



Oxford Cambridge and RSA

**Friday 24 May 2019 – Afternoon**

**GCSE (9–1) Design and Technology**

**J310/01 Principles of Design and Technology**

**Insert**

**Time allowed: 2 hours**



**INFORMATION**

- This document is to be used when answering **Section B**.
- The images on page 8 are required to answer question **4**.
- The product information on pages 2 to 7 are required to answer questions **5 and 6**.
- The question paper tells you when to refer to the information contained in this Insert.
- This document consists of **8** pages. Any blank pages are indicated.

**INSTRUCTION TO EXAMS OFFICER/INVIGILATOR**

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**Product 1:** Pop up book (papers and boards)

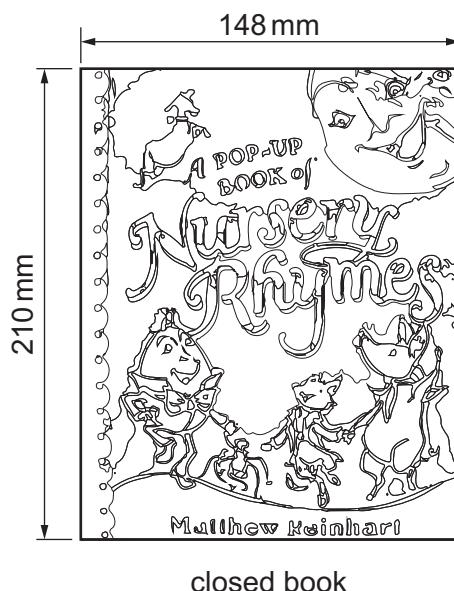
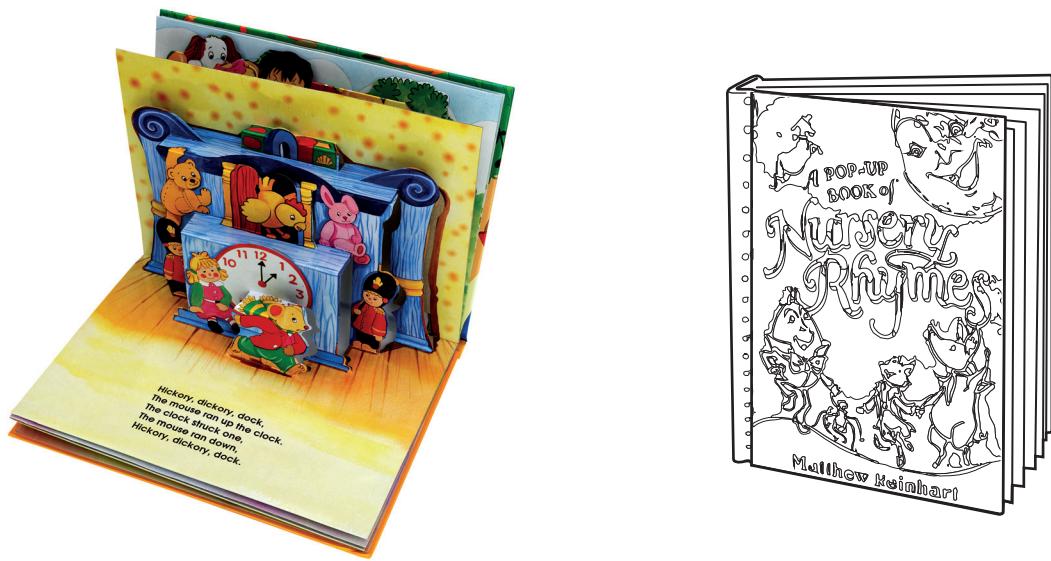
The pop up book has five pages and pop ups made from thin card. The front and back cover are made from mounting board.

The closed book is A5 size.

**Main material:** Thin card (280 gsm)

**Main part:** Pages and pop ups

Item	Material	Other information
Pages and pop ups	Thin card (280 gsm)	Printed with soy based inks Varnished with aqueous varnish
Front & back cover	Mounting board (1400 microns)	Coated in thin plastic laminate



**Product 2:** Interactive play mat (fibres and fabrics)

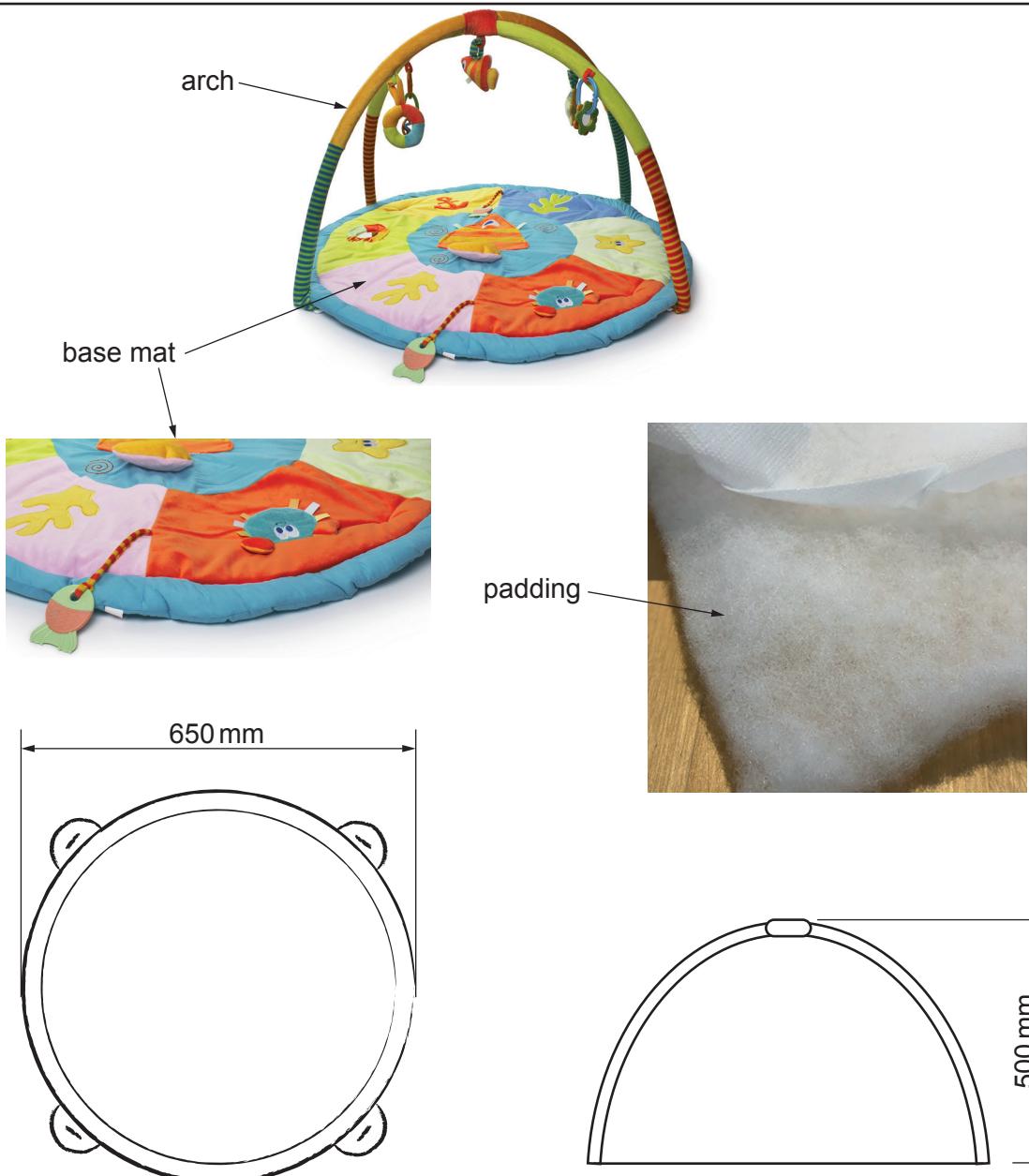
The interactive play mat is brightly coloured and has a padded base. There are five detachable hanging toys on C-clips from the arches above the play mat.

The diameter of the play mat is 650 mm and the arch at its highest point is 500 mm.

**Main material:** Polyester/cotton blend

**Main part:** Base mat

Item	Material	Other information
Base mat	Outer fabric: Polyester/cotton blend Padding: polyester	Padding approximately 15 mm thick
Arches	Polycarbonate rods	



### Product 3: Musical microphone (design engineering)

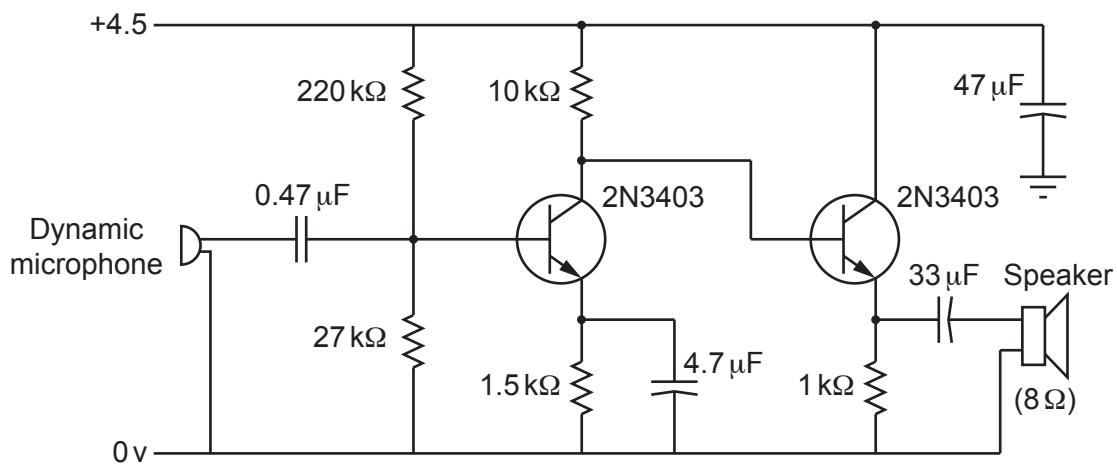
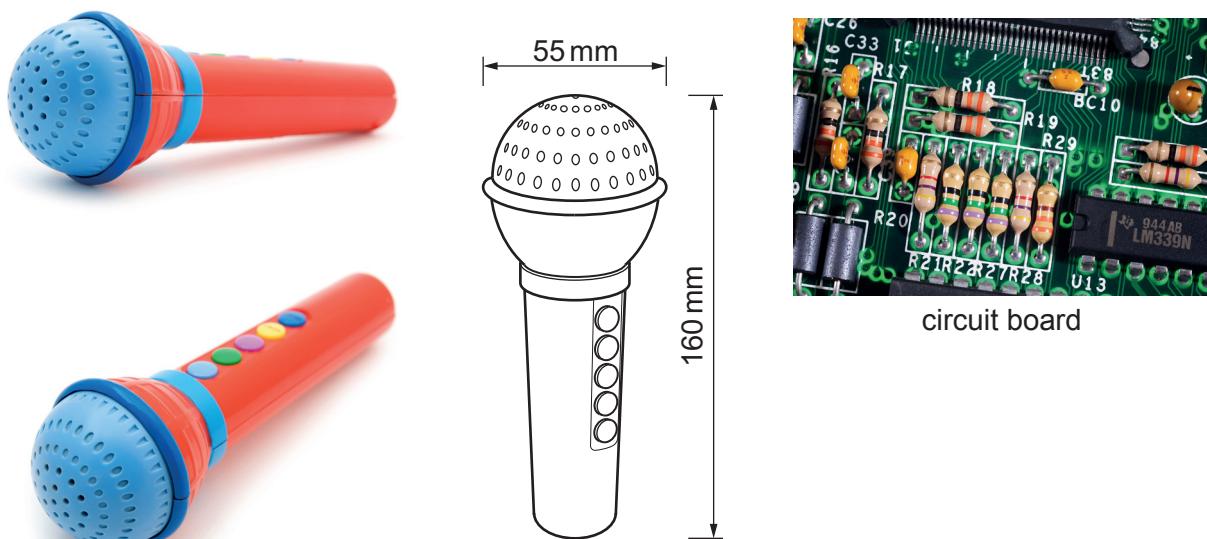
The musical microphone uses a 4.5v built-in lithium battery, charged by a USB cable.

The microphone picks up sounds made by the child, which are amplified and come out of the speaker. There are buttons that play different sound effects when pressed.

**Main material:** Paper reinforced phenolic resin with a bonded copper foil circuit board and components

**Main part:** PCB board

Item	Material	Other information
PCB board	Paper reinforced phenolic resin with a bonded copper foil	Circuit shown below
Microphone		Dynamic microphone
Speaker		8Ω 50 mm diameter
Product casing	Acrylonitrile Butadiene Styrene (ABS) plastic	



**Product 4:** Ride on toy (polymers)

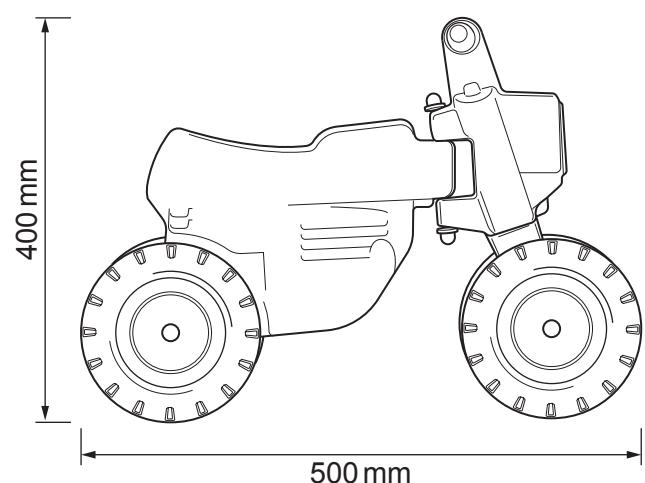
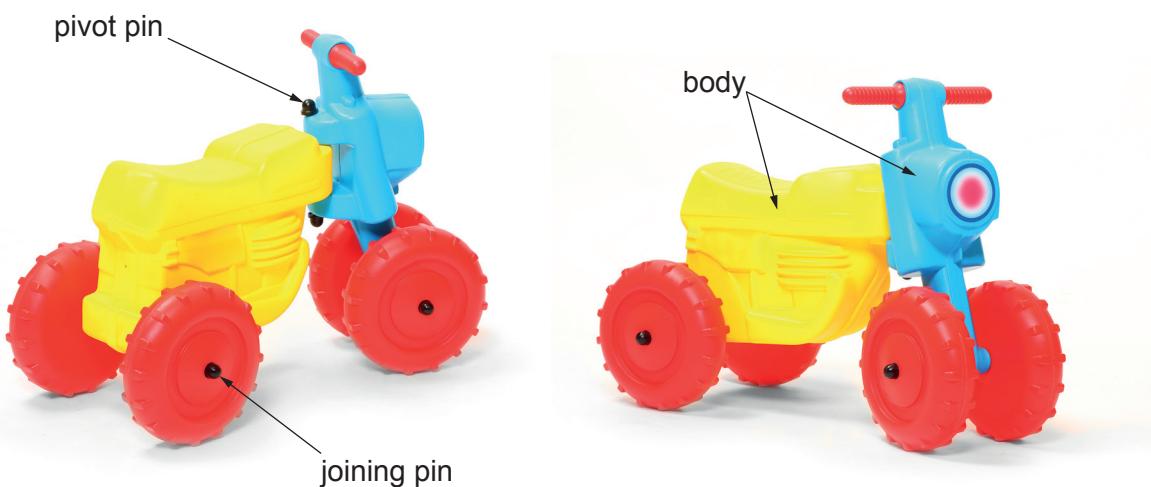
The body of the ride on toy is a hollow design made from polypropylene (PP). It has a stable design with four wheels. The two body parts are joined together using a pivot pin which allows the toy to be steered.

Height of seat: 280 mm

**Main material:** Polypropylene (PP)

**Main part:** Body

Item	Material	Other information
Body (yellow and blue)	Polypropylene (PP)	Hollow design
Wheels	High-density polythene (HDPE)	
Joining pin/pivot pin	Mild steel	Plastic cap both ends



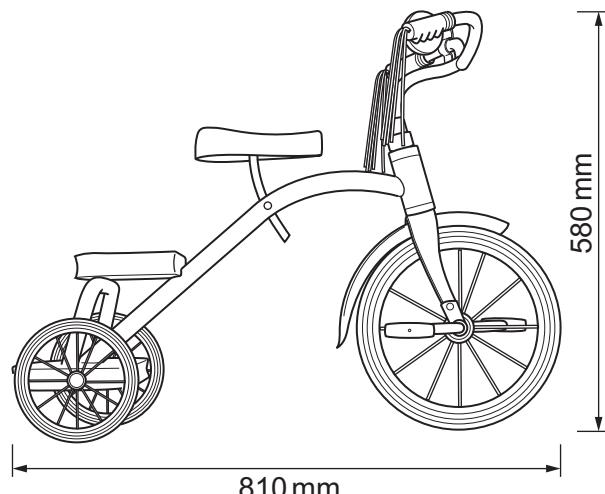
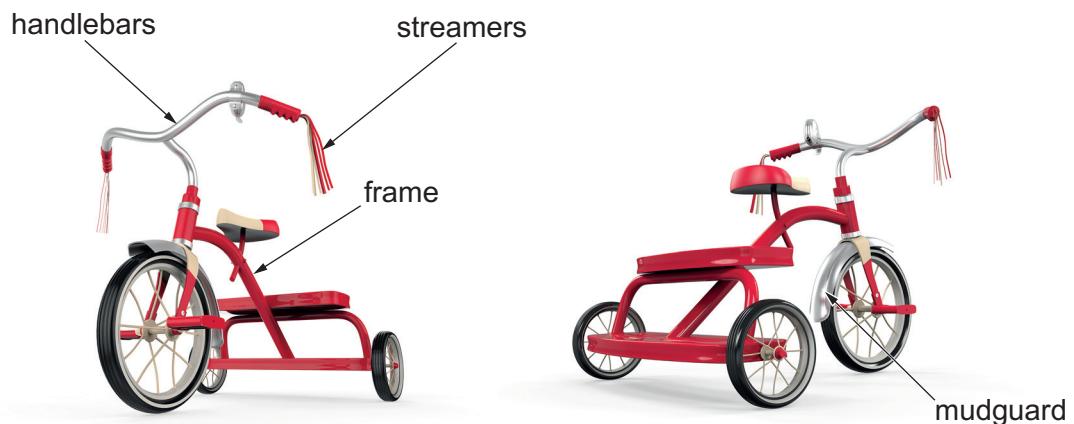
**Product 5: Tricycle (metals)**

The tricycle has a painted mild steel frame. The handlebars, mudguard and wheels are chrome plated mild steel. The wheels have solid rubber tyres. The handgrips have removable colourful streamers.

**Main material:** Mild steel

**Main part:** Frame

Item	Material	Other information
Frame, wheels, handlebars and mudguard	Mild steel	Frame has a painted finish Wheels, handlebars and mudguard are chrome plated
Tyres	Solid rubber	
Streamers	PVC plastic	Removable



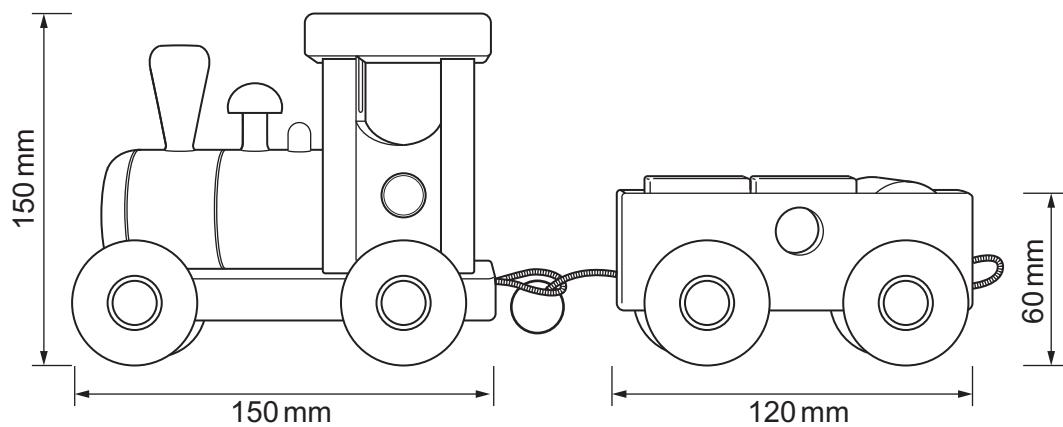
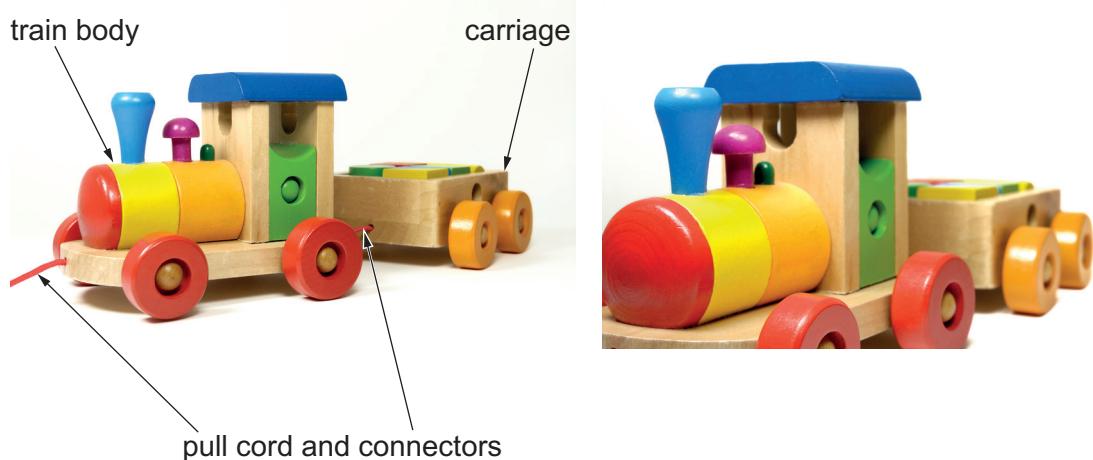
**Product 6:** Toy train (timbers)

The toy train is made from beech wood. The train is painted in bright colours with water based non-toxic paint. The train has one carriage with removable wooden blocks. The wheels are attached to the train by an axle made from mild steel rod.

**Main material:** Beech

**Main part:** Train body

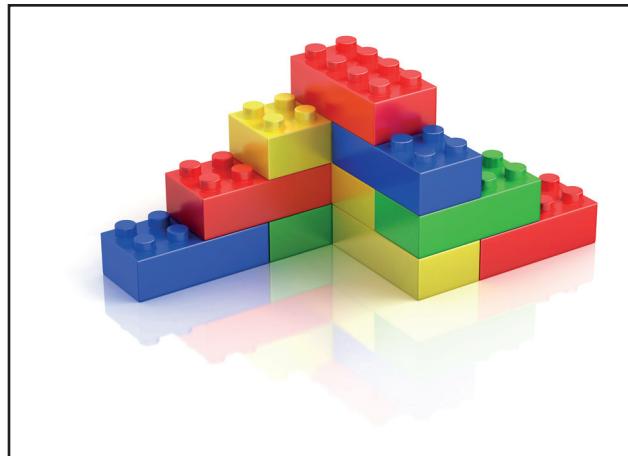
Item	Material	Other information
Train body and carriage	Beech	Painted in non-toxic water based paint
Axle	Mild steel rod	Chrome plated with wooden end piece
Pull cord and connectors	Nylon	



Information on this page is required to answer **Question 4**.



**Image A**



**Image B**



**Image C**

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