

Junior Certificate Technology

Ordinary Level

Design Folio

Year

20XX

Design Task

C

Examination Number

246810

School Roll Number

13579B

Note:

The content layout in this exemplar design folio follow the headings as outlined in the Technology Design Tasks document (SEC ref S.67).

The content itself serves as a guideline only to the brief presente

Analysis of chosen task

Rewrite the design brief **chosen** in the space provided:

Design and make a decorative jewellery box.
An electronic or electro- mechanical feature must be integrated into the box.
This feature activates when the box is opened.

In your own words, list the **important elements** of the **above** design brief:

The design must be a decorative jewellery box.
It must include an electronic or mechanical feature – this could be light, movement or sound.
The feature must work when the box is opened and stop working when the box is closed.

In your own words, list some of your **own** specifications for the **above** design

I must make a colourful and decorative jewellery box.
It must store lots of different types of jewellery securely, i.e. ear-rings, rings, bracelets and chains.
The feature must activate when a lid or drawer is opened.
The box must be safe to use with no sharp corners, edges, etc.
All wires must be hidden from view.
It must allow access to the circuit and/or mechanism.

Note: A specification is a list of things that your design must do so that it works well.

Research – Investigation of existing solutions

Describe the form(s) of research carried out (e.g. internet, books, catalogues, visit to shops, local area of interest, interview etc.)

- It may help to examine **existing solutions** to the design brief.
- This may include researching suitable **components, mechanisms** and/or **circuits**.

List form(s) of research:

I went on the internet and I googled jewellery boxes.

I found the following sites: www.amazon.co.uk,
www.jewelryboxes123.com

I also googled jewellery boxes in google images.

I also looked at jewellery boxes in the Argos catalogue.

What did you find out?

Handles for carrying



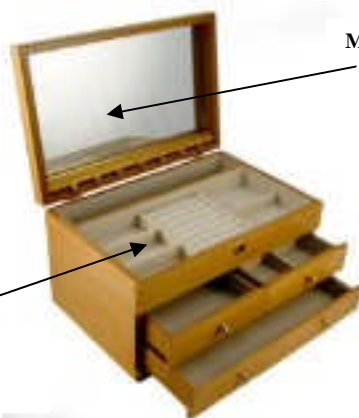
Large compartments



Colourful appearance

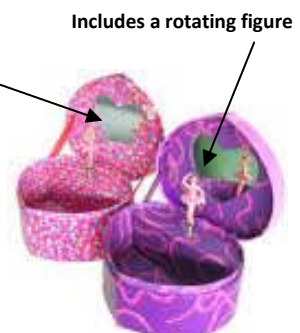


Plays music when lid is lifted



Mirror

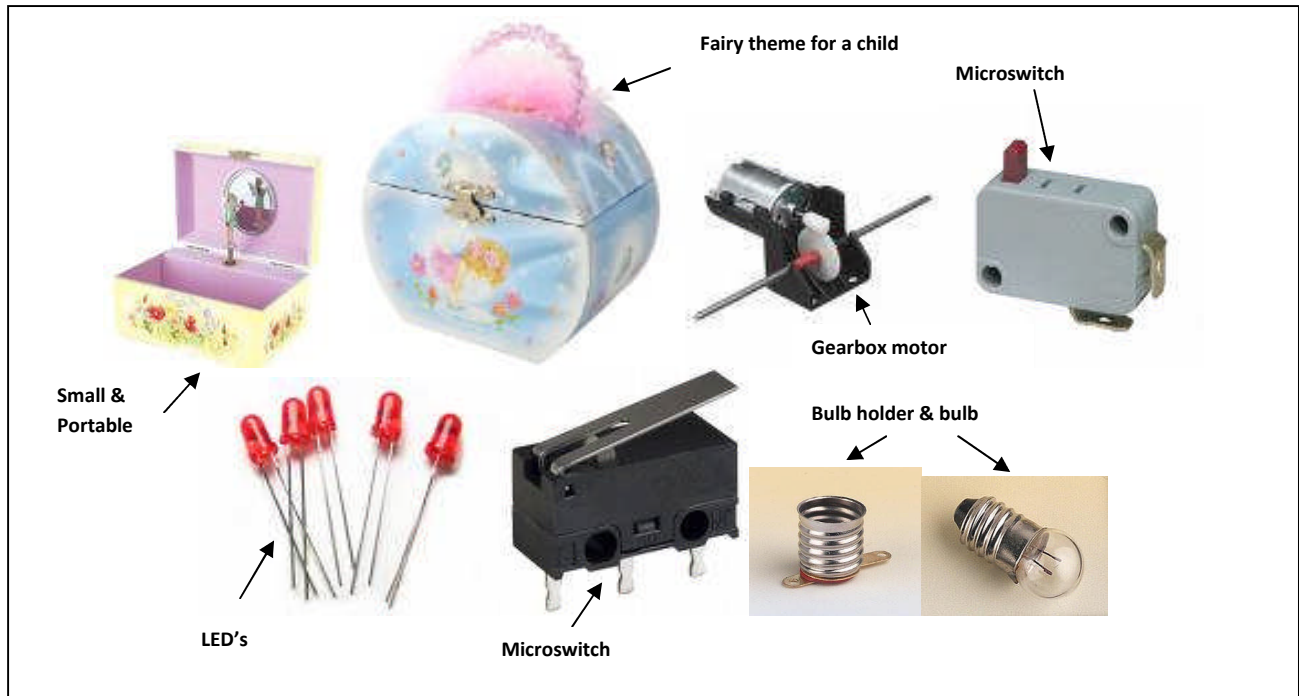
Individual sections for rings and earrings



Includes a rotating figure

Research – Investigation of existing solutions

What did you find out? (continued)



What information have you found which might be useful in developing your design ideas?

- Jewellery boxes come in lots of different sizes.
- Some play music when opened. These can be operated by a wind up mechanism or by a battery.
- Some contain a little doll that twirls around when the lid is opened.
- Some boxes had a switch in the lid to turn on a light.
- Most of the boxes were made from wood. Some were made from plastic.
- I researched some components for my circuit.
- I could use a gearbox motor, LED or a bulb.

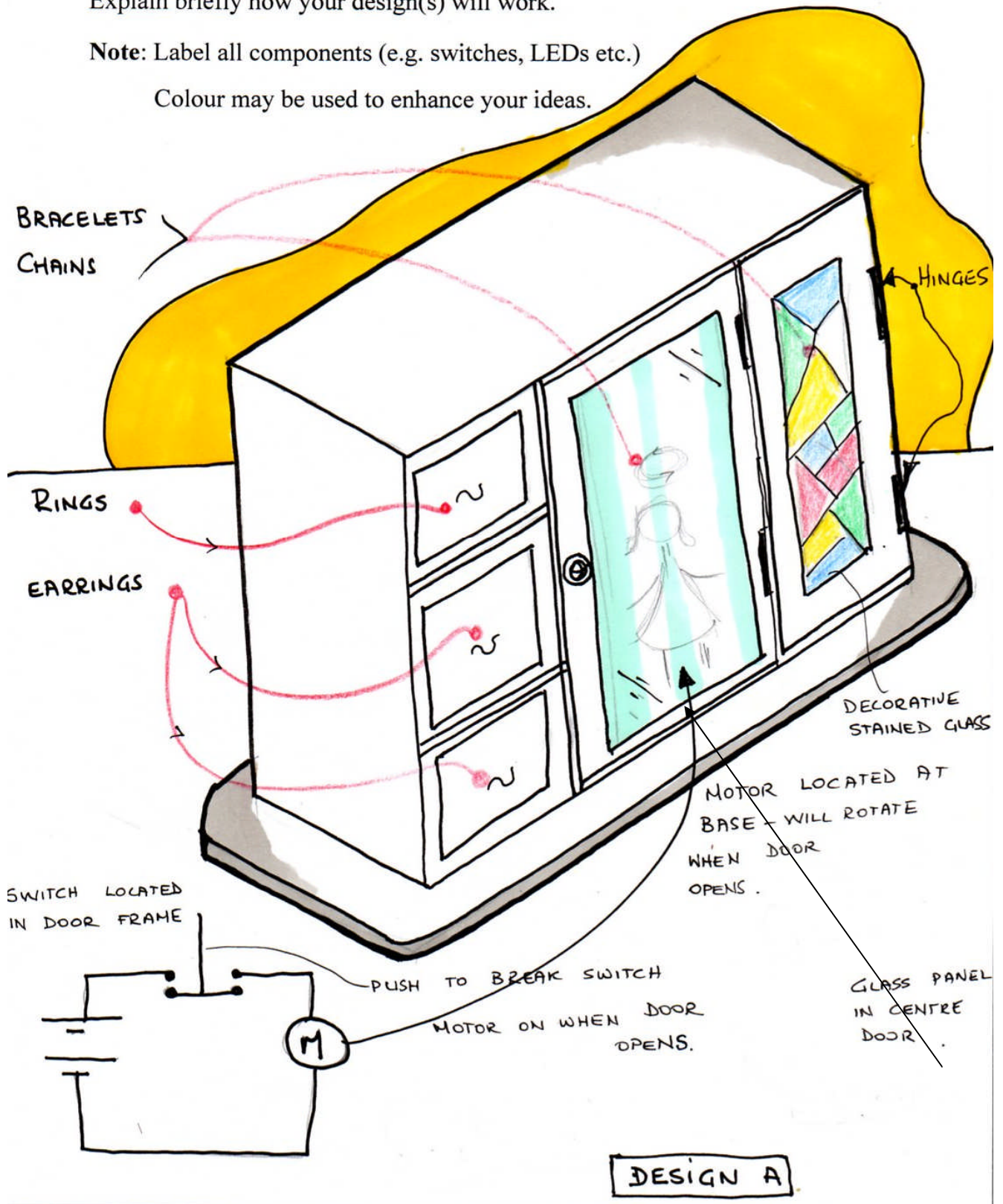
Development of ideas

Make a sketch of at least one possible idea for your chosen task.

Explain briefly how your design(s) will work.

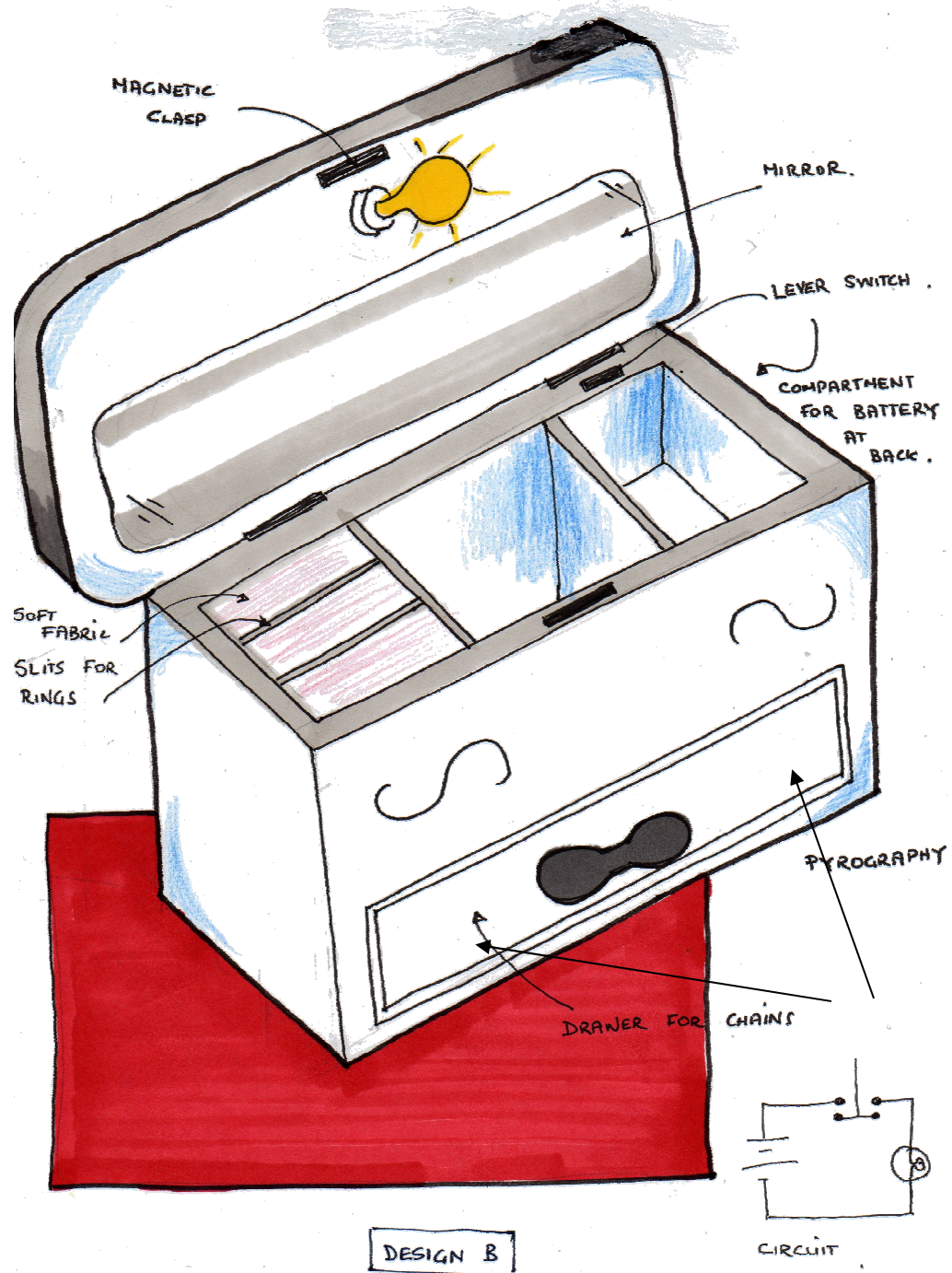
Note: Label all components (e.g. switches, LEDs etc.)

Colour may be used to enhance your ideas.



Design A: This box has 3 drawers and two compartments to the front. A motor is located in the centre section which will rotate when the door is opened.

Development of ideas



Design B: This box has a lid which opens and contains 3 small sections for rings and two larger sections for bigger jewellery. The circuit is housed at the back of the box and a switch activates a light when the box is opened.

Selection and Justification of Solution

Which design idea are you making?

I am making design B.

Give reasons why you have selected this design:

Hint: You can mention such factors as; functionality, size, shape, materials, colour, texture, processes, time, cost, subsystem used etc.

I decided to make design B because I felt it would hold more jewellery than design A.

Also, I think the light in design B would work better than the motor in design A.

I was not sure if I could do the stained glass in design A.

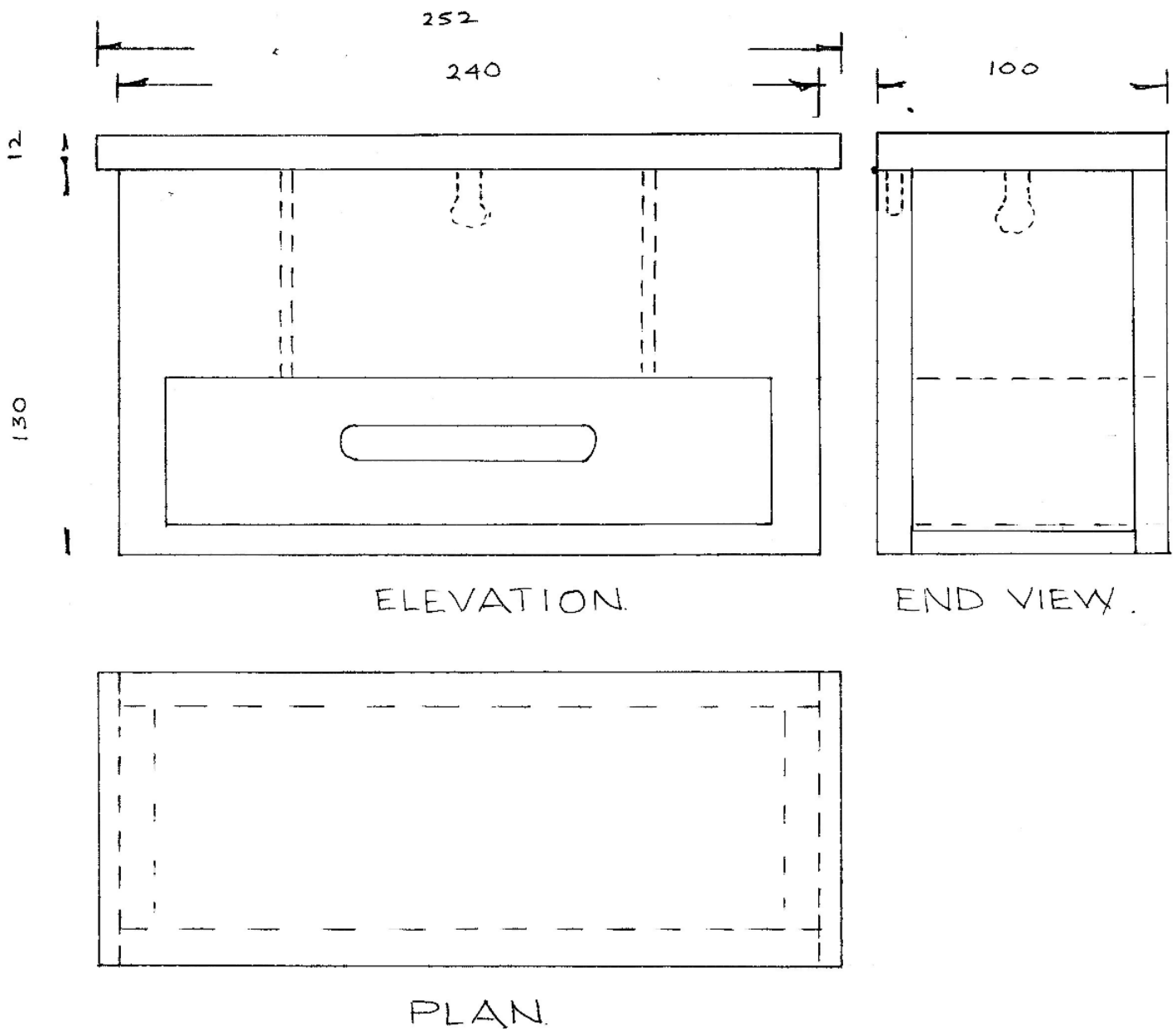
Drawings for manufacture

Make an orthographic projection or a 3D drawing of your final design.

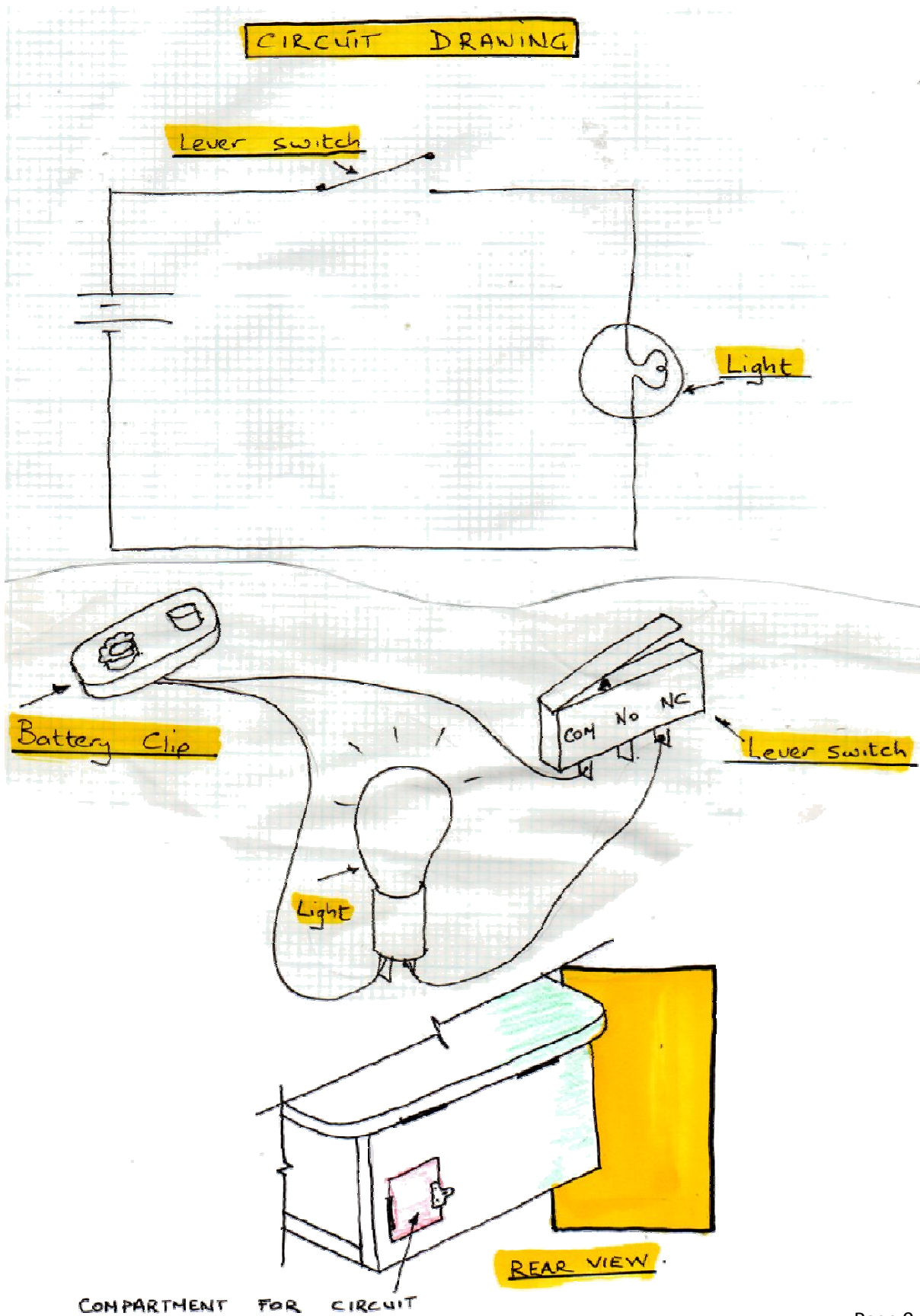
Include dimensions on your drawing.

Include the subsystem in your drawing (circuit diagram and/or mechanism).

Hint: This section should include the size and shape of all parts of your design and should show how they are to be assembled.



Drawings for manufacture



Plan of manufacture

List the steps taken to manufacture your design.

Hint: Remember to include each part and the subsystem.

I marked out the pieces of my box on red deal.

I cut them out using the scroll saw.

I cut out the slot for the drawer in the front and for the battery in the back. I also cut out the slot for the switch.

I glued the sides, front and back together using glue and clamps.

I cut out the plywood for the base and the divisions.

I cut out the pieces for the drawer and put them together using glue.

I glued in the divisions and the base.

I cut out the top piece.

I fitted the hinges for the top and the back battery compartment.

I fitted the magnetic clasp.

I soldered the wires to the Com and NC pins of the switch.

I soldered the rest of the circuit together and tested it.

I sanded all surfaces smoothly.

I used a pyrography iron to write my name on the front and do some decorations.

I applied two coats of varnish.

I fitted the mirror, the fabric for the ring cushions and the handle.

I attached the circuit to the box.

Materials list and costing

List the materials you used to make your task in the following table.

Material	Length (mm)	Width (mm)	Thickness (mm)	Number Req.	Cost
Red Deal	252	100	12	1	} €4.00
Red Deal	240	130	12	2	
Red Deal	76	124	12	2	
Red Deal	210	50	12	1	
Red Deal	80	45	12	2	
Plywood	205	45	6	1	} €1.50
Plywood	240	76	6	1	
Plywood	76	130	6	2	
Plywood	76	50	6	1	
				Total Cost	€5.50

List the electronic components, mechanisms and other items(e.g.screws, hinges, paint etc.) you used to make your task in the following table:

Item	Cost
Brass hinges x 2 plus small hinge for battery compartment	€1.20
Magnetic clasp plus small clasp for battery compartment	€1.00
Bulb & holder	40c
Lever micro switch	35c
Battery clip	11c
9 V battery	€2.00
Mirror	€1.00
Fabric	50c
Total Cost	€6.56

Total cost of design task

€12.06

Testing

Does your finished design work?

Yes

Explain your answer:

The light comes on when the lid of the jewellery box is opened. The box looks well and holds lots of different jewellery.

In what ways does your finished design task meet/not meet the specifications you listed under 'Analysis of **chosen** task'?

Explain your answer.

The box is a decorative design. I wrote my name "Kate" across the front.

It includes a light which works when opened.

It holds lots of different types of jewellery.

The wires are hidden from view at the back.

Evaluation

Identify one good aspect of your finished design task:

It is strong and looks well. It is colourful and has lots of different sections for jewellery.

Identify one aspect for improvement in your finished design task:

The drawer is a bit stiff. I should have sanded the edges some more before I assembled it. Also the varnish made it stick a little in the box. I should have waited until the varnish was fully dry before putting the drawer into the box.

Identify a possible change (if any) you would make if completing the design task again:

I am very happy with my box but if I was making it again I would put in a row of LED's along the back because the bulb takes up a lot of room and it was hard to fit it properly to the lid.