Issues and Science, Third Edition - Materials Not in Kit List

Qty	Description	Unit
	Ability to heat water to 60-70 degrees C (hot plate, microwave)	Chemistry of Materials
	Ability to project online video	Reproduction
	Access to a thin stream of water	Fields and Interactions
	Access to a variety of insulating materials	Energy
	Access to sinks with hot running water and soap	Biomedical Engineering
	Access to wall clock or other clock that displays seconds	Body Systems
	Active dry yeast (one 1-oz packet per class period)	From Cells to Organisms
	Aged tap water (or bottled spring water) or pond water	From Cells to Organisms
1	Alcohol, 60 mL bottle (ethanol or methanol) (optional)	Earth's Resources
	Apples or green peppers (optional)	From Cells to Organisms
	Aquatic leaf litter (such as oak leaves in spring water)	Ecology
1	Balance or scale	Energy
8	Balance, electronic, sensitive to 0.01 g preferred	Chemical Reactions
1-8	Balance(s) sensitive to 0.1 gram differences	Biomedical Engineering
	Balances (optional)	Body Systems
9	Balances, electronic	Chemistry of Materials
8	Batteries, 9-volt	Energy
9	Batteries, 9-volt alkaline	Chemical Reactions
32	Batteries, D cell	Fields and Interactions
1	Beaker, 1 L or larger	Chemical Reactions
1	Beaker, 250 mL, labeled "Liquid Waste"	Earth's Resources
1	Beaker, 50 mL	Chemical Reactions
	Beakers (optional but ideal)	Energy
4	Beakers, 1 L	Weather and Climate
	Bleach	Biomedical Engineering
80	Blue-colored ice cubes	Weather and Climate
1	Book, large	Fields and Interactions
1	Book, small	Fields and Interactions
8	Books or heavy objects (optional)	Force and Motion
	Borax (optional - small amount)	Earth's Resources
1	Bottle of carbonated water (optional)	Body Systems
1	Bottle, 2 L	Weather and Climate
1	Bottle, capped, 0.5 or 1 L, labeled "Used Copper Chloride"	Chemical Reactions
1	Box of dry O-shaped cereal for "Wild Loops"	Evolution
	Brown paper towels	Body Systems
	Bucket labels for sand and clay	Geological Processes
1	Bucket to collect liquid waste	From Cells to Organisms
2-4	Buckets, large (or plastic tubs)	Geological Processes
32	Calculator	Biomedical Engineering
16	Calculator	Body Systems
8	Calculators	Force and Motion
16	Calculators	Weather and Climate

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Qty	Description	Unit
1	Can, aluminum	Chemistry of Materials
1	Candle, small	Chemical Reactions
8	Cans, aluminum beverage, empty	Fields and Interactions
40	Cardboard or heavy paper (optional)	Ecology
16	Cardboard tubes	Waves
1	Cardstock (optional)	Waves
	Celery stalks	From Cells to Organisms
40	Chart paper	Force and Motion
	Chart paper	Land, Water, and Human Interaction
	Chart paper	Reproduction
	Chart paper (optional)	Biomedical Engineering
32	Chemical splash goggles	Body Systems
32	Chemical splash goggles	Chemical Reactions
32	Chemical splash goggles	Earth's Resources
32	Chemical splash goggles	From Cells to Organisms
32	Chemical splash goggles	Geological Processes
32	Chemical splash goggles	Land, Water, and Human Interaction
32	Chemical splash safety goggle	Chemistry of Materials
80	Chicken wings (raw)	Biomedical Engineering
1	Circuit board (optional)	Chemical Reactions
	Clay, dental floss, paper, food items, computer software, or other materials	From Cells to Organisms
32	Clipboard (optional)	Biomedical Engineering
1	Colandar or sieve (w/ hole size that will let rice through but not beans)	From Cells to Organisms
	Colored film, various colors (optional)	Reproduction
	Colored pencils	Biomedical Engineering
8	Colored pencils (optional)	Energy
16	Colored pencils, set (optional)	Waves
32	Compasses for drawing circles	Solar System and Beyond
32	Compasses, drawing (optional)	Geological Processes
	Computer w/ Internet to show video segment	Evolution
8	Computers w/ Internet or downloaded video segments	From Cells to Organisms
8	Computers with Access to the internet	Weather and Climate
16	Computers with internet access	Chemistry of Materials
	Computers with Internet access	Ecology
16	Computers with internet access	Evolution
16	Computers with Internet access	Fields and Interactions
16	Computers with internet access	Geological Processes
16	Computers with internet access	Solar System and Beyond
	Container (large enough to immerse eggs in vinegar)	From Cells to Organisms
	Container, 1 qt	Body Systems
	Container, 2 qt	Body Systems
1	Container, glass or plastic	Chemical Reactions

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Qty	Description	Unit
8	Containers of water (1.5 L per group)	Land, Water, and Human Interaction
2	Containers or tubs, large (optional)	Land, Water, and Human Interaction
	Cooler for transporting ice	Energy
1	Copper (II) chloride, 60 mL bottle (optional)	Earth's Resources
1	Corn syrup, bottle	From Cells to Organisms
	Crayons	Biomedical Engineering
1	Crucible (optional)	Earth's Resources
8	Dark cloth or paper	Waves
	Dirt/soil from local source	Land, Water, and Human Interaction
	Dish soap	Chemistry of Materials
1	Dishpan (optional)	Chemical Reactions
16	Dissecting trays	Biomedical Engineering
16	Dissection scissors, pointed	Biomedical Engineering
	Distilled or tap water	Land, Water, and Human Interaction
	Distilled water	From Cells to Organisms
1	Drink bottle, glass	Chemistry of Materials
1	Drink bottle, plastic	Chemistry of Materials
64	Envelopes	Evolution
	Fish food	Body Systems
1	Flashlight	Waves
1	Food coloring, blue	From Cells to Organisms
32	Forceps	Biomedical Engineering
	Gallon container	Waves
5	Garbage bag, plastic (that can be tied shut or closed with a twist-tie)	Biomedical Engineering
1	Globe (optional)	Geological Processes
	Gloves (optional)	Biomedical Engineering
8	Glue bottles (optional)	Ecology
8	Glue sticks or bottles	Weather and Climate
1	Graduated cylinder (large enough in volume to hold irregularly shaped object)	Chemistry of Materials
160	Graph paper	Energy
	Graph paper	From Cells to Organisms
	Graph paper	Land, Water, and Human Interaction
	Graph paper	Waves
320	Graph paper sheets	Evolution
480	Graph paper sheets	Force and Motion
160	Graph paper sheets	Geological Processes
160	Graph paper sheets	Solar System and Beyond
160	Graph paper, sheets	Fields and Interactions
32	Gummy candy life preservers	Biomedical Engineering
32	Gummy candy worm	Biomedical Engineering
16	Hand lens (optional)	Biomedical Engineering

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Qty	Description	Unit
	Heat source (optional)	Earth's Resources
1	Heat-lamp (optional)	Weather and Climate
	Hot plates (optional but ideal)	Energy
	Hot water	Chemistry of Materials
4	Hotplates	Weather and Climate
8	Hygrometer or sling psychrometer (optional)	Ecology
	Ice cubes (2 per group of 4)	Energy
	Ice water	Chemistry of Materials
160	Index cards	Biomedical Engineering
	Index cards, large (optional)	Earth's Resources
1	Irregularly shaped object that sinks, small	Chemistry of Materials
32	Lab aprons	Earth's Resources
32	Lab aprons	From Cells to Organisms
2	Large basins or buckets	Weather and Climate
2	Large electric fans	Weather and Climate
2	Large lace-up shoes, pair	Biomedical Engineering
1	Large sheet of chart paper to record class data (or board)	Weather and Climate
40	Large sheet of paper (optional)	Force and Motion
1	Large sponge	Body Systems
	Large stir spoon	Body Systems
10	Latex gloves, disposable (or non-latex)	Chemical Reactions
	Lens paper	From Cells to Organisms
1	Light bulb in a stand or lamp without a shade	Solar System and Beyond
	Light source (e.g., lamps or windows that receive good natural light)	From Cells to Organisms
	Local water quality report (optional)	Land, Water, and Human Interaction
32	Local weather maps (optional)	Weather and Climate
4	Long-haired dolls	Biomedical Engineering
	Maps and/or globes	Ecology
8	Marker or colored pencil sets	Ecology
8	Marker sets (optional)	Land, Water, and Human Interaction
	Marker, green	Reproduction
	Marker, red	Reproduction
8	Markers	Energy
8	Markers	Force and Motion
8	Markers	Solar System and Beyond
8	Markers, black	Reproduction
8	Markers, blue	Reproduction
8	Markers, orange	Reproduction
8	Markers, sets of 4 different colors	Body Systems
	Masking tape	From Cells to Organisms
	Masking tape	Reproduction
	Masking tape	Waves
8	Masking tape rolls	Fields and Interactions
1	Match or striker	Chemical Reactions

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Qty	Description	Unit
	Matches (or lighter) (optional)	Earth's Resources
1	Measuring cup	From Cells to Organisms
1	Measuring tape	Force and Motion
8	Meter stick (optional)	Waves
8	Meter sticks	Fields and Interactions
8	Meter sticks	Force and Motion
8	Meter sticks	Solar System and Beyond
8	Meter sticks (optional)	Geological Processes
1	Microscope video camera (optional)	From Cells to Organisms
	Microscopes	Body Systems
16	Microscopes	Ecology
16	Microscopes	From Cells to Organisms
	Milk, fresh or powdered	Waves
1	Milk, small carton (optional)	Ecology
	Miscellaneous prepared slides (e.g., cat hair, bee stinger, the typed letter e, thread) (optional)	From Cells to Organisms
16	Moon's surface printed images, 2 per group (optional)	Fields and Interactions
	Mops	Biomedical Engineering
	Natural resource samples (additional), such as minerals or energy	Earth's Resources
16	Nickles	Fields and Interactions
1	Onion	From Cells to Organisms
1	Orange and blue transparency pens (optional)	Reproduction
1	Overhead projector or document camera (optional)	Reproduction
32	Pairs of gloves	From Cells to Organisms
16	Pairs of scissors	Force and Motion
64	Paper clips	Evolution
	Paper clips	Fields and Interactions
16	Paper clips or envelopes	Force and Motion
	Paper towels	Biomedical Engineering
	Paper towels	Chemical Reactions
	Paper towels	Chemistry of Materials
	Paper towels	Earth's Resources
	Paper towels	Ecology
	Paper towels	From Cells to Organisms
	Paper towels	Geological Processes
	Paper towels	Waves
	Paper towels or newspaper	Land, Water, and Human Interaction
	Paper towels or rags	Energy
8	Paper, cloths, or rugs in green or beige (if doing activity inside)	Evolution
	Paper, large sheets	Ecology
40	Paper, large sheets (optional)	Land, Water, and Human Interaction
320	Paper, sheets	Fields and Interactions
80	Paper, sheets (5.4 cm x 7 cm; 1/8th letter size)	Fields and Interactions

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Qty	Description	Unit
80	Paper, white	Chemical Reactions
160	Paper, white sheets	Force and Motion
	Paper, white sheets	From Cells to Organisms
1	Paring knife (optional)	From Cells to Organisms
32	Pennies	Reproduction
8	Pennies, roll of 50	Biomedical Engineering
32	Pens or pencils	Solar System and Beyond
	Permanent ink marker	Body Systems
8	Permanent makers or pens	From Cells to Organisms
8	Permanent-ink marker	Reproduction
8	Petri dishes (optional)	Fields and Interactions
8	pH meter (optional)	Ecology
	Pictures illustrating water in different stages of the water cycle (optional)	Land, Water, and Human Interaction
8	Plastic bags, resealable	Fields and Interactions
8	Plastic bin, large (for holding water)	Biomedical Engineering
	Plastic containers	Reproduction
1	Plastic piece	Chemical Reactions
	Plastic shoe bin (or similar for blackworms)	Body Systems
1	Pliers (optional)	Biomedical Engineering
20	Ponytail holders	Biomedical Engineering
1-2	Potted plants	From Cells to Organisms
160	Printer paper, 8.5" x 11"	Biomedical Engineering
16	Protractors	Solar System and Beyond
1	Push pins, package (optional)	Force and Motion
1	Rectangular object (large book, shoe box, etc.)	Chemistry of Materials
	Refrigerator for storing chicken wings	Biomedical Engineering
	Resealable plastic bags (optional)	Chemistry of Materials
	Resources: books, magazines, videos, internet access, etc.	Ecology
50	Ribbon or string (optional), in meters	Ecology
8	Ring stand base and rod (optional)	Force and Motion
32	Rulers, metric	Biomedical Engineering
	Safety goggles	Waves
	Salt water, 3.5% solution	Land, Water, and Human Interaction
	Sand or ground chalk (optional)	Waves
1	Scale	Weather and Climate
24	Scissors	Biomedical Engineering
8	Scissors	Earth's Resources
32	Scissors	Evolution
1	Scissors	Fields and Interactions
8	Scissors	From Cells to Organisms
8	Scissors	Reproduction
16	Scissors	Solar System and Beyond
8	Scissors	Weather and Climate
	Selection of musical instruments	Waves
	Sheets of chart paper or butcher paper	Body Systems

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Qty	Description	Unit
8	Sheets of construction paper	Biomedical Engineering
32	Sheets of graph paper	Weather and Climate
8	Small boxes	Biomedical Engineering
	Small drum (optional)	Body Systems
16	Smartphones (optional)	Fields and Interactions
8	Smartphones (optional)	Force and Motion
1	Sound generator or music player (optional)	Waves
1	Speaker (optional)	Waves
8 sets	Spherical objects of varying sizes, sets of 9-10	Solar System and Beyond
	Spinach leaf or similar plant leaf, fresh	From Cells to Organisms
8	Sponges	Biomedical Engineering
	Spring water	Ecology
	Spring water (or treated tap water)	Body Systems
8	Staplers	Weather and Climate
	Sticky notes (optional)	Earth's Resources
320	Sticky notes, 3 x 3, (160 each of 2 colors)	Force and Motion
8	Stopwatch or access to a clock with a second hand	Biomedical Engineering
2	String or Ribbon, roll	Biomedical Engineering
2	String, long pieces (optional)	Body Systems
480	Strips of paper, approximately 2" x 11"	Biomedical Engineering
	Sugar	Body Systems
	Sunlight (or 8 light sources, such as a 40W lamp, grow lamp, or flashlight)	Weather and Climate
	Supplies for creating presentations/visual displays	Evolution
4	Sweaters and/or button-up shirts	Biomedical Engineering
1	Tablet, computer, or similar device to connect to the motion sensor	Force and Motion
	Tap water	Earth's Resources
8	Tape	Energy
1	Tape roll (optional)	Force and Motion
16	Tape rolls (or glue sticks)	Force and Motion
8	Tape rolls, transparent	Evolution
8	Tape rolls, transparent	Solar System and Beyond
8	Tape rolls, transparent (optional)	Ecology
	Tape, masking	Chemical Reactions
	Tape, transparent	Body Systems
	Tempera paint (any color, i.e., not white)	From Cells to Organisms
24	Textbooks	Geological Processes
1	Tongs (optional)	Earth's Resources
1	Toothpicks, box (optional)	Ecology
8	Towel	Biomedical Engineering
4	Transparent tape	Biomedical Engineering
	Transparent tape (optional)	From Cells to Organisms
8	Tray	Chemical Reactions
8	Tray or shoebox (optional)	Energy
16	Trays, plastic (optional)	Geological Processes
1+	Turkey baster or large syringe (optional)	Land, Water, and Human Interaction

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Qty	Description	Unit
1	Ultraviolet light (optional)	Earth's Resources
1	US map, large (digital or paper) (optional)	Solar System and Beyond
8	Video recorders (optional) - could use a cell phone if permitted	Fields and Interactions
1	Vinegar, white, bottle	From Cells to Organisms
	Warm soapy water	Chemistry of Materials
	Warm water	From Cells to Organisms
1	Waste container labeled, “Copper Waste”	Chemical Reactions
4	Waste containers	Chemical Reactions
2	Watch glasses (optional)	Earth's Resources
	Water	Chemical Reactions
	Water	Chemistry of Materials
	Water	Ecology
	Water	Energy
	Water	From Cells to Organisms
	Water	Geological Processes
	Water	Reproduction
	Water	Waves
	Water	Weather and Climate
	Water (may require distilled)	Body Systems
	Water supply	Land, Water, and Human Interaction
	Water treatment product, only if tap water is treated with chloramine	Ecology
	Water, cold	Energy
	Water, cold	Geological Processes
	Water, hot	Energy
5	Water, sparkling, unopened bottles (optional)	Geological Processes
	Water, warm	Geological Processes
	White paper	Waves
40	White paper sheets	Solar System and Beyond
	White surface or wall	Waves
	Window space for petri dishes	Reproduction
2	Wrapping paper	Biomedical Engineering