An **alarm clock** is a device that can be make a sound at the time set in advance, used to wake someone up.

← **Basic Clocks**

Innovation Clocks →

There are also ones that are designed with a concept and a costumer market in mind →

TIMELINE

⇨ **1500 BC**

Humans produced hourglasses, water clocks and oil lamps, which calibrated the passing of hours with movements of sand, water and oil.

⇨ **1787**

The first American alarm clock was created in 1787 by Levi Hutchins . It only rang at 4 am, in order to wake him for his job.

The Europeans created complex displays within chiming clocks in town squares. The next step was to make such clocks smaller, so they could be used individually.

⇨ **1900-2023**

1956 the first digital alarm clock was made.
Now most people would use a digital one or even there phone as an alarm.

Alarm Clocks are typically composed of multiple types of **materials** such as wood, metal, paint, plastic etc.
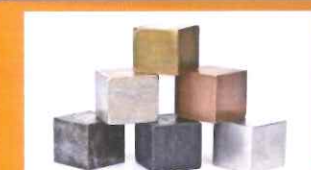
They come in all different **colours**- red is considered the best as it's the most visible to see.

Design Research

Bedside **alarm clocks** are primarily designed to wake people from their sleep at a particular time. They come in **analogue**, **digital** and more smart form. Their **shape** and **form** is underpinned by a wide variety of geometry and they are available in a range of **materials** and **colours**. Some alarm clocks can be turned off in innovative ways. Design features of a bedside alarm clock may include time display, snooze buttons, programmable alarm options, **Bluetooth**, etc.

(A)Carry out a design investigation of existing bedside alarm clocks in graphic format. Your investigation should include an analysis of **physical forms and shapes, geometry, materials, innovation**, etc

Original **wind up** mechanism now replaced with battery/plug power supply

Primary Research

Bluetooth - You can use a Bluetooth clocks built-in speakers to make hands-free calls or listen to music etc. Many connectivity options.

Photo images **above** are from clocks in **MY house**
Catalogue images **below** are of clocks for sale
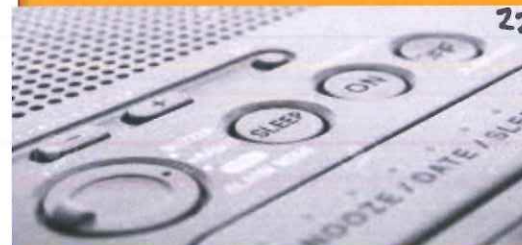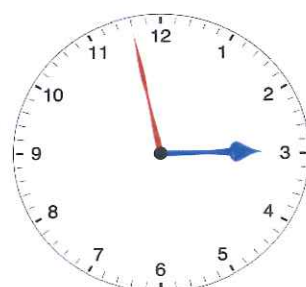
A **digital** clock that displays the time in numerical digits – Usually using **LED** technology
An **analogue** clock is a clock or watch that has moving hands and (usually) hours marked from 1 to 12 .

23:59

Shape and Form
Typically circular, cylindrical, elliptical, rectangular or box shaped designs.

Control Buttons   Bells + Handle

Seiko LCD Alarm Clock
226/89/4

Minecraft Alarm Clock
930/7357

Lifemax Talking Alarm Clock

£32.00

£19.00

Reflection: The brief is quite extensive. Both Primary + secondary research was required.

1

Compare & Contrast

Product A Information

Brand - Quartz Acctim

Price - €12.95

Colour - Copper/Silver

Style - Retro/Old School

Power source - Mock wind up – Actually AA battery

Dimensions -16 x 11.5 x 5.5cm

Target Market - Older people or people with an old time aesthetic. People using the clock for decoration. People conscious about saving energy.

Material - Body & frame = Copper   or   Silver

Display - Hour hands are numbered 1-12. Not Roman numerals. Minute/seconds hands. Hands illuminate.

Shapes -

Ergonomics –

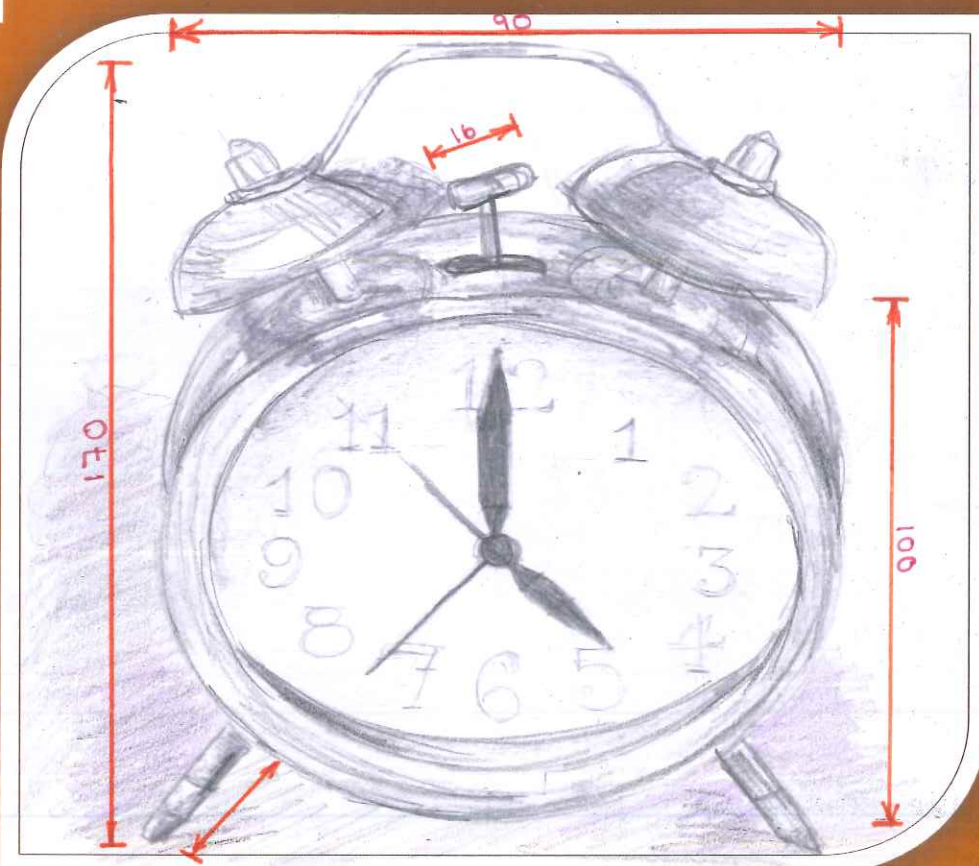**Safety** - No major concerns. Avoid contact with batteries for children
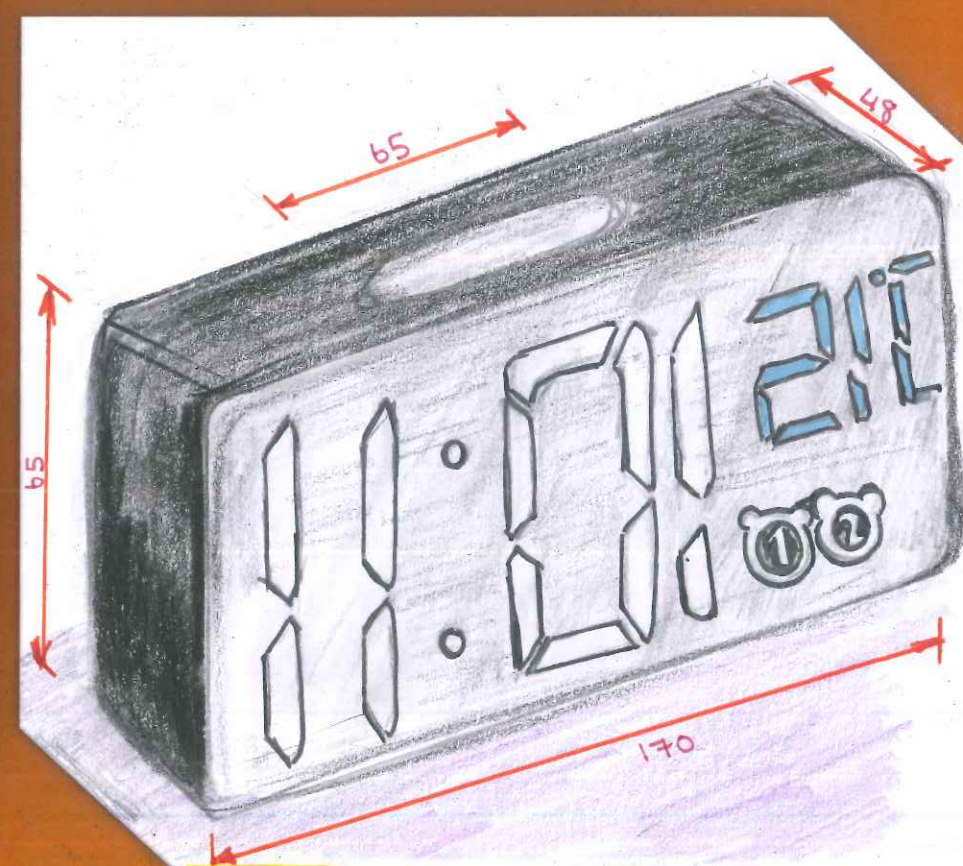
Made in China

12- HOUR CLOCK

SOUND = HOLLOW CHIME ~ METAL ON METAL

VS

24-HOUR CLOCK

SOUND = VARIETY OF OPTIONS ~ ADJUSTABLE VOLUME

Product B Info

Brand - LATEC

Price - €25.99

Colour - Black (Other options available)

Style - Modern

Power source - Corded Electric, 9v Battery . USB
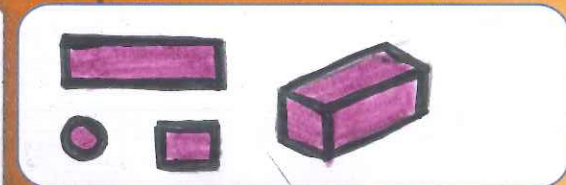
Dimensions - 14.5 x 6.5 x 3.5

Target Market - Younger people/minimalistic /modern designs. Extra functionality

Material - Acrylic body

Display - Digital numbers -24 hour clock. LED Bright/crisp display - temperature display.
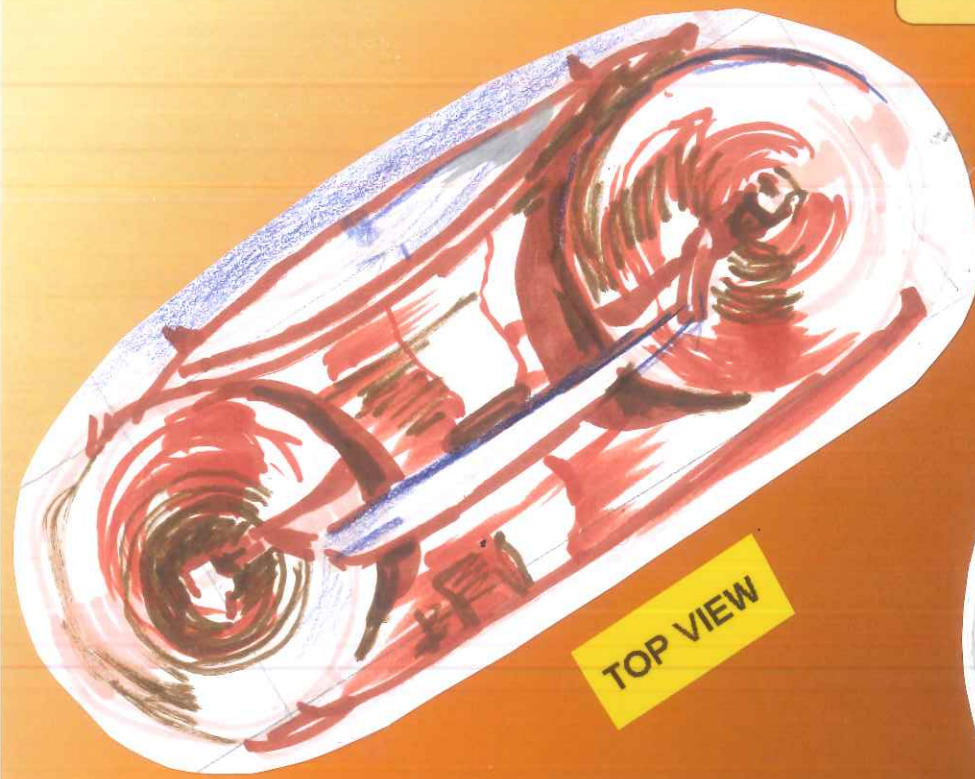
Shapes -

Ergonomics -

Safety – Electric plug concerns. Avoid contact with batteries for children. USB cable issues.

Made in Tiawan

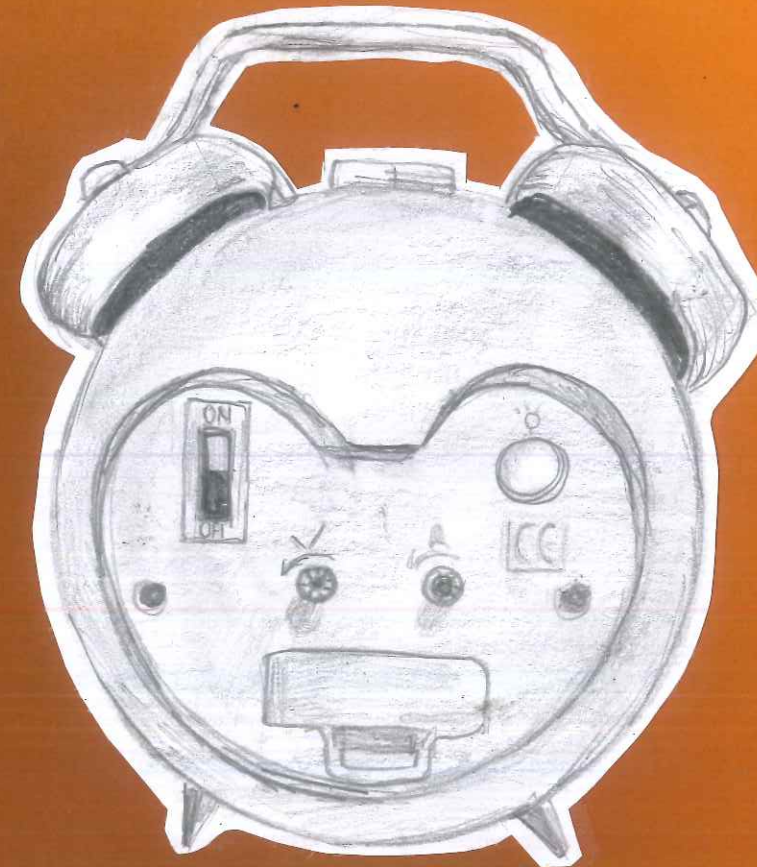Reflection : TWO VERY DIFFRENT PRODUCTS ,TO DO THE SAME JOB REALLY !

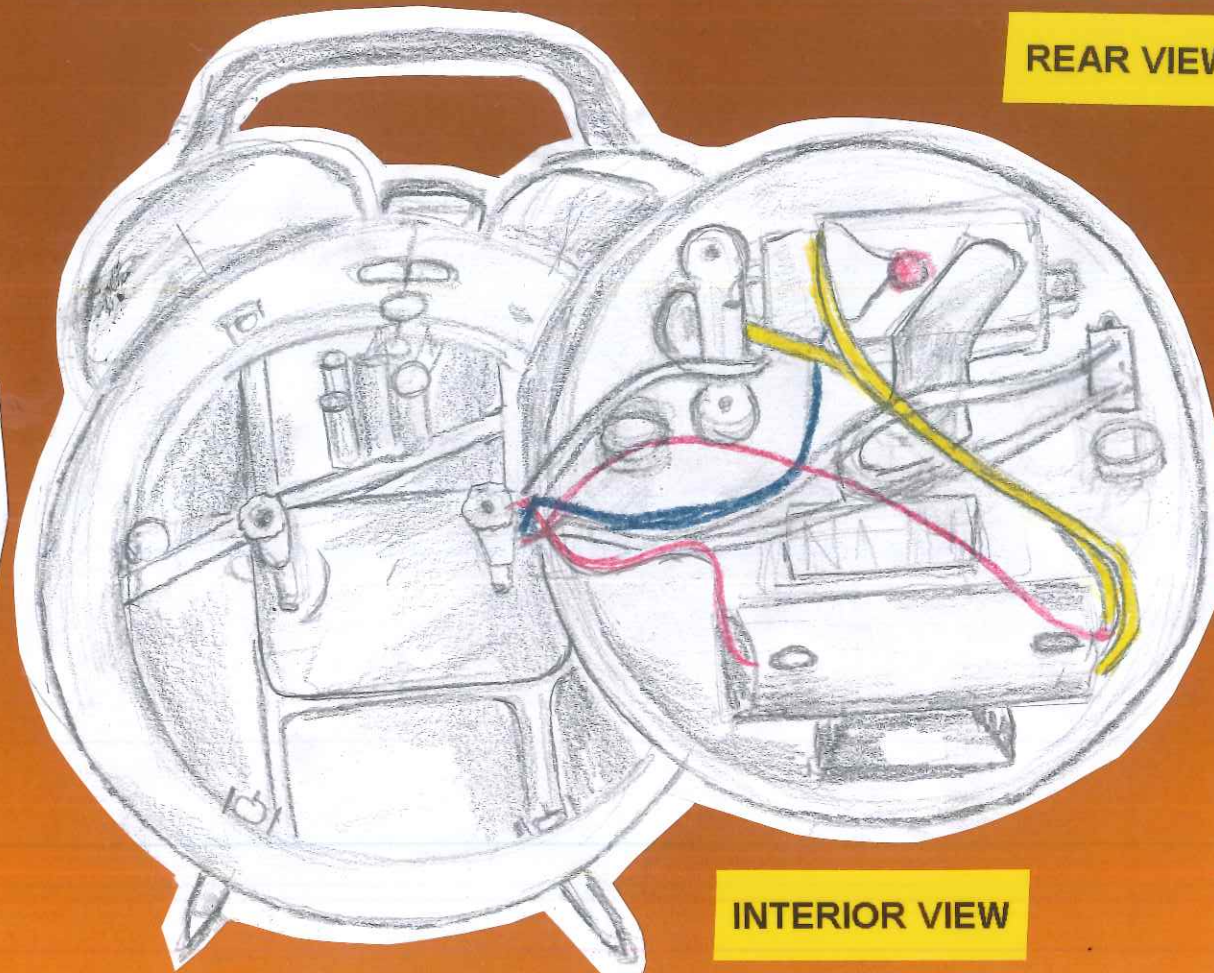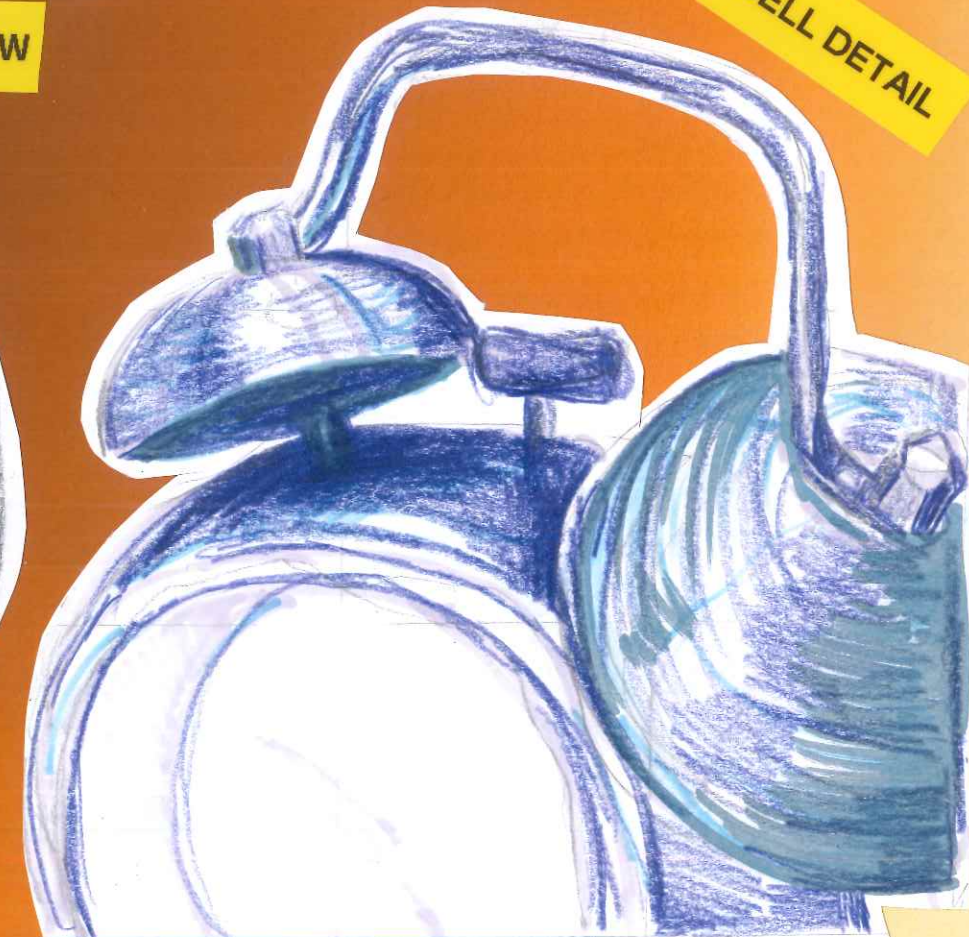# Freehand Graphical Representation
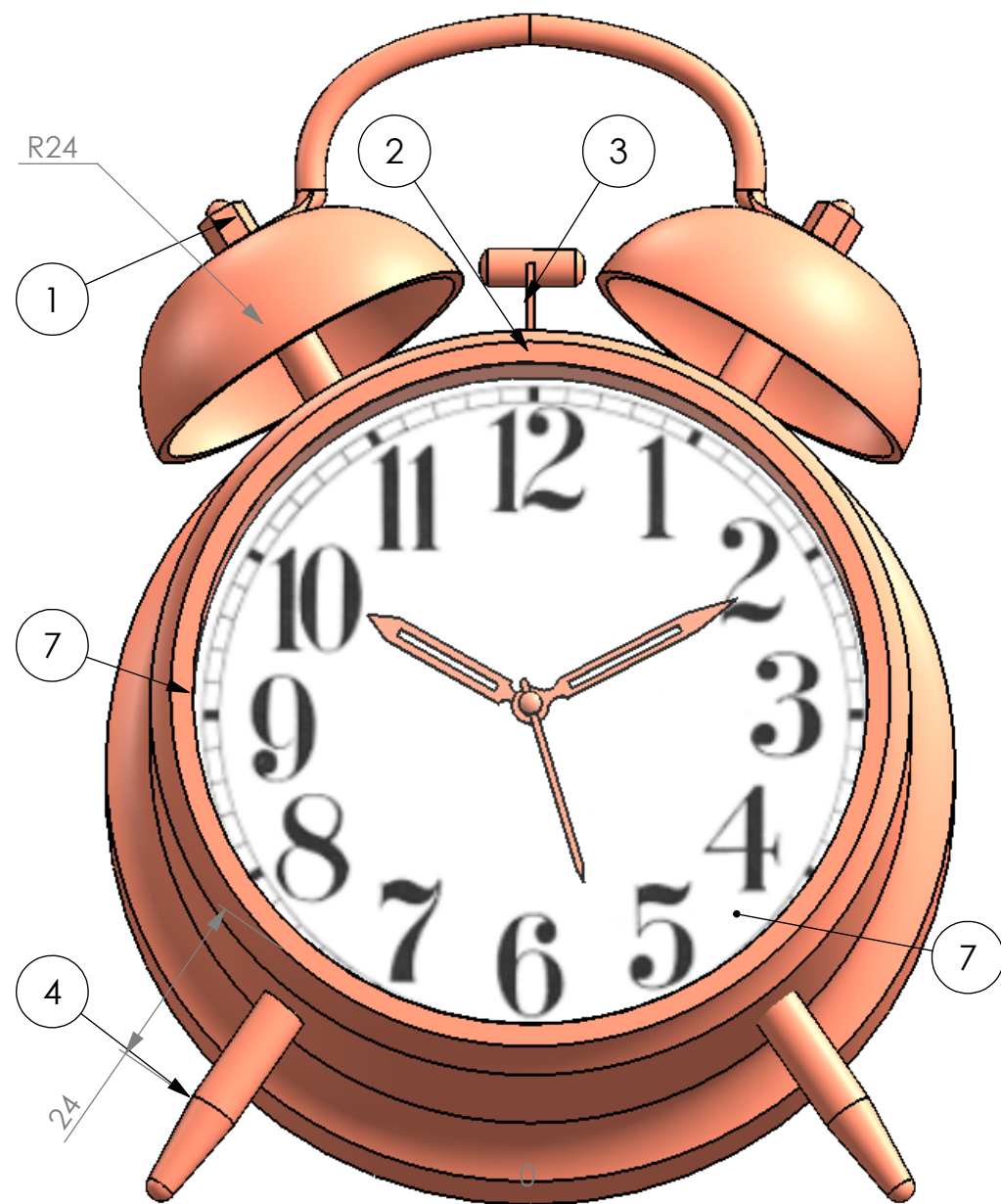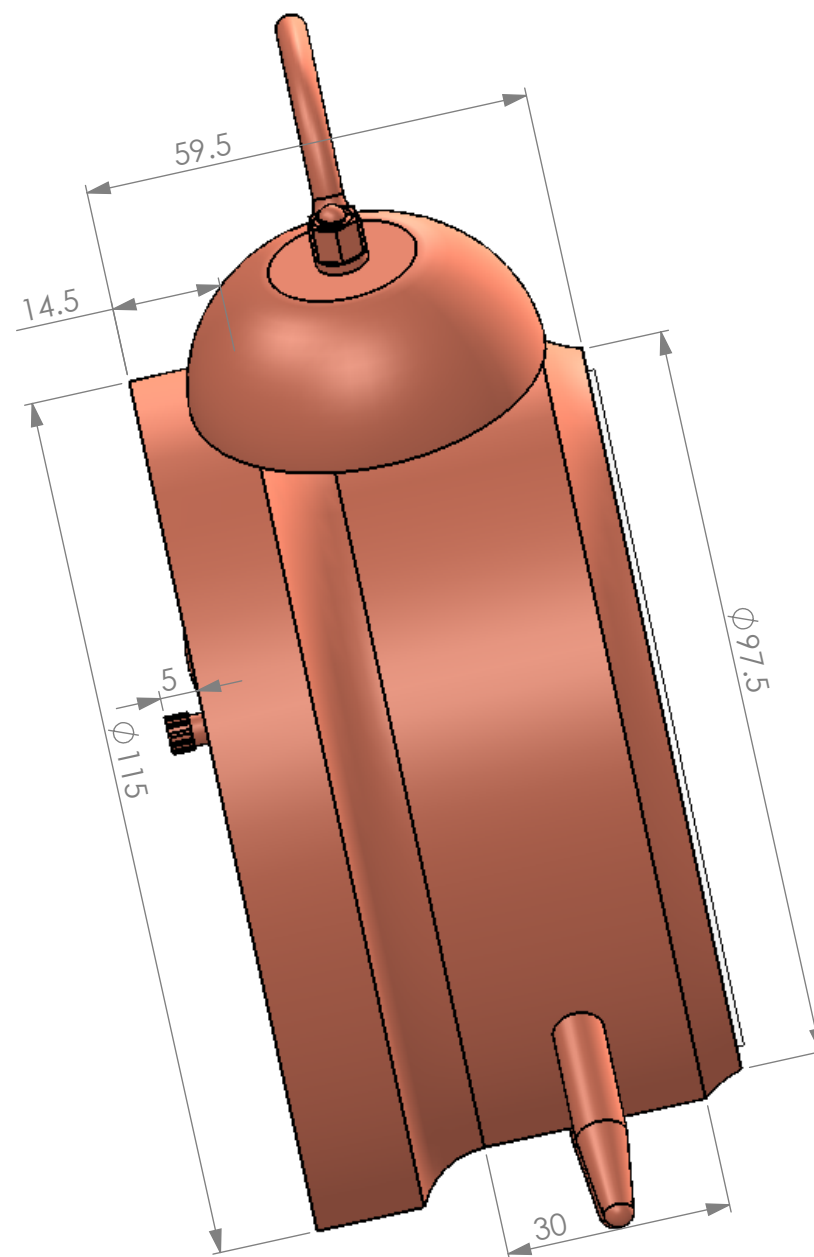
TOP VIEW

FRONT VIEW

REAR VIEW

SIDE VIEW

BELL DETAIL

INTERIOR VIEW

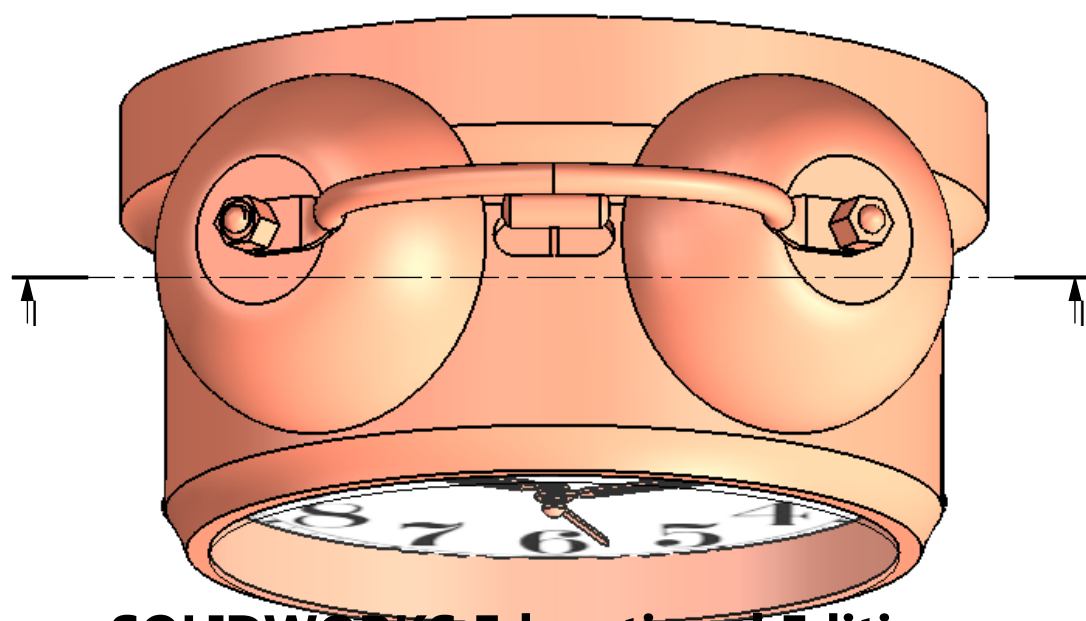Reflection: Had fun drawing all different angles and views !

3

R24

2

3

1

7

4

24

ELEVATION

59.5

14.5

5

Ø115

Ø97.5

30

END VIEW

12

Ø5

R57.5

160.80
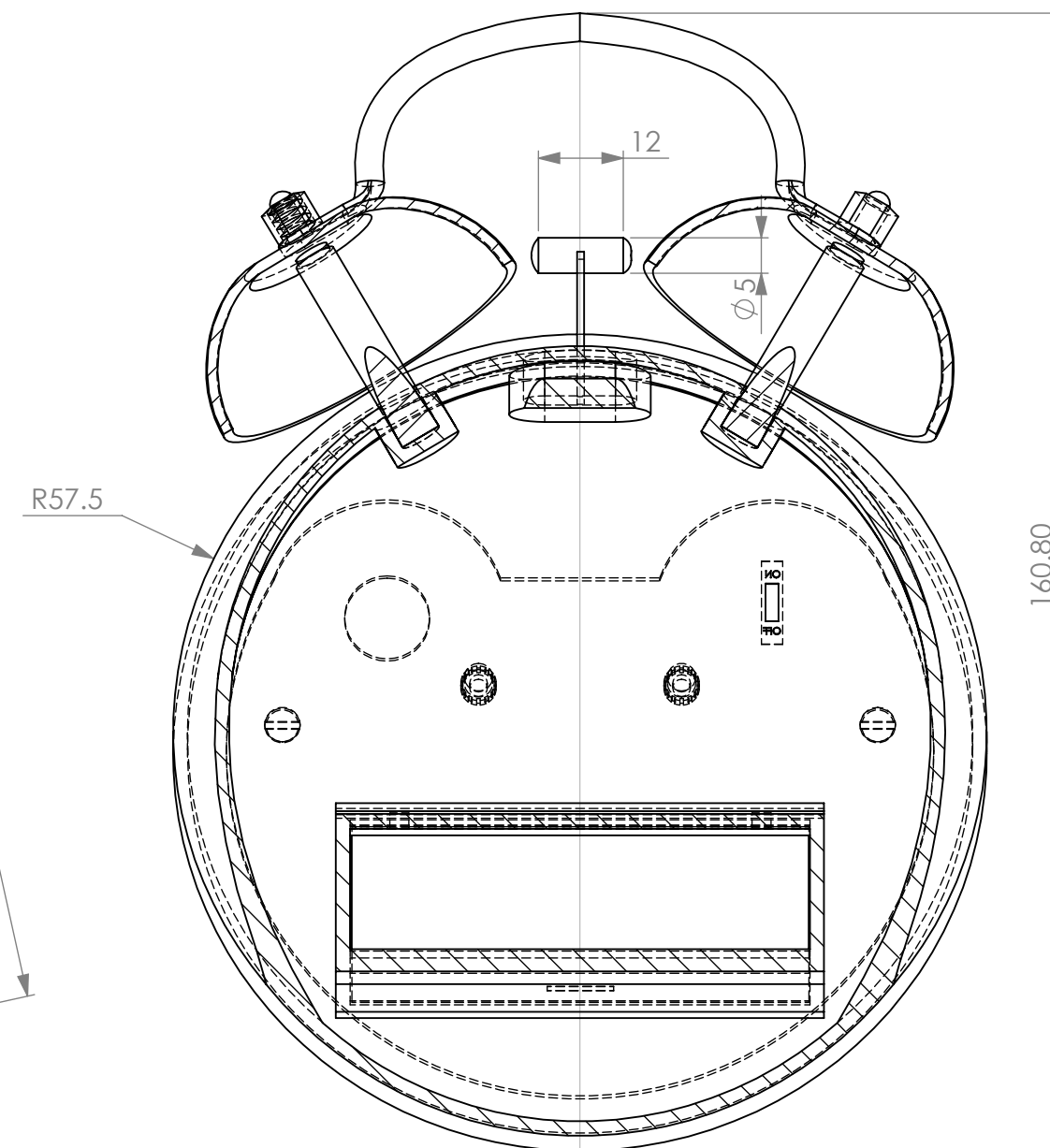
SECTION VIEW

ITEM NO.	PART NUMBER	QTY.
1	Bells & Handle	1
2	Main Body	1
3	Hammer	1
4	Legs	1
5	Battery Door	1
6	Glass	1
7	Front Glass	1

PLAN

79

18

FACE ELEVATION

t⁴ TECHNOLOGY
SUBJECTS
SUPPORT
SERVICE

DESIGN & COMMUNICATION GRAPHICS

TITLE:

Orthographic Views

DRAWN BY:

SIZE
A3

UNLESS OTHERWISE SPECIFIED ALL
DIMENSIONS ARE IN mm

SCALE: 1:2

DATE: 03/11/2022

SHEET 1 OF 1

ISOMETRIC VIEW
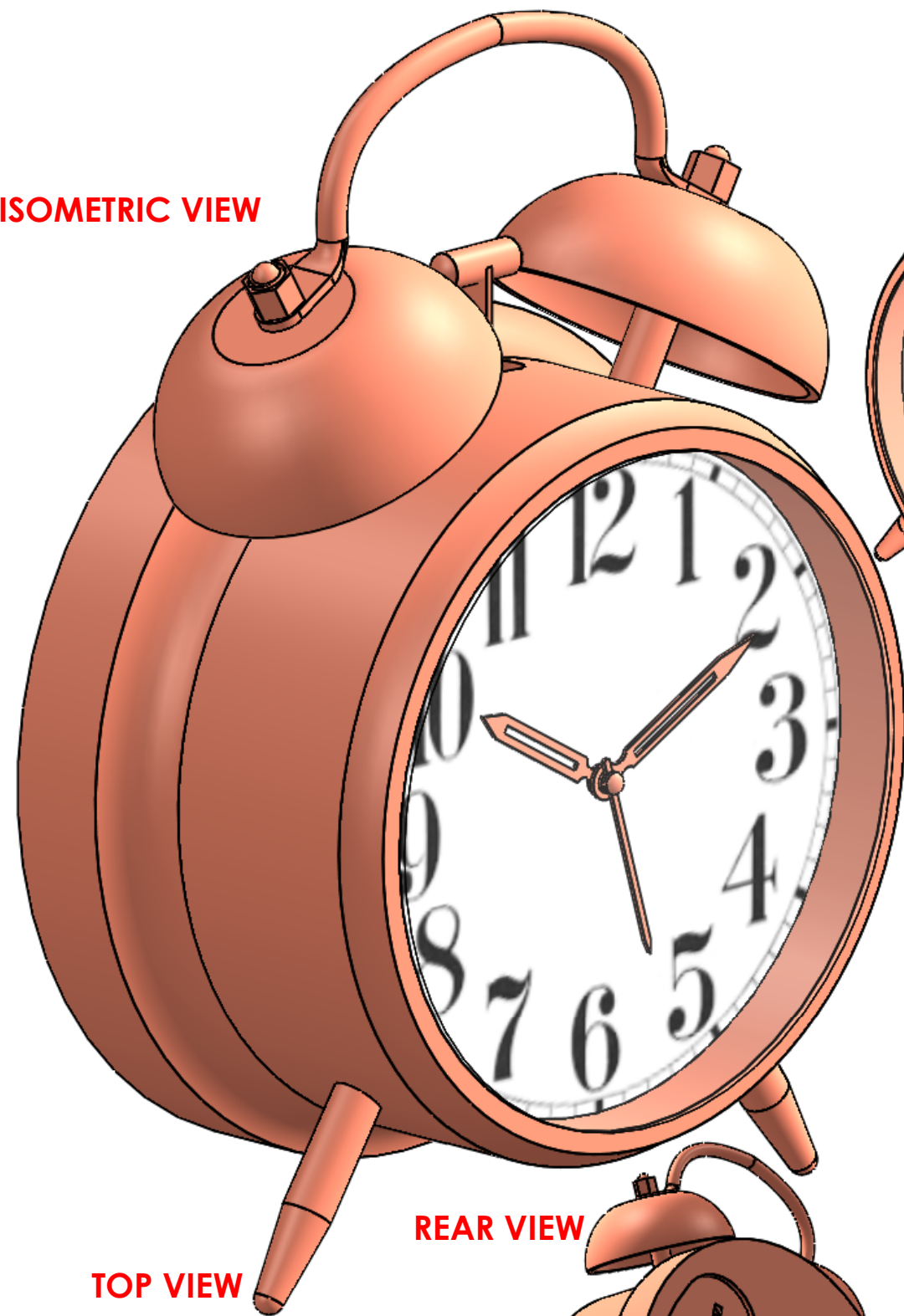
REAR EXPLODED

REAR VIEW

TOP VIEW

UNDERSIDE

FRONT EXPLODED

SOLIDWORKS Educational Edition.
For Instructional Use Only.

DESIGN & COMMUNICATION GRAPHICS

TITLE:

PICTORIAL VIEWS
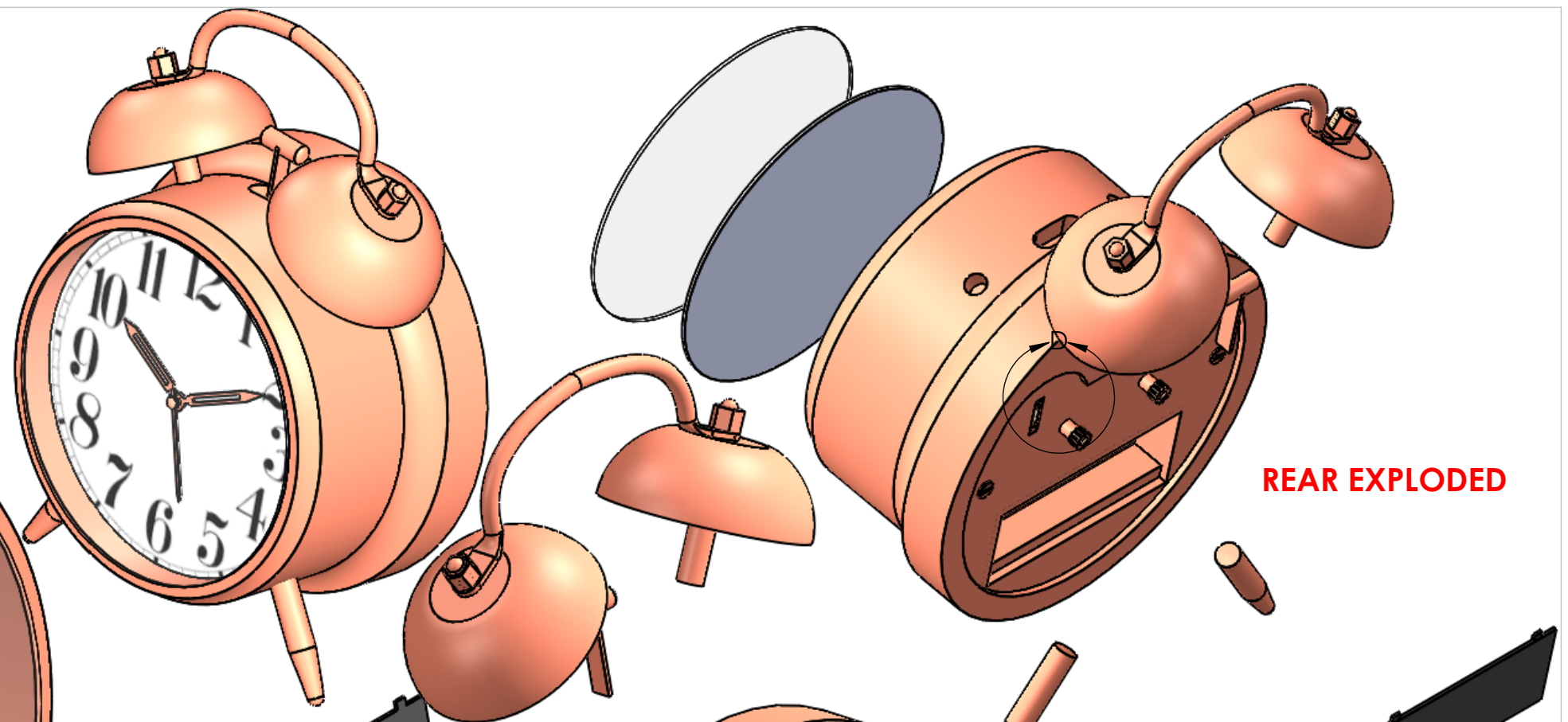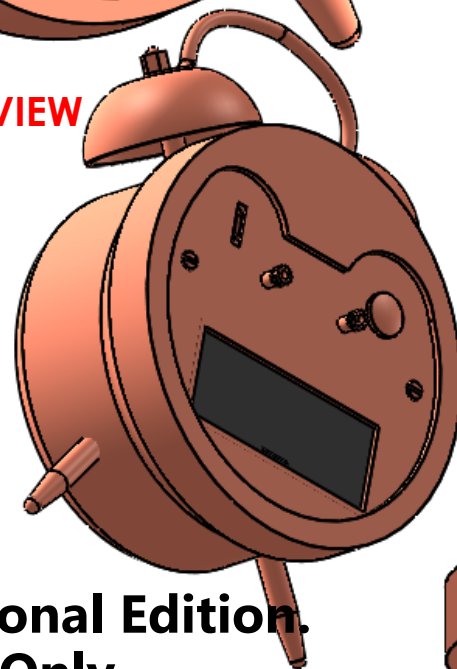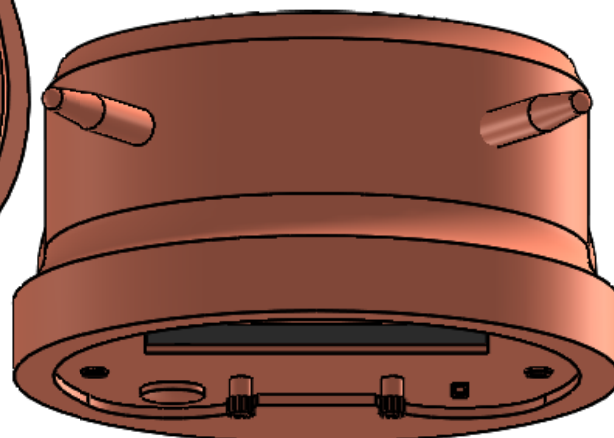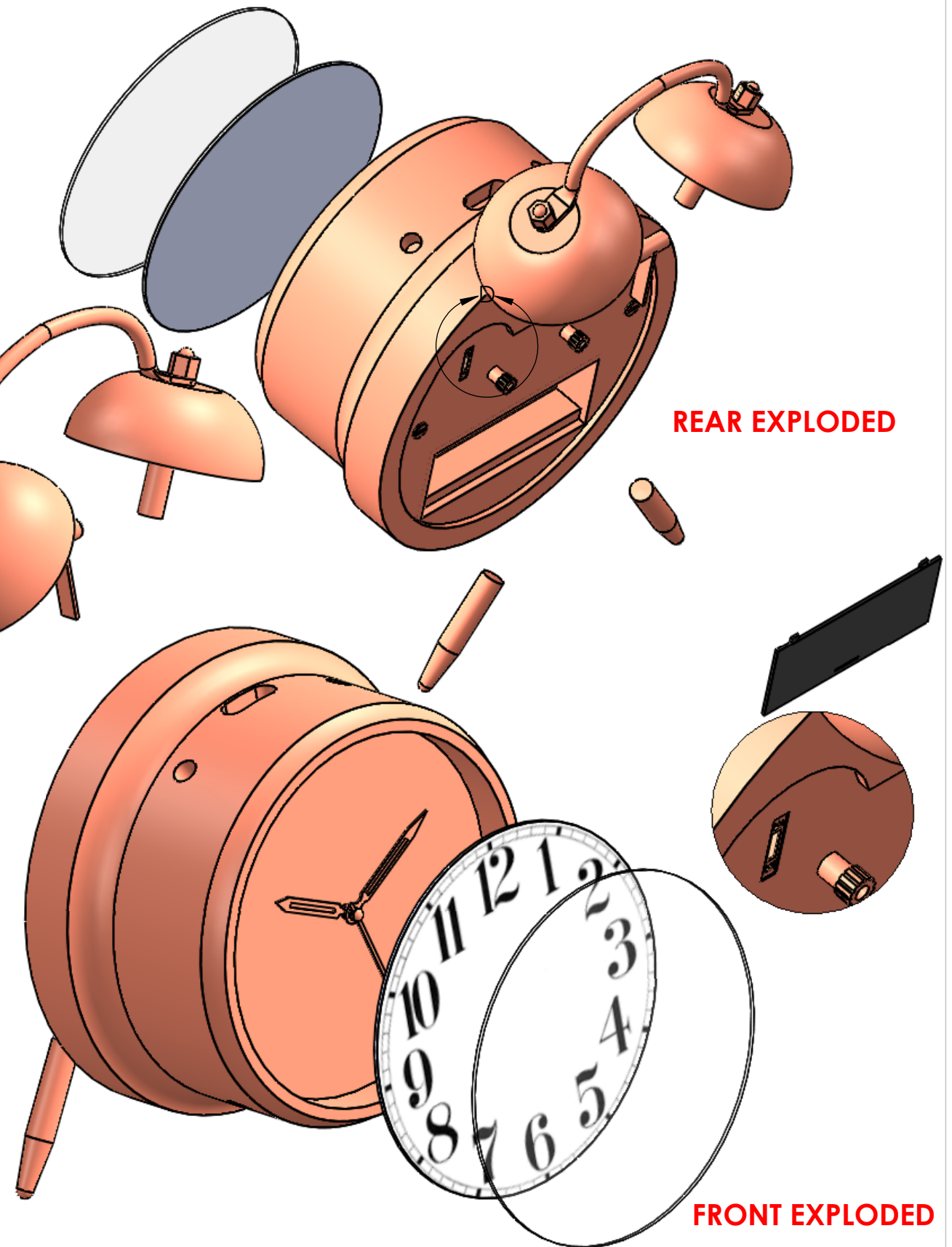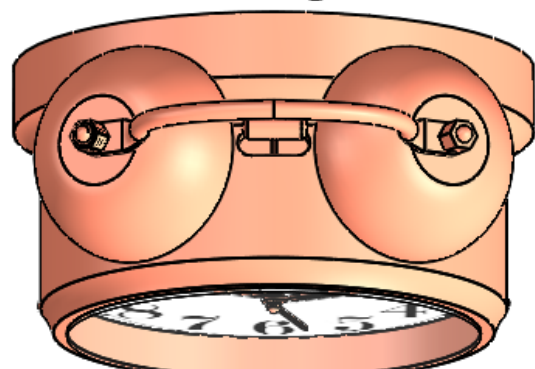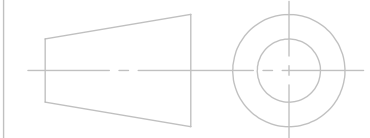
DRAWN BY:		SIZE A3	UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN mm
SCALE: 2:3	DATE: 03/11/2022		SHEET 6 OF 14

MY CONCEPT DESIGN

Develop and graphically communicate a new concept design for a bedside alarm clock based on a selected theme or target market.

I want to include the classic Dutch windmill design, while adding features like solar panels, an Alarm Clock feature, light and a fan feature to mimic a real windmill. The design will incorporate old school design with modern features.

MY INSPIRATION

A windmill VERY CLOSE to my house!!! I love to visit this structure.

Solar Power

Solar power is the conversion of energy from sunlight into electricity, either directly fusing photovoltaics(PV) or indirectly using concentrated solar power.

Windmills

A windmill is a structure that converts wind power into rotational energy using vanes called sails or blades, specifically to mill grain. The term wind engine is sometimes used to describe such devices. Windmills are regarded as an icon of Dutch culture. There are approximately 1,000 windmills in the Netherlands

MY TARGET MARKET

My target market would be primarily Dutch people, tourists of Holland and people who enjoy windmills and the Dutch culture. Also people who like the combination of retro & modern alarm design.

1

HOLLAND

I love visiting Holland and admire many aspects of their culture. This mood board gives you a flavour for the country.

FANS

A fan is a powered machine used to create a flow of air. A fan consists of a rotating arrangement of vanes or blades, generally made of wood, plastics, or metal, which act on the air.

Reflection :

MY CONCEPT DESIGN

DEVELOPMENT OF IDEAS

My first idea was to design a concept based on jewellery as I am very interested in fashion. However I found it hard to come up with an interesting design which would satisfy the brief. I have a Dutch Cuckoo clock at home that I was going to replicate, but it was too complicated to model on Solidworks and also I didn't want to directly copy it.

I stayed with the Dutch theme and settled on a windmill - but keeping in mind my original idea that my new idea could also be used to hold jewellery. I knew that I could incorporate the blade movement in the windmill ring the bell of my alarm.
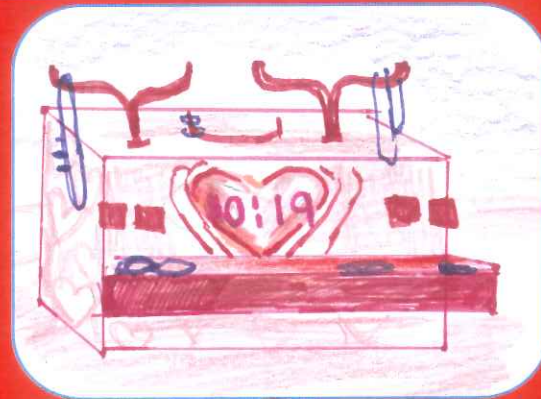
FUNCTIONALITY

Blades : They spin and can act as a fan during the day- The speed can be adjusted as required. The blades hit against the bell to give an old school bell chime, similar to my **Part A**. The bell can be removed when fan is operational.
Displays : The time can be read on the digital display. I have included 2 extra display screens. One to indicate the temperature, the other to show date. These screens can be adjusted using buttons I made.
Fan : When the fan is turning, or the alarm is ringing, the light inside the windmill lights up.
Snooze : The handle of the door acts as a snooze button.
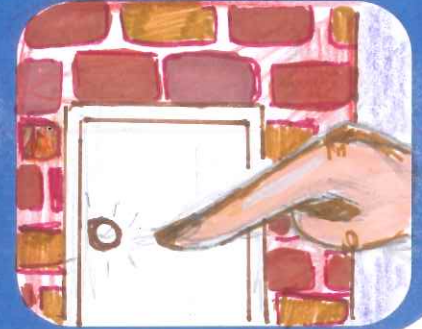
MY FINAL DESIGN

I based my final design on a combination of many different windmills. I used the research findings of the various different models to see how I could best satisfy the Design Brief to come up with my dream design.

I am very happy with my final design and believe that it could be marketed as a saleable product. I think modifications could be made to adapt my design to other products such as houses or vehicles

ENVIRONMENTAL SUSTAINABILITY

I was really keen to make my concept environmentally friendly. I made my concept powered by solar panels. My alarm will charge using the light/sun during daylight hours. I have added a backup battery element in case there is not enough sunlight and the panels cannot fully charge. I do not require any direct electricity. My solar panels are attached to the roof of my alarm clock, which is an ideal position to capture sunlight.

AESTHETICS

I explored different options for the final facade finish. I looked mainly at wood, plaster and metal. In the end I decided to go for a brick finish because it was most common in Holland to be brick and to my inspiration picture. I knew I could do a decal on Solidworks to make this appearance look realistic.

I included the balcony with the rail because it looked cute, but also in mind that it could be usefully to hang or hold jewellery on. The balcony has an ornate design, I think it gives the windmill a great character.
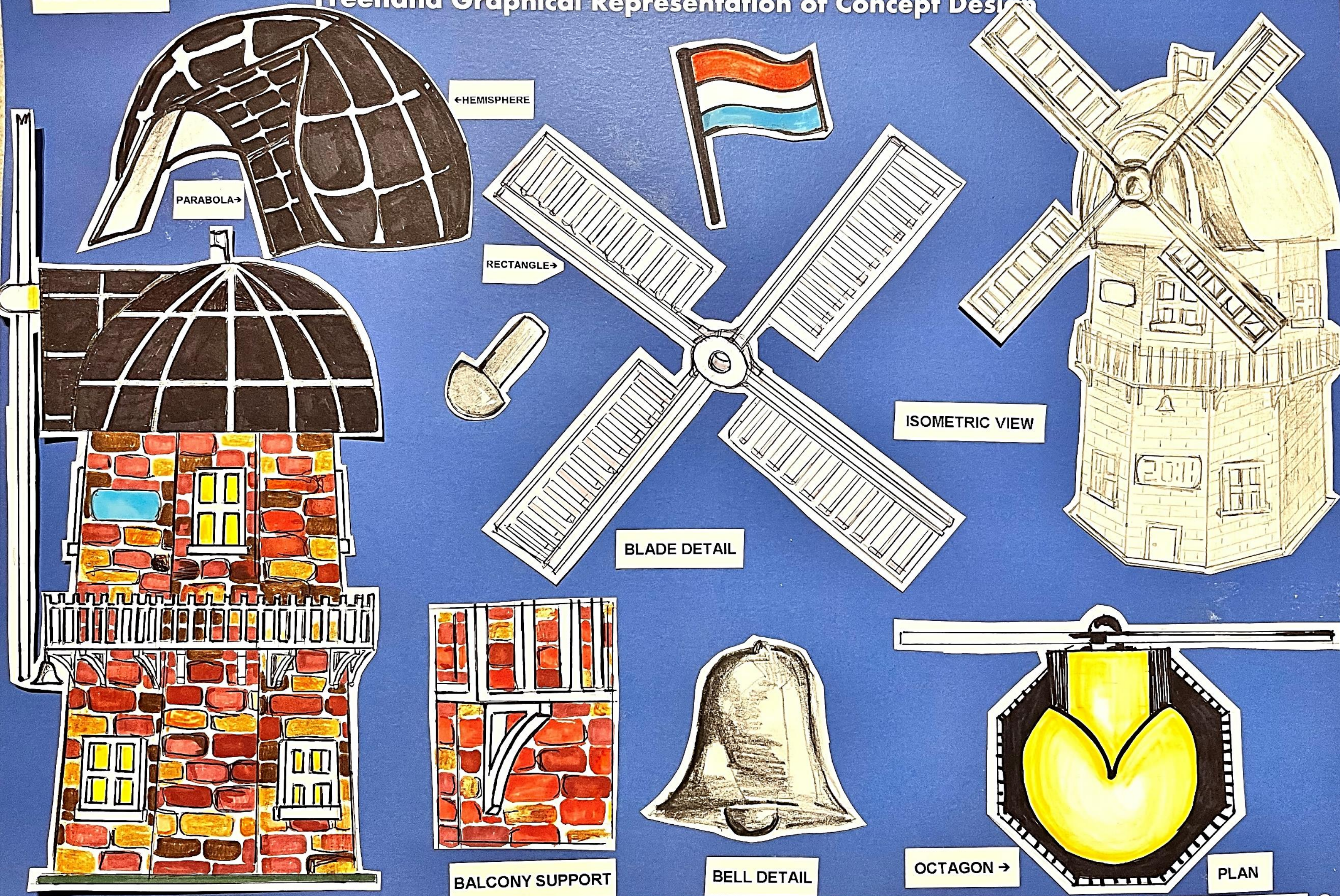The flag I added was also cute, and I feel could attract the Dutch market for retail purposes sales.

Reflection : Figuring out my final idea was hard. I'm happy with my decision.

SOLAR PANELS

←HEMISPHERE

PARABOLA→

RECTANGLE→

ISOMETRIC VIEW

BLADE DETAIL

BALCONY SUPPORT

BELL DETAIL

OCTAGON →

PLAN

END VIEW

Reflection: These were fun though :)

Bell

Rear View

ELEVATION

End View

Balcony Support

PLAN

98.00

121.00

142.00

262.86

Ø 12.00

156.92

64.00

ITEM NO.	PART NUMBER	QTY.
1	Mainbody	1
2	Solar Panal	1
4	Battery	2
7	Battery Lid	1
8	Blades	1
9	Bell	1
10	Screw	1

TECHNOLOGY SUBJECTS SUPPORT SERVICE

DESIGN AND COMMUNICATION GRAPHICS

TITLE:

NEW CONCEPT

DRAWN BY:

SIZE A3

UNLESS OTHERWISE SPECIFIED ALL DIMENSIONS ARE IN mm

SCALE: 1:5

DATE: 1/11/2023

SHEET 1 OF 1

10:42

Photorealistic Views