



Chemistry

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Full range of Chemistry products available at:

www.rapidonline.com



CHEMICALS

From Acetone to Zinc powder

Vast range of chemicals available

NOTE:

Rapid Electronics supplies these products to customers in the expectation that they will be used for legitimate purposes. However, all chemicals, whether individually or in combination with other substances, have the potential to be extremely dangerous and pose a risk to human life.

All orders for chemical products will be subject to an approval procedure. Rapid Electronics reserves the right to withhold delivery if the identity of the customer cannot be confirmed. As part of this process, customers agree to their premises being searched by criminal investigation bodies.

Rapid is compliant with the REACH regulations regarding the registration, evaluation, authorisation and restriction of dangerous chemicals in the EU. For delivery outside of the UK, please phone Customer Services on +44 (0)1206 751166.

Chemicals

Rapid

Nutrient Agar

Nutrient agar is a general purpose **growth medium** suitable for use in a range of biological experiments. Use 28g powder to 1 litre deionised water. Leave for 10 minutes, swirl and sterilise for 15 minutes at 121°C. Cool to 47°C, mix well then pour into plates or petri dishes.

- Supplied in 100g packs



Pack size	Order code	1+
100g	52-2601	10.98

550540

Rapid

Protactinium Generator

This **Protactinium generator** is ideal for demonstrating radioactive decay. The half-life of the isotope is short enough for students to complete the decay curve within a single lesson and is perfect for use with a datalogger and GM tube sensor or a standard GM tube and counter. The generator is completely sealed in a leakproof enclosure and consists of uranyl nitrate and an organic solvent. These settle into two distinct layers but when shaken together react and produce a short term burst of Beta radiation with a half-life of about 1 minute.

- Supplied complete with MSDS
- Recommended storage period up to 8 years
- Bottle dimensions 120 x 70 x 70mm



Bottle dimensions	Order code	1+
120 x 70 x 70mm	52-2704	315.00

550626

Rapid

Radioactive Source Chemicals



These **radioactive chemicals** can be used for studies into radiation in nuclear and atomic physics.

Type	Order code	1+
Americium 241	52-2701	820.00
Cobalt 60	52-2702	820.00
Strontium 90	52-2703	820.00

550626

Order online

Save time, and place your order at:
www.rapidonline.com
 24 hours a day

Classifying Materials

Rapid

Density Identification Set

This set consists of specimens of 15 different types of materials. Its aim is to challenge students to identify materials by measuring their mass, length and volume to determine their density.

- Sturdy storage base
- 1 sample each of: walnut, oak, maple, polypropylene, polyethylene, polyamide, acrylic, polyurethane, phenolic, polyvinylchloride (PVC), acetyl, teflon, aluminium, brass and copper
- Samples are stamped with a letter code for easy identification
- Instructions included



Type	Order code	1+
Density ID set	06-2164	18.32

538889

eisco

Solid Materials Set



A selection of materials in the form of rectangular blocks, intended to familiarize students with the appearance, feel, texture, hardness and density of a range of common substances.

- Blocks, 50 x 40 x 30mm: softwood, hardwood, paraffin wax, aluminium, iron, foamed polystyrene
- Blocks, 20 x 20 x 100mm: Perspex, glass, slate, aluminium, softwood, marble
- Lead 50 x 50 x 20mm
- Aluminium 50 x 50 x 80mm
- Hardwood 50 x 50 x 200mm
- Brass 20 x 20 x 50mm
- Iron 40 x 40 x 20mm
- Supplied as a set of 34 blocks, 2 of each material
- **Eisco type PH0114**

Type	Order code	1+
Materials set	52-3346	60.95

565535

Rapid

Mole Set

The four specimens in this set will help explain to students the concept of mole.

The Mole Set contains four element specimens: Copper, Iron, Zinc and aluminium. Each sample contains one mole (6.02 x 10²³ atoms) of the element.

- Helps to explain the concept of mole
- Each sample contains 1 mole (6.02 x 10²³ atoms)
- Set contains specimens of Copper, Iron, Zinc and Aluminium

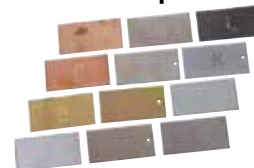
Type	Order code	1+
Mole set	06-2161	14.19

534077

eisco

12-piece Science Metal Strips Set

This 12-piece metal strip set includes a strip of each of aluminium, brass, copper, bronze, nickel, mild steel, galvanized iron, magnetic and non-magnetic stainless steel, zinc, chrome and lead.



- All strips are marked with a letter to identify each metal
- Ideal for experiments to demonstrate magnetic properties and classifications of metals
- Strip size: 50 x 25mm
- Supplied as a **set of 12 strips**

Technical specification

Code letter	Metal	Code letter	Metal
A	Aluminium	G	Galvanized iron
B	Brass	H	Stainless steel - non-magnetic
C	Copper	I	Stainless steel - magnetic
D	Bronze	J	Zinc
E	Nickel	K	Chrome
F	Mild steel	L	Lead

Type	Order code	1+
Metal strip set	06-0595	6.01

072038

Molecular Sets

molymod[®]Molecular Model Sets
Inorganic-Organic

Molymod Molecular Model Sets are the original dual-scale, quality system of molecular and atomic models.

Scales: Open/Ball & stick models: 2.5cm/ Angstrom, Closed/semi-space filling models: 1.5cm/ Angstrom

Atom-parts: range from 17 to 23mm in diameter.

Bonds: Single bonds are represented by medium links (19mm) and multiple bonds by longer, flexible links (30mm). For compact models, bonds are represented by short links (2mm).

Valence: Represented by the number of holes: 1 hole (I), 2 holes (II), 3 holes (III), 4 holes (IV), 5 holes (V), 6 holes (VI)

- Inorganic - Organic sets
- Available as teacher and student sets
- **Teacher Set contains 108 atoms:** 14 Hydrogen (I, II), 20 Carbon (IV, V), 22 Oxygen (II, IV), 10 Nitrogen (III, IV), 13 Sulphur (II, IV, VI), 7 Phosphorus (III, IV, V), 8 Halogen (I), 14 Metal (I, II, III, IV, VI), 18 Lone pair 2D paddles (6 pink, 6 purple, 6 beige) **Links:** 38 Medium grey, 12 medium purple, 36 Long flexible
- **Student set contains 52 atoms:** 14 Hydrogen (I), 6 Carbon (IV), 7 Oxygen (II, IV), 3 Nitrogen (III, IV), 2 Sulphur (II, VI), 2 Phosphorus (III, V), 6 Halogen (I), 8 Metal (I, II, III, IV, VI), 4 Brown (III, IV, V, VI), 3 Lone pair 2D paddles (beige) **Links:** 20 Medium grey, 5 Medium purple, 12 Long flexible

Important notice: These products are designed for educational use and are only suitable for students 12 years and over.

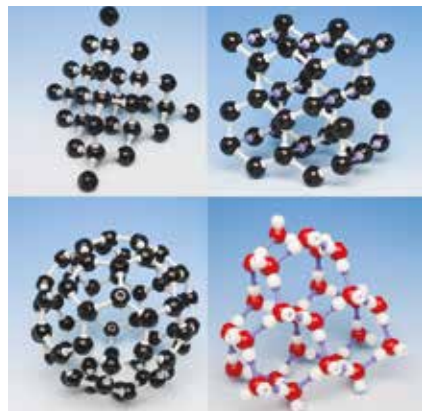
WARNING: CHOKING HAZARD - Small parts. Not for children under 3 years.

Type	Order code	1+
Teacher set 108 atoms	52-0474	26.41
Student set 52 atoms	52-0475	13.24

525539

molymod®

Crystal Structure Molecular Model Kits



A range of Molymod Molecular Model Sets showing the structure of various crystalline substances.

Scales: Open/Ball & stick models: 2.5cm/Angstrom, Closed/semi-space filling models: 1.5cm Angstrom

Atom-parts: range from 17 to 23mm in diameter.

Bonds: Single bonds are represented by medium links (19mm) and multiple bonds by longer, flexible links (30mm). For compact models, bonds are represented by short links (2mm).

Valence: Represented by the number of holes: 1 hole (I), 2 holes (II), 3 holes (III), 4 holes (IV), 5 holes (IV), 6 holes (VI)

Kits available:

- Diamond - 30 atoms
- Graphite - 45 atoms
- Ice - 26 water units
- **Supplied singly**

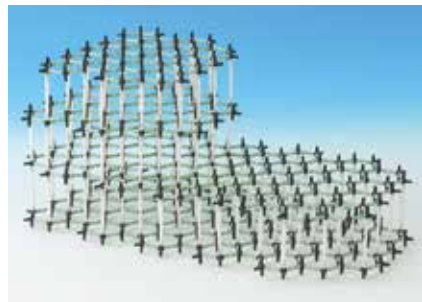
Type	Order code	1+
Diamond	52-0476	9.30
Graphite	52-0477	11.36
Ice 26 water units	52-0479	14.07

525346



Cochranes of Oxford

Minit Preview Model Graphite Kit - 350 Atoms



This skeletal Graphite model is particularly suitable for showing the nature of the solid as it is effectively transparent in depth.

The Graphite model is supplied with full instructions and a work card that discusses the nature of the bonding, crystal structure, growth and physical properties.

- Provides 30/60 minutes of self-tuition
- Shape: 4 layers to represent flake
- Atoms: 350
- **Cochranes type 0088**

Type	Order code	1+
Graphite model	52-7103	29.40

526304



Cochranes of Oxford

Minit Preview Model Ice Kit - 420 Atoms

A skeletal Ice model particularly suitable for showing the nature of the solid, being transparent in depth.

The model comes with full instructions and a work card discussing the nature of the bonding, crystal structure, growth and physical properties of ice.

- Gives between 30 and 60 minutes of self-tuition
- Shape: extended prism to represent snowflake
- 420 atoms
- **Cochranes type 0093**

Type	Order code	1+
Ice model	52-7107	30.27

526306

Vacuum Pumps

Rapid

Hand Vacuum Pump

This portable, hand operated **vacuum pump** will create and hold a vacuum up to approximately 170mm bar/625 mm Hg.

- Made from high impact polystyrene
- Nozzle accepts 6mm bore tubing
- Complete with vacuum gauge and release valve
- Pumping rate: 16cc per stroke



Pump rate	Order code	1+
16cc per stroke	52-2680	182.00

550606

Kipps Apparatus

Rapid

Kipp's Apparatus

A 3-chamber Kipp's Apparatus set made of unbreakable polyethylene.

- Top has thistle funnel and bulb structure through which dilute acid can be poured
- Acid reacts with a metal sulphide in the base
- H₂S gas collects in the middle dome where it can be released via a PTFE stop cock
- Lower chamber has outlet with cap for cleaning
- High density polyethylene (HDPE) construction
- **500ml** capacity



Type	Order code	1+
500ml	52-1494	18.72

122497

Electrolysis



Hoffman's Complete Electrolysis Apparatus

Hoffman's apparatus is used for demonstrating the decomposition of water, determination of chemical composition by electrolysis and has applications in the evaluation of the electrochemical equivalent of hydrogen.

The glass unit has two connected limbs, each of approximately 50ml capacity (graduated 2 to 50ml), integral reservoir tube and funnel-shaped bulb, with a PTFE stopcock at the top of each limb.

- Supplied with 2 carbon and 2 platinum electrodes
- Requires a 12V DC power supply
- Must be set up vertically using a clamp and stand (sold separately)
- Chemicals required: water, molar sodium, or potassium sulphate or sulphuric acid
- **Eisco type CH0740B**



Stand sold separately.

Type	Order code	1+
Hoffmans apparatus	52-3343	47.38
Support stand	52-3437	12.49

565332



Brownlee Water Electrolysis Apparatus

Brownlee's Water Electrolysis Apparatus is used to demonstrate that electrically conductive liquids can be decomposed and resolved into their constituent elements by means of a unidirectional electric current. The gaseous components formed by this method can be trapped and their relative volumes estimated.



The apparatus consists of a support which rests on a 1 litre beaker or jar and has two clips that each hold an inverted test tube. Platinum electrodes are positioned under the inverted test tubes and are attached to insulated connecting rods which are attached to binding posts mounted on the support. When the beaker is filled with a water-based solution and a direct current is passed between the electrodes, gases will begin to collect in the inverted test tubes.

- Requires a 1 litre beaker or jar, 6V battery or 10V DC power supply (not included)

Includes:

- 1x apparatus
- 2x corks
- 2x inverted test tubes
- Includes full instruction manual
- **Eisco type PH0941B**

Note: battery, power supply and battery jar are not included.

Type	Order code	1+
Brownlee apparatus	52-3604	27.16

565343

Rapid

Brass Sheets

Economical brass sheets, ideal for cutting, shaping and bending.

- Superb rich brass finish
- 0.1mm thick sheets



Type	Order code	1+
A4	06-0744	4.14
A3	06-0746	6.79

066922

Rapid

Copper Sheets

These economical 0.1mm thick copper sheets are perfect for embossing, bending and cutting.



- Basic Design & Technology and Science resource

Type	Order code	1+
A4	06-0752	5.16
A3	06-0754	6.79

066924

Rapid

Aluminium Foil

Food grade Aluminium Foil ideal for cookery as well as experiments with metal.

- Available on 75 and 90m rolls



Type	Order code	1+
450mm x 75m	06-0921	10.02
500mm x 90m	06-0922	16.72

066942

Charles's Law



Charles's Law Apparatus

This apparatus from Eisco has been designed to demonstrate Charles's Law that in a gas under constant pressure, the volume is proportional to the absolute temperature. The apparatus includes a U-shaped glass 15mm in diameter with one plain limb 220mm long, one 120mm graduated limb terminating in a 37mm diameter bulb with a third limb, jointed at right angles to the other two. A short length of rubber tubing with two pinch clips on a length of glass tubing is mounted at the end of one limb with a rubber bung.

- Supplied with 1000ml capacity tall form beaker and stirrer
- All glass parts made from borosilicate glass
- Manufacturer's part PH0422



Type	Order code	1+
Charles law apparatus	52-4091	18.99

568038



We bring
STEAM to life

Thermometers



300mm Rainbow Dial Thermometer

A white, 300mm diameter rainbow dial thermometer with a black temperature scale showing measurements in both Centigrade and Fahrenheit.



- Moulded in a plastic window for safety
- Suitable for outside and patio use
- Ideal for primary school use
- Accuracy: $\pm 2^{\circ}\text{C}/4^{\circ}\text{F}$
- Scale divisions: $1^{\circ}\text{C}/2^{\circ}\text{F}$
- Suitable for Key Stages 1 & 2 (ages 5 to 11)

Type	Order code	1+
Dial thermometer	85-2651	11.39

073002



General Purpose Glass Thermometers

A 305mm, general-purpose glass thermometer with red spirit filling.

- Scaling from -10°C to $+110^{\circ}\text{C}$ in 1°C steps
- Can measure both the freezing and the boiling points of water, etc.
- Fitted with hanging hook/anti roll device
- Calibration is correct when immersed 76mm into liquid

Type	Order code	1+
305mm thermometer	87-4308	3.89

060615



Breaksafe Thermometer

This breaksafe safety coated thermometer is encapsulated in PVC to contain any glass or filling material in event of breakage.

- Available in a range of -10 to $+110^{\circ}\text{C}$
- Clear permanent markings
- Green filled
- Partial immersion
- Length 200mm

Type	Order code	1+
Breaksafe thermometer	85-2655	5.98

073000



Green Fill Laboratory Thermometers

These green fill laboratory thermometers are a safe alternative to traditional mercury filling.

- Moulded glass triangular top to prevent rolling
- Available in 150mm, 200mm and 300mm lengths
- 150mm thermometer is available in total immersion and the 200mm and 300mm thermometers are available in partial immersion
- Temperature range -10 to $+110^{\circ}\text{C}$
- Clear permanent markings

Type	Order code	1+
150mm	85-2652	1.56
200mm	85-2653	1.63
300mm	85-2654	1.68

072999

Full range
available online

www.rapidonline.com/education

Rapid

Classroom Thermometer

This oversized thermometer features a large, accurate 30cm glass magnifying tube, giving the current temperature in both Centigrade and Fahrenheit. Ideal for use in the classroom or outside.

- Kerosene filled
- Range -40° to $+50^{\circ}\text{C}$ (-40° to $+120^{\circ}\text{F}$)
- Length: 380mm



Length	Order code	1+
380mm	06-9963	4.29

563492

VOLT CRAFT

LCD Digital Thermometer and Clock

The Voltcraft LCD digital thermometer and clock has an extended temperature range up to 110°C for many ranges for temperature monitoring.



There are two limit values that can be pre-adjusted, and when this value is reached, a switch output and an alarm output are activated.

Also available is a replacement NTC temperature probe that features a -10°C to $+110^{\circ}\text{C}$ range and 3m lead.

- Temperature range -10°C to $+110^{\circ}\text{C}$
- Accuracy: $\pm 1^{\circ}\text{C}$
- Measurement rate: 1 or 10 secs
- Temperature resolution: 0.1°C
- Digit height: 13mm
- Operating voltage: 1x AA batteries
- Dimensions: 68(W) x 35(H) x 24(D)mm

Please Note: Requires 1x AA battery (not supplied).

Technical specification	
Order code	51-5169
Accuracy	$\pm 1^{\circ}\text{C}$
Digit height	13mm
Dimensions W x H x D	68 x 35 x 24mm
Measurement range - temperature	-10°C to $+110^{\circ}\text{C}$
Measurement rate	1 or 10 secs
Operating voltage	1x AA battery
Temperature resolution	0.1°C

Type	Order code	1+
Temperature probe	52-0919	5.42

526180

STEAM resources

Don't forget to visit our
STEAM Lab online

www.rapidonline.com/steam-lab

VOLTcraft®

DET3R Penetration thermometer

The Voltcraft DET3R is a penetration thermometer that is ideal for measurements in the food industry, butcheries, food testing laboratories and for health inspectors. Having a waterproof casing makes it suitable for use in liquids. The simple and quick execution of zero balance in ice water ensures higher accuracy for longer period.

- Min/Max Hold Memory with dynamic update
- C/F switch
- T90 Measure time approx. 8 seconds
- Auto-switch-off
- Continuous measurement function
- Measuring range -40°C to +250°C
- Waterproof as per the IPx7 standard
- High accuracy by simple calibration in ice water
- Supplied with Voltcraft DET3R penetration thermometer, protection cap with clip, 1x LR1 battery and user manual.



Protection cap with clip, 1x LR1 battery, user manual.

Technical specification

Sensor type	Penetration sensor
Temperature range	-40°C to +250°C
Resolution	0.1°C
Basic accuracy	±0.5°C
Sensor length	105 mm
Dimensions L x W	218 x 25mm
Power supply	1x LR44
Weight	34g

Type	Order code	1+
Voltcraft DET3R	51-5210	21.25

525221

VOLTcraft®

IR 110-1S Infrared Thermometer

The Voltcraft IR-110-1S mini infrared thermometer is intended for non-contact measuring of temperatures of -33°C to +110°C. The IR-110-1S can also be used as a clock or a stopwatch. It is not suitable for industrial or medical use. The product is powered by a CR2032 battery.



- Small, convenient and accurate
- The ideal companion with a wide variety of optional features
- Min/ Max function
- Automatic power off after 15 seconds
- Duration measuring activated
- Integrated clock
- Stopwatch
- Display of the room temperature
- Switchable between C and F
- Optics 1:1
- Measuring range -30°C to +110°C
- Integrated stopwatch

Lithium battery (CR2032), Manual.

Please Note: Use only in a dry indoor environment.

Please Note: It is not suitable for industrial or medical use.

Technical specification

Accuracy	±2.5°C or 2.5%
Dimensions W x H x D	33 x 73 x 14mm
Emissivity	0.95 fix
Measurement range - temperature	-33°C to +110°C
Optics	1/1
Pick-up time	<1 secs
Power supply	Lithium Battery CR2032
Operating temperature	0°C to +50°C
Battery life	40 hours in continuous operation
Temperature resolution	0.2°C
Weight	25g

Type	Order code	1+
Voltcraft IR 110-1S	51-5190	16.96

525201

Rapid
...where price meets quality

Measuring Scales & Balances

KERN®

School Scales

These scales are ideal for general purpose weighing in laboratory environments through to quality control applications.

- Only two function keys
- Very easy to use
- Large 16mm LCD display
- Adjustment program CAL
- Battery powered (supplied) or by optional AC/DC power adaptor
- Impact resistant ABS case with non-slip rubber feet
- Splash-proof membrane keypad



Technical specification

Kern No.	EMB 200-2	EMB 2200-0	EMB 5.2K5
Readout	0.01g	1g	5g
Weight range	200g	2,200g	5,200g
Stabilisation	2 to 3 secs	2 to 3 secs	2 to 3 secs
Auto-off (batt)	After 3 mins	After 3 mins	After 3 mins
Operating temp	0°C to +40°C	0°C to +40°C	0°C to +40°C
Battery supply	1x 9V	2x AA	2x AA
Mains adaptor	85-1681	85-1681	85-1681
Dimensions (mm)	170(W) x 240(D) x 39(H)	170(W) x 240(D) x 39(H)	170(W) x 240(D) x 39(H)
Weight approx.	600g	600g	600g
Order code	85-2356	85-2358	85-2359

Kern No.	EMB 500-1	EMB 5.2K1
Readout	0.1	1
Weight range	500g	5200
Stabilisation	2 to 3 secs	2 to 3 secs
Auto-off (batt)	After 3 mins	After 3 mins
Operating temp	+5°C to +35°C	+5°C to +35°C
Battery supply	1x 9V	1x 9V
Mains adaptor	85-1681	85-1681
Dimensions (mm)	170(W) x 240(D) x 38(H)	170(W) x 240(D) x 38(H)
Weight approx.	0.5kg	0.5kg
Order code	85-3436	85-3437

Type	Order code	1+
EMB 200-2 Scales	85-2356	107.65
EMB 2200-0 Scales	85-2358	53.72
EMB 5.2K5 Scales	85-2359	38.07
EMB 500-1 Scales	85-3436	51.83
EMB 5.2K1 Scales	85-3437	54.10

071992

KERN®

440-35N Precision Balance 400g

This is the ideal entry-level model for all laboratory technicians.

- Excellent value for money in this performance class
- Many multiple functions are at users disposal
- Can be used for parts counting and also for weighing different mixtures
- Data transfer to printer or PC function
- Four function keys
- Protective working cover as standard
- Includes test weight, DKD approved
- Supplied with an AC/DC mains power adaptor



Technical specification

Kern part No.	440-35N
Readout	0.01g
Weighing range	400g
Stabilisation time	3 seconds
Auto-off function (batt. mode)	After 3 minutes
Operating temperature	+10°C to +40°C
Dimensions	165(W) x 230(D) x 80(H) mm
Weight approx.	1kg
Order code	85-2361

Type	Order code	1+
440 35N Scales	85-2361	297.53

071995

medline
LABORATORY LIMITED

White Diamond Square Weighing Dishes

These Medline 'White Diamond' weighing dishes are made of white, translucent polystyrene and are easily bent into pouring spouts for non-spill transfer of liquids. They are biologically inert, contaminant-free and are resistant to diluted acids, aqueous solutions, alcohols and bases.



- Suitable for microwave
- Will withstand temperatures from -10 to +80°C
- Not antistatic
- 5ml size are supplied in packs of 250
- 30ml size are supplied in packs of 500
- **Medline types 1911103 (5ml) and 1911104 (30ml)**

Technical specification

Nominal capacity	Dimensions	Weight
5ml	41 x 41 x 8mm	0.34g
30ml	89 x 89 x 25mm	1.07g

Type	Order code	1+
5ml (250)	85-2366	2.78
30ml (500)	85-2349	8.89

500328

SALTER

Electronic Disc Kitchen Scale

The Salter Disc Scale's Add & Weigh function allows you to measure multiple ingredients in the same bowl - saving you washing up!



- Weigh ingredients directly onto the scale or use your own bowl
- Switch between g/kg and oz. lb
- Easy to read LCD display
- Compact slim design for easy storage
- Contemporary design
- Capacity: 5kg/11lb
- Resolution 1g/0.1oz.
- Powered by a single Lithium CR2032 battery (included)
- Manufacturer's 15-year guarantee
- **Salter model 1036 BKSSDR**

Type	Order code	1+
Salter disc scale	52-7245	12.70

300580



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Meet the latest BBC micro:bit,

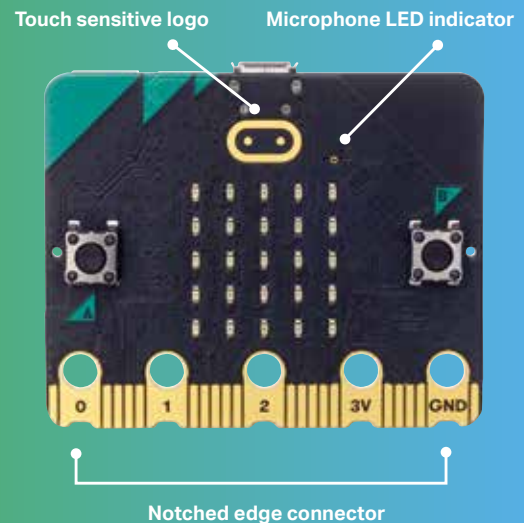
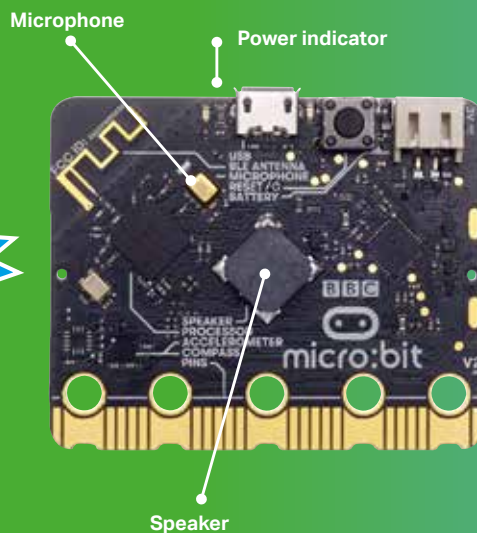
more than just a :bit of an upgrade

Same great features, easier ways to use sound and touch to get creative in the classroom and add to your projects.

£10.49

Order code
75-0153

NEW



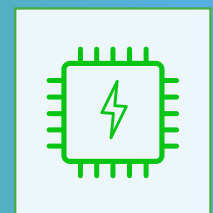
- Play, sense and react to sound with the built-in Microphone & Speaker
- Capacitive touch sensor
- More computing power
- For full details visit www.rapidonline.com



Capacitive touch sensor (a bit like your phone!)



Power saving mode



More computing power