

**LaB-aids**<sup>®</sup>  
Proven Science Programs

# Issues and Science

Third Edition | Materials Not Provided

**LaB-aids**<sup>®</sup>  
Proven Science Programs

  
**SEPUP**<sup>®</sup>  
*Issue-Oriented Science*



THE LAWRENCE  
HALL OF SCIENCE  
UNIVERSITY OF CALIFORNIA, BERKELEY

**MATERIALS NOT PROVIDED IN KIT****WEATHER AND CLIMATE**

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Quantity	Description	Activity #
4	1 L beakers	8
1	2 L bottle	11
80	Blue-colored ice cubes	8
16	Calculators	5, 7, 17
8	Computers with access to the internet	2, 11, 16
8	Glue sticks or bottles	12
1	Heat-lamp (optional)	10
4	Hot plates	8
2	Large basins or buckets	6
2	Large electric fans	12
1	Large sheet of chart paper to record class data (or board)	12
32	Local weather maps (optional)	13
1	Scale	11
8	Scissors	12
32	Sheets of graph paper	2, 6
8	Staplers	12
	Sunlight (or 8 light sources, such as a 40W lamp, grow lamp, or flashlight)	6
	Water	6, 8

**SOLUTIONS PREPARATION****WEATHER AND CLIMATE**

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There is no special material or solution preparation for this unit.

**MATERIALS NOT PROVIDED IN KIT****WAVES**


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Quantity	Description	Activity #
16	Cardboard tubes	8
1	Cardstock (optional)	2
16	Colored pencils, set (optional)	10
8	Dark cloth or paper	13
1	Flashlight	10
	Gallon container	9
	Graph paper	4, 7
	Masking tape	9, 11
8	Meter stick (optional)	7
	Milk, fresh or powdered	9
	Paper towels	14
	Safety goggles	2, 7
	Sand or ground chalk (optional)	2
	Selection of musical instruments	2
1	Sound generator or music player (optional)	2
1	Speaker (optional)	2
	Water	9
	White paper	8, 9
	White surface or wall	10

**SOLUTION PREPARATION****WAVES**


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There is no special material or solution preparation for this unit.

**MATERIALS NOT PROVIDED IN KIT****SOLAR SYSTEM AND BEYOND**

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<b>Quantity</b>	<b>Description</b>	<b>Activity #</b>
32	Compasses for drawing circles	12
16	Computers with internet access	4, 7, 16
160	Graph paper sheets	14
1	Light bulb in a stand or lamp without a shade	7
8	Markers	5
8	Meter sticks	12
32	Pens or pencils	6
16	Protractors	6
16	Scissors	6
8 sets	Spherical objects of varying sizes, sets of 9-10	12
8	Tape rolls, transparent	6
1	US map, large (digital or paper) (optional)	6
40	White paper sheets	5

**MATERIALS AND SOLUTION PREPARATION****SOLAR SYSTEM AND BEYOND**

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There is no special material or solution preparation for this unit.

**MATERIALS NOT PROVIDED IN KIT****REPRODUCTION**

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Quantity	Description	Activity #
	Ability to project online video	1, 14
	Chart paper	1, 2, 3, 6
	Colored film, various colors (optional)	7
	Marker, green	1, 9
	Marker, red	1, 9
8	Markers, black	1, 2
8	Markers, blue	1, 2, 3
8	Markers, orange	1, 2, 3
	Masking tape	7
1	Orange and blue transparency pens (optional)	2
1	Overhead projector or document camera (optional)	2, 4, 6
32	Pennies	4, 9
8	Permanent-ink marker	7
	Plastic containers	9
8	Scissors	7, 12
	Water	7
	Window space for petri dishes	7

**MATERIALS AND SOLUTION PREPARATION****REPRODUCTION**

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There is no special material or solution preparation for this unit.

**MATERIALS NOT PROVIDED IN KIT****LAND, WATER, AND HUMAN INTERACTIONS**


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<b>Quantity</b>	<b>Description</b>	<b>Activity #</b>
	Chart paper	1, 9, 16
32	Chemical splash goggles	2, 5
8	Container of water (1.5 L per group)	10, 12
2	Containers or tubs, large (optional)	7, 12
	Dirt or soil from local source	5
	Distilled or tap water	2
	Graph paper	3, 16
	Local water quality report (optional)	3
8	Marker sets (optional)	6, 9
	Paper towels or newspaper	7, 10, 12
40	Paper, large sheets (optional)	6
	Pictures illustrating water in different stages of the water cycle (optional)	8
	Salt water, 3.5% solution	2
1+	Turkey baster or large syringe (optional)	7, 12
	Water supply	2, 5, 7

## MATERIALS NOT PROVIDED IN KIT

### GEOLOGICAL PROCESSES

Quantity	Description	Activity #
	Bucket labels for sand and clay	2
2-4	Buckets, large (or plastic tubs)	2
16	Calculator	8
8	Chemical splash goggles	5
32	Compass, drawing (optional)	8
16	Computer with internet access	6, 10
1	Globe (optional)	12
160	Graph paper	17
8	Meter stick (optional)	5
	Paper towels	2, 5, 14
24	Textbooks	14
16	Tray, plastic (optional)	2
	Water	5
	Water, cold	14
1	Water, sparkling, unopened bottle (optional)	5
	Water, warm	14

## MATERIALS AND SOLUTION PREPARATION

### GEOLOGICAL PROCESSES

Item	Preparation
Less "gassy" magma	This is difficult to mix and should be replaced through Lab-Aids, Inc.
More "gassy" magma	Use household vinegar (5% acetic acid).

## MATERIALS NOT PROVIDED IN KIT

### FROM CELLS TO ORGANISMS

Quantity	Description	Activity #
	Aged tap water (or bottled spring water) or pond water	3
	Apples or green peppers (optional)	6
1	Food coloring, blue	7
1	Corn syrup, bottle	7
1	Vinegar, white, bottle	7
1	Bucket to collect liquid waste	1
	Celery stalks	12
32	Chemical splash goggles	1, 5, 7, 9, 12, 13
	Clay, dental floss, paper, food items, computer software, or other materials	8
1	Colandar or sieve (w/ hole size that will let rice through but not beans)	7 8
	Computers w/ Internet or downloaded video segments	2, 3, 6, 8
	Container (large enough to immerse eggs in vinegar)	7
	Distilled water	1
	Spinach leaf or similar plant leaf, fresh	12
	Graph paper	1
32	Lab aprons	7, 9, 12
	Lens paper	9
	Light source (e.g., lamps or windows that receive good natural light)	13
	Masking tape	5, 7



**MATERIALS NOT PROVIDED IN KIT****FROM CELLS TO ORGANISMS** (continued)

Quantity	Description	Activity #
1	Measuring cup	5
16	Microscopes	3, 5, 9, 12
1	Microscope video camera (optional)	3, 9, 12
	Miscellaneous prepared slides (e.g., cat hair, bee stinger, the typed letter e, thread) (optional)	3
1	Onion	9
32	Pairs of gloves	7, 9, 12
	Paper towels	1, 9, 12
	Paper, white sheets	5, 7
1	Paring knife (optional)	6
8	Permanent makers or pens	5, 7
1-2	Potted plants	12
8	Scissors	9, 12
	Active dry yeast (one 1-oz packet per class period)	5
	Tempera paint (any color, i.e., not white)	7
	Transparent tape (optional)	5
	Warm water	5
	Water	7, 12, 13

**MATERIALS AND SOLUTION PREPARATION****FROM CELLS TO ORGANISMS**

Item	Preparation
2% Sodium Carbonate solution	Dissolve 2 g sodium carbonate in 100 mL distilled water.
Disease Indicator (0.1% Phenolphthalein)	Obtain 0.25 g phenolphthalein powder and dissolve in 125 mL of denatured ethanol. Add 125 mL of distilled water. Mix well.
Bromothymol Blue (BTB) indicator	Dissolve 0.5 g bromothymol blue in 484 mL deionized water and then add 16 mL of 0.05 M sodium hydroxide.
Distilled water	Available at drugstores and grocery stores.
Lugol's (iodine) solution	Dissolve 10 g potassium iodide in 100 mL of distilled water. Slowly add 5 g iodine crystals, while shaking. Filter and store in a tightly stoppered brown bottle. This reaction is exothermic (emits heat). Store solution in a cool, dark space and use within a year.
Methyl cellulose solution	Dissolve 2 g methyl cellulose in 98 mL deionized water
Water	Use tap water.

## MATERIALS NOT PROVIDED IN KIT

### FIELDS AND INTERACTIONS

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Quantity	Description	Activity #
80	Paper, sheets (5.4 cm x 7 cm; 1/8th letter size)	1
16	Moon's surface printed images, 2 per group (optional)	1
1	Book, large	3, 7
1	Book, small	3
8	Meter sticks	1, 3
160	Graph paper, sheets	4
	Paper clips	5, 12
320	Paper, sheets	5, 8
16	Nickles	6
1	Scissors	7
8	Cans, aluminum beverage, empty	8
8	Plastic bags, resealable	8
8	Petri dishes (optional)	8
	Access to a thin stream of water	8
8	Video recorders (optional) could use a cell phone if permitted	9
16	Computers with Internet access	8, 10, 11
32	Batteries, D cell	12, 13
8	Masking tape rolls	12
16	Smartphones (optional)	12

## MATERIALS AND SOLUTION PREPARATION

### FIELDS AND INTERACTIONS

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There is no special material or solution preparation for this unit.

## MATERIALS NOT PROVIDED IN KIT

### FORCE AND MOTION

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Quantity	Description	Activity #
8	Books or heavy objects (optional)	2
8	Calculators	2, 3, 7
40	Chart paper	15
480	Graph paper sheets	5, 8, 14
40	Large sheet of paper (optional)	6
8	Markers	2, 3, 4
1	Measuring tape	15
8	Meter sticks	2, 3, 4, 7, 13
16	Pairs of scissors	2
16	Paper clips or envelopes	2
160	Paper, white sheets	11
1	Push pins, package (optional)	11
8	Ring stand base and rod (optional)	10
8	Smartphones (optional)	2, 3, 7
320	Sticky notes, 3 x 3, (160 each of 2 colors)	15
1	Tablet, computer, or similar device to connect to the motion sensor	8
1	Tape roll (optional)	11
16	Tape rolls (or glue sticks)	2, 12, 13

## MATERIALS AND SOLUTION PREPARATION

### FORCE AND MOTION

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There is no special material or solution preparation for this unit.

**MATERIALS NOT PROVIDED IN KIT****EVOLUTION**

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<b>Quantity</b>	<b>Description</b>	<b>Activity #</b>
1	Box of dry O-shaped cereal for “Wild Loops”	4
	Computer w/ Internet to show video segment	7
16	Computers with internet access	6, 16
64	Envelopes	13
320	Graph paper sheets	2, 4
64	Paper clips	13
8	Paper, cloths, or rugs in green or beige (if doing activity inside)	2
32	Scissors	5
	Supplies for creating presentations/visual displays	17
8	Tape rolls, transparent	5

**MATERIALS AND SOLUTION PREPARATION****EVOLUTION**

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There is no special material or solution preparation for this unit.

## MATERIALS NOT PROVIDED IN KIT

### ENERGY

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Quantity	Description	Activity #
	Access to a variety of insulating materials	10, 13
1	Balance or scale	2, 8
8	Batteries, 9-volt	14
	Beakers (optional but ideal)	8
8	Colored pencils (optional)	11
	Cooler for transporting ice	10
160	Graph paper	11
	Hot plates (optional but ideal)	8
	Ice cubes (2 per group of 4)	10
8	Markers	2
	Paper towels or rags	4, 10
8	Tape	11
8	Tray or shoebox (optional)	11, 13
	Water	4, 13, 14
	Water, cold	7, 8
	Water, hot	7, 8

## MATERIALS AND SOLUTION PREPARATION

### ENERGY

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There is no special material or solution preparation for this unit.

## MATERIALS NOT PROVIDED IN KIT

### ECOLOGY

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Quantity	Description	Activity #
	Aquatic leaf litter (such as oak leaves in spring water)	5
40	Cardboard or heavy paper (optional)	7
	Computers with Internet access	14
8	Glue bottles (optional)	7
8	Hygrometer or sling psychrometer (optional)	4
	Maps and/or globes	16
8	Marker or colored pencil sets	8, 12
16	Microscopes	9, 11
1	Milk, small carton (optional)	9
	Paper, large sheets	8, 12
	Paper towels	5, 9
8	pH meter (optional)	4
	Resources: books, magazines, videos, internet access, etc.	2
50 m	Ribbon or string (optional)	12
	Spring water	5, 9
8	Tape rolls, transparent (optional)	6
1	Toothpicks, box (optional)	9
	Water	5, 11
	Water treatment product, only if tap water is treated with chloramine	5

## MATERIALS AND SOLUTION PREPARATION

### ECOLOGY

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There is no special material or solution preparation for this unit.

## MATERIALS NOT PROVIDED IN KIT

### EARTH'S RESOURCES

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Quantity	Description	Activity #
1	Alcohol, 60 mL bottle (ethanol or methanol) (optional)	6
1	Beaker, 250 mL, labeled "Liquid Waste"	6
	Borax (optional - small amount)	6
32	Chemical splash goggles	3, 6
1	Copper (II) chloride, 60 mL bottle (optional)	6
1	Crucible (optional)	6
	Heat source (optional)	6
	Index cards, large (optional)	2, 10
32	Lab aprons	1, 5
	Matches (or lighter) (optional)	6
	Natural resource samples (additional), such as minerals or energy	1
	Paper towels	3
8	Scissors	12
	Sticky notes (optional)	2, 10
	Tap water	1, 8
1	Tongs (optional)	6
1	Ultraviolet light (optional)	3
2	Watch glasses (optional)	6

**MATERIALS NOT PROVIDED IN KIT****CHEMISTRY OF MATERIALS**


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Quantity	Description	Activity #
	Ability to heat water to 60-70° C (hot plate, microwave)	9
9	Balances, electronic	4
1	Can, aluminum	1
32	Chemical splash safety goggle	2, 3, 11
16	Computers with internet access	8
	Dish soap	9, 11
1	Drink bottle, glass	1
1	Drink bottle, plastic	1
1	Graduated cylinder (large enough in volume to hold irregularly shaped object)	4
	Hot water	9
	Ice water	9, 10
1	Irregularly shaped object that sinks, small	4
	Paper towels	2, 3, 4, 11
1	Rectangular object (large book, shoe box, etc.)	4
	Resealable plastic bags (optional)	11
	Warm soapy water	11
	Water	2, 3, 4



## MATERIALS NOT PROVIDED IN KIT

### CHEMICAL REACTIONS

Quantity	Description	Activity #
9	9-volt alkaline battery	1
8	Balance, electronic, sensitive to 0.01 g preferred	6
1	Beaker, 1 L or larger	10, 11, 13
1	Beaker, 50 mL	1
1	Bottle, capped, 0.5 or 1 L, labeled “Used Copper Chloride”	1
1	Candle, small	2
32	Chemical splash goggles	1, 2, 3, 6, 8, 9, 10, 11, 12, 13
1	Circuit board (optional)	1
1	Container, glass or plastic	1
1	Dishpan (optional)	2
10	Latex gloves, disposable (or non-latex)	1, 12
1	Match or striker	2
	Paper towels	1, 3, 6, 8, 9, 10, 11, 12
80	Paper, white	1
1	Plastic piece	1
	Tape, masking	8, 12
8	Tray	10, 11
1	Waste container labeled, “Copper Waste”	1
4	Waste containers	2, 12, 13
	Water	1, 2, 3, 8, 9, 10, 11, 12, 13

**MATERIALS NOT PROVIDED IN KIT****BODY SYSTEMS**


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Quantity	Description	Activity #
	1 quart container	13
	2 quart container	13
	Access to wall clock or other clock that displays seconds	9, 10
	Balances (optional)	2
1	Bottle of carbonated water (optional)	10
	Brown paper towels	6
16	Calculators	9
32	Chemical splash goggles	10
	Fish food	6
1	Large sponge	10
	Large stir spoon	13
8	Markers, sets of 4 different colors	2
	Microscopes	6
	Permanent ink marker	13
	Plastic shoe bin (or similar for blackworms)	6
	Sheets of chart paper or butcher paper	2, 10
	Small drum (optional)	12
	Spring water (or treated tap water)	6
2	String, long pieces (optional)	
4	Sugar	13
	Tape, transparent	4
	Water (may require distilled)	10, 13

## MATERIALS NOT PROVIDED IN KIT

### BIOMEDICAL ENGINEERING

Quantity	Description	Activity #
	Access to sinks with hot running water and soap	8
1-8	Balance(s) sensitive to 0.1 gram differences	4
	Bleach	8
32	Calculators	7
	Chart paper (optional)	5
80	Chicken wings (raw)	8
32	Clipboards (optional)	2
	Colored pencils	5
	Crayons	2
16	Dissecting trays	8
16	Dissection scissors, pointed	8
32	Forceps	8
5	Garbage bags, plastic (that can be tied shut or closed with a twist-tie)	8
	Gloves (optional)	8
32	Gummy candy life preservers	1
32	Gummy candy worms	1
16	Hand lens (optional)	8
160	Index cards	9
2	Large lace-up shoes, pair	2
4	Long-haired dolls	2
	Mops	5
	Paper towels	5
8	Pennies, roll of 50	4, 9
8	Plastic bin, large (for holding water)	5, 8
1	Pliers (optional)	8
20	Ponytail holders	2
160	Printer paper, 8.5" x 11" sheets	4
	Refrigerator for storing chicken wings	8
32	Rulers, metric	2, 4, 9
24	Scissors	2, 5, 9
8	Sheets of construction paper	2
8	Small boxes	2
8	Sponges	5
8	Stopwatch or access to a clock with a second hand	5

## MATERIALS NOT PROVIDED IN KIT (continued)

### BIOMEDICAL ENGINEERING

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Quantity	Description	Activity #
2	String or Ribbon, rolls	2
480	Strips of paper, approximately 2" x 11"	4
4	Sweaters and/or button-up shirts	2
8	Towels	4
4	Transparent tape, rolls	2
2	Wrapping paper, rolls	2

## SOLUTION PREPARATION

### BIOMEDICAL ENGINEERING

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There is no special material or solution preparation for this unit.