

# photographs

▶ **INSERT** *the M&E / Energy Combo DVD*

▼ **SELECT** *Visuals a la Carte*

▼ **SELECT** *Photographs*

<b>VISUAL</b>	<b>GO TO SCREEN</b>
Amber attracting bits of paper; electricity labeled	1
Ammeter	1
Aurora Borealis	1
Bar magnet	1
Bar magnet in conductor test	1
Bar magnet; field lines with iron filings	1
Bar magnet; magnet labeled	1
Bar magnet; magnetic field, force lines labeled	1
Bar magnet; North and South poles labeled	1
Benjamin Franklin in 1767	1
Briny sea sponge in conductor test	2
Calm day	2
Calm day; neutral matter indicated	2
Car battery	2
Casa Diablo Geothermal Area; CA	2
Closed switch in a series circuit	2
Compass dial, close-up	2
Complete circuit; battery, wires, alligator clips, bulb	2
Completed circuit; electrical energy labeled	2
D cell connected to circuit	2
D cell with 1.5 volts labeled	3
Dried sea sponge	3
Dried sea sponge in conductor test	3
Dry cell	3
Dry cell's negative terminal; minus symbol	3
Dry cell's positive terminal; plus symbol	3
DVD	3
DVD in conductor test	3
Electrical tape	3

<b>VISUAL</b>	<b>GO TO SCREEN</b>
Electrical tape in conductor test	3
Electrical tape in conductor test; insulator labeled	4
Fish ladder – 1	4
Fish ladder – 2	4
Fish ladder – 3	4
Gas turbine	4
Gas turbine power plant	4
Geyser	4
Geyser; thermal energy labeled	4
Glass bowl	4
Glass bowl in conductor test	4
H <sub>2</sub> O molecules; chemical energy labeled	5
Hair standing on end	5
Hair standing on end; static electricity labeled	5
Hans Christian Ørsted portrait	5
Heliostat array; Solar Two pilot solar thermal project	5
Heliostat array; Solar Two; satellite view	5
Heliostat array; unusual atmospheric phenomenon	5
Hoover Dam; aerial view	5
Hoover Dam; intake towers	5
Hoover Dam; power plant and lines	5
Hoover Dam; satellite view	6
Horseshoe magnet	6
Horseshoe magnet; field lines with iron filings	6
Humphry Davy portrait	6
Incomplete circuit; battery, disconnected wire, bulb	6
Incomplete circuit; battery, wires, alligator clips, bulb	6
Incomplete circuit; incomplete, open circuit labeled	6
Indian Point Nuclear Power Plant; NY	6
Kramer Junction Solar Electric Generating Station	6
Kramer Junction SEG; satellite view	6
Lemon	7
Lemon pulp in conductor test	7
Lewis Latimer portrait	7
Light bulb and filament; close-up	7
Light bulb filament; glowing; close-up	7

<b>VISUAL</b>	<b>GO TO SCREEN</b>
Light bulb filament; glowing; extreme close-up	7
Light bulb in socket; lit; close-up	7
Light bulb with filament	7
Light bulb; filament labeled	7
Lightning	7
Lightning bolts; lightning labeled	8
Lightning; radiant energy, electrical energy labeled	8
Magnetic field lines; bar magnet	8
Magnetic field lines; horseshoe shaped magnet	8
Metal spoon with plastic handle	8
Metal spoon with plastic handle in conductor test	8
Michael Faraday portrait	8
Molten glass being poured	8
Nuclear power plant; cooling towers	8
Parabolic trough	8
Parallel circuit; charge flow direction	9
Parallel circuit; independent branch labeled	9
Parallel circuit; two bulbs; parallel circuit labeled	9
Photovoltaic cells being installed on roof	9
Photovoltaic cells on roof	9
Portrait of Hans Christian Ørsted	9
Portrait of Michael Faraday	9
Propane gas tank	9
Propane gas tank; chemical energy labeled	9
Ring magnet	9
Ring magnet; field lines with iron filings	10
Rubber band	10
Rubber band in conductor test	10
Salt; sodium chloride labeled	10
Sea sponge full of salt water	10
Series circuit; charge flow direction	10
Series circuit; two bulbs; series circuit labeled	10
Silver spoon	10
Silver spoon in conductor test; conductor defined	10
Simple circuit with battery, wire, light bulb lit	10
Simple circuit; circuit labeled	11

<b>VISUAL</b>	<b>GO TO SCREEN</b>
Simple circuit; complete, closed circuits labeled	11
Simple electromagnet	11
Skateboard wheels; mechanical energy labeled	11
Solar calculator bathed in sunlight	11
Solar dish – 1; traditional design	11
Solar dish – 2; modern design	11
Solar panels on roof	11
Solar-powered car	11
Solar-powered car crosses finish line	11
Spoon in conductor test	12
Square magnet	12
Square magnet; field lines with iron filings	12
Striking a match; radiant energy labeled	12
Sun	12
Sun; radiant energy labeled	12
Thomas Edison portrait	12
Three Mile Island Nuclear Power Plant; PA	12
Thunderhead and ground; + / – charges indicated	12
Two bar magnets separated; field lines; attracting	12
Two bar magnets separated; field lines; repelling	13
Two bar magnets separated; N and N poles repel	13
Two bar magnets separated; opposite poles attract	13
Voltmeter	13
Whistle being blown; sound energy labeled	13
Wind farm – 1	13
Wind farm – 2	13
Wind mill; mechanical energy labeled	13
Wire	13
Wooden golf tee	13
Wooden golf tee in conductor test	14
Wooden ruler in conductor test	14
Wooden ruler with metal edge	14
Wooden ruler; alligator clips attached to metal strip	14
World’s largest biomass plant; Alholmens Kraft	14

# illustrations/ diagrams

► **INSERT** *the M&E / Energy Combo DVD*

▼ **SELECT** *Visuals a la Carte*

▼ **SELECT** *Illustrations/Diagrams*

<b>VISUAL</b>	<b>GO TO SCREEN</b>
+ and – charges separated; voltage labeled	1
Bar magnet cut into pieces; each with N and S	1
Basic “electricity pump” or half-cell	1
Binary-Cycle and dry steam power plants	1
Biomass conversion cycle	1
Bowl of water holding a lump of zinc	1
Coal-fired power plant	1
Coal-fueled power plant; energy transformation	1
Conductor... or No conductor	1
Conductor... or No Conductor; results	1
Creating a charge imbalance; 1 of 11 in series	2
Creating a charge imbalance; 2 of 11 in series	2
Creating a charge imbalance; 3 of 11 in series	2
Creating a charge imbalance; 4 of 11 in series	2
Creating a charge imbalance; 5 of 11 in series	2
Creating a charge imbalance; 6 of 11 in series	2
Creating a charge imbalance; 7 of 11 in series	2
Creating a charge imbalance; 8 of 11 in series	2
Creating a charge imbalance; 9 of 11 in series	2
D cell with electric field lines	2
Dry cell symbol	3
Electric field; electric field labeled	3
Electric field; lines visible; 11 of 11 in series	3
Electric field; voltage labeled	3
Electrolyte; $NA^+$ and $CL^-$ ions labeled	3
Galvanic series	3
$H_2O$ molecules	3

<b>VISUAL</b>	<b>GO TO SCREEN</b>
Magnetic Domains	3
Magnetic field surrounding Earth	3
Micro-thin layer; metal, water; voltage produced	3
Negative, positive charges; attracting, repelling	4
Nitrogen atom model; electric charges indicated	4
Nitrogen atom model; seven electrons showing	4
Non-magnet, weak magnet, strong magnet labeled	4
Nuclear power plant	4
Nuclear power vs. fossil fuel-fired power	4
Parabolic trough	4
Resistor symbol	4
Separated charges; 10 of 11 in series	4
Series circuit	4
Simplified wet cell c/s; electrolyte labeled	5
Simplified wet cell c/s; salt water labeled	5
Simplified wind turbine	5
Solar dish	5
Solar farm	5
Solar tower	5
Switch symbol	5
The Law of Conservation of Energy	5
Two half-cells “fighting” each other	5
What type of energy is it?	5

# video bites

► **INSERT** *the M&E / Energy Combo DVD*

▼ **SELECT** *Visuals a la Carte*

▼ **SELECT** *Video Bites*

<b>VISUAL</b>	<b>GO TO SCREEN</b>
Batteries being put into a calculator	1
Batteries being put into an electronic game	1
Bay of Fundy tides; time-lapse	1
Charged balloon attracting arm hairs	1
Coal-fueled power plant tour	1
Compass reaction when placed beside “live” wire	1
Compass wound with electrified wire	1
Completing a circuit using dry cell; close-up	1
Construction and video tour of Hoover Dam	1
Electricity in action; montage	1
Hose spraying water; thumb creates resistance	2
Light bulb manufacturing in Edison’s factory	2
Lighting a fluorescent tube using static charge	2
Lightning and thunder	2
Lightning and thunderclap	2
Magnetic field lines; 3-D demonstration	2
Magnetic field lines; nearby “live” wire disturbs	2
Open switch closes in a series circuit	2
Parallel circuit; battery, two bulbs; one removed	2
Pith ball attracted to charged glass rod – Part 1	2
Pith ball attracted to charged glass rod – Part 2	3
Pith ball repels other pith ball	3
Rubbing a balloon and “sticking” it to the wall	3
Rubbing amber	3
Rubbing hair with a balloon	3
Salmon swimming up fish ladder	3
Series circuit; battery, two bulbs; one bulb removed	3
Series circuit; battery, two bulbs; one removed	3

VISUAL	GO TO SCREEN
Simple electromagnet picking up paper clips	3
Simple generator producing electricity	3
Skateboard wheels moving; close-up	4
Small electric motor driving a propeller; close-up	4
Striking a match; close-up	4
Two balloons repelling each other	4
Whistle being blown	4
Wind farm in action	4
Wind mill	4

# animations

▶ **INSERT *the M&E / Energy Combo DVD***

▼ **SELECT *Visuals a la Carte***

▼ **SELECT *Animations***

VISUAL	GO TO SCREEN
Alternating current; charge flow direction	1
Electron movement making filament glow	1
How a tidal power plant works	1
Hydroelectric power plant	1
Inner workings of a photovoltaic cell	1
Resistance	1
Simple battery pumps charges through circuit	1
Water dissolving a metal	2
Water dissolving a metal; electrons left behind	2