

Equipment and Supplies

A list of equipment and supplies for all the experiments is given below. The amounts listed are for a class of up to 30 students working in groups of two, three, or four students in a classroom equipped with eight stations. The materials have been divided into **nonconsumables**, **consumables**, and **chemicals**. Most consumables and chemicals will need to be replaced each year. Most nonconsumable materials may be used many years without replacement. Some substitutions can be made.

Nonconsumables

| Item | Amount | Experiment |
|--|--------|---|
| balance | 1 | 29 |
| battery, D-size | 16 | 31 |
| battery holder, for 2 D-size batteries | 8 | 31 |
| beaker, 50 mL | 16 | 9, 22 |
| beaker, 100 mL | 16 | 14, 21, 23, 25 |
| beaker, 250 mL | 16 | 1, 9, 12, 15, 22, 24 |
| beaker, 400 mL | 8 | 5, 10, 18 |
| beaker, 600 mL | 24 | 12 |
| bottle, Nalgene, 250 mL | 8 | 14 |
| bottle, sampling, 500 mL | 32 | 5 |
| bottle, spray | 2 | 13 |
| bowl | 8 | 4 |
| bulb, incandescent, clear (150 W) | 8 | 4, 6, 8 |
| can, metal | 8 | 7 |
| capacitor, 10 μ F non-polarized | 8 | 31 |
| clamp, dialysis tubing | 16 | 10 |
| clamp, plastic tubing | 16 | 13 |
| clamp, right angle | 16 | 30 |
| clamp, utility | 16 | 6, 7, 8, 10, 11, 13, 18, 22, 23, 24, 25 |
| connecting wires | 32 | 31 |

Appendix E

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| cup, 12 oz. plastic | 8 | 5 |
| dynamics cart | 16 | 28 |
| fan | 2 | 13 |
| floodlight, 100 watt | 8 | 13 |
| globe | 8 | 8 |
| goggles | class set | 9, 10, 11, 12, 20, 21, 22, 23, 24, 25 |
| graduated cylinder, 10 mL | 8 | 12, 18, 21 |
| graduated cylinder, 50 mL | 8 | 9 |
| heater, small electric | 2 | 13 |
| keyboard, electronic, music (optional) | 8 | 32 |
| lab apron | class set | 9 |
| lamp | 8 | 4, 6, 8, 13 |
| magnet, bar | 8 | 2 |
| mass set | 8 | 28, 29, 30 |
| meter stick | 8 | 26, 33 |
| milk jug (1 gallon) | 8 | 4 |
| paper in-basket, wire | 8 | 27, 30 |
| pipet, 10 mL graduate | 32 | 21 |
| pipet pump (or pipet bulb) | 8 | 21 |
| plastic tubing w/Luer-lock fitting | 16 | 12 |
| protractor | 8 | 3, 8 |
| razor blade, knife or scalpel | 8 | 13 |
| resistor, 47 k Ω | 8 | 31 |
| resistor, 100 k Ω | 8 | 31 |
| ring stand | 8 | 6, 7, 10, 11, 13, 18, 22, 23, 24, 25, 30 |
| rod, metal (12 in) | 8 | 30 |
| rubber stopper assembly | 8 | 12 |
| ruler, metric | 8 | 3, 4, 6, 8, 13 |

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| scissors | 2 | 2, 10 |
| spoon, plastic | 8 | 7 |
| spring, 10 N/m constant | 8 | 30 |
| stepping stool, 45 cm (18 inches) high | 4 | 16 |
| stirring rod, glass | 16 | 10, 18, 21, 23, 24 |
| switch, single-pole, double throw | 8 | 31 |
| syringe, plastic | 8 | 13, 19 |
| test tube, 18 × 150 mm | 40 | 10, 12 |
| test tube, 25 × 150 mm | 40 | 18, 21, 25 |
| test tube, 25 × 150 mm screw top | 64 | 15 |
| test tube rack | 16 | 10, 12, 15, 21 |
| thermometer | 8 | 12, 14, 33 |
| tube, cardboard or plastic (1–2 m) | 8 | 33 |
| tuning forks (256 Hz and 288 Hz) | 8 of each | 32 |
| volleyball or basketball | 8 | 27 |
| wash bottle | 8 | 5, 9, 22, 25 |
| watch, clock, or stopwatch | 8 | 4, 16 |
| wooden block with hook | 8 | 29 |

Consumables

| Item | Amount | Experiment |
|-------------------|---------------|-------------------|
| Alka Seltzer | 5 tablets | 9 |
| aluminum foil | 1 roll | 6, 15 |
| antacid tablets | 20 g | 9 |
| aspirin | 20 g | 9 |
| beral pipets | 300 | 10, 12, 13, 25 |
| Bufferin | 20 g | 9 |
| card, small index | 16 | 30 |
| cup, Styrofoam | 8 | 24 |

Appendix E

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| dental floss | 1 roll | 10 |
| dialysis tubing, 2.5 cm × 12 cm | 1/2 roll | 10 |
| distilled water | 40 L | 5, 9, 10, 11, 15, 21, 22, 23, 24, 25 |
| egg white | 20 g | 9 |
| filter paper, 2.5 cm x 2.5 cm | 48 pieces | 20 |
| fruit juice | 200 mL | 9 |
| gelatin | 200 mL | 9 |
| graph paper | 40 pcs | 9, 13, 29 |
| ice | 8 bags | 1, 4, 7, 12, 14, 18 |
| liver | 20 g | 9, 12 |
| marble (rock) | 20 g | 9 |
| paper, black | 8 pieces | 6 |
| paper, several colors | 16 pieces | 6 |
| paper, white | 8 pieces | 6 |
| paper clip | 16 or 24 | 2 |
| Parafilm, 5 x 5 cm | 64 | 15 |
| peas (garden) | 400 | 14 |
| plant, aquatic (elodea or anacharis) | 16 | 15 |
| plant cuttings | 8 | 13 |
| plastic bag, gallon | 4 | 13 |
| pond water | 7 L | 11, 15 |
| potato, whole | 9 | 9 |
| quartz (rock) | 20 g | 9 |
| rubber bands, small | 40 | 20 |
| snails, aquatic | 16 | 15 |
| soda water | 200 mL | 9 |
| soil samples | buckets | 4 |
| starch | 20 g | 9 |

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| stickers, small (optional) | 8 or 16 | 2 |
| straw, plastic | 8 | 6 |
| string | 1 roll | 8, 29 |
| tape, masking | 2 rolls | 2, 3, 4, 6, 8, 13, 20, 26, 30 |
| tissue (preferably lint-free) | box | 21, 22 |
| vitamin B | 20 g | 9 |
| vitamin C | 20 g | 9 |
| yeast | 6 pkgs | 9, 12 |
| zip ties | 32 | 30 |

Chemicals

| Item | Amount | Experiment |
|---------------------------|---------|------------|
| acetic acid (17.4 M) | 70 mL | 22 |
| aluminum chloride | 100 g | 11, 22, 23 |
| boric acid | 5 g | 22 |
| buffer solution, pH 4 | 500 mL | 9, 12 |
| buffer solution, pH 7 | 1 liter | 9, 12 |
| buffer solution, pH 10 | 500 mL | 9, 12 |
| 1-butanol | 100 mL | 20 |
| calcium chloride | 30 g | 11, 22, 23 |
| ethanol | 800 mL | 11, 20 |
| glucose | 25 g | 11 |
| n-hexane | 100 mL | 20 |
| hydrochloric acid (0.1 M) | 100 mL | 9 |
| hydrochloric acid (12 M) | 300 mL | 22, 24, 25 |
| hydrogen peroxide (3%) | 750 mL | 12 |
| methanol | 150 mL | 20, 22 |
| nickel (II) sulfate | 30 g | 21 |

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|------------------------------|--------|-------------------------------|
| n-pentane | 100 mL | 20 |
| phosphoric acid (14.8 M) | 5 mL | 22 |
| 1-propanol | 100 mL | 20 |
| sodium bicarbonate | 120 g | 25 |
| sodium bisulfite | 10 g | 25 |
| sodium chloride (table salt) | 350 g | 9, 10, 11, 16, 17, 18, 22, 23 |
| sodium hydroxide | 100 g | 24 |
| sodium hydroxide (0.1 M) | 100 mL | 9 |
| sodium nitrite | 10 g | 25 |
| sucrose | 600 g | 10, 11 |

Suppliers

Flinn Scientific Inc.
1-800-452-1261
www.flinnsci.com

Hach Company
1-800-227-4224
www.hach.com

Frey Scientific
1-800-225-FREY
www.freyscientific.com

Ward's Natural Science
1-800-962-2660
www.wardsci.com

Fisher Science Education
1-800-955-1177
www.fisheredu.com