig. 1 top. junk drawer containing office supplies when the contents are jumbled, pens, pencils post-its & rubberbands	Hutchings Photography/Digital Light Source	3
C330-04P-	Fig. 1 bottom. same junk drawer as C330-03P but now contents are organized	Hutchings Photography/Digital Light Source	3
C330-05P-	fig 3. Close-up of copper	DEA/A.RIZZI/De Agostini Picture Library/Getty Images	5
C330-06P-	Silver (Ag), a native element and metal, Michigan, USA.□	Visuals Unlimited/Ken Lucas/Getty Images	5
C330-07P-	Fig 3 Gold nugget against a white background	CORBIS	5
C330-08P-	fig 3. Cadmium (atomic number: 48, symbol: cd) is a soft, malleable, ductile, bluish-white metal. It is highly toxic and is mainly produced as a by-product from mining, smelting, and refining sulfide ores of zinc, lead, and copper. Cadmium is used in batteries, pigments, coatings, plating, and as stabilizers for plastics. The United States produces about 1,100 tons of cadmium and consumes about 1,300 tons.□	Richard Treptow / Photo Researchers, Inc.	5
C330-09P-	fig 3. Macrophotograph of a gross specimen of zinc, a bluish-white metallic element.	Astrid & Hanns-Frieder Michler / Photo Researchers, Inc.□	5
C330-10P-	fig 3. DROPLETS OF MERCURY□	ImageState / Alamy	5
C330-11P-	magnesium shavings on a small dish□	David J. Green / Alamy	8
C330-12P-	DEU, 2006: Silicon crystal, studio picture.	WILDLIFE / Peter Arnold Inc.□	8
C330-13P-	fig 6. Sulfur (S), a native element used in chemicals and medicines.□	Mark Schneider/Visuals Unlimited/Getty Images	8

C330-14P-	fig 7. American physicist Glenn T. Seaborg (1912-1999) with a Geiger-Muller radiation counter at Berkeley in 1956. He discovered the transuranic element plutonium in 1940, & shared the 1951 Nobel Prize for chemistry with Ed McMillan, discoverer of neptunium, for their work on transuranics. During World War II, he developed techniques for the isolation of plutonium for the Manhattan project, America's atom bomb program. His team at the University of California at Berkeley discovered the transuranics americium & curium in 1944, & berkelium & californium in 1949. He became chancellor of the university at Berkeley in 1958, chairman of the Atomic Energy Commission in 1961. □	LBNL / Photo Researchers, Inc.	9
C330-15P-	fig 7. 1922: Niels Bohr (1885-1962), Danish physicist, Nobel prize of physics in 1922.	Boyer/Roger Viollet/Getty Images	9
C330-16P-	fig 7. Lise Meitner, 1927	ullstein bild/Peter Arnold, Inc.	9
C330-17P-	Lightning striking Empire State Building, NYC, NY	Paul Katz/photolibrary.com	12
C330-18P-	fig 8. Gold ingots, (Close-up)	Paul Katz/Getty Images	14
C330-19P-	Fig.8 art/photo combo. C330-18P, C330-20P, C330-21P, C330-22P, C330-23P, C330-25A. a gold chain	Hutchings Photography/Digital Light Source	14
C330-20P-	fig. 8 The funerary mask of Tutankhamun (c.1370-1352 BC) New Kingdom, c.1336-1327 BC (gold inlaid with semi-precious stones) (detail of 228800)	Egyptian National Museum, Cairo, Egypt, Photo © Boltin Picture Library / The Bridgeman Art Library International	14
C330-21P-	fig 8. Japanese Aerospace Exploration Agency astronaut Soichi Noguchi waves at his space-walking crewmate, astronaut Stephen K. Robinson, during the August 1 extravehicular shared by the two mission specialists. Robinson can be seen in Noguchi's helmet visor using the new digital still camera outfitted for EVA exposure. Desertland on Earth and part of an horizon scene, approximately 225 statute miles below, can be seen in both Noguchi's visor and in the photo proper.	NASA	14
C330-22P-	fig. 8 Printed circuit board with central processor and gold plated connections □	Charles Stirling / Alamy	14
C330-24P-	fig 9 Potassium metal and water reacting in a petri dish	The McGraw-Hill Companies, Inc./Stephen Frisch, photographer □	15
C330-25P-	fig 9 sodium on water burning landscape □	sciencephotos / Alamy	15

C330-26P-	fig 9 lithium, soft metal, shiny when cut	Martyn Chillmaid/Oxford Scientific (OSF)/photolibrary.com	15
C330-27P-	fig 10 Paintbrush and Yellow Paint□	Royalty-Free/CORBIS	16
C330-28P-	fig 10. Emerald in the rough crystal form	Dr. Parvinder Sethi	16
C330-29P-	fig 10. Spessartine is magnesium manganese silicate and a member of the large garnet family. Spessartine, due to its manganese content, typically displays a strong orange or red-orange hue. The exact color varies greatly with locality, the most prominent of which are in Nigeria, Namibia, Brazil and California. A most unusual occurrence at Amelia, Virginia has produced extraordinary crystals, some as large as 3 inches across. Unlike most garnet crystals, the ones from Virginia are irregular and display prominent growth surfaces. Spessartine is now an important gem material.□	Joel Arem / Photo Researchers, Inc.	16
C330-30P-	fig 10. Close-up of blue glass bottle with a stopper against a white background□	Ingram Publishing / SuperStock	16
C330-31P-	The Flower. This is the "Mona Lisa" of Aerogel photographs.	E.O. Lawrence Berkely National Laboratory, University of California, U.S. Department of Energy	20
C330-32P-	fig 13. Ball peen hammer shapes copper sheet into flower bowl□	Ted Foxx / Alamy	22
C330-33P-	fig 13. Sulfur (atomic number: 16, symbol: s) is yellow, odorless, brittle, solid and insoluble in water, but soluble in carbon disulfide. It can be found in meteorites, volcanoes, and hot springs and as galena, gypsum, epsom salts, and barite. Sulfur is used in black gunpowder, the vulcanization of natural rubber, making phosphatic fertilizers, fumigation, and to bleach dried fruits. The element is a good insulator and a minor constituent of fats, body fluids, and skeletal minerals.	Richard Treptow / Photo Researchers, Inc.	22
C330-34P-	fig 14 Lump of Coal	Photodisc / Getty Images	22
C330-36P-	fig 14 White phosphorus in a test tube and red phosphorus on a watch glass.□	Charles D. Winters / Photo Researchers, Inc.	22
C330-37P-A-	fig 15 halogens in gas jars F I Cl Br I fluorine chlorine bromine iodine□ USE FLOURINE	sciencephotos / Alamy	23

C330-37P-B-	halogens in gas jars F I Cl Br I fluorine chlorine bromine iodine □ USE CHLORINE	sciencephotos / Alamy	23
C330-37P-C-	halogens in gas jars F I Cl Br I fluorine chlorine bromine iodine □ USE BROMINE	sciencephotos / Alamy	23
C330-37P-D-	halogens in gas jars F I Cl Br I fluorine chlorine bromine iodine □ USE IODINE	sciencephotos / Alamy	23
C330-37P-D-	L3 visual summary halogens in gas jars F I Cl Br I fluorine chlorine bromine iodine □ USE IODINE	sciencephotos / Alamy	27
C330-41P-R-MSS12	fig. 17 Fish Bowl	Gabe Palmer / Alamy	25
C330-42P-	fig 17 MP3 player with headphones, close-up □	Don Farrall/Getty Images	25
C330-43P-	fig 17 Close-up of a sandcastle on the beach □	Ingemar Aourell/Getty Images	25
C330-44P-	fig 17 Patient Breathing Through Tube □	Henrik Sorensen/Getty Images	25
C330-45P-	fig 18 Computer Chips	PhotoLink/Getty Images	26
C330-47P-	Lesson 3 Mini Lab. Student standing at a table with self sealing plastic bag about 1/4 filled with air and molded into a bowl shape with water in it. Student should be cupping the outside of bowl	Hutchings Photography/Digital Light Source	26
C330-48P-	Skills Lab. Two students sitting at a table holding 5-6 cards. Between students there are 10-15 cards laying face up and organized by number or color.	Hutchings Photography/Digital Light Source	11
C330-49P-	Lesson 1 Launch Lab. Two students at a table organizing building blocks with clear plastic bags of blocks containing 4 colors between them. In front of them should be 2 small piles.	Hutchings Photography/Digital Light Source	3
C330-50P-	Lesson 2 Launch Lab. Student standing a table with variety of metal objects, a teaspoon, a piece of jewelry, a penny, aluminum foil, bolts, nail. Student should be holding oe in her hand and examining it	Hutchings Photography/Digital Light Source	13
C330-51P-	Lesson 3 Launch. Student setting up a circuit test, with copper coin, aluminum foil, charcoal . Student should be attaching a wire to battery.	Hutchings Photography/Digital Light Source	21
C330-52P-	Lesson 2 Mini Lab. Student removing rods made of different materials from a beaker of hot water. Rods should be metal, plastic, wooden, glas and flask tongs. On location	Hutchings Photography/Digital Light Source	17
C330-53P-	EOC Lab. Two student working together to organize "Alien Insect" cards	Hutchings Photography/Digital Light Source	28
C330-54P-	EOC Lab. Student (only show hands) drawing one of the "Alien Insect" cardsin a notebook	Hutchings Photography/Digital Light Source	29
C330-55P-	Hubble space telescope photo of the Crab nebula	NASA-JPL	24

C330-60P-	fig 8 Person with gold ring on washing hands to show gold in unreactive.	The McGraw-Hill Companies	14
C330-61P-	Fireworks Reflecting in Lake □ Fireworks in Night Sky reflecting in Lake. (Digital Composite)	Jeff Hunter/Getty Images	19
MSS12_CAR DS_ALIEN_I NSECTS- MSS12P	Alien insect cards spread out	Richard Hutchings (see Digital Light Source)	28
MSS12_CAR DS_DECKS- MSS12P	Various card games	Richard Hutchings (see Digital Light Source)	11
MSS12_FLASK_ERLENM EYER- MSS12P	Erlenmeyer Flask	Hutchings Photography/Digital Light Source	22
C332-01P-	Close up of man typing on laptop □	altrendo images/Getty Images	00-01
C332-01P-- A	Close up of man typing on laptop □	altrendo images/Getty Images	31
C332-02P-	skulling on the Brisbane River	Douglas Fisher / Alamy	2
C332-03P-	Man placing final puzzle piece, close-up on hand □	Gazimal/Getty Images	11
C332-04P-	Drying pools at the Exportadora Sal, the worlds largest evaporative salt plant, Guerrero Negro, Baja California Sur, Mexico, USA.	Brent Winebrenner/Photolibrary.com	19
C332-05P-	Close-up view of a half full glass of water, against a grey background	Photodisc / Getty Images	24
C332-06P-	Close-up view of a salt and pepper shakers against a white background □	C Squared Studios/Getty Images	24
C332-07P-	Roll of aluminum foil	Jennifer Martine/Jupiter Images	24
C332-08P-	Green Science Feature Original caption: New Jersey: The Hindenburg. Control room of the Zeppelin Hindenburg at Lakehurst, New Jersey. □	Underwood & Underwood/CORBIS	10
C332-09P-	Green Science Feature Airship Ventures Zeppelin NT over Arizona, 10/21/08.	John Meyer	10
C332-100P-	Lesson 1 mini lab. To illustrate electrons and energy levels in an atom. Student holding a horseshoe magnet with paperclips held together through magnetism	Hutchings Photography/Digital Light Source	8

C332-101P-	Lesson 2 mini lab. To illustrate covalent bonding. 4 lego (no brand name) blocks, 1 peg, 2 peg, 3 peg, 4 peg legos different colors, next to each other but not touching	Hutchings Photography/Digital Light Source	16
C332-102P-	Lesson 1 launch. To illustrate student performing lab. Student sitting at desk filling out index card with information about aluminum	Hutchings Photography/Digital Light Source	3
C332-103P-	Lesson 2 launch. To illustrate that a compound is different than the elements that make it up. Student comparing charcoal (carbon), air (hydrogen & oxygen) and beaker filled approx. 25mL with sugar	Hutchings Photography/Digital Light Source	12
C332-104P-	Lesson 3 launch. To illustrate ionic bonding. Student modeling ionic bonding between sodium and sulfur.	Hutchings Photography/Digital Light Source	20
C332-105P-	EOC lab. To illustrate ionic bonding. Student placing penny in beaker filled with mixture of vinegar and salt and another student watching and holding a stopwatch. On location	Hutchings Photography/Digital Light Source	26
C332-106P-	EOC Inquiry. To illustrate sanding a nail. Student sanding a large nail with a piece of sandpaper	Hutchings Photography/Digital Light Source	27
C332-107P-	Skills lab. To illustrate the drawing of electron dot diagrams. Student writing the dot diagram for H ₂ O using colored pencils	Hutchings Photography/Digital Light Source	18
C332-10P-	Green Science Feature Lakehurst, New Jersey, USA. 6th May, 1937. Part of the Hindenburg airship explodes into a huge ball of flames as it flies over Lakehurst.	Popperfoto/Getty Images	10
C332-11P-	Green Science Feature. National Archives of the United States with the Rotunda and original copies of the Constitution and Declaration of Independence	Ilene MacDonald / Alamy	10
MSS12_BEAKER_250ML-MSS12P	250ML beaker	Richard Hutchings (see Digital Light Source)	26
MSS12_NAILS_IRON-MSS12P	Iron nails	Richard Hutchings (see Digital Light Source)	26
MSS12_SANDPAPER-MSS12P	Sandpaper	Richard Hutchings (see Digital Light Source)	26

MSS12_SPO ON_PLASTIC	A thumbnail photograph of a plastic spoon. The photo will be a close up and the background should be contrasting to show the spoon.	Hutchings Photography/Digital Light Source	26
MSS12_STO PWATCH- MSS12P	Stopwatch	Richard Hutchings (see Digital Light Source)	26
PM_COIN_P ENNIES.PSD- XPML08	Coin Pennies	Macmillan/McGraw-Hill	26
PM_COIN_P ENNIES.PSD- XPML08	Coin Pennies	Macmillan/McGraw-Hill	26
PM_FOOD_V INEGAR.PSD- XPML08	Food Vinegar	Macmillan/McGraw-Hill	26
PM_SALT.PS D-XPML08	Salt	Macmillan/McGraw-Hill	26
C334-01P-	Chapter Opener: Federal Highway Research Institute, crash test, Bergisch Gladbach-Bensberg, North Rhine-Westphalia, Germany	Anton Luhr/Photolibrary	00-01
C334-02P-	LO 1: Scanning Macro of lit Firefly (Lampyridae), 2.25x.	Darwin Dale / Photo Researchers, Inc.C5454	2
C334-03P-	Exterior detailed view of the Statue of Liberty's head by Frederic Auguste Bartholdi	Royalty-Free/CORBIS	4
C334-04P-	Baking soda reacting with vinegar in a beaker. This simple experiment demonstrates a powerful acid-base reaction.□	Charles D. Winters / Photo Researchers, Inc.	4
C334-05P-	fungus decay of fruit and vegetables	London Scientific Films/photolibrary.com	4
C334-06P-	LO: 2 potassium iodide and lead nitrate make lead iodide	sciencephotos / Alamy	13
C334-06P-- A	fig 1: potassium iodide and lead nitrate make lead iodide	sciencephotos / Alamy	4
C334-06P-- A	fig 7: potassium iodide and lead nitrate make lead iodide	sciencephotos / Alamy	16
C334-07P-	Burning Match	Brand X Pictures	4

C334-08P-	Firefly squid, <i>Watasenia scintillans</i> , migrate from deep waters toward the shallower waters of coastal Japan to breed each year. A culturally important fishery exists in Japan around this species and their annual migration into shallower Japanese waters. The Japanese word for firefly squid is hotaruika. Firefly squid are a bioluminescent species, having photophores on their ventral surfaces for counter-illumination. This squid was photographed in the Sea of Japan (2007). Courtesy of the Uozo Aquarium.	Dante Fenolio / Photo Researchers, Inc.	4
C334-09P-	2nd phase: figure 4. Combo C334-04A, C334-10P. Conservation of mass before and after a chemical reaction. (before)	Hutchings Photography/ Digital Light Source	8
C334-100P-	2nd phase. Lesson 1 launch. Student finding the mass of a resealable plastic bag containing a clear liquid. In the bag is a stoppered test tube containing another clear liquid. Student is moving the masses on the alance to find the mass.	Hutchings Photography/Digital Light Source	3
C334-101P-	2nd phase. Lesson 1 mini lab. Student using red modeling clay to make 6 1/2 x 1 inch diameter spheres	Hutchings Photography/Digital Light Source	7
C334-102P-	2nd phase. Lesson 3 mini lab. Student holding a test tube with a bublling liquid at a 45° angle in one hand and a glowing splint at the mouth of the test tube in the other hand	Hutchings Photography/Digital Light Source	24
C334-103P-	2nd phase. EOC Inquiry. Students discussing various types of antacids.	Hutchings Photography/Digital Light Source	27
C334-10P-	2nd phase: figure 4. Combo C334-04A, C334-10P. Conservation of mass before and after a chemical reaction. (after)	Hutchings Photography/Digital Light Source	8
C334-11P-	The Baptist Memorial Hospital Medical Center building is imploded on Sunday, Nov. 6, 2005, in Memphis, Tenn., to make way for the Memphis Biotech, a new medical research park. The hospital was once the world's largest private hospital, the birthplace of Lisa Marie Presley, and the hospital where Elvis Presley was pronounced dead.	AP Photo/Greg Campbell	14
C334-12P-	A magnesium strip burns.□	Charles D. Winters / Photo Researchers, Inc.	15

C334-13P-	Bottle of Hydrogen Peroxide	The McGraw-Hill Companies, Inc. / Jacques Cornell photographer	15
C334-14P-	Displacement reaction: displacing one metal by another. Copper displacing silve in a beaker (after the reaction).	The McGraw-Hill Companies, Inc./Stephen Frisch, photographer	16
C334-16P-	Gas Blow Torch☐	Park Dale / Alamy	16
C334-19P-	large piece of sidewalk chalk	McGraw-Hill Companies	23
C334-20P-	pile of crushed sidewalk chalk	The McGraw-Hill Companies	23
C334-21P-	Two melting ice cubes against a white background	Brand X Pictures/PunchStock	23
C334-22P-	Close-up view of a burning match against a dark background	Royalty-Free/CORBIS	23
C334-23P-	USA, New York, New York City, Grand Central Station interior☐	Tetra Images/Getty Images	23
C334-24P-	Grand Central Station Terminal, New York City☐ (crowded)	Alexis Grattier/Getty Images	23
C334-25P-	Space Shuttle Columbia Lifting Off Low angle view of the Space Shuttle Columbia lifting off, Kennedy Space Center, 1995	Brand X Pictures/PunchStock	19
C334-50P-	Salmon, Idaho. Silhouettes of children playing with light sticks at dusk.	Joel Sartore/National Geographic/Getty Images	18
MSS12_AMM ONIUM_HYD ROXIDE- MSS12P	MSS12_AMMONIUM_HYDROXIDE	The Mcgraw-Hill Companies	12
MSS12_GRA DUATED_CY LINDER_100 ML-MSS12P	100ML graduated cylinder	Hutchings Photography/Digital Light Source	26
MSS12_SCA LE_TRIPLE-	Triple beam scale	Hutchings Photography/Digital Light Source	26
MSS12_SPO ON_PLASTIC	A thumbnail photograph of a plastic spoon. The photo will be a close up and the background should be contrasting to show the spoon.	Hutchings Photography/Digital Light Source	26
MSS12_TES T_TUBE_RA CK_FILLED- MSS12P	Wooden Test Tube Rack filled with 10 empty test tubes.	The McGraw-Hill Companies	12
PM_BAKING _SODA.PSD- XPML08	Baking Soda	Macmillan/McGraw-Hill	12

PM_DROPPE R.PSD- XPML08	Dropper	Macmillan/McGraw-Hill	26
PM_FOIL_AL UMINUM.PS D-XPML08	Foil Aluminum	Macmillan/McGraw-Hill	12
C01-02P- 874185	Aerial photo of row homes in Philly	Aerial Photos of New Jersey	6
C01-10P- 874185	fig 10 Bullet train. Computer artwork of the Japanese Shinkansen or bullet train traveling at speed.	Michael Dunning/Photo Researchers	16
C01-16P- 874185	combo C362-18A-MSS12. Version of The Thinker by Auguste Rodin at Stanford	Robert Holmes/CORBIS	24
C01-18P- 874185	fig 16 combo C362-20A-MSS12. A wide body commercial airliner takes off from the airport runway	Eyecon Images/Alamy Images	25
C362-01P-	Jets flying in formation leaving smoke trail□	Andrew Holt/Getty Images	00-01
C362-01P-- A	Jets flying in formation leaving smoke trail□	Andrew Holt/Getty Images	33
C362-02P-	France, Corse, Haute Corse, Bastia, Trade harbour	Camille Moirenc/Getty Images	2
C362-02P-- A	France, Corse, Haute Corse, Bastia, Trade harbour	Camille Moirenc/Getty Images	8
C362-02P-- B	key concepts study guide. France, Corse, Haute Corse, Bastia, Trade harbour	Camille Moirenc/Getty Images	30
C362-04P-	Running cheetah South Africa□	Steve Bloom Images / Alamy	10
C362-04P-- A	Running cheetah South Africa□	Steve Bloom Images / Alamy	30
C362-05P-	Military airplane flying above the clouds	Department of Defense	11
C362-06P-	During the 1960s, the Big Three automakers marketed two different product lines. On the one hand, they tried to sell the consumer on more economical, compact cars; but on the other hand, their fascination with horsepower grew unabated. Even the mass-marketed "Pony Cars" that trotted onto the scene had names evocative of speed, such as Mustang and Firebird. This 1968 Ford Mustang Cobra Jet 428 was one of the fastest on the street.□	Car Culture/Corbis	11

C362-09P-	Motorcycle Racer Uphill	Leo Dennis Productions/Brand X/Corbis	20
C362-09P--A	Motorcycle Racer Uphill	Leo Dennis Productions/Brand X/Corbis	27
C362-100P-	Lesson 1 Launch. Middle school student appearing to begin walking. At feet is sheet of paper taped to floor which has directions and arrows, North, South, East, West.	Hutchings Photography/Digital Light Source	3
C362-101P-	Lesson 2 Launch. Middle school student making a track for a marble using grey foam tubing. Tubes are taped together with masking tape. The track should have turns.	Hutchings Photography/Digital Light Source	11
C362-102P-	Lesson 2 Mini Lab. Middle school student walking past a piece of masking tape on floor while looking at a stopwatch in her hand.	Hutchings Photography/Digital Light Source	14
C362-102P--A	Lesson 2 Visual summary. Middle school student walking past a piece of masking tape on floor while looking at a stopwatch in her hand.	Hutchings Photography/Digital Light Source	18
C362-103P-	Lesson 3 Mini Lab. Student walking along a path with meterstick on floor and masking tape marked 10 cm, 40 cm, 90 cm, 160 cm, 250 cm.	Hutchings Photography/Digital Light Source	24
C362-104P-	Lesson 2 Skill. Collection of 2-3 small, moveable toys on floor	Hutchings Photography/Digital Light Source	19
C362-105P-	middle school student holding tennis ball at top of ramp made of books and meter sticks	Hutchings Photography/Digital Light Source	28
C362-11P-	Aerial view of a wheat field being harvested with combines	Comstock/PunchStock	25
C362-13P-	EDWARDS AFB, CALIF. -- After traveling 5.8 million miles in space during 217 orbits, and with drag chute deployed, Endeavour lands on concrete runway 22 at Dryden Flight Research Center, Edwards Air Force Base, Calif., completing mission STS-111. Three days of unfavorable weather conditions at KSC prompted the decision to land at Edwards, which enjoyed pristine, dry conditions.. Main gear touchdown occurred at 1:57:41 p.m EDT, nose gear touchdown at 1:57:53 p.m. EDT and wheel stop at 1:58:45 p.m. EDT.	NASA	26
C362-14P-	FIG 11 combo-C362-13A. girl is walking to the left, boy is walking to the right, arrows pointing in direction of movement student	Hutchings Photography/Digital Light Source	17

C362-30P-	reading screen menu on mobile phone□	David J. Green - technology / Alamy	9
C362-50P-	fig 18 BEAVER CREEK, CO - DECEMBER 02: (FRANCE OUT) Daniel Albrecht of Switzerland takes 1st place in action during the Alpine FIS Ski World Cup Men's Giant Slalom on December 02, 2007 in Beaver Creek, Colorado.	Agence Zoom/Getty Images	26
C362-50P--A	BEAVER CREEK, CO - DECEMBER 02: (FRANCE OUT) Daniel Albrecht of Switzerland takes 1st place in action during the Alpine FIS Ski World Cup Men's Giant Slalom on December 02, 2007 in Beaver Creek, Colorado.	Agence Zoom/Getty Images	30
MSS12_BAL L_TENNIS- MSS12P	Tennis ball	Richard Hutchings (see Digital Light Source)	28
MSS12_CAL CULATOR-	Lab Set Up: calculator silo	Richard Hutchings/Digital Light Source	19
MSS12_MET ER_STICK-	A thumbnail photograph of a meterstick. The photo will be a close up and the focus should be close enough to show markings on the face, but not such that the numbers are discernible. The meterstick could be wood or plastic, but should be one full meter in length. One of each material in a side by side is a potential alternative.	Hutchings Photography/Digital Light Source	19
MSS12_MET ER_STICK-	A thumbnail photograph of a meterstick. The photo will be a close up and the focus should be close enough to show markings on the face, but not such that the numbers are discernible. The meterstick could be wood or plastic, but should be one full meter in length. One of each material in a side by side is a potential alternative.	Hutchings Photography/Digital Light Source	28
MSS12_PAP ER_GRAPH- MSS12P	Graph paper with pencil.	Aaron Haupt	19
MSS12_STO PWATCH- MSS12P	Stopwatch	Richard Hutchings (see Digital Light Source)	19
MSS12_STO PWATCH- MSS12P	Stopwatch	Hutchings Photography/Digital Light Source	28

MSS12_TAP E_MASKING- MSS12P	A thumbnail photo of a roll of masking tape. The roll should be on its side, laying flat on the table. See go-by.	Hutchings Photography	28
MSS12_TOY S_WIND_UP- MSS12P-A	4-5 small wind-up toys that will move in a straight line at least 1/2 meter-such as Happy Meal toys (no brand names) Cars Animals Shoes Characters Other ideas are welcome	Hutchings Photography/Digital Light Source	19
MSS12_TOY S_WIND_UP- MSS12P-A	4-5 small wind-up toys that will move in a straight line at least 1/2 meter-such as Happy Meal toys (no brand names) Cars Animals Shoes Characters Other ideas are welcome	Hutchings Photography/Digital Light Source	19
C02-25P- 874185	Fig. 17 combo C363-16A, C363-21P. 1 of 2: Woman pushing sledder at top of hill	Tim Garcha/CORBIS	21
C02-25P- 874185	lesson 3 visual summary Woman pushing sledder at top of hill	Tim Garcha/CORBIS	25
C02-28P- 874185-A	fig 7 Set-up - One eight grade student pushing a large box	Horizons Companies	7
C02-28P- 874185-B	fig 7 Set-up - Two eight grade students pushing a large box	Horizons Companies	7
C02-46P- 874185	Fig. 6. Art/photo combo C363-04A. Susan Helms in the International Space Station	NASA	6
C02-47P- 874185	Fig. 6. Art/photo combo C363-04A. Susan Helms	NASA	6
C363-01P-	Carnival Swing Ride at Sunset☐	Jason Horowitz/zefa/Corbis	00-01
C363-01P-- A	chapter review question 16 Carnival Swing Ride at Sunset☐	Jason Horowitz/zefa/Corbis	39
C363-02P-	(13 October 2004) --- Robert L. (Bobby) Satcher, Jr., mission specialist astronaut candidate, floats freely aboard a KC-135 aircraft as part of his early training.	NASA	2
C363-03P-	fig 1 MAN BREAKING BRICKS WITH HAND☐☐	Terje Rakke/Getty Images	3
C363-05P-	fig 3 Female tennis player hitting ball, close-up☐	Daniel Smith/Getty Images	4
C363-06P-	fig 3 Table Tennis Team	Ryuhei Shindo/Corbis/Jupiter Images	4
C363-11P-	Fig. 8 art/Photo combo C363-06A. To illustrate air resistance and gravity show student dropping 2 pieces of paper from the same height. 1 piece flat and the other crumbled into a ball	Hutchings Photography/Digital Light Source	7

C363-12P-	Balanced Rock Formation	Bryan Mullennix/Getty Images	11
C363-13P-	fig 10 Osprey flying with fish, low angle view□	Marvin E. Newman/Getty Images	12
C363-14P-	Fig. 11 art/photo combo C363-09A. To illustrate combining positive forces. 2 boys pushing dresser. student	Hutchings Photography/Digital Light Source	13
C363-15P-	Fig. 12 art/photo combo C363-10A. To illustrate combining positive and negative forces. A boy and girl pushing/pulling a dresser student	Hutchings Photography/Digital Light Source	14
C363-16P-	Fig. 13 art/photo combo C363-11A. To illustrate combining positive and negative forces. A boy and girl pushing/pulling a dresser. student	Hutchings Photography/Digital Light Source	14
C363-17P-	fig 14 Parachute jumper in mid air	Tim Keatley / Alamy	15
C363-19P-	BEIJING - AUGUST 14: Zhang Juan Juan of China shoots during the women's archery individual gold medal match at the Olympic Green Archery Field during Day 6 of the Beijing 2008 Olympic Games on August 14, 2008 in Beijing, China.	Michael Steele/Getty Images	19
C363-21P-	fig 17 Hispanic JH boy wearing winter coat goes down snowy slope on a sled x21854	Myrleen Ferguson Cate / PhotoEdit	21
C363-22P-	Woman Jumping off Diving Board□	Patrik Giardino/CORBIS	27
C363-23P-	Fig. 20. To illustrate Newton's third law. Person on rollerskates or rollerblades pushing off from a wall student	Hutchings Photography/Digital Light Source	28
C363-24P-	fig 21 BEIJING, Aug. 7, 2008 (Xinhua) -- Chinese gymnast Jiang Yuyuan practices on the vault at the National Indoor Stadium in Beijing, China, Aug. 7, 2008. The Chinese women's gymnastics team held a training session here Thursday, preparing for the upcoming Beijing Olympics.	LIN HUI/Xinhua /Landov	29
C363-25P-	fig 22 Diving off yacht□	Duncan Soar / Alamy	29
C363-26P-	fig 23 Young female swimming free-style stroke, underwater view□	David Madison/Getty Images	30
C363-27P-	fig 23 Jumping with a skipping rope□	Design Pics Inc. / Alamy	30
C363-28P-	CAPE CANAVERAL AIR FORCE STATION, Fla. -- A Delta IV rocket lifts off from here Aug. 29. A Defense Satellite Communication System was placed into orbit by the rocket. It was the last of the system to be launched.	U.S. Air Force photo by Carleton Bailie	30

C363-29P-	fig 24 TRANSFER OF ENERGY - BILLIARD BALL BREAK (strobo) - Before Cue Ball Strikes Rack. □Cue ball strikes target ball & transfers all its energy to forward momentum of target ball and into pool ball rack. An ordered system of low entropy.	Richard Megna, Fundamental Photographs, NYC	32
C363-34P-	fig 15 A 2004 Toyota RAV4 crashes into a barrier during a crash test by the Insurance Institute for Highway Safety. The RAV4 got the highest ratings on both front and side crash tests performed by the insurance industry, but only when tested with its optional side air bags, according to crash test results.	AP Photo/Insurance Institute for Highway Safety	16
C363-35P-	fig 24 TRANSFER OF ENERGY - BILLIARD BALL BREAK (strobo) - □Cue ball strikes target ball & transfers all its energy to forward momentum of target ball and into pool ball rack. An ordered system of low entropy (the racked balls) is changed to disorder and higher entropy.	Richard Megna, Fundamental Photographs, NYC	32
C363-36P-	Lesson 1 mini lab. To illustrate the effect of friction on the sliding motion of 2 surfaces in contact. Close up view of student's hand pulling horizontally a spring scale which is attached to an eyehook in a block. student	Hutchings Photography/Digital Light Source	8
C363-37P-	Lesson 2 mini lab. To illustrate affect of balanced and unbalanced forces on motion. Hands of 2 students pulling horizontally with about the same force on spring scales that are attached by eyehooks to opposite sides of a wooden block	Hutchings Photography/Digital Light Source	15
C363-38P-	Lesson 4 mini lab. To illustrate track and ball setup used for momentum. Track made of 2 side by side meter sticks about 4 cm apart, held down with masking tape. One tennis ball should be on the track and a student placing another ball on the track	Hutchings Photography/Digital Light Source	32
C363-39P-	Lesson 1 launch. To illustrate an example of a noncontact force (gravity) causing movement. Student tossing a tennis ball up in the air.	Hutchings Photography/Digital Light Source	3
C363-40P-	Lesson 2 launch. To illustrate balanced and unbalanced magnetic force. Student holding a pencil at its ends. On the pencil should be two ring magnets separated by a short distance.	Hutchings Photography/Digital Light Source	12

C363-41P-	Lesson 2 Skill. To illustrate how students should draw force arrows. Notebook paper with black arrow, red arrow, blue arrow	Hutchings Photography/Digital Light Source	18
C363-42P-	Lesson 3 launch. To illustrate centripetal force and circular motion. Student swinging around a rolled up sock attached to a string	Hutchings Photography/Digital Light Source	20
C363-43P-	Lesson 3 mini lab. To illustrate a mass being accelerated by a force. Small cardboard box or pressed paper with modeling clay in it. String attached to outside of box and is taut, almost horizontal	Hutchings Photography/Digital Light Source	22
C363-44P-	Lesson 3 Skill. To illustrate method of pushing balls with identical force. Student bending over meter stick on ground. 2 balls touching meter stick near the center, balls approx. 20 cm apart	Hutchings Photography/Digital Light Source	26
C363-45P-	Lesson 4 launch. To illustrate equal and opposite forces. Two students standing near each other, each holding a spring scale hooked together and gently pulling the scales so they are horizontal. On location	Hutchings Photography/Digital Light Source	28
C363-46P-	EOC Inquiry. To illustrate using force to accelerate mass. Student gently pulling spring scale attached to a skid (plastic top of margarine tub)	Hutchings Photography/ Digital Light Source	34
C363-47P-	EOC Inquiry. To illustrate increase mass decreases acceleration. Close up of same skid (used in C363-46P) with several balls of modeling clay on it. Spring scale is attached and appears to be pulled by student	Hutchings Photography/Digital Light Source	35
C363-48P-	Golf Ball Used with lab photo C363-46P, cloned onto lid	C Squared Studios/Getty Images	34
C363-49P-	Fig. 2. to illustrate non contact forces, Photo of static charge causing hair to stand on end by placing near the hair a balloon that has been recently rubbed on the hair student	Hutchings Photography/Digital Light Source	4
C363-50P-	Kitt Peak National Observatory□	VisionsofAmerica/Joe Sohm/Getty Images	10
C363-51P-	True Color EROS Bottom□Views of the asteroid Eros generated by data from the laser rangefinder. The 3-D model was generated from laser rangefinder data and the color was applied based on color images. □□□	NASA/Goddard Space Flight Center Scientific Visualization Studio	10

C363-52P-	Meteor crater, the largest known in the world, Arizona, United States of America, North America□	Ursula Gahwiler/photolibrary.com	10
C363-53P-	Satellite view of the Earth from space	StockTrek/Getty Images	10
MSS12_BAL L_BASEBALL- MSS12P	Baseball	Richard Hutchings (see Digital Light Source)	26
MSS12_BAL L_POLYSTYR ENE-	A thumbnail photograph of a Styrofoam ball. The photo will be a close up and the background should be contrasting to show ball. The ball should be white in color. Size is not important, but the photo will not suggest it could not be any size.	Hutchings Photography/Digital Light Source	26
MSS12_CLA Y-MSS12P	clay	Hutchings Photography/Digital Light Source	34
MSS12_LID_ PLASTIC- MSS12P	Plastic lid	Hutchings Photography/Digital Light Source	34
MSS12_MET ER_STICK-	A thumbnail photograph of a meterstick. The photo will be a close up and the focus should be close enough to show markings on the face, but not such that the numbers are discernible. The meterstick could be wood or plastic, but should be one full meter in length. One of each material in a side by side is a potential alternative.	Hutchings Photography/Digital Light Source	26
PM_BALL_G OLF.PSD- XPML08	Ball Golf	Macmillan/McGraw-Hill	34
PM_MARKER S_COLORED .PSD- XPML08	Markers Colored	Macmillan/McGraw-Hill	18
PM_SCALE_ SPRINGTUB ULAR.PSD- XPML08	Scale Spring Tubular	Macmillan/McGraw-Hill	34
57 rows			
C193-01P-	Partial Solar Eclipse. August 11, 1999 Cerdanya, Catalonia, Spain	O. Alamany & E. Vicens/CORBIS	00-01

C193-03P-	<p>Double prominences -- Two large solar prominences in extreme ultraviolet light (ionized helium at 304) roughly the same size but quite different in structure appeared on the Sun on 18 March 2003. The observation of two large prominences in one image makes this one of the most spectacular images that SOHO has captured. Prominences are large clouds of relatively cool, dense plasma suspended in the Sun's hot, tenuous corona. Magnetic fields built up enormous forces that propelled particles out beyond the Sun's surface. The one on the right and possibly both were associated with a flare and a coronal mass ejection that blasted away from the Sun at about the time of this image. The twisting nature of the one on the right is of particular interest to some solar physicists who believe that eruptive events like this are the Sun's way of getting rid of magnetic fields that are twisted up too tightly, like the rubber bands that run model airplanes. For a sense of scale, the prominences extend about 20 Earths out from the Sun. They both had disappeared by the time the next image was taken 6 hours later.</p>	SOHO (ESA & NASA)	3
C193-04P-	<p>This image of the Earth and moon in a single frame, the first of its kind ever taken by a spacecraft, was recorded on Sept. 18, 1977, by Voyager 1 when it was 7.25 million miles from Earth. The moon is at the top of the picture and beyond the Earth as viewed by Voyager. □ In the picture are eastern Asia, the western Pacific Ocean and part of the Arctic. Voyager 1 was directly above Mt. Everest (on the night side of the planet at 25 degrees north latitude) when the picture was taken. □ The photo was made from three images taken through color filters, then processed at NASA's Jet Propulsion Laboratory. Because the Earth is many times brighter than the moon, the moon was artificially brightened so that both bodies would show clearly in the prints.</p>	NASA	12

C193-05P-	<p>During its flight, the Galileo spacecraft returned images of the Moon. The Galileo spacecraft took these images on December 7, 1992 on its way to explore the Jupiter system in 1995-97. The distinct bright ray crater at the bottom of the image is the Tycho impact basin. The dark areas are lava rock filled impact basins: Oceanus Procellarum (on the left), Mare Imbrium (center left), Mare Serenitatis and Mare Tranquillitatis (center), and Mare Crisium (near the right edge). This picture contains images through the Violet, 756 nm, 968 nm filters. The color is 'enhanced' in the sense that the CCD camera is sensitive to near infrared wavelengths of light beyond human vision. The Galileo project is managed for NASA's Office of Space Science by the Jet Propulsion Laboratory.</p>	NASA/JPL/USGS	15
C193-06P-	<p>Lunar Orbiter IV was designed to provide an expanded photographic survey of the lunar surface at resolutions that were greater than that possible from ground based telescopes (e.g., like the images in the Consolidated Lunar Atlas). LO IV photographed the lunar nearside and farside, including the lunar polar regions. The spacecraft was launched on May 4, 1967. Photography began on the sixth lunar orbit on May 11 and continued for 30 successive orbits over the next 15 days. The mission produced 199 exposures that covered over 99% of the lunar nearside. Final readout of data was completed during Orbit 48 on June 1. Two micrometeorite impacts and particles from a series of solar flares hit the spacecraft during the mission, but did not compromise the photographic results. Lunar Orbiter V</p>	Lunar and Planetary Institute	15

C193-07P-	<p>Lunar Orbiter IV was designed to provide an expanded photographic survey of the lunar surface at resolutions that were greater than that possible from ground based telescopes (e.g., like the images in the Consolidated Lunar Atlas). LO IV photographed the lunar nearside and farside, including the lunar polar regions. The spacecraft was launched on May 4, 1967. Photography began on the sixth lunar orbit on May 11 and continued for 30 successive orbits over the next 15 days. The mission produced 199 exposures that covered over 99% of the lunar nearside. Final readout of data was completed during Orbit 48 on June 1. Two micrometeorite impacts and particles from a series of solar flares hit the spacecraft during the mission, but did not compromise the photographic results. Lunar Orbiter V</p>	Lunar and Planetary Institute	15
C193-08P-	<p>The Consolidated Lunar Atlas by Gerald P. Kuiper, Ewen A. Whitaker, Robert G. Strom, John W. Fountain, and Stephen M. Larson is a collection of the best photographic images of the moon. These digital renditions were created and edited by Eric J. Douglass. Web page design and layout by Michael S. O'Dell.</p>	Lunar and Planetary Institute	15
C193-09P-	<p>Phases of the Moon. Composite image showing the Moon at each stage of its 28 day cycle (a lunar month). Along the top row, the Moon is a waxing (growing in apparent size) crescent, reaching a half Moon after 7 days. For the next seven days it is a waxing gibbous (between half and full), reaching a full Moon (far right of second row) after 14 days. The Moon is then a waning (decreasing in apparent size) gibbous, reaching another half moon 21 days into the cycle. On the bottom row it is a waning crescent, reaching the new Moon stage at bottom right. The phases of the Moon are due to it revealing differing amounts of its sunlit face as it orbits the Earth.</p>	Eckhard Slawik/Photo Researchers, Inc. □	17

C193-09P-- A	<p>lesson 2 visual summary Phases of the Moon. Composite image showing the Moon at each stage of its 28 day cycle (a lunar month). Along the top row, the Moon is a waxing (growing in apparent size) crescent, reaching a half Moon after 7 days. For the next seven days it is a waxing gibbous (between half and full), reaching a full Moon (far right of second row) after 14 days. The Moon is then a waning (decreasing in apparent size) gibbous, reaching another half moon 21 days into the cycle. On the bottom row it is a waning crescent, reaching the new Moon stage at bottom right. The phases of the Moon are due to it revealing differing amounts of its sunlit face as it orbits the Earth.</p>	Eckhard Slawik/Photo Researchers, Inc. □	18
C193-09P-- A	<p>lesson 2 visual summary Phases of the Moon. Composite image showing the Moon at each stage of its 28 day cycle (a lunar month). Along the top row, the Moon is a waxing (growing in apparent size) crescent, reaching a half Moon after 7 days. For the next seven days it is a waxing gibbous (between half and full), reaching a full Moon (far right of second row) after 14 days. The Moon is then a waning (decreasing in apparent size) gibbous, reaching another half moon 21 days into the cycle. On the bottom row it is a waning crescent, reaching the new Moon stage at bottom right. The phases of the Moon are due to it revealing differing amounts of its sunlit face as it orbits the Earth.</p>	Eckhard Slawik/Photo Researchers, Inc. □	30
C193-100P-	<p>lesson 3 mini lab one student holding 2 different sized styrofoam balls attached by wooden skewer. One student holding flashlight pointed at balls. Shadow of smaller ball should be visible on larger ball LOCATION</p>	Hutchings Photography/Digital Light Source	22
C193-19P-	<p>Caption: This image was taken by astronauts on the Mir Space Station during a total solar eclipse over Eastern Europe on August 11, 1999.</p>	UPI Photo/NASA/Landov	20

C193-20P-	Partial Eclipse - Magnitude = 0.29 (T06-1025-1w) Nearly 1/3 of the Sun's diameter is gone! (09:31 UT) Total Solar Eclipse of 2006 March 29 (Jalu, LIBYA) Nikon D200 and Vixen 90mm f/9 Fluorite Refractor, 1/8000 second	Copyright by Fred Espenak, www.MrEclipse.com	30
C193-21P-	Partial Eclipse - Magnitude = 0.90 (T06-1072-1w) Seven minutes until totality! (10:18 UT) Total Solar Eclipse of 2006 March 29 (Jalu, LIBYA) Nikon D200 and Vixen 90mm f/9 Fluorite Refractor, 1/8000 second	Copyright by Fred Espenak, www.MrEclipse.com	23
C193-22P-	Partial Eclipse - Magnitude = 0.84 (T06-1176-1w) Twelve minutes after the end of totality. (10:43 UT) Total Solar Eclipse of 2006 March 29 (Jalu, LIBYA) Nikon D200 and Vixen 90mm f/9 Fluorite Refractor, 1/4000 second	Copyright by Fred Espenak, www.MrEclipse.com	23
C193-23P-	Partial Eclipse - Magnitude = 0.66 (T06-1191-1w) The partial phase twenty-seven minutes after totality. (10:58 UT) Total Solar Eclipse of 2006 March 29 (Jalu, LIBYA) Nikon D200 and Vixen 90mm f/9 Fluorite Refractor, 1/8000 second	Copyright by Fred Espenak, www.MrEclipse.com	23
C193-24P-	Chromosphere and Prominences (TSE2005-125w) Totality begins! (21:15 UT) Total Solar Eclipse of 2005 April 08 (Pacific Ocean) Canon 1Ds Mark II and Canon 500mm f/4 IS lens, 1/2000 second	Copyright by Fred Espenak, www.MrEclipse.com	27
C193-30P-	Full Moon (TLE2004-004w)00:35 UT Although the penumbral phase of the eclipse began 30 minutes earlier (00:06 UT), the first sign of the shadow is only now becoming visible as a slight shading of the eastern (left) edge on the bright winter Moon. About 43% of the Moon's disk now lies within the penumbra.	Copyright by Fred Espenak, www.MrEclipse.com	29
C193-31P-	Half Partial Eclipse (TLE2004-034w)01:47 UT About 47% on the Moon lies within the shadow at 01:47 UT.	Copyright by Fred Espenak, www.MrEclipse.com	29
C193-33P-	Middle Totality (TLE2004-139w)03:03 UT At mid- eclipse (03:04:06 UT), the Moon's southern limb is just 0.7 arc-minutes from the center of the umbra while the northern limb is 9.5 arc-minutes from the shadow's edge.	Copyright by Fred Espenak, www.MrEclipse.com	29
C193-40P-	Fishing boats at high tide Halls Harbour Bay of Fundy Nova Scotia Canada□	Robert Estall photo agency/Alamy	25

C193-41P-	Fishing boats at low tide Halls Harbour Bay of Fundy Nova Scotia Canada□	Robert Estall photo agency/Alamy	25
C193-42P-	1960s CRATERS ON LUNAR SURFACE MOON COPERNICUS REGION□	ClassicStock/Alamy	15
C193-43P-	inflated balloon with balloon's equator marked. one student holding balloon, another student shining a penlight at the equator, bright spot of light on balloon's equator	Hutchings Photography/Digital Light Source	3
C193-44P-	student standing and twirling small foam ball on a string in a horizontal circle above their head	Hutchings Photography/Digital Light Source	4
C193-45P-	student looking at ball at eye level, ball on desktop/table top, penlight beam illuminating half of ball. Illuminated half of ball should be clearly visible	Hutchings Photography/Digital Light Source	13
C193-46P-	two students 4-5 feet apart, facing each other, one holding sign that says Earth, the other holding a sign that says Moon	Hutchings Photography/Digital Light Source	16
C193-47P-	toy placed on book approximately 6" in front of poster board. Shine penlight on toy so shadow of toy is cast on poster board. Photo should show penlight, toy and shadow	Hutchings Photography/Digital Light Source	21
C193-48P-	2 page lab, 2 students, lamp on desk (acts as sun), 1 student recording, 1 student holding pencil with foam ball (moon)	Hutchings Photography/Digital Light Source	28
C193-49P-	1 page lab. Foam ball representing earth with rotation axis	Hutchings Photography/Digital Light Source	11
C193-50P-	1 page lab. 2 students. Stacked textbooks with flashlight and ball and skewer set up	Hutchings Photography/Digital Light Source	11
C193-51P-	LRO spacecraft	NASA	19
C193-52P-	Lunar Roving Vehicle During the Apollo 15 Mission	NASA	19
C193-53P-	Orion (right) flies in space while docked with a lunar lander in this NASA artist's rendering. Please note that this artwork is not precise.	NASA	19
C193-54P-	Lesson 1 opener Full view of the International Space Station (ISS) recorded by the STS-110 crewmembers on board the Space Shuttle Atlantis 17 April 2002	NASA Human Spaceflight Collection	2
MSS12_BAL L_POLYSTYR ENE-	A thumbnail photograph of a Styrofoam ball. The photo will be a close up and the background should be contrasting to show ball. The ball should be white in color. Size is not important, but the photo will not suggest it could not be any size.	Hutchings Photography/Digital Light Source	11

MSS12_BAL L_POLYSTYR ENE-	A thumbnail photograph of a Styrofoam ball. The photo will be a close up and the background should be contrasting to show ball. The ball should be white in color. Size is not important, but the photo will not suggest it could not be any size.	Hutchings Photography/Digital Light Source	28
MSS12_CUP _STYRENE- MSS12P	Styrene cup	Hutchings Photography/Digital Light Source	11
MSS12_FL ASHLIGHT- MSS12P	Flashlight	Hutchings Photography/Digital Light Source	11
MSS12_PEN CIL_ROUND _ERASER- MSS12P	round pencil with eraser (not traditional hexagonal pencil)	The McGraw-Hill Companies	28
MSS12_SKE WER_WOOD EN-MSS12P	An 8-10 wooden skewer. May be shown with a few skewers and 1 skewer separated from the grouping.	Hutchings Photography/Digital Light Source	11
MSS12_STO OL-MSS12P	Stool	Hutchings Photography/Digital Light Source	28
MSS12_TAB LE_LAMP- MSS12P	table lamp	Hutchings Photography/Digital Light Source	28
MSS12_TAP E_MASKING- MSS12P	Masking tape	Hutchings Photography/Digital Light Source	11

C195-01P-	<p>Chapter Opener: The Hubble Ultra Deep Field. This view of nearly 10,000 galaxies is called the Hubble Ultra Deep Field. The snapshot includes galaxies of various ages, sizes, shapes, and colors. The smallest, reddest galaxies may be among the most distant known, existing when the universe was just about 800 million years old. The nearest galaxies - the larger, brighter, well-defined spirals and ellipticals - thrived about 1 billion years ago, when the cosmos was 13 billion years old. The image required 800 exposures taken over the course of 400 Hubble orbits around Earth. The total amount of exposure time was 11.3 days, taken between Sept. 24, 2003 and Jan. 16, 2004.</p>	NASA, ESA, and S. Beckwith (STScI) and the HUDF Team	00-01
C195-02P-	<p>The center, or hub, of the Milky Way. Seen in places with dark skies, such as Hawaii, the Milky Way, forms a distinct hazy band of light that slices across the dome of the sky. The Milky Way marks the location of the galactic plane and its source of illumination is the light from myriad stars in the galactic disk. It is broadest and brightest at the constellation Sagittarius, for this is where the center of our galaxy forms a massive egg-shaped bulge. The galactic bulge is also the point around which the disk of the spiral galaxy rotates. Our Milky Way measures about 100,000 light years in diameter, about 3,000 light years in thickness, and about 250,000 light years in circumference. Note how it is dappled with dark clouds of dust, which obscure the light from stars beyond them. One particular dust patch (upper right) is known as the Dark Horse. The Dark Horse's hind portion is another dusty feature known as Barnard's Pipe. Photographed August 2005.</p>	Stephen & Donna O'Meara/Photo Researchers, Inc.	2
C195-03P-	<p>A time-exposure creates circular star tracks around Polaris</p>	Joseph Baylor Roberts/Getty Images	3

C195-04P-	<p>The Antennae galaxies, composite image. The Antennae are formed of two galaxies (NGC 4038 and NGC 4039) colliding due to mutual gravitational attraction. This results in massive areas of starbirth around the galactic nuclei (white). The Antennae are so named due to the long trails of gas and stars extending towards upper left and lower right. The galaxies lie some 62 million light years from Earth in the constellation Corvus. Image produced using radio data from the Very Large Array (VLA) telescope.</p>	NRAO/AUI/NSF/SCIENCE PHOTO LIBRARY	5
C195-05P-	<p>This bubble of ionized gas and warm dust, called RCW 79, lies in the southern Milky Way, 17,200 light years from Earth in the constellation Centaurus, and probably took about one million years to form from the radiation and winds of hot young stars. The infrared eyes of NASA's Spitzer Space Telescope have found at least three generations of stars forming in this expanding envelope.</p>	NASA/JPL-Caltech/E. Churchwell (University of Wisconsin)	5
C195-06P-	<p>The Galaxy Evolution Explorer's ultraviolet eyes have captured a globular star cluster, called NGC 362, in our own Milky Way galaxy. In this new image, the cluster appears next to stars from a more distant neighboring galaxy, known as the Small Magellanic Cloud. Globular clusters are densely packed bunches of old stars scattered in galaxies throughout the universe. NGC 362, located 30,000 light-years away, can be spotted as the dense collection of mostly yellow-tinted stars surrounding a large white-yellow spot toward the top-right of this image. The white spot is actually the core of the cluster, which is made up of stars so closely packed together that the Galaxy Evolution Explorer cannot see them individually. The light blue dots surrounding the cluster core are called extreme horizontal branch stars. These stars used to be very similar to our sun and are nearing the end of their lives. They are very hot, with temperatures reaching up to about four times that of the surface of our sun (25,000 Kelvin or 45,500 degrees Fahrenheit). A star like our sun spends most of its life fusing hydrogen atoms</p>	NASA/JPL-Caltech/Univ. of Virginia	5

C195-07P-	This Chandra image shows the M87 jet as seen in X-ray wavelengths.	NASA/CXC/MIT/H. Marshall et al.	5
C195-08P-	ACE image of earth's sun. The prime objective of The Advanced Composition Explorer (ACE) is to measure and compare the composition of several samples of matter, including the solar corona, the solar wind, and other interplanetary particle populations, the local interstellar medium (ISM), and galactic matter. While there has been great progress addressing these objectives, the changing conditions over the solar cycle present new opportunities. In addition, new observations and theoretical advances, new missions, and the evolving goals of NASA and the Sun-Solar-System Connection (S3C) Theme have introduced new challenges, including the goal of achieving the scientific understanding needed to forecast space weather in the coming years when humans will venture beyond Earth's protective magnetosphere. The Earth is constantly bombarded with a stream of accelerated particles arriving not only from the Sun, but also from interstellar and galactic sources. Study of these energetic particles will contribute to our understanding of the formation and evolution of the solar system as well as the formation and evolution of other planetary systems.	Science Source/Photo Researchers, Inc	10
C195-09P-	Sunspot Active Regions 10486 and 10488.	Jerry Lodriguss/Photo Researchers, Inc.	13
C195-100P-	Student holding flashlight over petri dish	Hutchings Photography/Digital Light Source	3
C195-101P-	Students examining the visible spectrum	Hutchings Photography/Digital Light Source	5
C195-102P-	Student using constellation guide	Hutchings Photography/Digital Light Source	9
C195-103P-	Sunspots	Digital Vision/PunchStock	11
C195-104P-	Student cutting construction paper	Hutchings Photography/Digital Light Source	12
C195-105P-	Student coloring sunflower	Hutchings Photography/Digital Light Source	19
C195-107P-	Hubble Space Telescope orbiting Earth	STS-82 Crew/STScI/NASA	29

C195-108P-	This artist's conception shows the closest known planetary system to our own, called Epsilon Eridani. Observations from NASA's Spitzer Space Telescope show that the system hosts two asteroid belts, in addition to previously identified candidate planets and an outer comet ring.	NASA/JPL-Caltech	35
C195-109P-	Student binding a book	Hutchings Photography/Digital Light Source	35
C195-10P-	The Sun viewed through a special filter allows its outer gases to be seen	Naval Research Laboratory	13
C195-110P-	The Earth	Brand X Pictures/PunchStock	35
C195-111P-	Spiral Galaxy	NASA/JPL-Caltech/S. Willner (Harvard-Smithsonian Center for Astrophysics)	35
C195-116P-	Students putting staples on thin piece of cardboard; black hole lab	Hutchings Photography/Digital Light Source	22
C195-11P-	Sun storm: A Coronal Mass ejection	SOHO Consortium, ESA, NASA	13
C195-12P-	Aurora Borealis (Northern lights) over lake, night Lake Kleifarvatn, Reykjanes penisnsula, Western Iceland	Arctic-Images/Getty Images	13
C195-13P-	Wide view of an open star cluster	Photo courtesy of NASA/CORBIS	14
C195-14P-	Wide view of a globular star cluster	Photo courtesy of NASA/CORBIS	14
C195-15P-	Strange shapes and textures can be found in the neighborhood of the Cone Nebula. These patterns result from the tumultuous unrest that accompanies the formation of the open cluster of stars known as NGC 2264, the Snowflake Cluster. To better understand this process, a detailed image of this region was taken in two colors of infrared light by the orbiting Spitzer Space Telescope. Bright stars from the Snowflake Cluster dot the field. These stars soon heat up and destroy the gas and dust mountains in which they formed. One such dust mountain is the famous Cone Nebula, visible in the above image on the left, pointing toward a bright star near the center of the field. The entire NGC 2264 region is located about 2,500 light years away toward the constellation of the Unicorn (Monoceros).	NASA	18

C195-16P-	This composite of data from NASA's Chandra X-ray Observatory and Hubble Space Telescope gives astronomers a new look for NGC 6543, better known as the Cat's Eye nebula. This planetary nebula represents a phase of stellar evolution that our sun may well experience several billion years from now.	X-ray: NASA/CXC/SAO; Optical: NASA/STScI	23
C195-17P-	Resembling the puffs of smoke and sparks from a summer fireworks display, this Hubble image depicts the delicate filaments debris from a stellar explosion in a neighboring galaxy. Denoted N 49, or DEM L 190, this remnant is from a massive star that died in a supernova blast whose light would have reached Earth thousands of years ago. This filamentary material will eventually be recycled into building new generations of stars. Our own sun and planets are constructed from similar debris of supernovae that exploded in the Milky Way billions of years ago.	NASA, The Hubble Heritage Team (STScI/AURA), Y.-H. Chu (UIUC), S. Kulkarni (Caltech) and R. Rothschild (UCSD)	23
C195-18P-	Why does the Sombrero Galaxy look like a hat? Reasons include the Sombrero's unusually large and extended central bulge of stars, and dark prominent dust lanes that appear in a disk that we see nearly edge-on. Billions of old stars cause the diffuse glow of the extended central bulge. Close inspection of the bulge in the above photograph shows many points of light that are actually globular clusters.	NASA/Hubble Heritage Team	26
C195-19P-	Interacting Spiral Galaxies NGC 2207 and IC 2163 from the Hubble Space Telescope	NASA/Alamy	27
C195-20P-	Spiral Galaxy M 100	CORBIS	28

C195-21P-	<p>This intriguing trio of galaxies is sometimes called the NGC 5985/Draco Group and so (quite reasonably) is located in the northern constellation Draco. From left to right are face-on spiral NGC 5985, elliptical galaxy NGC 5982, and edge-on spiral NGC 5981 -- all within this single telescopic field of view spanning a little more than half the width of the full moon. While this grouping is far too small to be a galaxy cluster and has not been cataloged as a compact group, these galaxies all do lie roughly 100 million light-years from planet Earth. On close examination with spectrographs, the bright core of the striking face-on spiral NGC 5985 shows prominent emission in specific wavelengths of light, prompting astronomers to classify it as a Seyfert, a type of active galaxy. Not as well known as other tight groupings of galaxies, the contrast in visual appearance makes this triplet an attractive subject for astrophotographers. This impressively deep exposure of region also reveals faint and even more distant background galaxies.</p>	Robert Gendler/NASA	28
C195-22P-	<p>What happens when a galaxy falls in with the wrong crowd? The irregular galaxy NGC 1427A is a spectacular example of the resulting stellar rumble. Under the gravitational grasp of a large gang of galaxies, called the Fornax cluster, the small bluish galaxy is plunging headlong into the group at 600 km/sec or nearly 400 mi/sec. The Hubble Space Telescope's Advanced Camera for Surveys was used to obtain images of NGC 1427A in visible (green), red, and infrared filters in January 2003. NGC 1427A will not survive long as an identifiable galaxy passing through the cluster. Within the next billion years, it will be completely disrupted, spilling its stars and remaining gas into intergalactic space within the Fornax cluster.</p>	NASA, ESA, and The Hubble Heritage Team (STScI/AURA)	28

C195-52P-	Coronal jets are small-scale transient ejections of hot gases, or plasma, occurring in the solar atmosphere. During a typical event, about a million tons of matter are ejected at speeds reaching a million miles per hour over a few minutes' time. The jets are believed to contribute significantly to the mass flow constantly ejected by the Sun, known as the solar wind. Despite their relative simplicity, jets may serve as a paradigm for more complex and far larger events originating in the solar atmosphere, such as coronal mass ejections. Until recently, all jet observations suffered from an inherent limitation: because they were observed from a single viewpoint, their complete geometry could not be determined unambiguously. This situation improved dramatically once the stunning images from the SECCHI instruments onboard the twin NASA/STEREO spacecraft became available in early 2007. A unique polar coronal jet observation was made on June 7, 2007. Analysis of the images from the two distinct viewpoints of the STEREO spacecraft reveals an unmistakable helical structure in the jet. These pioneering	STEREO Stereoscopic Observations Constraining the Initiation of Polar Coronal Jets S. Patsourakos, E.Pariat, A. Vourlidas, S. K. Antiochos, J. P. Wuesler/NASA	17
MSS12_MAGAZINES_ASTRONOMY-MSS12P	MSS12_MAGAZINES_ASTRONOMY	The McGraw-Hill Companies	34
MSS12_PAPER_GRAPH-MSS12P	Graph paper with pencil.	Aaron Haupt	9
MSS12_STARS_ADHESIVE-MSS12P	C195 -adhesive foil stars	Brand X Pictures/PunchStock	9
PM_CHART_STAR.PSD-XPML08	Chart Star	Macmillan/McGraw-Hill	9
PM_GLUE.PSD-XPML08	Glue	Macmillan/McGraw-Hill	34
PM_SCISSORS_G36.PSD-XPML08	Scissors G36	Macmillan/McGraw-Hill	34

C02-06P-874636	This image of the Pacific Ocean was produced using sea surface height measurements taken by the U.S./French TOPEX/POSEIDON satellite. The image shows sea surface height relative to normal ocean conditions on June 25, 1997 and provides more convincing information that the weatherdisrupting phenomenon known as El Niño is back and getting stronger.	JPL/NASA	22
C101-01P-	Chapter Opener: Landsat image of San Francisco Bay (http://www.sfbayquakes.org/mapview.html)	U.S. Geological Survey (USGS)	00-01
C101-02P-	Chapter Opener: San Francisco Historical Creek Map	Courtesy of HISTOPO	0
C101-04P-	Lesson 1 Opener: (RF) Iles de la Madeleine	Hemera/age fotostock	2
C101-06P-	The miniature city Madurodam at The Hague in the province of South Holland Netherlands	David R. Frazier Photolibrary, Inc./Alamy	5
C101-07P-	Father and son at a memorial for the victims of land mines, 'Broken Chair' by Daniel Berset, Square of Nations, Place des Natio	imagebroker/Alamy	5
C101-10P-	Lesson 2 Opener: Moon Hill, Yangshuo, Guangxi, China	Jon Arnold Images/SuperStock	12
C101-16P-	Hurricane Katrina Floods the Southeastern United States	NASA images courtesy the MODIS Rapid Response Team at NASA GSFC.	21
C101-17P-	Hurricane Katrina Floods the Southeastern United States	NASA images courtesy the MODIS Rapid Response Team at NASA GSFC.	21
C101-21P-	Directions dispute	Hutchings Photography/Digital Light Source	3
C101-23P-	(DAL) Devils Tower National Monument, Wyoming, USA	Robert Glusic/Getty Images	14
C101-24P-	Topographical map of Devil's Tower, Wyoming	USGS	14
C101-25P-	PIA03361: Stereo Pair, Mount St Helens, Washington State	NASA/JPL	24
C101-26P-	PIA02760: Stereo Pair: Patagonia, Argentina	NASA/JPL/NIMA	25
C101-29P-	Atlas and road maps	Hutchings Photography/Digital Light Source	13
C101-33P-	Young woman using GPS in car at complex interchange, close-up of hand	Nick Koudis/Photodisc/Getty Images	19

C101-35P-	Pacific Shows Signs of Morphing From Warm El Nino To Cool La Nina. New data of sea-level heights from early February, 2007, by the Jason altimetric satellite show that the tropical Pacific Ocean has transitioned from a warm (El Niño) to a cool (La Niña) condition during the prior two months. The beginnings of a possible La Niña are indicated by the blue area (in the center of the image along the equator) of lower than normal sea level (cold water).	NASA/JPL Ocean Surface Topography Team	22
MSS12_PAPER_GRAPH-MSS12P	Graph paper with pencil.	Aaron Haupt	11
PM_METERS TICK.PSD-XPML08	Meterstick	Macmillan/McGraw-Hill	11
PM_RULER_PLASTIC_BLUE.PSD-XPML08	Ruler Plastic Blue	Macmillan/McGraw-Hill	11
PM_RULER_PLASTIC_BLUE.PSD-XPML08	Ruler Plastic Blue	Macmillan/McGraw-Hill	24
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C101-01P-	Chapter Opener: Landsat image of San Francisco Bay (http://www.sfbayquakes.org/mapview.html)	U.S. Geological Survey (USGS)	00-01
C101-02P-	Chapter Opener: San Francisco Historical Creek Map	Courtesy of HISTOPO	0
C101-04P-	Lesson 1 Opener: (RF) Iles de la Madeleine	Hemera/age fotostock	2

C101-06P-	The miniature city Madurodam at The Hague in the province of South Holland Netherlands	David R. Frazier Photolibrary, Inc./Alamy	5
C101-07P-	Father and son at a memorial for the victims of land mines, 'Broken Chair' by Daniel Berset, Square of Nations, Place des Natio	imagebroker/Alamy	5
C101-10P-	Lesson 2 Opener: Moon Hill, Yangshuo, Guangxi, China	Jon Arnold Images/SuperStock	12
C101-16P-	Hurricane Katrina Floods the Southeastern United States	NASA images courtesy the MODIS Rapid Response Team at NASA GSFC.	21
C101-17P-	Hurricane Katrina Floods the Southeastern United States	NASA images courtesy the MODIS Rapid Response Team at NASA GSFC.	21
C101-21P-	Directions dispute	Hutchings Photography/Digital Light Source	3
C101-23P-	(DAL) Devils Tower National Monument, Wyoming, USA	Robert Glusic/Getty Images	14
C101-24P-	Topographical map of Devil's Tower, Wyoming	USGS	14
C101-25P-	PIA03361: Stereo Pair, Mount St Helens, Washington State	NASA/JPL	24
C101-26P-	PIA02760: Stereo Pair: Patagonia, Argentina	NASA/JPL/NIMA	25
C101-29P-	Atlas and road maps	Hutchings Photography/Digital Light Source	13
C101-33P-	Young woman using GPS in car at complex interchange, close-up of hand	Nick Koudis/Photodisc/Getty Images	19
C101-35P-	Pacific Shows Signs of Morphing From Warm El Nino To Cool La Nina. New data of sea-level heights from early February, 2007, by the Jason altimetric satellite show that the tropical Pacific Ocean has transitioned from a warm (El Niño) to a cool (La Niña) condition during the prior two months. The beginnings of a possible La Niña are indicated by the blue area (in the center of the image along the equator) of lower than normal sea level (cold water).	NASA/JPL Ocean Surface Topography Team	22
MSS12_PAPER_GRAPH-MSS12P	Graph paper with pencil.	Aaron Haupt	11
PM_METERS TICK.PSD-XPML08	Meterstick	Macmillan/McGraw-Hill	11

PM_RULER_PLASTIC_BLUE.PSD-XPML08	Ruler Plastic Blue	Macmillan/McGraw-Hill	11
PM_RULER_PLASTIC_BLUE.PSD-XPML08	Ruler Plastic Blue	Macmillan/McGraw-Hill	24
C132-01P-	Chapter Opener: Volcanic eruption at night, Krafla, Iceland	Arctic-Images/Getty Images	00-01
C132-06P-	A fossil leaf of a seed fern of the Glossopteris genus, from the Permian period, found in Australia.	Walter Geiersperger/CORBIS	5
C132-08P-	Appalachian Mountains ablaze with fall color, Great Smoky Mountains National Park, North Carolina	Tim Fitzharris/Minden Pictures	6
C132-09P-	Atlantic and Indian ocean topography, mapped by a combination of satellite altimetry and shipboard echosounding readings. Color-coding shows the variation in the depth of the sea floor. Ocean depths are blue, while underwater mountain ranges and peaks are green. The Mid-Atlantic Ridge runs down the center of the Atlantic Ocean, and similar tectonic features are seen in the Indian Ocean. These ridges are where the sea floor splits apart, creating new land. Most of the seafloor topography data were collated in 1997 by Smith and Sandwell. The land topography data was gathered separately, with orange colours showing relatively low-lying areas, and red colours showing high mountains and plateaus.	Science Source/Photo Researchers	10
C132-101P-	Student peeling an orange	Hutchings Photography/Digital Light Source	3
C132-102P-	Student cutting magazine	Hutchings Photography/Digital Light Source	7
C132-103P-	test tube rack	Hutchings Photography/Digital Light Source	19
C132-104P-	Graham crackers	Hutchings Photography/Digital Light Source	28

C132-105P-	graham cracker experiment	Hutchings Photography/Digital Light Source	28
C132-106P-	Graham crackers with peanut butter	Hutchings Photography/Digital Light Source	28
C132-107P-	rubber cement being applied to paper	Hutchings Photography/Digital Light Source	11
C132-108P-	Bathymetric map of the age of the seafloor	Dr. Peter Sloss, formerly of NGDC/NOAA/NGDC	17
C132-10P-	Submarine eruptions at mid-ocean ridges produce fresh lava flows like these "pillow" lavas that form as lava slowly oozes out of a fissure (crack) on the sea floor. These lavas erupted from the southern part of the Juan de Fuca Ridge, lying about 150 miles off the coast of Oregon. This photo was taken about 5 years after the eruption.	Image courtesy of Submarine Ring of Fire 2002 Exploration, NOAA-OE.	12
C132-11P-	The Aleutian Islands and the Alaskan peninsula are shown in this image acquired by the MODIS on the Terra satellite, on May 25th, 2006. The Aleutians are a chain of more than 300 small volcanic islands forming an island arc in the Northern Pacific Ocean. They extend about 1,200 miles westward from the Alaskan Peninsula. Nearly all of the islands are part of Alaska, but at the extreme western end of the archipelago are the small, geologically-related, but remote Komandorski Islands, which are considered part of Russia.	NASA	18
C132-15P-	Ama Dablam peak, Mt Everest Region, Himalayas, Nepal	Tony Waltham/Getty Images	22
C132-16P-	Mount Rainier looms over a hill of Tacoma.	Jim Richardson/CORBIS	22

C132-17P-	Black smoker vent. View from a deep sea vehicle of the billowing black 'smoke' being emitted by a hydrothermal vent on the ocean floor. Known as a 'black smoker', this sulphurous mineral-rich fluid pours out of a sulphur-encrusted mound or chimney. This volcanic fluid bubbles up due to geothermal energy in the Earth's crust, at a temperature of over 300 degrees Celsius. Deep sea vents provide an unusual habitat that some organisms are able to exploit. Some primitive forms of extremophile bacteria obtain their energy from the sulphur. Deep sea crabs and other marine forms are visible, adapted to the high temperature, pressure, and sulphur concentrations of this environment.	Dr. Ken MacDonald/Photo Researchers, Inc.	22
C132-19P-	The Carrizo Plain in eastern San Luis Obispo County contains the most strikingly graphic portion of the San Andreas Fault.	Lloyd Cluff/CORBIS	22
C132-28P-	Lesson 1 Opener: Rift zone, Pingvellir, Southwest Iceland.	Oddur Sigurdsson/Visuals Unlimited, Inc.	2
C132-29P-	feature: Ross MacPhee	Clare Flemming	9
C132-30P-	feature: Tenrec Sitting on a Rock	Peter Johnson/CORBIS	9
C18-35C-	Water being heated on a ring stand. Demonstrating convection currents	Richard Megna/Fundamental Photographs	24
MSS12_CRA CKERS_GRA HAM- MSS12P	Graham crackers	Hutchings Photography/Digital Light Source	28
MSS12_FOA MCORE_BRO WN-MSS12P	Brown foam board	Hutchings Photography/Digital Light Source	17
MSS12_FRO STING- MSS12P	Can of Chocolate Frosting	The McGraw-Hill Companies	28
MSS12_SPO ON_PLASTIC	A thumbnail photograph of a plastic spoon. The photo will be a close up and the background should be contrasting to show the spoon.	Hutchings Photography/Digital Light Source	17
MSS12_YOG URT- MSS12P	MSS12_YOGURT	Hutchings Photography/Digital Light Source	17

PM_DROPPE R.PSD- XPML08	Dropper	Macmillan/McGraw-Hill	28
PM_PAPER_ WAX.PSD- XPML08	Paper Wax	Macmillan/McGraw-Hill	28
C133-01P-	Chapter Opener: Mount Everest, Tibet, China	TAO Images Limited/Photolibary	taimrm- 00003649- 001.jpg
C133-02P-	Thingvellir, Iceland. Thingvellir, site of the world's first parliament, the Althing.	Rex A. Stucky/Getty Images	72549608
C133-03P-	Maroon Bells White River National Forest, Colorado	Comstock Images/Alamy	AD31D1
C133-04P-	USA, North Carolina, Great Smoky Mountains National Park, autumn. This image shows the Thomas Divide area of the Appalachian Mountains on a morning in Oct 2004	Adam Jones/Getty Images	20019602 8-001
C133-05P-	Iceland, Laki fissure, aerial view	Philippe Bourseiller/Getty Images	sb100685 96hl-001
C133-06P-	Val di Funes and Dolomite Peaks, Dolomites, Puez Geisler Nature Park, South Tyrol, Italy	Tom Till/Getty Images	83761905
C133-07P-	Mt. Shasta, California	D. Falconer/PhotoLink/Getty Images	16280
C133-08P-	Rift Valley Kenya East Africa	Geoffrey Morgan/Alamy	A3C99D
C133-100P-	Student with candy bar	Hutchings Photography/Digital Light Source	C133- 100P- 049785co py.jpg
C133-101P-	Student stretching silly putty	Hutchings Photography/Digital Light Source	C133- 101P- 050172co py.jpg
C133-104P-	Student lab, silly putty	Hutchings Photography/Digital Light Source	C133- 104P- 019copy.j pg

C133-106P-	Student lab, tectonic plates	Hutchings Photography/Digital Light Source	C133-106P-049664copy.jpg
C133-109P-	Student lab, textbooks	Hutchings Photography/Digital Light Source	C133-109P-049545copy.jpg
C133-10P-	Fault-block mountains. Aerial photograph of fault-block mountains overlooking a plain along the Moab fault. These were formed when the surrounding plain collapsed on either side, leaving the mountains raised above the new level of the plain. 300 million years ago, the evaporation of an ancient sea left a salt bed covering the Colorado Plateau of what would become North America. Over time other geological deposits formed the rocks of the present day plain. These rocks are up to 1.5 kilometers thick. This has led to parts of the plain collapsing and buckling as the original salt beds weaken under the weight of the overlying rock. Photographed in Utah, USA.	Bernhard Edmaier/Photo Researchers, Inc.	sa8196
C133-110P-	Student lab, layers of clay	Hutchings Photography/Digital Light Source	C133-110P-050056copy.jpg
C133-111P-	Student with shaving cream on way paper	Hutchings Photography/Digital Light Source	C133-111P-050259copy.jpg
C133-112P-	Corn starch lab, part 1	Hutchings Photography/Digital Light Source	C133-112P-009copy.jpg
C133-113P-	Corn starch lab, part 2	Hutchings Photography/Digital Light Source	C133-113P-030copy.jpg
C133-11P-	Old Quarry in Cliffs of Sioux Quartzite Bedrock	Tom Bean/CORBIS	TB002438
C133-12P-	Folded limestone, Crete	DAVID PARKER/SCIENCE PHOTO LIBRARY	E410/163

C133-13P-	Lesson 4 Opener: Grand Canyon, Arizona, USA	Digital Vision	1527R-019761
C133-14P-	Bedrock along the northeast coast of Hudson Bay, Canada, has the oldest rock on Earth.	Courtesy: Jonathan O'Neil/National Science Foundation	oldest_rock1_h1
C133-15P-	Columbia River Gorge, Oregon	C. McIntyre/PhotoLink/Getty Images	16312
C133-17P-	Tip of the Iceberg	Ralph A. Clevenger/CORBIS	65203
C133-18P-	Folded rock strata. Coastal cliffs formed from contorted Silurian rock strata. Silurian rocks include sandstones, limestones, shales and mudstones that were laid down between 440 and 395 million years ago. Subsequent uplifting and folding of the land due to tectonic activity has caused the bedding planes to fold. Photographed at Cwm Tydu, Cardigan Bay, Wales.	Sinclair Stammers/Photo Researchers, Inc.	sc5490
MSS12_HOOKED_WEIGHTS-MSS12P	Hooked weight set	Hutchings Photography/Digital Light Source	MSS12_hooked_weights-049929copy.jpg
MSS12_HOT_PLATE-MSS12P	Hot plate	Hutchings Photography/Digital Light Source	MSS12_HOT_PLATE-039549copy.jpg
MSS12_PUTTY_SILICON-MSS12P	2-3 blobs of silicon putty, or Silly Putty, in different forms such as sphere, oblong, oozing with different markings form fingers. Try for different colors.	The McGraw-Hill Companies	n/a
MSS12_THERMOMETER-	close up of an alcohol lab thermometer	Hutchings Photography/Digital Light Source	C203-46P-002
MSS12_TUB_WITH_LID_CLEAR-MSS12P	Clear plastic tub	Hutchings Photography/Digital Light Source	MSS12-tub with lid_clear-046823copy.jpg
PM_FOOD_CORNSTARCH.PSD-XPML08	Food Cornstarch	Macmillan/McGraw-Hill	Food_Cornstarch

PM_FOOD_FLOUR.PSD-XPML08	Food Flour	Macmillan/McGraw-Hill	Food_Flour
PM_MEASURING_CUP.PSD-XPML08	measuring cup	Macmillan/McGraw-Hill	measuring_cup
C172-02P-	Lesson 1 Opener: Thunderheads over Africa	CORBIS	2
C172-04P-	Volcano Spewing Ash	C. Sherburne/PhotoLink/Getty Images	5
C172-05P-	Canada, Quebec, Schefferville, Aurora Borealis over lake	Per Breiehagen/Getty Images	7
C172-06P-	Herd of horses grazing near Teton Range, Grand Teton National Park, Wyoming, USA	CORBIS	8
C172-07P-	Lesson 2 Opener: Dead Vlei Tree Mirage	John King/Alamy	11
C172-08P-	Couple on Golden Beach Yialova Messinia Peloponnese Greece Summer 2006	Eric James/Alamy	13
C172-10P-	Lanin volcano and araucaria forest, Argentina	James Brunker/Alamy	16
C172-11P-	Lesson 3 Opener: USA, California, Tehachapi, electricity generating wind turbines	Lester Lefkowitz/Getty Images	20
C172-12P-	Jet stream over the middle east	CORBIS	23
C172-13P-	Lesson 4 Opener: Original caption: STG03D:CHILE-WEATHER:SANTIAGO,30JUL99 - The city of Santiago, Chile is seen covered with a cloud of smog , with snowy mountains in the background after a heavy rain, on July 30. Santiago is considered as one of the most polluted capitals in the world, despite heavy traffic restrictions and other environmental measures taken by the government which ecological groups consider as insufficient. cd/Photo by Martin Thomas REUTERS	Reuters/CORBIS	27
C172-14P-	Smokestack	C. Sherburne/PhotoLink/Getty Images	28
C172-15P-	An aerial view of midtown Manhattan skyscrapers.	MICHAEL S. YAMASHITA/National Geographic Image Collection	29
C172-16P-	Skyscrapers in midtown Manhattan in smog.	MICHAEL S. YAMASHITA/National Geographic Image Collection	29

C172-18P-	Baby crawling across a white sheet in a diaper	Creatas/PictureQuest	32
C172-19P-	Electrical outlet and plug	Masterfile	32
C172-20P-	405 freeway near Sunset Blvd. at rush hour - Los Angeles - California	Digital Vision Ltd./SuperStock	32
C172-21P-	cleaning the kitchen wearing rubber gloves Keywords Domestic Chore Housework Domestic Chores Female Woman Females Women	supershoot/Alamy	38
C172-22P-	Student with upsidedown cup	Hutchings Photography/Digital Light Source	3
C172-23P-	dust under lamp	Hutchings Photography/Digital Light Source	12
C172-24P-	Balloon lab	Hutchings Photography/Digital Light Source	21
C172-26P-	Student looking through hand lens	Hutchings Photography/Digital Light Source	4
C172-28P-	Student with beaker of water	Hutchings Photography/Digital Light Source	19
C172-29P-	Student measuring globe	Hutchings Photography/Digital Light Source	26
C172-30P-	Student measuring temperature of clay soil	Hutchings Photography/Digital Light Source	35
C172-31P-	Beaker under lamp lab	Hutchings Photography/Digital Light Source	34
C172-32P-	Student, ping pong ball lab	Hutchings Photography/Digital Light Source	23
C172-33P-	Chapter Opener: Silhouette of a hiker on a ridge above the clouds	Daniel H. Bailey/Alamy	00-01
C172-34P-	feature: NASA Scientist Drew Shindell	Pedro Guzman	10
C172-35P-	feature: ozone hole in 1980 versus 2007	American Museum of Natural History	10
C172-36P-	Clouds	PhotoLink/Getty Images	5
MSS12_BEA KER_250ML- MSS12P	250ML beaker	Hutchings Photography/Digital Light Source	19
MSS12_BEA KER_500ML- MSS12P	MSS12_BEAKER_500ML	Hutchings Photography/Digital Light Source	19
MSS12_BO WL_DISPOS ABLE- MSS12P	red plastic bowl	Hutchings Photography/Digital Light Source	19

MSS12_CAN DLE-MSS12P	Candle	Hutchings Photography/Digital Light Source	19
MSS12_DO WEL_WOOD- MSS12P	wooden dowel	Hutchings Photography/Digital Light Source	19
MSS12_FOO D_COLORIN G-	vegetable dye	Hutchings Photography/Digital Light Source	19
MSS12_GLA SS_DISH_9 X13-MSS12P	9x13 glass dish	Hutchings Photography/Digital Light Source	19
MSS12_GLO BE_INFLATA BLE-MSS12P	Globe Inflatable	Hutchings Photography/Digital Light Source	26
MSS12_ICE- MSS12P	Bag of ice	Hutchings Photography/Digital Light Source	19
MSS12_PAP ER_TOWEL_ ROLL-	A thumbnail photo to show a paper towel roll. The roll should be standing on one end and should be plain white. Silo	Hutchings Photography/Digital Light Source	34
MSS12_RIB BONS- MSS12P	Ribbons of several colors	Hutchings Photography/Digital Light Source	26
MSS12_SOI L_CLAY- MSS12P	Clay soil	Hutchings Photography/Digital Light Source	34
MSS12_SOI L_POTTING- MSS12P	Potting soil	Hutchings Photography/Digital Light Source	34
MSS12_SPO ON_LONG_H ANDLED- MSS12P	Long-handled spoon	Hutchings Photography/Digital Light Source	34
MSS12_STI RRING_ROD- MSS12P	stirring rod	Hutchings Photography/Digital Light Source	19
MSS12_STO PWATCH- MSS12P	Stopwatch	Hutchings Photography/Digital Light Source	34

MSS12_TAP E_TRANSPA RENT- MSS12P	Transparent tape	Hutchings Photography/Digital Light Source	26
MSS12_THE RMOMETER-	close up of an alcohol lab thermometer	Hutchings Photography/Digital Light Source	34
PM_LAMP_D ESK.PSD- XPML08	Lamp Desk	Macmillan/McGraw-Hill	19
PM_MARKER _WATERPRO OF.PSD- XPML08	Marker Waterproof	Macmillan/McGraw-Hill	26
PM_METAL_ ROD.TIF- XPML08	Metal Rod	Macmillan/McGraw-Hill	19
PM_SAND_F INE.PSD- XPML08	Sand Fine	Macmillan/McGraw-Hill	34
PM_SCISSO RS_G36.PSD XPML08	Scissors G36	Macmillan/McGraw-Hill	26
C162-01P-	Chapter Opener: France, Brittany, Finistere, Ile d'Ouessant, Creac'h Point	Frank Krahmer/Getty Images	00-01
C162-02P-	The pilot of the Star II, peers from its porthole at coral.	DAVID DOUBILET/National Geographic Stock	2
C162-03P-	Support vessel by offshore oil rig, North Sea	Arnulf Husmo/Getty Images	7
C162-04P-	Attendant of Japan's Gas Pavilion introduces an experiment of the 'burning ice,' methane hydrate, as a potential future source of energy during a press preview for the 2005 World Exposition in Nagakute, Aichi prefecture, 19 March 2005.	KAZUHIRO NOGI/AFP/Getty Images	7
C162-05P-	Manganese nodules on the seabed at 16,000ft in the Pacific Ocean.	Peter Ryan/Photo Researchers, Inc.	7
C162-09P-	Lesson 2 Opener: Person duckdiving under ocean wave	Brian Biemann	12
C162-100P-	Students performing salt lab	Hutchings Photography/Digital Light Source	3

C162-101P-	Tub of water, students marking the sides	Hutchings Photography/Digital Light Source	13
C162-102P-	fan and tub of water with food coloring	Hutchings Photography/Digital Light Source	21
C162-103P-	(RF) Green Turtle in Net	T. O'Keefe/PhotoLink/Getty Images	29
C162-104P-	Styrene cups, pie plate, blue food coloring	Hutchings Photography/Digital Light Source	25
C162-107P-	(DAL) A plastic dinosaur and fish for playing in the bathtub	The McGraw-Hill Companies, Inc./Jill Braaten, photographer	27
C162-111P-	egg experiment	Hutchings Photography/Digital Light Source	5
C162-112P-	A rare, aerial view of a Blue whale (<i>Balaenoptera musculus</i>) surfacing near whale-watching boat in the fjords, near Husavik, on the north coast of Iceland.	Heimir Harðar/Peter Arnold Inc.	36
C162-113P-	Blue whale blowing near a whale watchers boat USA	Biosphoto/Swann Christopher/Peter Arnold Inc.	36
C162-115P-	Blue Whale (<i>Balaenoptera musculus</i>) aerial view of an 80 foot animal, endangered, Sea of Cortez, Baja California, Mexico	FLIP NICKLIN/MINDEN PICTURES/National Geographic Stock	36
C162-116P-	Blue Whale's Tail Fin	Digital Vision/PunchStock	36
C162-117P-	Blue Whale (<i>Balaenoptera musculus</i>) aerial view of mother and calf swimming near the surface in the Gulf of California, Mexico	PATRICIO ROBLES GIL/MINDEN PICTURES/National Geographic Stock	37
C162-12P-	Lesson 3 Opener: This crystal-clear image of southern Florida (top), Cuba (bottom) and the Bahamas (right) was captured by the Moderate Resolution Imaging Spectroradiometer (MODIS) on the Terra satellite on January 21, 2003. A few scattered fires were detected and are marked with red dots.	Jacques Descloitres, MODIS Rapid Response Team, NASA/GSFC	20
C162-14P-	View from Mount Maxwell, Salt Spring Island, looking down to algae bloom on Burgoyne Bay, British Columbia, Canada	Chris Cheadle/age fotostock	28
C162-16P-	Researcher Charles Moore, shown on an expedition in the Pacific in 2002, holds a water sample from the North Pacific Gyre that contains small pieces of plastic taken from the mass of garbage	Matt Cramer	30

C162-17P-	The Betsiboka is Madagascar's main river, flowing for a total of 525 kilometers (326 miles) from north of Tananarive. The river is navigable for at least 130 kilometers (81 miles) inland and the lower reaches pictured here are noted for their extensive rice fields. While the red sediment being transported provides an attractive and informative example of a river estuary, it is a symptom of an ecological disaster for Madagascar. Humans have felled and cleared the island's natural cover of tropical forest so extensively that soil erosion has been vastly accelerated. Much of the sediment visible in the river represents an irreplaceable natural asset. Brick-red lateritic soils, the result of tropical weathering, are responsible for the strong color of the sediments. Most of the deforestation in Madagascar has taken place over the last 20 years, the same period during which observations from space have been conducted. Recent observations show that very little of the original forest remains.	NASA	30
C162-18P-	Plankton bioluminescence, Bali-Lombok, Indonesia, Asia	LOOK Die Bildagentur der Fotografen GmbH/Alamy	31
C162-19P-	Pyrodinium is a bioluminescent genus of dinoflagellate.	Visuals Unlimited/CORBIS	31
C162-20P-	Dead Fish Floating on Surface	JLP/CORBIS	31
C162-21P-	(RF) Coral reef, uderwater view	Darryl Leniuk/Getty Images	32
C162-22P-	Young woman windsurfing	Peter Sterling/Getty Images	21
C162-23P-	High and low tide in the Bay of Fundy at Alma in New Brunswick Canada Highest tides in world	Bill Brooks/Alamy	16
C162-26P-	(RF) Storm over Indian Ocean	Pixtal/SuperStock	4
C162-27P-	A Bleached Coral Gleams White On A Reef Wall. Fiji.	Timothy G. Laman/National Geographic/Getty Images	32
C162-28P-	Map of Acid Threat Levels 1995-2100	National Geographic Society	33
C162-29P-	(RF) Coral Reef near Tropical Island	Steve Allen/Brand X/CORBIS	33
C162-31P-	feature: Hydrothermal Vent in the Atlantic	Ralph White/CORBIS	11
C162-32P-	feature: Susan Humphris	Susan Humphris	11
C162-33P-	feature: topographic map showing mid-ocean ridges; mark known sites of deep-sea vents:	American Museum of Natural History	11

C162-34P-	Earth as seen from space	Image by Reto Stockli, NASA/Goddard Space Flight Center. Enhancements by Robert Simmon.	3
C162-35P-	Mount Augustine erupts, spewing steam and ash, along Cook Inlet, Alaska.	Steve Kaufman/CORBIS	4
C162-36P-	Calcareous phytoplankton. Coloured scanning electron micrograph (SEM) of Emiliana. huxleyi. This small algal organism (coccolithophore) is surrounded by a skeleton (coccosphere) of calcium carbonate plates (coccoliths). When the organism dies, the plates separate and sink to the ocean floor. Individual plates have been found in vast numbers and can make up the major component of a particular rock, such as the chalk of England. E. huxleyi is found in marine environments world wide.	STEVE GSCHMEISSNER/SCIENCE PHOTO LIBRARY	34
C162-37P-	Marine life in the Gulf of Mexico loggerhead sea turtle	Guillen Photography/UW/USA/Gulf of Mexico/Alamy	8
C162-38P-	Day Octopus swimming by jet propulsion of water from its siphons.	David Fleetham/Getty Images	8
MSS12_MAP_WORLD-MSS12P	World map	Hutchings Photography/Digital Light Source	27
PM_PENCILS_COLORED.PSD-XPML08	Pencils Colored	Macmillan/McGraw-Hill	36
C173-01P-	Chapter Opener: Clayton Hamblin clears almost two feet of new snow from some condominiums May 11, 2005 in Alta, Utah. There is already 178 inches of snow at mid-mountain at Alta and Utah officials are worried that severe flooding will occur when warmer weather hits. Normally the snow starts to melt the first part of April with the majority of it gone by this time of year.	George Frey/Getty Images	52799902
C173-02P-	Lesson 1 Opener: Mistaya river and Rocky mountains in Jasper National Park, Alberta, Canada.	Peter de Clercq/Alamy	B49D7P

C173-03P-	(RF) a brass weather barometer	Jan Tadeusz/Alamy	A9JG9F
C173-04P-	(DAL) Anemometer for monitoring wind speed and direction	matthias engelien/Alamy	A08GX4
C173-05P-	Seascape	WIN-Initiative/Getty Images	80484967
C173-06P-	(DAL) Dirt road on prairie with cumulus sky above, Saskatchewan, Canada	MIMOTITO/Getty Images	dv1253082
C173-07P-	Cirrus clouds in Cape Cod. Chatam. Massachusetts. USA	age fotostock/SuperStock	1566-0136331
C173-08P-	NEW ORLEANS, LA - AUGUST 29: In this handout image provided by the U.S. Coast Guard, water flooded roadways can be seen as the U.S. Coast Guard conducts initial Hurricane Katrina damage assessment overflights August 29, 2005 in New Orleans, Louisiana. Devastation is widespread throughout the city with water approximately 12 feet high in some areas. Hundreds are feared dead and thousands were left homeless in Louisiana, Mississippi, Alabama and Florida by the storm. Looting has been reported in New Orleans, which is mostly empty due to the storm.	Kyle Niemi/U.S. Coast Guard via Getty Images	53564603
C173-09P-	(RF) Cumulus stormcloud over the Amazon River, Peru	Amazon-Images/Alamy	ADM3GP
C173-100P-	Student lab, water from ziploc bag into beaker	Hutchings Photography/Digital Light Source	C173-100P-045copy.jpg
C173-101P-	Ziploc bag lab	Hutchings Photography/Digital Light Source	C173-101P-046442copy.jpg
C173-102P-	Student thinking	Hutchings Photography/Digital Light Source	C173-102P-046457copy.jpg
C173-104P-	Student reading outdoor thermometer	Hutchings Photography/Digital Light Source	C173-104P-001adjcopy.jpg
C173-105P-	Student putting bottle in bowl of ice	Hutchings Photography/Digital Light Source	C173-105P-049467copy.jpg

C173-10P-	Massive thunderstorm in Colorado USA	Roger Coulam/Alamy	B2NJGC
C173-11P-	rainbow and raincloud over lake at evening	mediacolor's/Alamy	AS15D1
C173-12P-	Eric Nguyen observed this large "elephant trunk" tornado on March 28, 2007 as the storm was crossing the Prairie Dog Fork of the Red River in the Texas Panhandle. The tornado is driving red sandy loam into the colorful debris whirl at the base.	Eric Nguyen/CORBIS	42-20015843
C173-13P-	(DAL) Hurricane from Space	StockTrek/Getty Images	44225
C173-14P-	A car dodges fallen tree limbs and power lines on Boyd St., in Watertown, N.Y., Saturday, Jan. 10, 1998, following an ice storm.	AP Photo/Dick Blume, Syracuse Newspapers	9.8E+10
C173-15P-	Lesson 3 Opener: WSR-88D Doppler weather radar shown with dramatic display of golden mammatus clouds after severe thunderstorms occurred in the Norman, Oklahoma area in early April.	Gene Rhoden/Visuals Unlimited	440392
C173-16P-	Visible Satellite Radar	National Oceanic and Atmospheric Administration (NOAA)	ECVS
C173-17P-	Infra-Red Satellite Radar	National Oceanic and Atmospheric Administration (NOAA)	avn-l-1
C173-18P-	Doppler Radar Station Ruskin Florida	Dennis MacDonald/Alamy	A788WW

C173-19P-	feature: New Orleans, LA, August 30, 2005 -- Aerial view of some of the damage related to Hurricane Katrina the day after the hurricane hit August 29, 2005. This is the levee on the east or lower side of the Industrial Canal that has been damaged by the hurricane storm surge and/or the barge which hit the canal flood wall. The view is looking south to the Mississippi River. The Industrial Canal is in the foreground and the North Claiborne Avenue (SR39) bridge is in the right middle distance. The St. Bernard-Orleans Parish line parallels the Canal some 21 blocks distant, this being the boundry between New Orleans and Arabi, Louisiana. The long red structure (left center) is the barge ING 4727. It is located near the intersection of Jourdan Avenue and North Roman Street and occupies the former site of several houses. It has been reported that the barge contributed to the break in the seawall at this location. [1] [2] Note that the water is here seen flowing OUT through the breach, from the city into the canal. Presumably by this time the level in Lake Pontchartrain had become lower than t	Jocelyn Augustino/FEMA	Katrina_NOLA_levee_break_FEMA
C173-20P-	feature: A hurricane warning is in effect for the north-central Gulf Coast from Morgan City, La., to the Alabama-Florida line. Tornado warnings were posted for Louisiana, Mississippi, Alabama and Florida.	NASA/Jeff Schmaltz, MODIS Land Rapid Response Team	126301main_Katrina_082805_516
MSS12_BAROMETER-MSS12P	Barometer	Hutchings Photography/Digital Light Source	MSS12_barometer-047556copy.jpg
MSS12_NEWSPAPER-MSS12P	Newspaper	Hutchings Photography/Digital Light Source	MSS12_newspaper-048923copy.jpg
MSS12_PAPER_GRAPH-MSS12P	Graph paper with pencil.	Aaron Haupt	n/a

MSS12_THE RMOMETER_ OUTDOOR- MSS12P	Outdoor thermometer	Hutchings Photography/Digital Light Source	MSS12_th ermomete r_out door 049831 copy.jpg
C02-17P- 869510	Fig. 2.3: whole earth from space	NASA	4
C262-01P-	Chapter Opener - Piazza San Marco covered with Pigeons (Columba livia) Venice, Italy	Heidi & Hans-Jurgen Koch/Minden Pictures	000-001
C262-02P-	Lesson Opener - A couple of meerkat sentinels looking at their surroundings in the Kalahari Desert in Africa.	Martin Harvey/CORBIS	2
C262-03P-	The Earth's Biosphere. In the last five years, scientists have been able to monitor our changing planet in ways never before possible. The Sea-viewing Wide Field-of- View Sensor (SeaWiFS), aboard the OrbView-2 satellite, has given researchers an unprecedented view of the biological engine that drives life on Earth-the countless forms of plants that cover the land and fill the oceans. "There is no question the Earth is changing. SeaWiFS has enabled us, for the first time, to monitor the biological consequences of that change- to see how the things we do, as well as natural variability, affect the Earth's ability to support life," said Gene Carl Feldman, SeaWiFS project manager at NASA's Goddard Space Flight Center, Greenbelt, Md. SeaWiFS data, based on continuous daily global observations, have helped scientists make a more accurate assessment of the oceans' role in the global carbon cycle.	NASA Goddard Space Flight Center (NASA-GSFC)	3
C262-04P-	Meerkats	Nigel J. Dennis/Gallo Images/CORBIS	4
C262-07P-	Researchers from the Bialowieza Mammal Research Institute place a radio collar on a tranquilized lynx. The Institute tracks the behavior and progress of the Bialowieza Forest's small population of lynx	Raymond Gehman/CORBIS	6

C262-08P-	A lynx returns to the forest after being tagged with a radio collar by researchers from the Bialowieza Mammal Research Institute. The Institute tracks the behavior and progress of the Bialowieza Forest's small population of lynx, estimated to be about 10 animals.	Raymond Gehman/CORBIS	6
C262-09P-	Severe African Elephant (<i>Loxodonta africana</i>), damage to false balsa forest, Mosi Oa Tunya National Park, Zambia	Gerry Ellis/Minden Pictures/Getty Images	7
C262-100P-	student seated at a table highlighting a list of interactions (prop sketch provided). Student should have pen and highlighter on the desk next to paper; student should be highlighting with another color.	Hutchings Photography/Digital Light Source	3
C262-101P-	pair of students standing in a box (1m square) taped on floor in masking tape. Student 1 will be timing student 2 with a stopwatch. Student 2 will be crouching and writing the alphabet on a piece of paper on the floor. Please ensure that the students' feet are entirely inside the masking tape box.	Hutchings Photography/Digital Light Source	5
C262-102P-	student seated at a table with a small group (6-10) of counting objects in front of them. These objects can be anything small and nondescript used to help students count; small plastic bears or other shapes, buttons or paperclips are all options. The student should be holding an event card (blank index card with line side to them) and look as if they are reading it. next to the objects will be a small (3-5) stack of event cards face down.	Hutchings Photography/Digital Light Source	11
C262-103P-	student standing at a table with a clear plastic jar full of folded slips of paper in it. Also visible on a table is a simple sign with the word "Spring" written on it; may be simple construction paper written on with a marker. Student should be in the process of choosing a slip of paper.	Hutchings Photography/Digital Light Source	14
C262-104P-	Sea Otter (<i>Enhydra lutris</i>) mother carrying young (about three weeks old) pup on her stomach while she rests.	Tom & Pat Leeson	19
C262-106P-	Clownfish (<i>Amphiprion ocellaris</i>) and Sea Anemone	Digital Vision / Getty Images	28

C262-107P-	two students in the process of acting out the relationship between a clownfish and an anemone. Student 1 will have a sign around their neck reading "clownfish" (can be construction paper and string). They should be simulating fins with their hands. Student 2 will have a sign around their neck reading "anemone" and should be waving their hands above their heads to simulate the tentacles of the anemone.	Hutchings Photography/Digital Light Source	28
C262-108P-	student seated at a table with a paper in front of them. The paper should have 10 labels with the names of organisms in a community listed on them, cut out, and glued to the paper (tree, insect, frog, bush, plant, fox, rabbit, coyote, raccoon, grass). The student should be in the process of gluing one of the labels down. Next to the student should be lengths of yarn (any color) and a gluestick (preferably no trade name). Student should be wearing an apron and goggles.	Hutchings Photography/Digital Light Source	22
C262-10P-	Lesson Opener - Baby spiders on a rose bud	Dr Jeremy Burgess/Photo Researchers	10
C262-11P-	Brown-crested Flycatcher with spider	TomVezo.com	11
C262-12P-	Escherichia coli Bacteria, commonly known as E. coli, can cause food poisoning when found in above average numbers. SEM X20,000	Dr. David Phillips/Visuals Unlimited/Getty Images	12
C262-13P-	Extinct: Giant Moa. DINORNIS GIGANTEUS	Mary Evans Picture Library/Alamy	13
C262-14P-	Threatened: Sea otter on back	Tom Brakefield/Getty Images	13
C262-15P-	Endangered: Baby Gorilla Kisses Silverback Male	Paul Souders/CORBIS	13
C262-16P-	Deforestation for the agribusiness. Economic development creating ecological unbalance. Isolated Brazil nut tree sentenced to death. Opening of a road where before there was a forest	Ricardo Beliel/BrazilPhotos	15
C262-17P-	Female doctor (hispanic) giving injection to a girl (pacific islander)	Blend Images/Jupiterimages	16
C262-18P-	A view of the damage near Baiturrahman mosque December 27, 2004 after a tsunami hit the Indonesian city of Banda Aceh on Sunday. Soldiers searched for bodies in treetops, families wept over the dead laid on beaches and rescuers scoured coral isles for missing tourists as Asia counted the cost on Monday of a tsunami that killed thousands.	BEAWIHARTA/Reuters/CORBIS	17

C262-19P-	Lesson Opener - Hoopoe (<i>Upupa epops</i>) adult with a lizard in its beak, Europe	Duncan Usher/Minden Pictures	20
C262-20P-	Tree trunk covered with ferns and other epiphytes in rainforest of Tai National Park in Western Ivory Coast, West Africa.	Jacques Jangoux/Photo Researchers	21
C262-22P-	Sand Lizard Catching Locust	Bach/zefa/CORBIS	24
C262-23P-	Leaf-cutting Ants	CORBIS	25
C262-24P-	This tiny Boxer crab or pom pom crab, <i>Lybia tessellata</i> , carries a pair of anemones in its claws, brandishing them like boxing gloves if threatened by a predator . Similan Islands Marine National Park, Thailand, Andaman Sea, Indian Ocean	Mark Strickland/SeaPics.com	25
C262-25P-	Epiphytic Bromeliads growing on a tropical Palm tree trunk.	Carol & Don Spencer/Visual Unlimited/Getty Images	26
C262-26P-	Parasitic Pompilid Wasp and Wheel Spider (<i>Carparachne aureoflava</i>), Namib Desert, Namibia	Michael & Patricia Fogden/Minden Pictures/Getty Images	26
C262-27P-	BOTSWANA, OKAVANGO DELTA, MOREMI RESERVE, ELEPHANT FEEDING ON PUSHED OVER TREE	Wolfgang Kaehler	7
C262-28P-	AMNH feature - Chilean flamingos (<i>Phoenicopterus chilensis</i>) in flight. Salinas de Aguada blanca Reserve. Peruvian altiplano. Peru (Background image - top)	Andoni Canela/Photolibrary	9
C262-29P-	AMNH feature - Dr. Felicity Arengo releasing flamingo	O. Rocha/American Museum of Natural History	9
C262-31P-	AMNH feature - Puna Flamingo (<i>Phoenicopterus jamesi</i>) Laguna Colorada in the Altiplano of Bolivia (background image - bottom)	Pete Oxford/Minden Pictures	9
MSS12_CARDS_SYMBIOSIS-MSS12P	Index cards	Hutchings Photography/Digital Light Source	28
C212-01P-	Chapter Opener: Mountain Goat (<i>Oreamnos americanus</i>) mother and kid in late spring, Rocky Mountains, Glacier National Park, Montana	Sumio Harada/Minden Pictures	000-001
C212-01P--A	Chapter Opener: Mountain Goat (<i>Oreamnos americanus</i>) mother and kid in late spring, Rocky Mountains, Glacier National Park, Montana	Sumio Harada/Minden Pictures	23

C212-02P-	Lesson Opener - Blue Lobster, <i>Homarus americanus</i> , New England Aquarium, Boston, Massachusetts, Atlantic	Holly Weiss/SeaPics.com	2
C212-03P-	Double-yellow headed Amazon (<i>Amazona oratrix</i>) putting a ball into a miniature basketball hoop.	Carolyn A. McKeone, courtesy of Tracey Charleson/Photo Researchers	3
C212-04P-	Female chromosomes. Light micrograph of a normal female karyotype, the full complement of female chromosomes arranged in numbered homologous pairs. They are numbered 1-23 from top left to bottom right, the last pair being the sex chromosomes. They are obtained by matching unpaired chromosomes during the metaphase stage of cell division. Each member of a homologous pair is similar in length & banding pattern. Male & female sets differ only in the sex chromosome: a male is labelled XY, a female XX. Each human cell contains 46 chromosomes in total, 23 of maternal & 23 of paternal origin. Magnification: x2000 at 6x7cm size.	L. Willatt/Photo Researchers	4
C212-05P-	Queen honey bee (<i>Apis mellifera</i>) and attendants, close up	Steve Hopkin/Getty Images	6
C212-06P-	A pair of flamingos and a flock of chicks in a rookery. Cuba.	Steve Winter/National Geographic/Getty Images	6
C212-07P-	Boy from Peul Tribe, running through multitude of flying locusts (<i>S. gregaria</i>) to try and scare them away. Near Kaolac. Senegal. Africa	BIOS Beignet Alain/Peter Arnold, Inc.	7
C212-08P-	DESERT LOCUST 5th instars <i>Schistocerca gregaria</i> gregarious (on left) & solitary	Stephen Dalton/NHPA/Photoshot	7
C212-09P-	King Penguins, (<i>Aptenodytes patagonicus</i>). Melanistic King Penguin and normal King Penguins, Fortuna Bay, South Georgia	Doug Cheeseman/Peter Arnold, Inc.	8
C212-100P-	two students & one rolling two six-sided dice (each a different color) on a table. The second student should be holding a notebook and pencil, ready to record the results. (The lab basically consists of students throwing a pair of dice ten times and recording the results each time)	Hutchings Photography/Digital Light Source	3
C212-101P-	Red Fox Chasing mouse in the snow	Tom Brakefield/Bruce Coleman, Inc./Photoshot	15

C212-102P-	photo of two students, one student should have his or her hand reached into a small brown paper bag (like a paper lunch bag) that is labeled "Rabbit Gene Pool" in black marker. Student's hand should be in the bag as if they were grabbing the beans at the bottom and about to pull them out. In front of the bag, have four red beans (dried beans) and two white beans (dried beans) on the table. The second student should have his or her Science Journal and a pencil and be ready to record the outcome.	Hutchings Photography/Digital Light Source	19
C212-11P-	An albino wallaby born in captivity is seen with another wallaby in their enclosure at a private zoo in the district of Paphos	STR/Reuters/CORBIS	9
C212-12P-	Lesson Opener - Eyelash Viper (<i>Bothriechis schlegelii</i>) gold morph camouflaged among palm fruits, rainforest, Costa Rica	Michael & Patricia Fogden/Minden Pictures	11
C212-15P-	Frizzle Chicken	Robert Dowling/CORBIS	14
C212-16P-	Damselfly, 3X life size	John Kimbler/Tom Stack & Associates	14
C212-17P-	Western Hognose Snake Feigning Death	Michael & Patricia Fogden/CORBIS	14
C212-18P-	Mozambique Spitting Cobra	Digital Vision/Getty Images	14
C212-19P-	Reef stonefish, (<i>Synanceia verrucosa</i>) Indian Ocean.	Reinhard Dirscherl/Visuals Unlimited	15
C212-20P-	Pileated Woodpecker <i>Dryocopus pileatus</i> feeding from a crevice in a tree trunk showing its bill and long tongue	Joe McDonald/Visuals Unlimited/Alamy	16
C212-21P-	Blue-and-gold macaw (<i>Ara ararauna</i>) eating a palm fruit in Tambopata Candamo National Reserve, Peru.	Frans Lanting/CORBIS	16
C212-22P-	California Condor (<i>Gymnogyps californianus</i>) portrait, native to North America	ZSSD/Minden Pictures	16
C212-24P-	Malaysian Orchid Mantis (<i>Hymenopus coronatus</i>) female mimicking a pink flower, Malaysia	THOMAS MARENT/MINDEN PICTURES/National Geographic Stock	17
C212-25P-	Nymph Leaf Butterfly or Indian Dead Leaf Butterfly (<i>Kallima paralekta</i>), perched on a leaf with its wings up, showing the underside. <i>Kallima paralekta</i> is native to Indonesia and Malaysia.	Creatas Images/PictureQuest	22

C212-26P-	Antarctic fur seal (<i>Arctocephalus gazella</i>) pup playing in the surf at Fortuna Bay on the island of South Georgia, southern Atlantic Ocean. Pictured here is a rare blonde, or leucistic (lack of melanin), pup as compared to the normally dark coloured pup.	Splashdown Direct/Photolibrary	23
C212-28P-	Three Masai giraffe (<i>giraffa camelopardalis tippelskirchi</i>)	Anup Shah/Getty Images	12
C212-50P-	Science & Society - flushing toilet	Abrams/Lacagnina/Getty Images	10
C212-52P-	Science & Society - fathead minnow (<i>Pimephales promelas</i>), golden form	blickwinkel/Alamy	10
MSS12_BEANS_VARIETY-MSS12P	MSS12_BEANS_VARIETY	The McGraw-Hill Companies	18
PM_BAG_PAPER.PSD-XPML08-A	Bag Paper	Macmillan/McGraw-Hill	18