



# MaidSafe Foundation

## STEM Education Pack

### Lesson Resources

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SC042032

## Early Level Resources

**S01** – Interactive whiteboard or similar for introduction.

Internet Connected PCs if the children are to complete the task individually or in small groups.

No pack resources required.

**S02** – Toy cars and ramps, from the Maid-Safe Resources Box.



**S03** – Junk modelling resources.

From the pack: Tape, cars, marbles, ping pong balls, tennis balls, dominoes.

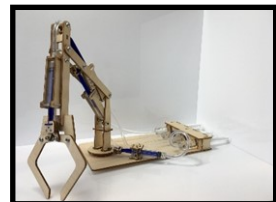


**S04** – Water bowls.

From the pack: Syringes, plastic tubing.

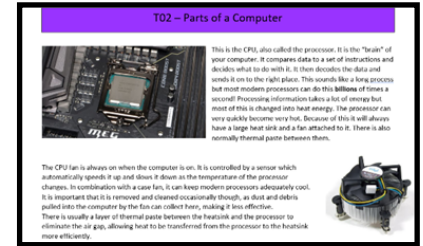
Model digger arm.

**The arm requires assembly before first use.**



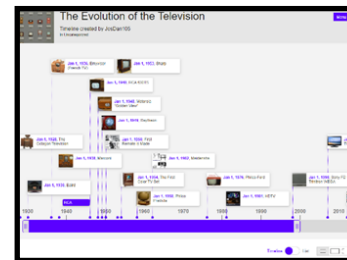
**T02** - Desktop Computer (tower only with side panel removed) This is desirable but not necessary. Visualiser (if available)

From the Pack: Worksheet T02 - Parts of a computer.



**T03** - Internet Connected Devices

YouTube video: <https://www.youtube.com/watch?v=599I1E-rWTU> (8-11 year olds)



**T04** – Interactive Whiteboard or similar. Television Timeline, found at <https://www.timetoast.com/timelines/the-evolution-of-televitions>

There is a button just under the timeline to view it as a list. This is more useful as it gives information about each TV.

**E01** - A3 sized piece of card, Art Straws, Plasticine or blue tack, Card-board tubes, scissors .

From the pack: Pupil Sheet E01, Plastic cups, Marbles, Masking or paper tape



M01 – Bridge Design – Pupil Sheet (2)			
You must make the bridge from either aluminium or steel. The information for each material is listed below.			
	Aluminium	Steel	
Cost per metre (£)	15,000	14,000	
Support intervals (m)	15	20	
Price per Support (£)	12,000	10,000	
Coating required	No	Yes	
Plastic Coating (£/m) (lasts 2 years)	N/A	100	
Paint (£/m) (lasts 6 months)	N/A	25	
Maintenance per year (£/m)	100	50	

You must also remember to include the cost of stairs and wheelchair access to the bridge. The bridge will need to be 18m high to allow 20m above the water. This means you need an 18m high staircase and an 18m high wheelchair ramp. An 18m high staircase is 20m long, at a cost of £1000 per metre. A wheelchair ramp 18m high must be 216m long, at a cost of £1000 per metre.

**M01** - 1mm Squared Paper, Pencils, Rulers, Calculators.

From the Pack: Pupil Info Sheet. Challenge Sheets.

**S05** - Whiteboard and/or projector  
From the pack: Pupil Sheet S05.



**S06** – Various mixtures of substances, for example salt and sand, sugar and lentils, iron filings and sand, sugar and sand. Water

From the pack: Beakers, Filter Paper, Magnets.

**S07** - Rapid Cycling Brassica Rapa kit.

From the pack: Pupil record sheet



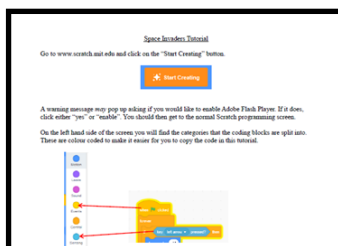
**S08** - Grapefruit, Poppy seeds, Quinoa grains, Maltesers, Peppercorns, Trundle wheel, Large open space i.e. playing field. (500m!)

From the pack: Cocktail Sticks, Tape Measure.

**S09** - Interactive Whiteboard or similar

<https://www.youtube.com/watch?v=cxrLRbkOwKs> – Solar Eclipse

<https://www.youtube.com/watch?v=VW2xRR75IKE> – Lunar Eclipse



**T01** - Internet enabled computers or iPads

From the pack: Space Invaders Tutorial  
Space Invaders computer files (Both are available to download from [maid-safe.foundation/STEM.html](http://maid-safe.foundation/STEM.html) )

The password to access the files is "invaders" (Without quotation marks).

**S05** – Selection of general items such as pencils, rubbers, coins, cloth, paper, rubber balls, marbles etc. Water Tray.

Float or sink placemats (download, print and laminate from the Maid-Safe Website.



**S06** – Paper Towels, water.

From the pack: Plastic cups, Green bean seeds.



**S07** – Plasticine or blu-tac.

From the pack: Inflatable globe, torch.

**T01** – Codeapillar and start/stop mats OR beebots and beebot mats.

(Beebot mats can be downloaded and printed from the MaidSafe website.)

**T02** – Desktop PC, Laptop computer, tablet and mobile phone.

**T03** – Internet connected devices.

Internet Safety Powerpoint Presentation (Available to download on the MaidSafe Website.)

**T04** – A selection of manmade objects ranging from the very basic to most complex. For example, a wooden spoon, a laptop computer and a range of items in between. Include some examples of clothing.

**T05** – Imaginative Play and dressing up costumes – People Who Help Us theme.



**E01** – Art Straws, string, Construction kits (Lego or similar), weights, scissors, glue.

From the pack: Wooden dowsing.

**E02** – PVC Guttering, Fence or wall for mounting guttering.

From the Pack: Rubber ducks.



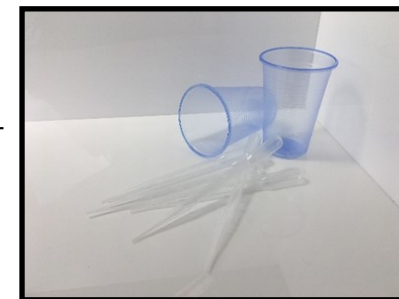
**M01** – A range of non-standard units, for example cubes, post-it notes, pencils.

M01 Measure Pupil Sheet. (Available from the MaidSafe website)

## **Second Level Resources**

**S01** – Shredded Red Cabbage, Hot water, Selection of substances to test, Known acid and base (for example, white vinegar and sodium bicarbonate solution).

From the pack: Plastic cups, Droppers, pH Indicator Pupil Sheet.



**S02** – Granulated sugar, caster sugar, sugar crystals. Rock salt, table salt. Flour. Hot water, cold water. Scales.

From the pack: Beakers, timers, measuring spoons.

**S03** – AA Batteries

From the pack: Wire, wire strippers, switches, bulbs, bulb holders, motors, buzzers.

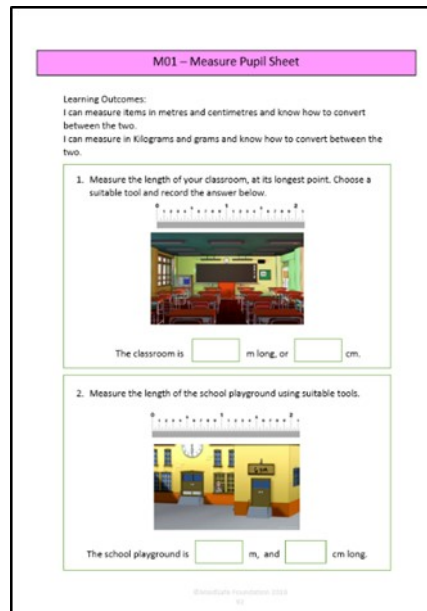


**S04** – Lemons,

From the pack: Wires, Wire Strippers, Copper nails, Zinc nails, LEDs.

**M01** – Rulers, Metre sticks, Trundle wheels, Balance, Weights.

From the pack: Pupil Sheet M01.



## **First Level Resources**

**S01** – Floor Mats, Gym benches, Bell, Whistle.



**S02** – AA batteries, screwdrivers, paper clips, drawing pins.

From the kit – Battery holders, wire, wire strippers, bulbs, bulb holders.

**S03** – water bowls, Rulers.

From the pack – 10ml syringes, plastic tubing, S03 pupil sheet from MaidSafe website.



**S04** – water bowls, weights, rulers.

From the pack – 10ml syringes, plastic tubing, cable ties, S04 pupil sheet.

**S05** – Junk modelling resources

From the pack – Dominoes.





**S06** – Range of materials with different properties, for example, wooden blocks, plastic sheets, fabrics, paper, card. Model making resources – rulers, scissors, glue.

From the pack – hacksaws and bench hooks. Material properties pupil sheet from MaidSafe website.



**S07** – water, cotton wool pads.

From the pack - Beakers, cress seeds, plastic cups.

**S08** – Laminated blank A4 sheet, Pencil, permanent marker, Ruler, Plasticine, Set Square (or any object with a 90 degree angle).

From the pack – Inflatable globe, torch.



**S09** – Interactive Whiteboard or similar,

YouTube video: <https://www.youtube.com/watch?v=f4ZHdzl6ZWg>

From the Pack – Pupil sheet S09 from MaidSafe website.



**S10** – Interactive Whiteboard or similar.

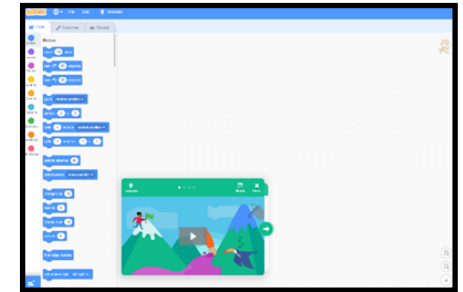
YouTube Video: <https://www.youtube.com/watch?v=l64YwNI1wr0>

From the Pack – Pupil Sheet S10

**T01** – Interactive whiteboard or similar.

Scratch Website:  
[www.scratch.mit.edu](http://www.scratch.mit.edu)

Scratch Cards – Available on the MaidSafe Website.



**T02** – Interactive whiteboard or similar.

**T03** – Interactive whiteboard or similar OR Desktop PCs for pupils to work at in small groups.

YouTube Videos:

<https://www.youtube.com/watch?v=-nMUbHuffO8> (5-7 year olds)

<https://www.youtube.com/watch?v=599I1E-rWTU> (8-11 year olds)



**T04** – Interactive Whiteboard or similar.  
Mobile Phone timeline, available at

<https://www.tigermobiles.com/evolution/#start>

**E01** – PVA Glue, Cardboard, Elastic bands, Twine, Bottle Caps.

From the pack: Junior Hack Saws, Bench hooks, Lollipop sticks, pom-poms, wooden dowelling.

