

**Modified Enlarged 24pt**  
**OXFORD CAMBRIDGE AND RSA EXAMINATIONS**

**Friday 24 May 2019 – Afternoon**

**GCSE (9–1) Design and Technology**

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

**Insert**

**Time allowed: 2 hours  
plus your additional time allowance**

**READ INSTRUCTIONS OVERLEAF**



## **INFORMATION**

**This document is to be used when answering SECTION B.**

**The images on page 16 are required to answer question 4.**

**The product information on pages 4 to 15 are required to answer questions 5 AND 6.**

**The question paper tells you when to refer to the information contained in this Insert.**

## **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.**

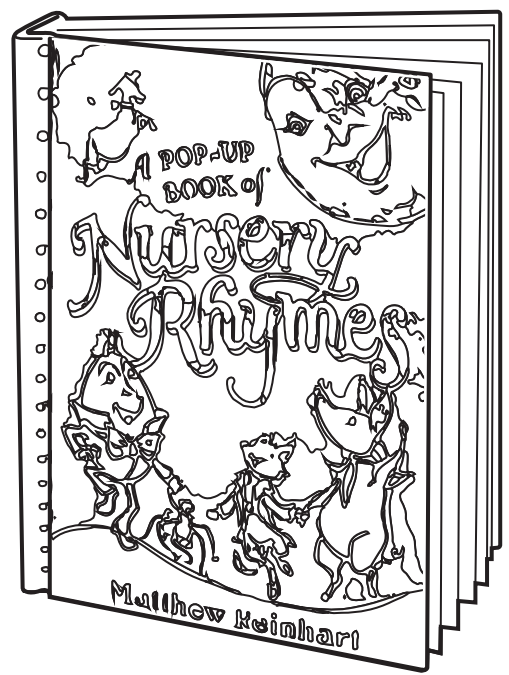
**MAIN MATERIAL: Thin card (280 gsm)**

**MAIN PART: Pages and pop ups**

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

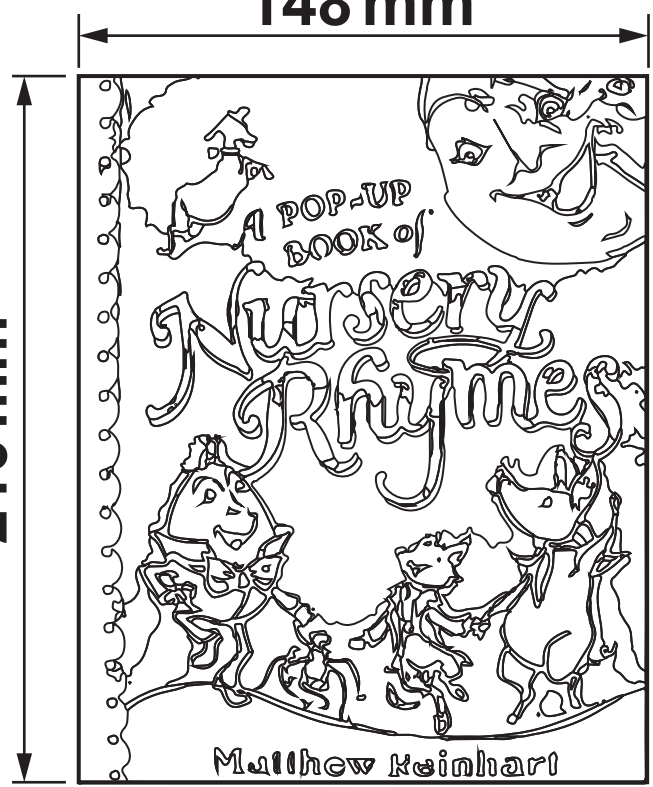


Hickory, dickory, dock,  
The mouse ran up the clock.  
The clock struck one,  
The mouse ran down,  
Hickory, dickory, dock.



148 mm

210 mm



closed book

## **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**

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

**arch**

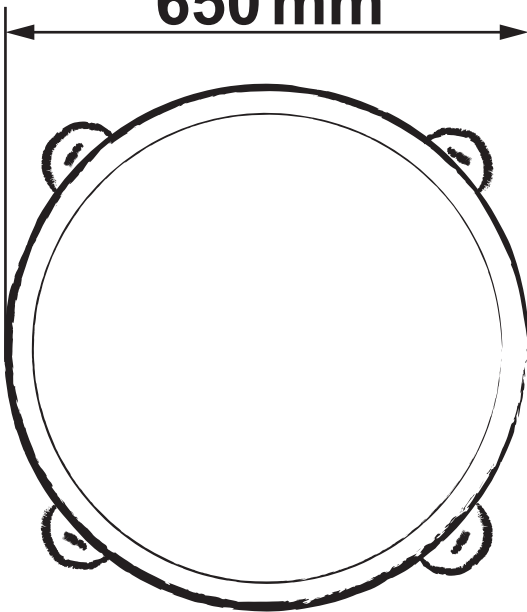
**base mat**



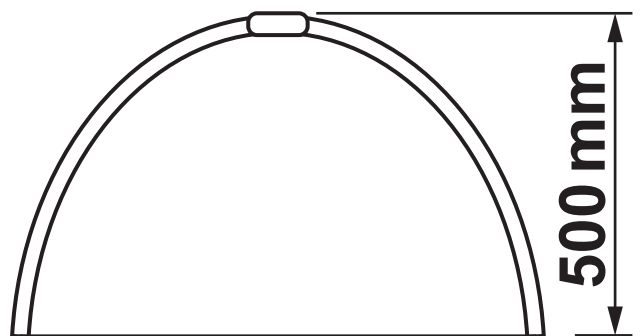
**padding**



**650 mm**



**500 mm**



## PRODUCT 3: Musical microphone (design engineering)

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

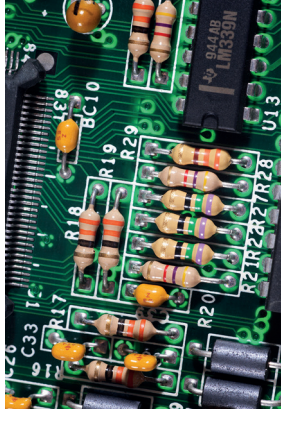
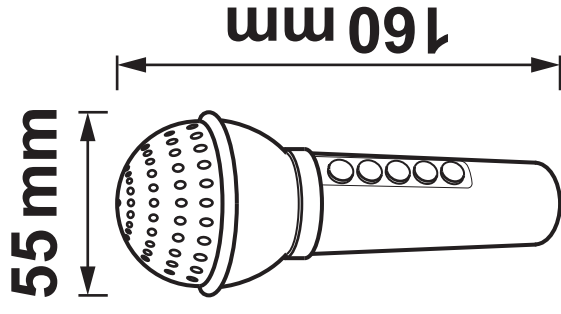
The microphone picks up sounds made by the child, which are amplified and come out of the speaker. There are buttons that play different sound effects when pressed.

**MAIN MATERIAL:** Paper reinforced phenolic resin with a bonded copper foil circuit board and components

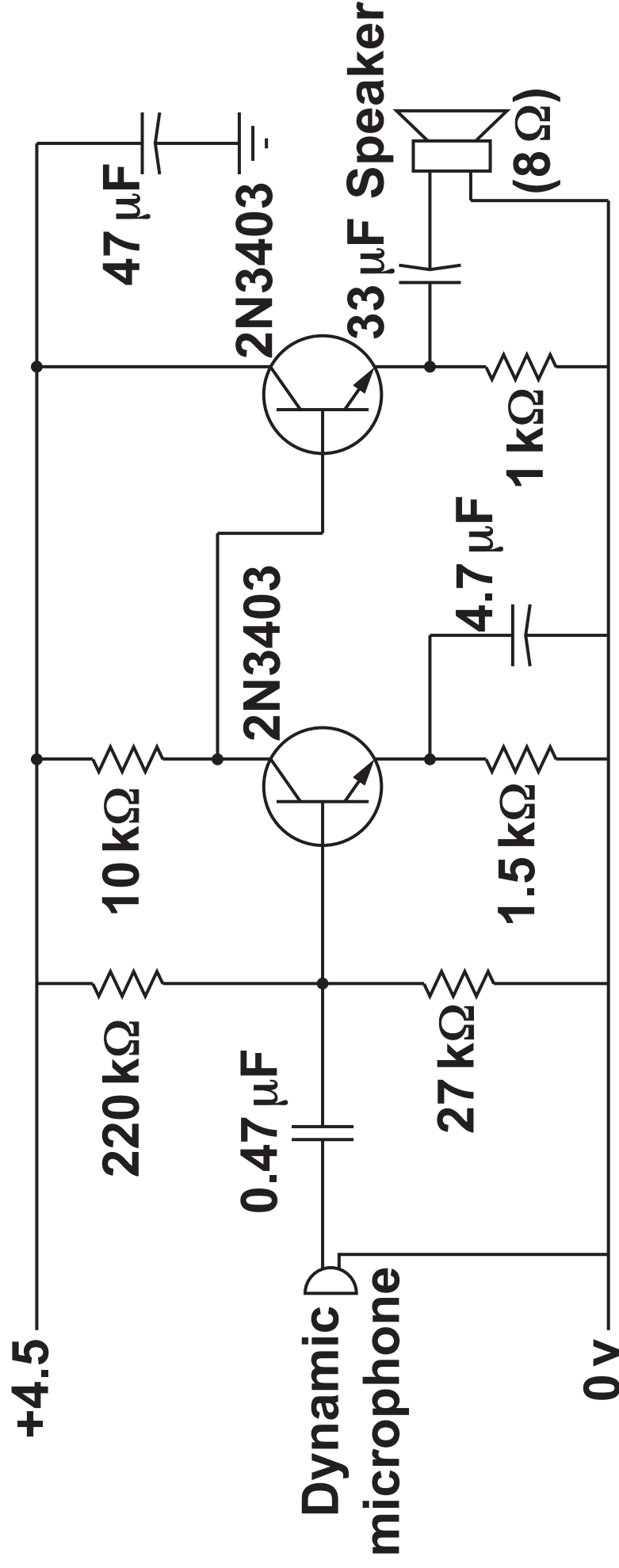
**MAIN PART:** PCB board

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





circuit board



## 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)**

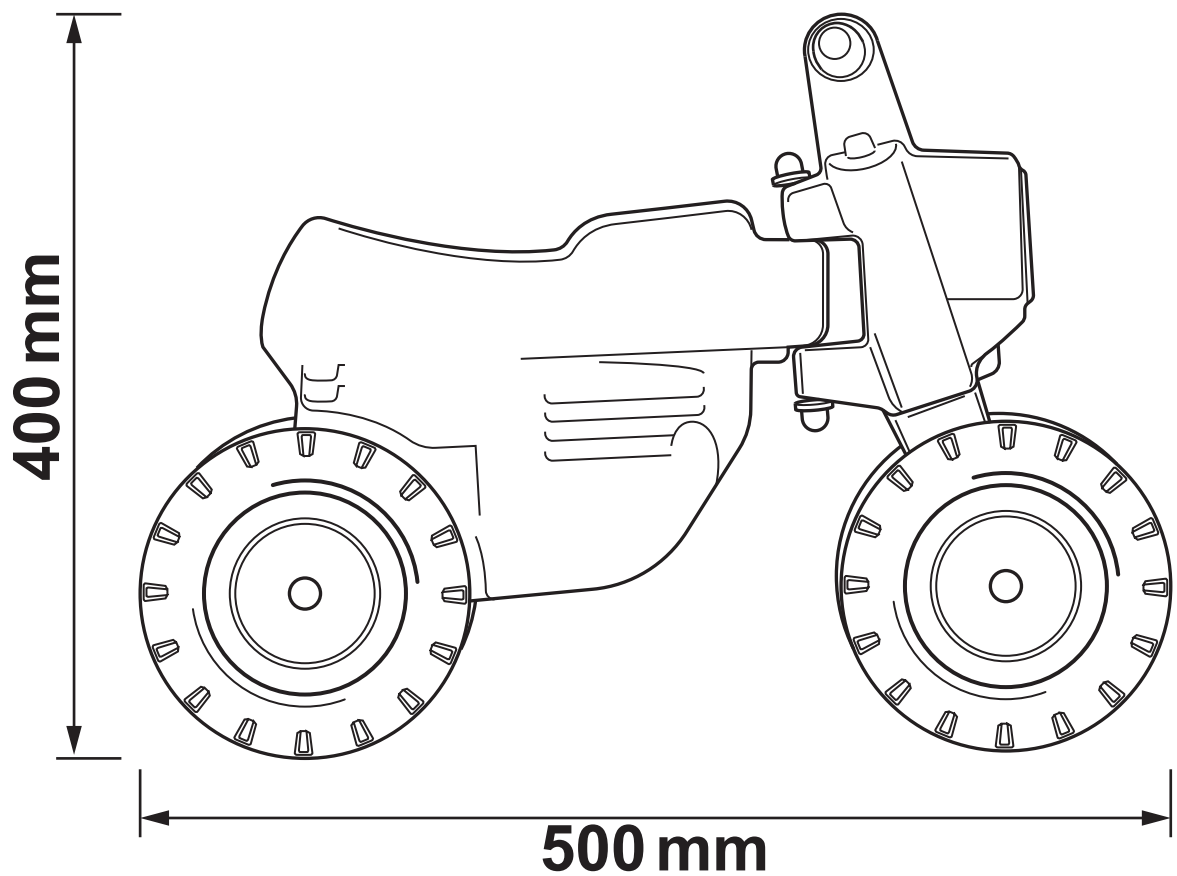
**MAIN PART: Body**

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

**pivot pin**

**body**

**joining pin**



## 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

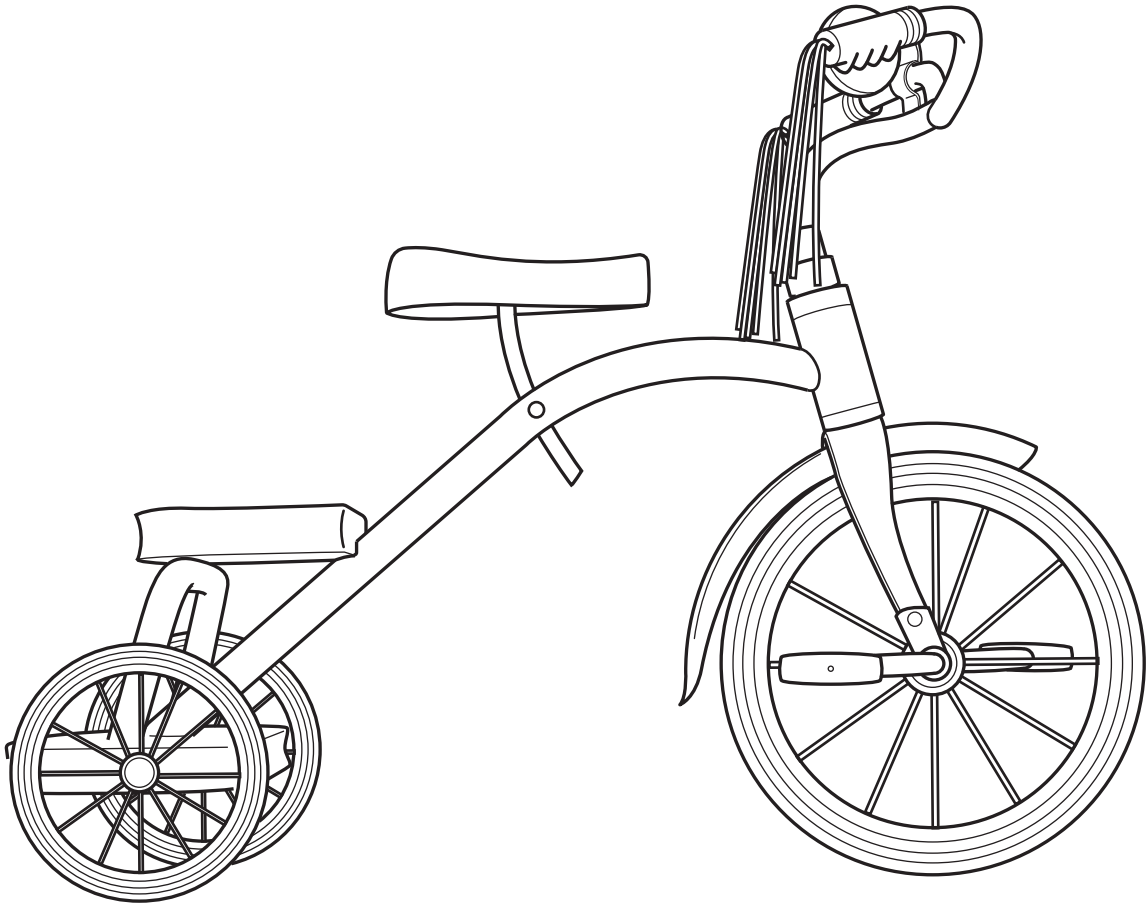
**MAIN PART:** Frame

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

**handlebars**      **streamers**



**mudguard**



**580 mm**

**810 mm**

## 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**

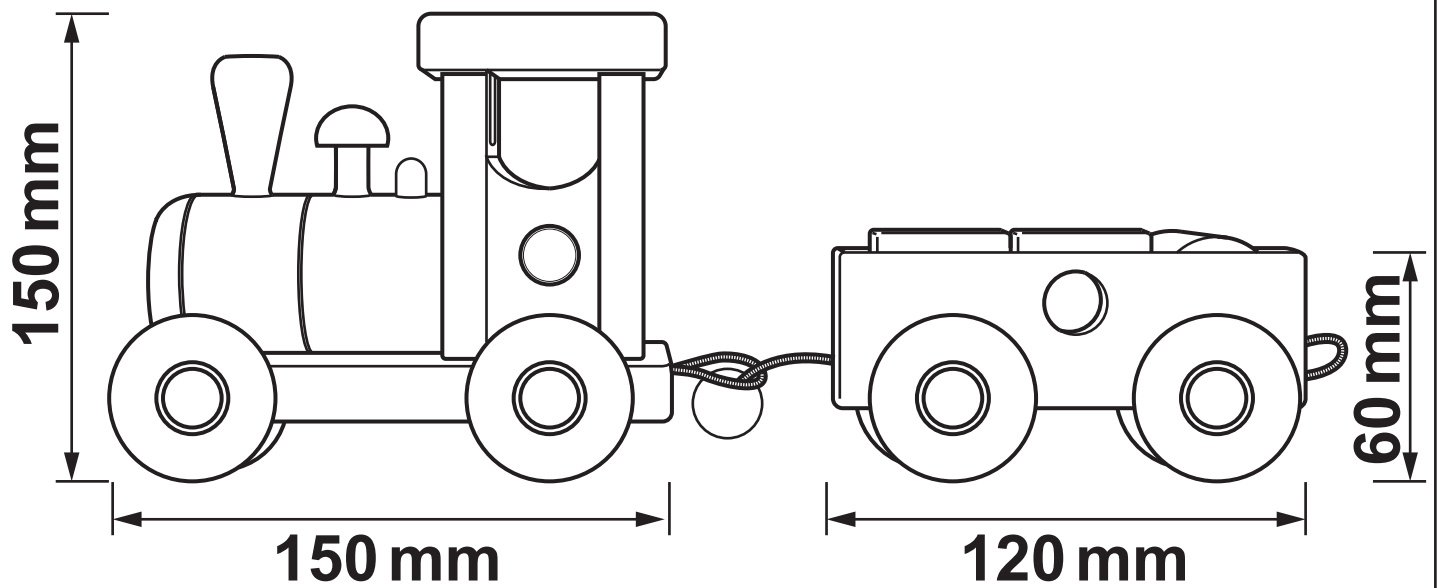
Item	Material	Other information
Train body and carriage	Beech	Painted in non-toxic water based paint
Axle	Mild steel rod	Chrome plated with wooden end piece
Pull cord and connectors	Nylon	

**train body**

**carriage**



**pull cord and connectors**



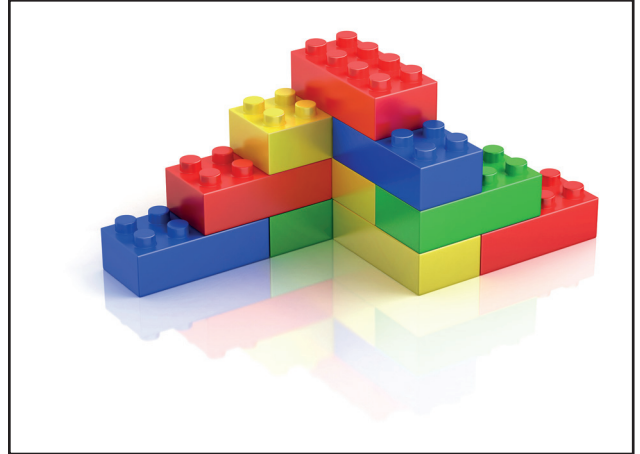


**Information on this page is required to answer QUESTION 4.**

**IMAGE A**



**IMAGE B**



**IMAGE C**





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