



Oxford Cambridge and RSA

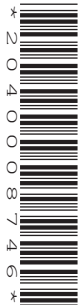
**Wednesday 18 June 2025 – Morning**

**GCSE (9–1) Design and Technology**

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

**Insert**

**Time allowed: 2 hours**



### INSTRUCTIONS

- Use this Insert to answer the questions in Section B.
- Each question tells you which part of the Insert to refer to.
- Do **not** send this Insert for marking. Keep it in the centre or recycle it.

### INFORMATION

- This document has **8** pages.

**Product 1: Banner signage (papers and boards)**

Printed banners are regularly used for advertising or temporary signage in train stations and airports. Eyelets allow for them to be hung or tied to railings.

| Item                                | Material                 | Other information            |
|-------------------------------------|--------------------------|------------------------------|
| Banner with taped edges (main part) | 510gsm vinyl sheet (PVC) | Colour printed and laminated |
| Eyelet                              | Stainless steel          | —                            |

Hanging banner

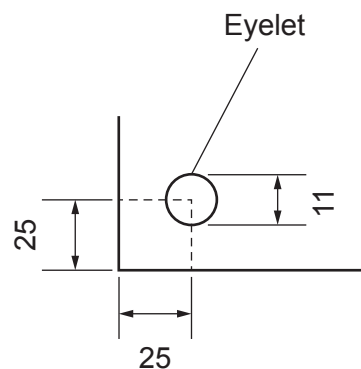
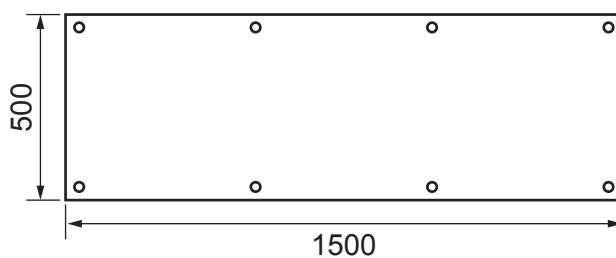


Banner attached to railings



Eyelets so the banner can be easily attached to railings

Plan of banner



All dimensions in mm

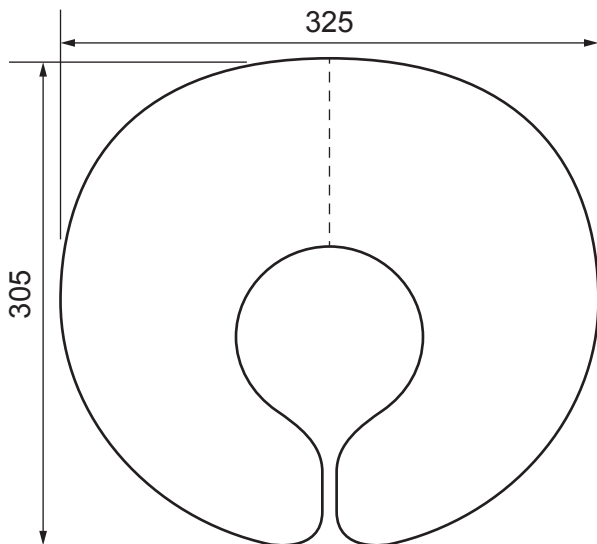
**Product 2:** Travel pillow (fibres and fabrics)

Many people use travel pillows on long journeys. The pillow has a popper that allows it to secure around the neck in use or clip to luggage. It comes in a variety of colours.

| Item                     | Material           | Other information                     |
|--------------------------|--------------------|---------------------------------------|
| Pillow cover (main part) | Fleece (polyester) | Double stitched with reinforced seams |
| Pillow                   | Memory foam        | —                                     |
| Popper and zip           | Brass              | —                                     |



U shape neck pillow



Thickness of pillow is 125 mm

All dimensions in mm

Popper fastening



Zip to remove cover

**Product 3: Bicycle light (design engineering)**

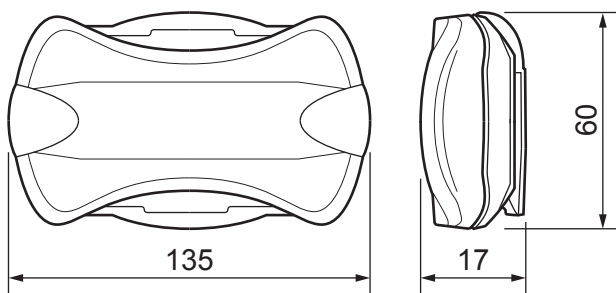
Rear bicycle light using LEDs. The clip mounting allows users to slide the light in or out from the mount easily. A switch is used to turn it off and on.

| Item                              | Material            | Other information                       |
|-----------------------------------|---------------------|-----------------------------------------|
| Light casing (main part)          | Polypropylene body  | Moulded to shape                        |
| Light cover                       | Acrylic             | Moulded to shape                        |
| Clip                              | Polypropylene       | –                                       |
| 5 LED printed circuit board (PCB) | Insulating material | Battery powered with USB charging cable |

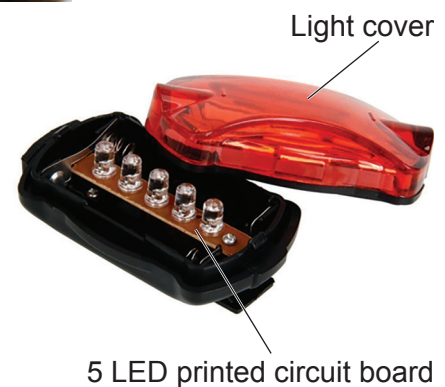
Assembled light



Light removed from fitting



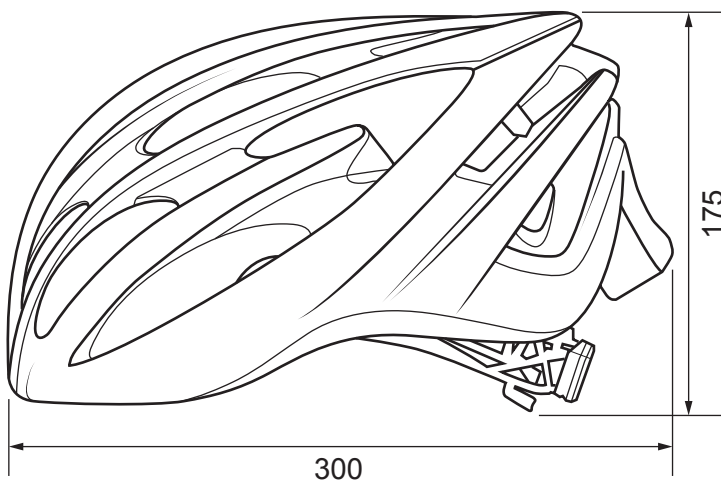
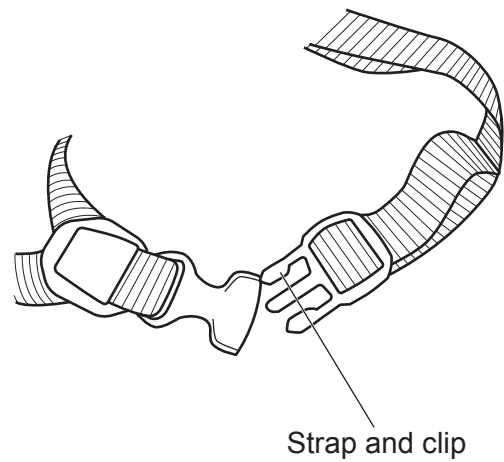
All dimensions in mm



**Product 4:** Bicycle helmet (polymers)

Road cycling helmets offer protection when cycling and are used by many children and adults.

| Item                           | Material                                  | Other information |
|--------------------------------|-------------------------------------------|-------------------|
| Helmet outer shell (main part) | ABS                                       | Moulded to shape  |
| Helmet inside layer            | Expanded polystyrene (EPS)                | Moulded to shape  |
| Strap and clip                 | Woven nylon strap with polypropylene clip | —                 |

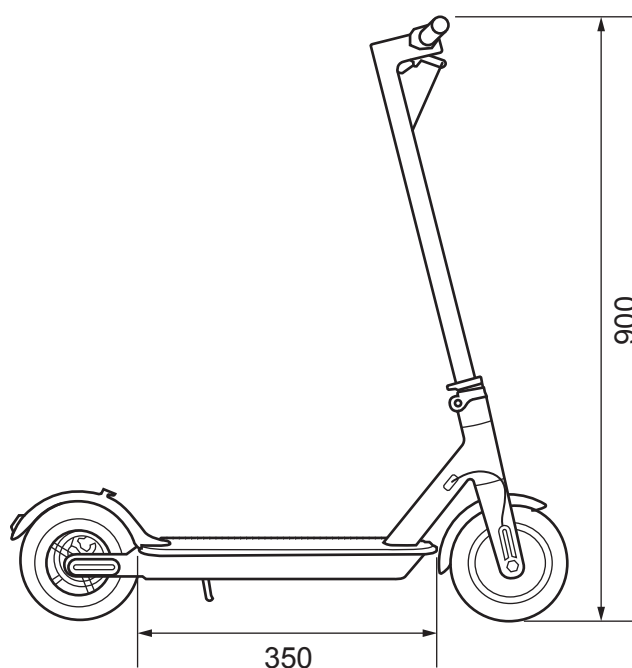


All dimensions in mm

**Product 5:** Children's scooter (metals)

Push scooters are a popular method of travelling to school or work. The scooter has handlebars and a stand that can be used when the scooter is not in use.

| Item                                    | Material                 | Other information |
|-----------------------------------------|--------------------------|-------------------|
| Frame, stand and handlebars (main part) | Aluminium alloy          | Fabricated        |
| Deck                                    | Aluminium alloy textured | —                 |
| Handlebar cover                         | Rubber                   | Moulded           |



All dimensions in mm



**Product 6: Modular seating (timbers)**

The curved modular seating system is used in public spaces such as train stations and airports. The shape can be customised to fit the available space. The seating system has built-in arm-rests with cup holders.

| Item                         | Material                         | Other information               |
|------------------------------|----------------------------------|---------------------------------|
| Seating sections (main part) | Birch plywood                    | Bent to shape. Oiled/wax finish |
| Frame                        | Steel flat bar                   | Bolted to assemble              |
| Arm-rest and cup holder      | Birch plywood and steel flat bar | Screwed to seating section      |

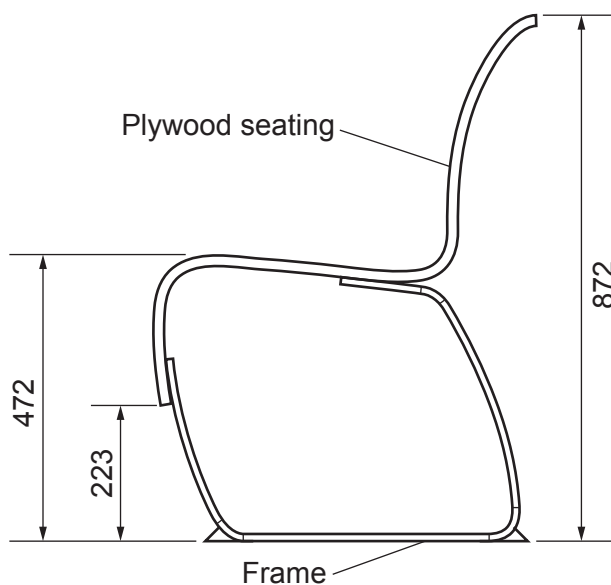
The seating is made up of modular sections arranged in different formats to suit the space.



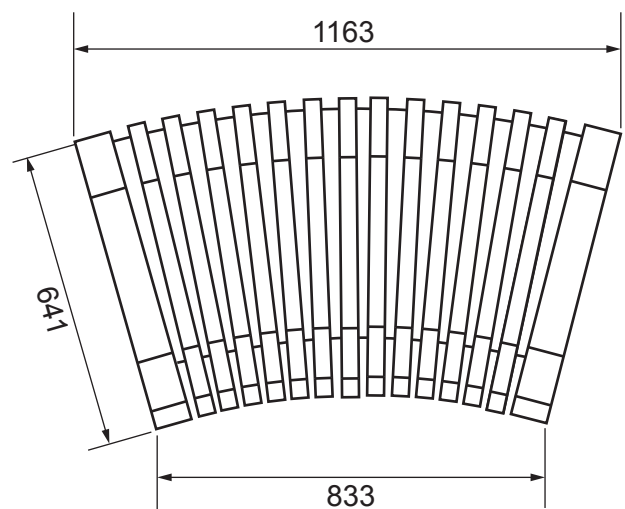
Frame



Arm-rests and cup holders



All dimensions in mm



Seating section  
TOP VIEW

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

**Image A**



**Image B**



**Image C Body**



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