



Coimisiún na Scrúduithe Stáit
State Examinations Commission

JUNIOR CERTIFICATE EXAMINATION, 2021

METALWORK

TECHNIQUES AND DESIGN – PROJECT – ORDINARY LEVEL

300 marks

PROJECT MUST BE COMPLETED BY Friday 26 March, 2021

PLEASE READ CAREFULLY

General Instructions to candidates

The project you make and submit for examination, including the design element, must be **your own individual work**, carried out in the school under the supervision of the teacher.

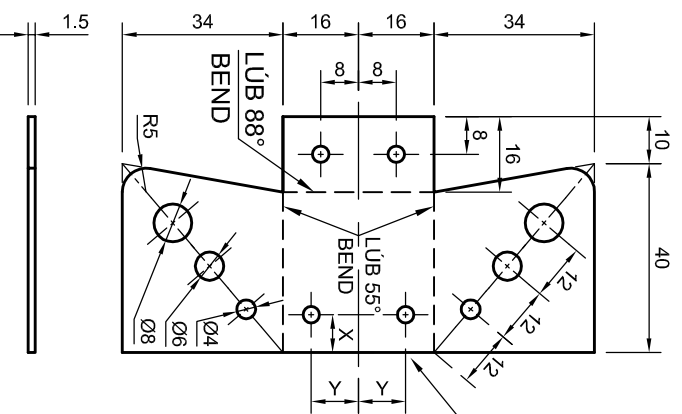
Your own individual work is intended to include the intellectual activity of design along with the practical activities of making the project.

Note: For further information on this project please see the video at the URL shown below.
<https://www.examinations.ie/video/index.php/metalwork2021>

Instructions for making the project

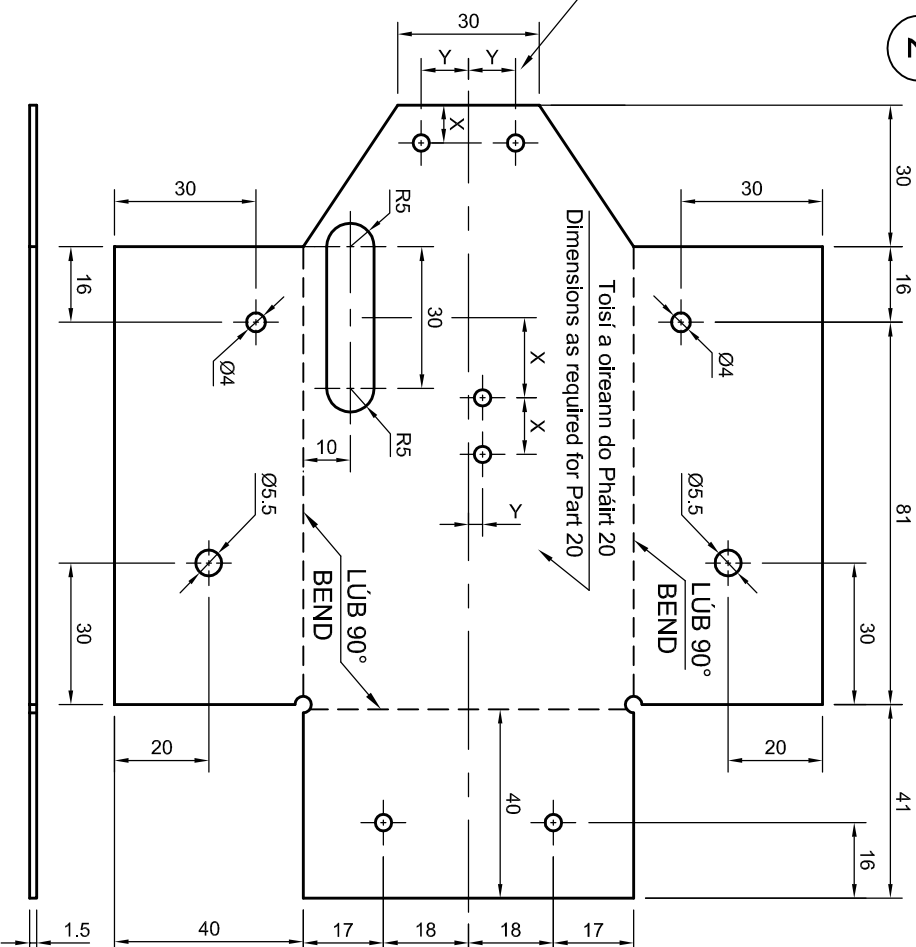
1. Details of a **Model eBuggy** are shown on the accompanying drawing.
2. Make and assemble the Project using the materials specified in the **Parts List**.
Note: Pop rivets may be used for assembly.
Note: You may include a Steering Wheel, however this will not receive any marks.
3. Design, make and attach a **Seat** for the buggy.
(Note: 20% of the marks will be awarded for this section.)
4. Place the **Battery Holder (Part 21)** in the position indicated on the drawing.
5. Complete, **test** and **solder** the **Electric Circuit**.
6. Your **Examination Number** must be clearly shown in the position indicated on the drawing.
7. Your completed project, clearly identified with your **Examination Number**, must be available to the visiting examiner **along with the necessary testing equipment**.

1

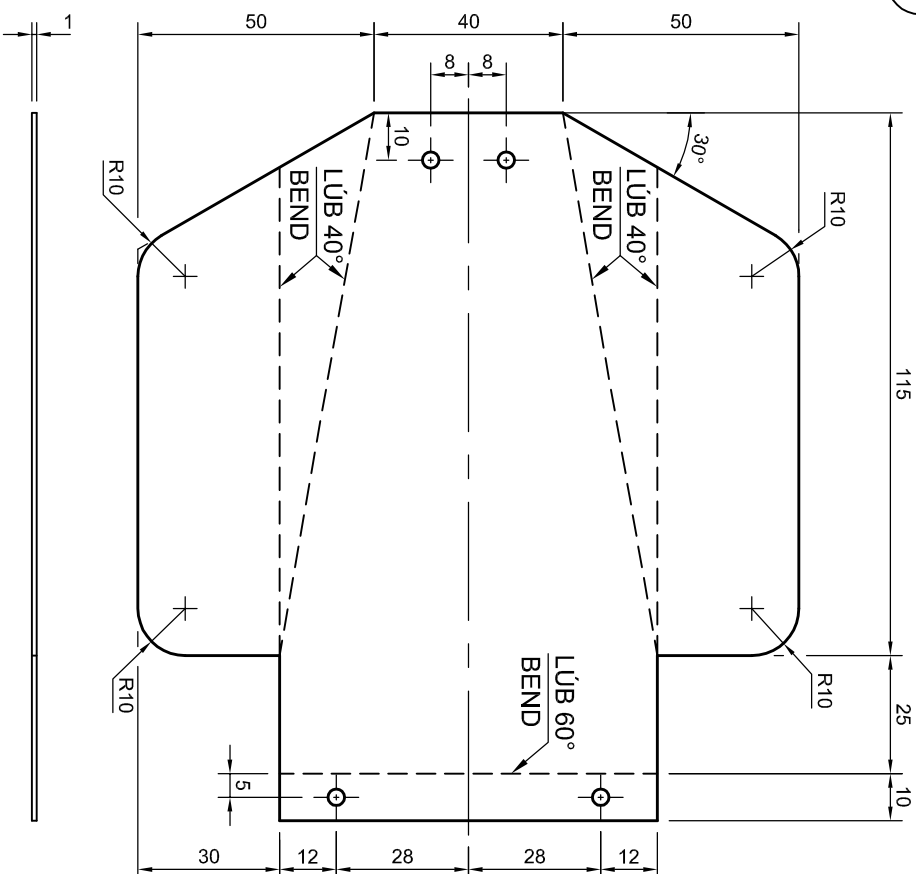


Toisí a oireann do Pháirt 16
Dimensions as required for Part 16

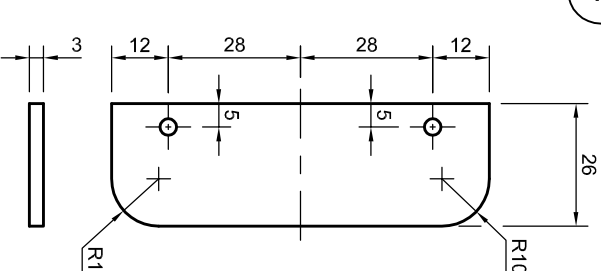
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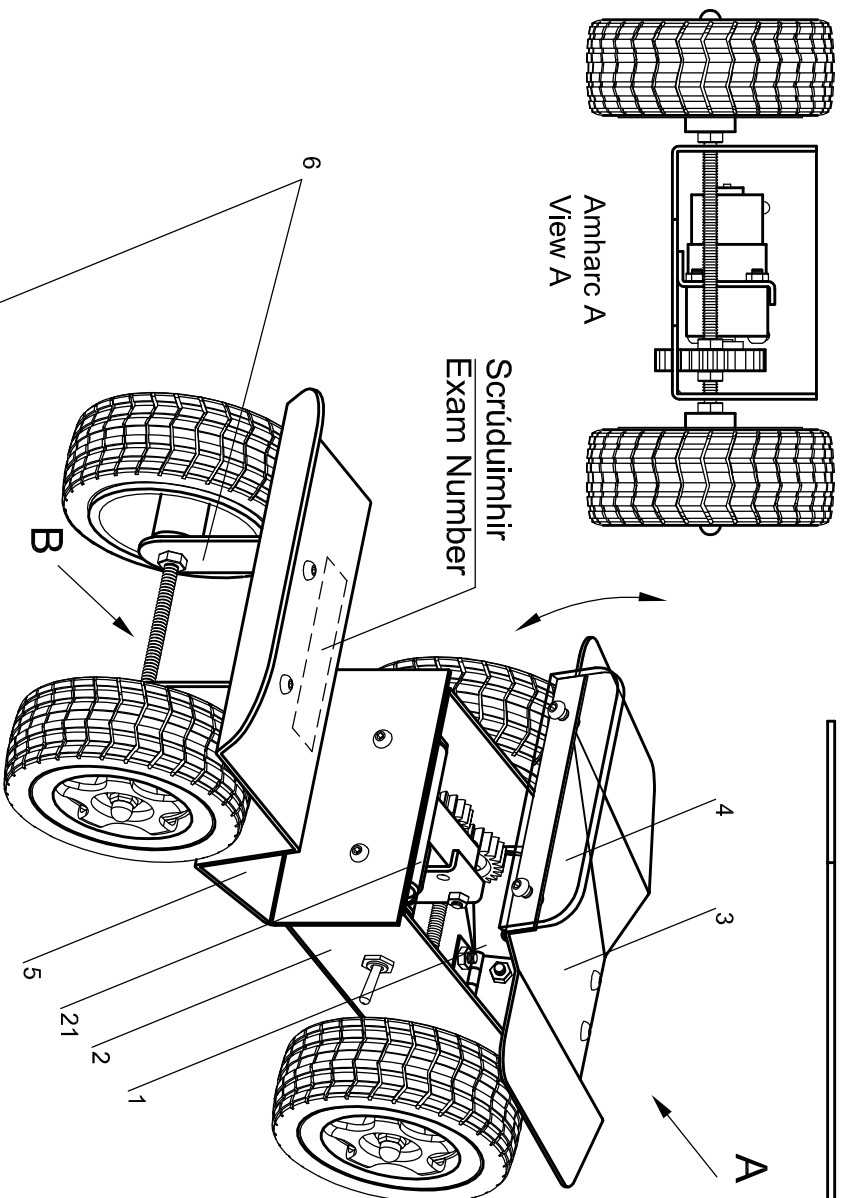
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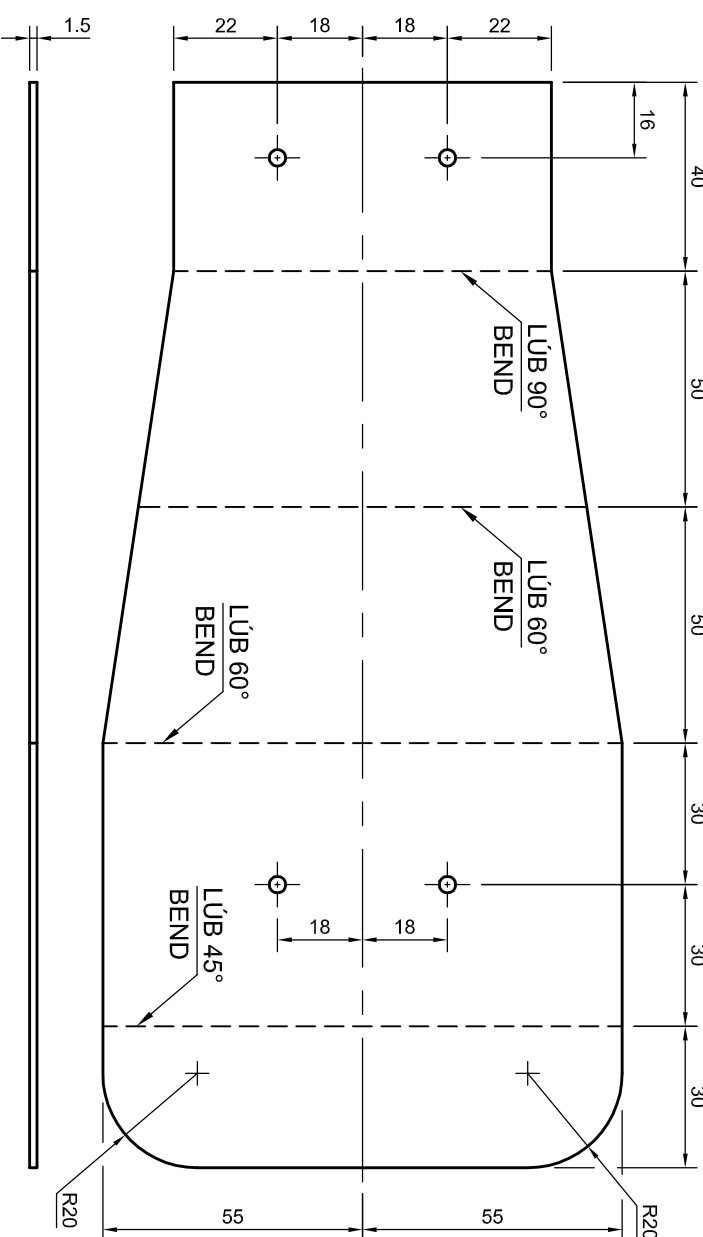
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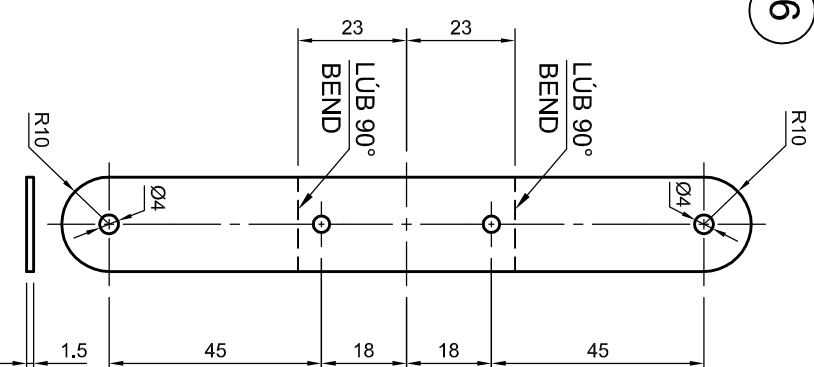
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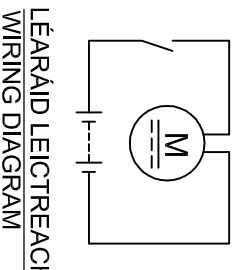
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6



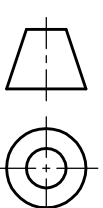
SONRAÍ CÓIMEÁLA
ASSEMBLY DETAILS



Nóta: Gabhann 20% de na marcanna le Cóimeáil, Bailchrioch agus Feidhmiú.
Note: 20% of the marks will be awarded for Assembly, Finish and Function.

Poill gan toisí
Undimensioned holes

Ø3.5



PARTS LIST			
Part No.	Part Name	Req.	Material and Description
1	Grill	1	1.5 mm, Aluminium (polished)
2	Front Chassis	1	1.5 mm, Aluminium (polished)
3	Bonnet	1	1.0 mm, Aluminium (polished)
4	Windscreen	1	3 mm, Clear or Tinted Acrylic (polished)
5	Rear Chassis	1	1.5 mm, Aluminium (polished)
6	Rear Axle Support	1	1.5 mm, Aluminium (polished)
As Supplied			
7	Screw	14	M3 × 8, Allen Button Head or Pan Head, Steel
8	Screw (Motor)	2	M3 × 20, Allen Button Head or Pan Head, Steel
9	Nut	14	M3, Steel
10	Cap Nut (Windscreen)	2	M3, Steel
11	Front Axle	1	M4 Threaded Bar (145 mm approximately)
12	Rear Axle	1	M4 Threaded Bar (122 mm approximately)
13	Nut (Axles)	8	M4, Steel
14	Cap Nut (Wheels)	4	M4, Steel
15	Wheel	4	Ø70 mm × 27 mm, with 4 mm axle hole
16	Hinge	1	30 mm
17	Motor Gear	1	20 Teeth (Secure to gearbox shaft with a screw)
18	Front Axle Gear	1	30 Teeth, with 4 mm axle hole
19	3V Motorised Gearbox	1	Perpendicular Motor, Single Shaft – Ratio 120:1
20	Motor Bracket	1	To suit Perpendicular Motor
21	Battery Holder	1	AA x 2
22	Switch	1	Toggle
23	Insulated Wire		As Required

Note: 20% of the marks will be awarded for **Assembly, Finish and Function.**

Note: Pop rivets may be used for assembly.