

# Equipment List

Equipment	Sources	Approximate cost	Suggestions for use	Special notes	Checklist
<b>Safety and Science: A Guidance Manual for New Zealand Schools</b>	Learning Media Limited, Box 3293, Wellington	Free to schools		All schools have been issued with a copy for every teacher of science.	
<b>Alligator/crocodile clips</b>	<ul style="list-style-type: none"> <li>• Electrical suppliers</li> <li>• Scientific suppliers</li> </ul>	\$1.20 each	<ul style="list-style-type: none"> <li>• Electrical circuits</li> </ul>	The use of screw terminal clips is recommended. Spring pegs can be used as an alternative.	
<b>Aquarium accessories</b>	<ul style="list-style-type: none"> <li>• Pet shops</li> <li>• Scientific suppliers</li> <li>• Hardware shops</li> <li>• Budget retail stores</li> </ul>				
Net or plastic strainer		\$5			
Air pump		\$30			
<b>Aquarium or plastic tank</b>	<ul style="list-style-type: none"> <li>• Pet shops</li> <li>• Scientific suppliers</li> <li>• Glass merchants</li> <li>• Budget retail stores</li> </ul>	\$20–\$80	<ul style="list-style-type: none"> <li>• Pond and stream life</li> <li>• Stream life habitat</li> <li>• Terrariums</li> <li>• Mini glasshouse</li> <li>• Ripple tank</li> <li>• Sedimentation experiments</li> </ul>	Pressed plastic aquariums are often easily damaged at the corners. Glass merchants will make aquariums to size.	
<b>Bags, feely</b>	<ul style="list-style-type: none"> <li>• Make your own.</li> </ul>		<ul style="list-style-type: none"> <li>• Sensory perception</li> <li>• Mystery games</li> </ul>	Feely bags can also be made from brown paper, wine bags, or old socks.	

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<b>Balances, spring</b> 0–20 N (Newtons)	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>	\$6.30	<ul style="list-style-type: none"> <li>• Measurement of force (including weight)</li> </ul>	Spring balances can be made from rubber bands and a ruler.	
<b>Ball and chain</b>	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>	\$15	<ul style="list-style-type: none"> <li>• Demonstrating expansion of metals by heat</li> </ul>		
<b>Balls</b> (a selection)	<ul style="list-style-type: none"> <li>• Bargain bins</li> <li>• Sports shops</li> <li>• Supermarkets</li> <li>• Budget retail stores</li> </ul>	\$1.99 pkt of 3 tennis balls \$1.99 pkt of 6 table tennis balls	<ul style="list-style-type: none"> <li>• Motion</li> <li>• Making models (astronomy)</li> <li>• Fair tests</li> <li>• Forces</li> <li>• Friction</li> </ul>		
<b>Batteries</b>	<ul style="list-style-type: none"> <li>• Electrical suppliers</li> <li>• Supermarkets</li> <li>• Budget retail stores</li> </ul>		<ul style="list-style-type: none"> <li>• Electricity</li> <li>• Electronics</li> </ul>	Consider purchasing chargeable cells and a charger. Discharged dry cells are a useful source of zinc metal (casing) and carbon rod (central rod).	
AAA _____		\$3.99 pkt 4			
AA _____		\$3.99 pkt 4			
C _____		\$2.99 pkt 2			
D _____		\$3.35 pkt 3			
9 V _____		\$1.99			
<b>Beakers, glass</b> (various sizes)	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>	Price varies according to size.	<ul style="list-style-type: none"> <li>• Necessary if heating with a naked flame</li> </ul>	Jam jars often make good substitutes and can be heated in a microwave oven. Clear film canisters can be used as small beakers. Glass beakers are easily broken.	
250 mL _____		\$4			
<b>Beakers, plastic</b> (various sizes)	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>	Price varies according to size.	<ul style="list-style-type: none"> <li>• Making sense of the material world (chemistry)</li> </ul>	Consider plastic tumblers from supermarkets. Heat only by hot water.	
250 mL _____		\$2.80			

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<b>Bicycle pumps</b>	<ul style="list-style-type: none"> <li>• Sports shops</li> <li>• Budget retail stores</li> </ul>	\$3–\$8	<ul style="list-style-type: none"> <li>• Water rockets</li> <li>• Expansion and compression of gases</li> <li>• Forces</li> </ul>	An inflatable-mattress pump or an electric tyre pump can also be used.	
<b>Bimetallic strips</b> (Compound bars) Brass-iron	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> <li>• The switch inside a pop-up toaster</li> </ul>	\$8	<ul style="list-style-type: none"> <li>• Expansion of metals</li> </ul>	Bimetallic strips could be borrowed from a secondary school.	
<b>Binoculars</b> (8 x 30 magnification)	<ul style="list-style-type: none"> <li>• Budget retail stores</li> <li>• Sports shops</li> </ul>	\$50–\$80	<ul style="list-style-type: none"> <li>• Stargazing, especially at the Moon and planets</li> <li>• Birdwatching</li> </ul>	Binoculars can be hired in some areas. They are better than a telescope. DO NOT allow students to use them to look at the sun.	
<b>Bones and skeletons</b>	<ul style="list-style-type: none"> <li>• Butchers</li> <li>• Museums</li> <li>• Farms</li> </ul>		<ul style="list-style-type: none"> <li>• Looking at adaptive features and structures</li> </ul>	X-ray negatives can also be used.	
<b>Bottles</b> (clear, with screw top)	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> <li>• Pharmaceutical suppliers</li> </ul>	\$38 per 100	<ul style="list-style-type: none"> <li>• Storing solutions</li> <li>• Observing small animals</li> </ul>	Substances must NOT be stored in beverage bottles.	
<b>BSM items</b>	<ul style="list-style-type: none"> <li>• Learning Media Limited, Box 3293, Wellington</li> </ul>		<ul style="list-style-type: none"> <li>• Modelling, grouping, and classifying activities</li> </ul>		
<b>Buckets</b>	<ul style="list-style-type: none"> <li>• Plastic-goods retailers</li> <li>• Supermarkets</li> </ul>	\$1–\$3	<ul style="list-style-type: none"> <li>• See Aquarium</li> <li>• Field trips</li> <li>• Washing-up</li> </ul>	Alternatives are 2-litre ice cream containers or 4-litre margarine pails.	
<b>Bulb holders</b> MES (socket on plastic base)	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> <li>• Car wreckers</li> <li>• Electrical suppliers</li> </ul>	\$13.50 per 10 negotiable		Make sure light bulbs are compatible with the holder.	

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<b>Bulbs</b>  MES 2.5 V _____ MES 3.5 V _____	<ul style="list-style-type: none"> <li>• Electrical suppliers</li> <li>• Scientific suppliers</li> </ul>	 \$10.50 per 10 \$10.80 per 10	<ul style="list-style-type: none"> <li>• Electric circuits</li> </ul>	Ensure that the voltage of the bulb(s) is equal to the total voltage of the cells in the circuit. Consider using bi-directional LEDs as an alternative.	
<b>Burners, spirit</b>  Aluminium _____ Glass _____	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>	 \$6.40 \$15.90	<ul style="list-style-type: none"> <li>• Heat source</li> </ul>	It is advisable to embed the burner in a container of sand (such as an ice cream container) when in use. A HOT PLATE, ELECTRIC FRYPAN, OR WATER BATH IS USUALLY A SAFER ALTERNATIVE.	
<b>Canisters with lid</b>	<ul style="list-style-type: none"> <li>• Photo processors (film canisters)</li> </ul>	Free	<ul style="list-style-type: none"> <li>• Specimens</li> <li>• Mixing</li> <li>• Storage</li> <li>• Model rockets</li> </ul>		
<b>Carbon rods</b>	<ul style="list-style-type: none"> <li>• Old telephone cells or other discharged dry cells</li> <li>• D cells</li> </ul>	Free	<ul style="list-style-type: none"> <li>• Electrolysis</li> <li>• Electric plating</li> </ul>	Do not cut open nicad or mercury cells.	
<b>Chopping boards</b>	<ul style="list-style-type: none"> <li>• Budget retail stores</li> </ul>	\$6.95 (plastic, small) \$10.95 (large)	<ul style="list-style-type: none"> <li>• For protection of surfaces in construction and dissection activities</li> </ul>	Use plastic or cork tiles as an alternative.	
<b>Clinometer</b>	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>	\$39.90	<ul style="list-style-type: none"> <li>• Measuring heights and angles</li> </ul>	A clinometer can be made from a protractor and a plumb-bob.	
<b>Coins</b> (5c)			<ul style="list-style-type: none"> <li>• Sample of metals</li> </ul>		

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<b>Compasses</b>  Plotting or charm _____ Pocket _____ (as used in orienteering)	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> <li>• Sports shops</li> </ul>	\$2.95 \$39	<ul style="list-style-type: none"> <li>• Magnetic fields</li> </ul>	Compasses can be hired from some advisory or resource centres.	
<b>Conductivity rings</b>	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>	\$19.80	<ul style="list-style-type: none"> <li>• Conduction of heat energy</li> </ul>	Conductivity rings could be borrowed from a secondary school	
<b>Dishes, Petri</b>	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>	\$5.50 per 20 \$34 per 200	<ul style="list-style-type: none"> <li>• Growing micro-organisms</li> <li>• Displaying things</li> <li>• Studies of small animals and micro-organisms</li> </ul>	Petri dishes can be re-used. Cheese containers could be used instead.	
<b>Electric frypans</b>	<ul style="list-style-type: none"> <li>• Appliance stores</li> <li>• Second-hand shops</li> </ul>		<ul style="list-style-type: none"> <li>• Use as a heat source or as an incubator for cultures.</li> </ul>		
<b>Electric jugs</b>	<ul style="list-style-type: none"> <li>• Appliance stores</li> <li>• Second-hand shops</li> </ul>	\$30	<ul style="list-style-type: none"> <li>• For heating purposes</li> </ul>		
<b>Eyedroppers / Pasteur pipettes</b>	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>	\$6.30 per 10		Pasteur pipettes are plastic, graduated, and inexpensive droppers.	
<b>Filter funnels</b> (plastic, polypropylene, 25 mm)	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> <li>• Plastic-goods retailers</li> </ul>	\$1.70	<ul style="list-style-type: none"> <li>• Separation by filtering</li> </ul>	The top third of PET (polyethylene terephthalate) soft drink bottles are a satisfactory alternative.	
<b>Glass samples</b>	<ul style="list-style-type: none"> <li>• Glass suppliers</li> </ul>		<ul style="list-style-type: none"> <li>• Investigations of light and colour</li> </ul>	Ensure that edges of samples are filed or fired.	

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<b>Goggles</b> (Polycarbonate construction)	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> <li>• Engineering or construction suppliers</li> <li>• Hardware shops</li> </ul>	\$9.20	<ul style="list-style-type: none"> <li>• For safety when heating chemicals</li> <li>• For safety in any impact solutions, such as breaking rocks or collision activities.</li> </ul>		
<b>Hairdryer</b>	<ul style="list-style-type: none"> <li>• Appliance stores</li> </ul>		<ul style="list-style-type: none"> <li>• As a source of heat or wind</li> </ul>		
<b>Hotplate or bench oven</b> Single-hob cooker (solid top)	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> <li>• Appliance stores</li> </ul>	\$190	<ul style="list-style-type: none"> <li>• Heat source</li> </ul>		
<b>Jars</b>	<ul style="list-style-type: none"> <li>• Home</li> </ul>	Free	<ul style="list-style-type: none"> <li>• Storage</li> <li>• Display</li> <li>• Mixing</li> </ul>	Some jars, such as those containing pasta sauce, often show a measuring scale.	
<b>Knives, craft</b>	<ul style="list-style-type: none"> <li>• Educational suppliers</li> <li>• Hardware stores</li> <li>• Hobby and craft shops</li> </ul>	\$13.40		Do not use for cutting PET bottles.	
<b>Lab coats</b>  100% cotton drill (all sizes) Polycotton	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> <li>• Industrial suppliers</li> </ul>	\$46.80 \$45.90	<ul style="list-style-type: none"> <li>• Protective clothing</li> </ul>	Alternatively, use old shirts.	
<b>Lenses</b> (See also Magnifiers)	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> <li>• Opticians</li> </ul>	\$21.40 set of 6	<ul style="list-style-type: none"> <li>• Investigations of light</li> <li>• Looking at small objects such as plants, animals, or rocks</li> <li>• Telescope</li> </ul>	A magnifying glass is a biconvex lens. Lenses could be borrowed from a secondary school.	

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<p><b>Magnets</b></p> <p>Bar magnets (plastic coated, ceramic 80 x 20 x 10 mm)</p> <p>Block magnets (ceramic, high field strength, 80 x 22 x 10 mm)</p> <p>Horseshoe magnets (100 mm long)</p> <p>Magnetic strip</p> <p>Ring</p>	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> <li>• Electrical repair shops</li> </ul>	<p>\$8.50 each</p> <p>\$9.50</p> <p>\$11</p> <p>\$12.60</p> <p>\$1.65 (small)</p> <p>\$5.50 (large)</p>	<ul style="list-style-type: none"> <li>• Magnetism</li> <li>• Earth science – model of Earth</li> <li>• Electromagnets and motors</li> </ul>	<p>Store away from computers and computer disks.</p> <p>Store with the keepers provided to protect the magnetism.</p> <p>Magnets can be obtained from fridge doors, microwave ovens, and old speakers.</p>	
<p><b>Magnifiers</b></p> <p>Folding</p> <p>Single lens with handle</p>	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> <li>• Scientific suppliers</li> <li>• Budget retail stores</li> </ul>	<p>\$4.50</p> <p>\$9.80</p>		<p>Store in a closed box to prevent them causing fire.</p>	
<p><b>Maps</b></p> <p>(geological, star)</p>	<ul style="list-style-type: none"> <li>• Observatory</li> <li>• Geological society</li> </ul>	<p>\$5–\$15</p>	<ul style="list-style-type: none"> <li>• Identification of: <ul style="list-style-type: none"> <li>– land forms</li> <li>– rock types</li> <li>– stars</li> <li>– constellations.</li> </ul> </li> <li>• Field trips</li> </ul>		
<p><b>Marbles</b></p>	<ul style="list-style-type: none"> <li>• Toyshops</li> <li>• Budget retail stores</li> </ul>	<p>\$2 per bag</p>	<ul style="list-style-type: none"> <li>• Projectiles</li> <li>• Pinball-type experiments</li> <li>• Fair testing</li> </ul>		
<p><b>Material Safety Data Sheets</b></p>	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>		<p>These sheets contain safety information and properties of substances.</p>	<p>Request data sheets when purchasing chemicals. The supply companies are obliged by law to supply them (refer to <i>Safety and Science</i>, pages 38 and 39).</p>	

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<b>Measuring cylinders</b> (plastic)  100 mL polypropylene _____ 100 mL TPX/PMP _____ 250 mL polypropylene _____	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>	\$7.25 \$11.30 \$10.50	<ul style="list-style-type: none"> <li>• Measurement of liquids</li> <li>• Making solutions</li> <li>• Cartesian divers</li> <li>• Density measurements</li> <li>• Fair testing</li> </ul>	Measuring jugs will do the same job.	
<b>Measuring jugs</b>	<ul style="list-style-type: none"> <li>• Plastic-goods retailers</li> <li>• Supermarkets</li> </ul>	\$3.50–\$15.75			
<b>Measuring spoons</b>	<ul style="list-style-type: none"> <li>• Supermarkets</li> <li>• Pharmacies</li> <li>• Plastic-goods retailers</li> <li>• Budget retail stores</li> </ul>	\$1.99–\$3.99	<ul style="list-style-type: none"> <li>• Measuring liquids and solids</li> <li>• Fair testing</li> </ul>		
<b>Metal</b> (scrap)	<ul style="list-style-type: none"> <li>• Scrap metal dealers</li> <li>• Sheet metal workshops</li> <li>• Science resource centres</li> </ul>		<ul style="list-style-type: none"> <li>• Heat expansion</li> <li>• Rusting</li> <li>• Oxidation</li> <li>• Mass</li> <li>• Weight</li> <li>• Plumb-bobs for pendulums</li> <li>• Electroplating</li> <li>• Making batteries</li> </ul>		
<b>Meteorological instruments</b>  Barometer _____ Hygrometer _____ Maximum-minimum thermometer _____ Rain gauge _____ Wind speed meter _____ (in km/h, with conversion table)	<ul style="list-style-type: none"> <li>• Garden suppliers</li> <li>• Ship chandlers</li> <li>• Stock and station agents</li> </ul>	\$80 \$34 \$21.50 \$28.50 \$50	<ul style="list-style-type: none"> <li>• Weather</li> <li>• Air pressure</li> <li>• Humidity</li> <li>• Temperature</li> <li>• Rainfall</li> <li>• Wind speed</li> </ul>	Meteorological instruments can be borrowed from a secondary school or from people in the community.  A rain gauge can be made from a PET bottle.	
<b>Metre rulers</b>	<ul style="list-style-type: none"> <li>• Hardware shops</li> <li>• Scientific suppliers</li> </ul>	\$3–\$7	<ul style="list-style-type: none"> <li>• For measuring length</li> </ul>	Metal tape-measures can also be used and are often more robust.	

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<b>Microscopes</b>  Binocular (stereo)  Monocular	<ul style="list-style-type: none"> <li>Scientific suppliers</li> <li>Universities or secondary schools</li> </ul>	\$250–\$900  \$250–\$900	<ul style="list-style-type: none"> <li>Binocular microscopes (low magnification) are most useful for looking at small animals, plants, fabrics, crystals, paper, etc.</li> <li>Monocular microscopes (high magnification) are used for looking at thin sections and prepared slides.</li> </ul>	Microscopes can be borrowed. A class requires at least 2–3 microscopes for convenience. These should be low-powered binocular microscopes (up to 20X magnification is adequate), easy to use, and durable. Microscopes are a good project for PTA funding.	
<b>Microscope slides</b>	<ul style="list-style-type: none"> <li>Scientific suppliers</li> </ul>	\$2.50 (box 50)	<ul style="list-style-type: none"> <li>Holding specimens for examination</li> </ul>	Slides can be made using sticky tape instead of cover slips. Microscope slides are also useful for observing crystallisation.	
<b>Microwave</b> (access only)			<ul style="list-style-type: none"> <li>Heating, drying, and cooking</li> </ul>		
<b>Mirrors, plastic</b>  Plane (150 mm x 100 mm) Convex (100 mm)	<ul style="list-style-type: none"> <li>Signwriters</li> <li>Glass shops</li> <li>Scientific suppliers</li> </ul>	\$25.00 per 10	<ul style="list-style-type: none"> <li>Light investigations</li> <li>Reflection, translation, and rotation</li> <li>Periscopes</li> </ul>	Alternatively, use plastic mirror tiles and strips from bathroom supplies or signwriters.	
<b>Nails</b>	<ul style="list-style-type: none"> <li>Hardware stores</li> </ul>	Various	<ul style="list-style-type: none"> <li>Testing hardness of minerals</li> <li>Rusting and corrosion</li> <li>Metal testing (different types of metal)</li> </ul>	Use brass, steel, and galvanised nails.	
<b>Paint-mixing trays</b>	<ul style="list-style-type: none"> <li>Educational suppliers</li> </ul>		<ul style="list-style-type: none"> <li>Collecting</li> <li>Testing acidity or starch</li> <li>Small-scale experiments</li> </ul>	Ice cube trays are a suitable alternative.	

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<b>Perfume bottles</b> (empty or full)	<ul style="list-style-type: none"> <li>• Homes</li> </ul>		<ul style="list-style-type: none"> <li>• Scent</li> <li>• Diffusion</li> <li>• Storage</li> </ul>		
<b>Photographs</b> (old)	<ul style="list-style-type: none"> <li>• Homes</li> <li>• Newspaper offices</li> <li>• Museums</li> </ul>		<ul style="list-style-type: none"> <li>• To show changes in land use</li> </ul>		
<b>Prisms, glass</b> (equilateral, 50 mm)	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> <li>• Display agents</li> <li>• Signwriters</li> </ul>	\$5.80	<ul style="list-style-type: none"> <li>• Light and colour</li> <li>• Refraction</li> </ul>		
<b>Probes</b>			<ul style="list-style-type: none"> <li>• Investigating rocks</li> <li>• Testing hardness of minerals</li> </ul>	Old dental probes may be obtained from dentists. Alternatively, use sharpened nails.	
<b>Pulleys</b>	<ul style="list-style-type: none"> <li>• Stock agents</li> <li>• Hardware shops</li> <li>• Ship chandlers</li> </ul>		<ul style="list-style-type: none"> <li>• Toys</li> <li>• Machines</li> <li>• Forces</li> <li>• Motion</li> <li>• Construction</li> <li>• Lego Technic®</li> </ul>	Sturdy pulleys are required for primary students. These can be hired from some advisory or resource centres.	
<b>Rock and mineral kits</b>	<ul style="list-style-type: none"> <li>• Geology Department at Otago University</li> <li>• Science Resource Centre at Dunedin College of Education</li> </ul>	\$50–\$100	<ul style="list-style-type: none"> <li>• Growing crystals</li> <li>• Fossils</li> <li>• Jewellery</li> <li>• Earth Science, e.g., volcanos, erosion, weathering, stones, history of the Earth</li> </ul>	Rock and mineral kits can be hired from some advisory or resource centres.	
<b>Rocks</b>	<ul style="list-style-type: none"> <li>• Geology Department at Otago University</li> <li>• Science Resource Centre at Dunedin College of Education</li> </ul>		<ul style="list-style-type: none"> <li>• Classification and grouping</li> <li>• Making comparisons and observations</li> </ul>		

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<b>Rulers and tape measure</b>	<ul style="list-style-type: none"> <li>• Stationers</li> <li>• Budget retail stores</li> <li>• Educational suppliers</li> </ul>	69c–\$1.50	<ul style="list-style-type: none"> <li>• Measuring</li> <li>• Making telescopes</li> </ul>	Use tape measures or graduated bamboo stakes.	
<b>Scales</b> (kitchen, diet)	<ul style="list-style-type: none"> <li>• Sports shops</li> <li>• Budget retail stores</li> </ul>	\$2.99–\$9.99	<ul style="list-style-type: none"> <li>• Measuring mass</li> <li>• Cooking and making food</li> <li>• Predicting and estimating</li> </ul>		
<b>Scissors</b>	<ul style="list-style-type: none"> <li>• Stationers</li> <li>• Budget retail stores</li> </ul>	\$1– \$2.50	<ul style="list-style-type: none"> <li>• Construction</li> </ul>		
<b>Sieves</b>	<ul style="list-style-type: none"> <li>• Plastic goods retailers</li> <li>• Budget retail stores</li> </ul>	\$6.99 (large) \$3.99 (medium)	<ul style="list-style-type: none"> <li>• Straining</li> <li>• Filtering</li> <li>• Separating mixtures</li> </ul>	Use net curtains or pantyhose.	
<b>Skateboard</b>	<ul style="list-style-type: none"> <li>• Sports shops</li> <li>• Budget retail stores</li> </ul>		<ul style="list-style-type: none"> <li>• Friction</li> <li>• Safety</li> <li>• Motion</li> <li>• Fair tests</li> </ul>	Students can provide their own.	
<b>Slag hammers</b>	<ul style="list-style-type: none"> <li>• Hardware shops</li> </ul>	\$10.45	<ul style="list-style-type: none"> <li>• Breaking soft rocks</li> </ul>	Wear safety goggles. Do not allow mass destruction of geological samples or sites. For safety reasons, do not use carpentry hammers for breaking rocks.	
<b>Spoons</b> (wooden spoons and teaspoons)	<ul style="list-style-type: none"> <li>• Supermarkets</li> <li>• Budget retail stores</li> </ul>		<ul style="list-style-type: none"> <li>• Stirring</li> </ul>		
<b>Stoppers</b> (rubber, cork)	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> <li>• Supermarkets</li> </ul>			Stoppers can be rubber or cork. Wine-bottle corks may be used.	

Equipment	Sources	Approximate cost	Suggestions for use	Special notes	Checklist
<b>Stopwatches</b>	<ul style="list-style-type: none"> <li>• Electrical suppliers</li> <li>• Sports shops</li> </ul>	\$30	<ul style="list-style-type: none"> <li>• Timing, e.g., animal studies, pulse rates, fair tests, speed</li> </ul>	Stopwatches could be borrowed from secondary schools.	
<b>Tarpaulin</b>	<ul style="list-style-type: none"> <li>• Budget retail stores</li> <li>• Garden centres</li> <li>• Paint shops</li> </ul>	\$19.99–\$29.99	<ul style="list-style-type: none"> <li>• Use for all science activities.</li> </ul>	Spread on floor to protect carpet. Plastic sheeting can also be used.	
<b>Telescope</b>	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> <li>• Camera shops</li> </ul>	\$800-\$2000	<ul style="list-style-type: none"> <li>• Astronomy</li> <li>• Lenses</li> </ul>	Binoculars are more useful for stargazing. Make your own telescope or binoculars with a ruler and lenses.	
<b>Test tube holders</b>	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>	\$2.75 each	<ul style="list-style-type: none"> <li>• For holding hot test tubes</li> </ul>	Alternatively, use a folded paper strip or bent wire.	
<b>Test tube racks</b>	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>	\$7.10	<ul style="list-style-type: none"> <li>• For storing test tubes safely</li> </ul>		
<b>Test tube brushes</b>	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>	\$2.75 each (medium size)	<ul style="list-style-type: none"> <li>• For cleaning test tubes</li> </ul>		
<b>Test tubes</b> (25 mm x 150 mm with rim)	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>	\$55 pkt 100	<ul style="list-style-type: none"> <li>• Holding substances</li> <li>• Heating and mixing</li> </ul>	Test tubes are available from a university glass blower. Polypropylene test tubes may also be available.	
<b>Thermometers</b> (red spirit, 300 mm)	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> </ul>	\$3.30 each	<ul style="list-style-type: none"> <li>• Measuring temperature</li> </ul>	Do not use for stirring. Do not use over a naked flame.	
<b>Torch</b>	<ul style="list-style-type: none"> <li>• Budget retail stores</li> <li>• Appliance stores</li> </ul>	\$8.99 with batteries	<ul style="list-style-type: none"> <li>• Light</li> <li>• Shadows</li> <li>• Electric circuits</li> <li>• Models of the sun</li> </ul>		

Equipment	Sources	Approximate cost	Suggestions for use	Special notes	Checklist
<b>Tubing</b> (PVC non-toxic, black, thin wall-tube)  30-m coil, 3.2-mm internal diameter _____ 30-m coil, 5.5-mm internal diameter _____	<ul style="list-style-type: none"> <li>• Scientific suppliers</li> <li>• Hospitality industry suppliers</li> <li>• Pet shops</li> <li>• Garden suppliers</li> </ul>	  \$9  \$16.60	<ul style="list-style-type: none"> <li>• Construction</li> <li>• Models</li> <li>• Animal studies</li> </ul>		
<b>Tuning forks</b>	<ul style="list-style-type: none"> <li>• Music shops</li> <li>• Scientific suppliers</li> </ul>	\$47.60	<ul style="list-style-type: none"> <li>• Sound</li> </ul>	Use a length of metal rod held at the centre instead.	
<b>Tweezers and forceps</b>	<ul style="list-style-type: none"> <li>• Pharmacists</li> <li>• Scientific suppliers</li> </ul>	\$3.35	<ul style="list-style-type: none"> <li>• Examining things</li> <li>• Dissections</li> <li>• Picking up small objects</li> </ul>		
<b>Vacuum cleaner</b>	<ul style="list-style-type: none"> <li>• Homes</li> </ul>		<ul style="list-style-type: none"> <li>• Source of an air current</li> </ul>	Use school vacuum cleaner. Check that the vacuum cleaner will actually blow out air.	
<b>Wheels, plastic</b>	<ul style="list-style-type: none"> <li>• Educational suppliers</li> </ul>		<ul style="list-style-type: none"> <li>• Motion</li> <li>• Friction</li> <li>• Forces</li> <li>• Fair tests</li> <li>• Construction</li> </ul>	Use 4.5-mm cane skewers as axles. Kebab sticks and plastic milk bottle lids are an effective substitute.	
<b>Wires</b> (plain, nichrome, copper, fuse, florist's)	<ul style="list-style-type: none"> <li>• Budget retail stores</li> <li>• Electrical suppliers</li> <li>• Science suppliers</li> <li>• Radio wholesalers</li> <li>• Auto electricians</li> <li>• Electrical suppliers</li> <li>• Electricians</li> </ul>		<ul style="list-style-type: none"> <li>• Electricity</li> <li>• Cutting ice</li> </ul>	Do not allow children to strip wire with their teeth.	