

Engineering Notebook

This is an alternate front page.
Place a team photo or other information here.

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Team Number

TechTitans Robotics

Team Name

Botsrobotica

School

06/05/2023

Start Date

00/00/0000

End Date

2

Book #

of 2

V2.0 Date 5.16.23



Resources

students.vex.com

Engineering Resources, Information on Notebooks, Videos, VEX Library, Teams Resources, and Scholarships



mentors.vex.com

Team and Mentor Resources, Mentor Professional Development, VEX Mentor Community and more



teams.vex.com

A Collection of Resources for Teams Provided by the REC Foundation



library.vex.com

Information on Building, Documentation, Troubleshooting, Coding, and other Educational Resources



About the REC Foundation

The REC Foundation's global mission is to provide educators with hands-on, student-led competition programs and educational resources to prepare future innovators for a diverse and inclusive STEM workforce. We see a future where all students design and innovate as part of a team, experience failure, persevere, and emerge confident in their ability to meet global challenges.

engineering.vex.com

notebooking.vex.com

coding.vex.com

Judging Rubric for Notebooks

vex.com

roboticseducation.org

[VRC 2022-2023 Game - Rules & Game Video](#)

Send suggestions and comments about these Digital Notebooks and Digital Parts to notebooks@vex.com



Alejandro

Capitan / Programador / Driver
7 grado - 2nd year of VIQRC
Quiere ser ingeniero de sistemas



Santiago

Builder / Strategist
5th grade - 3 meses en VIQRC
Wants to be a mechanical engineer



Matias

Coach / Driver
9 grado- 2 años en VIQRC
Quiere ser Ingeniero mecatronico



Juan Felipe

Coder / Driver
5th grade - 2 meses en VIQRC
Wants to study artificial intelligence

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2	Nos plantearon el reto y las medidas del robot	13/05/2023
3	Conocimos los tipos de chasis	20/05/2023
4	Diseñamos el robot	27/05/2023
5	Terminamos chasis y lo probamos	03/06/2023
6	Comenzamos con construcción de un robot tanque	24/06/2023
7	Estructura de robot de tanque	01/07/2023
8	Destruimos el robot tanque para pensar en otro mejor	08/07/2023
9	Comenzamos a construir nuevo robot	15/07/2023
10	Comenzamos a diseñar el mecanismo de recolección	22/07/2023
11	Comenzamos con la garra	29/07/2023
12	Terminamos el chasis mejorado	05/08/2023
13	Terminamos flywheel y el soporte de esta	12/08/2023
14	Colocamos la flywheel con su soporte en el chasis del robot	19/08/2023
15	Idea de proyecto y página web para libro de ingeniería	26/08/2023
16	Alineamos las cadenas y fueron tensionadas	29/08/2023
17	Sistema de filtro y diseño	02/09/2023
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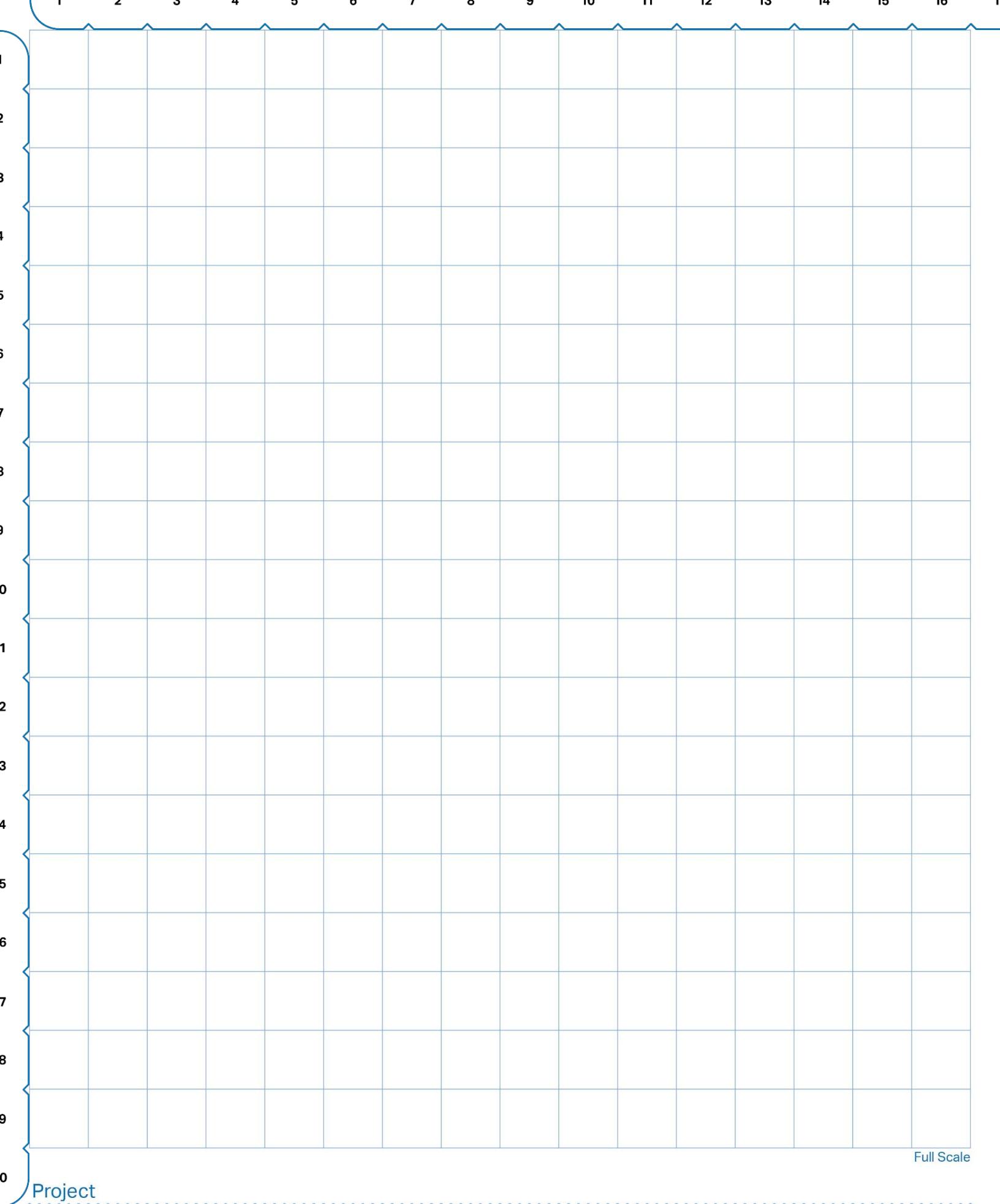
Section A

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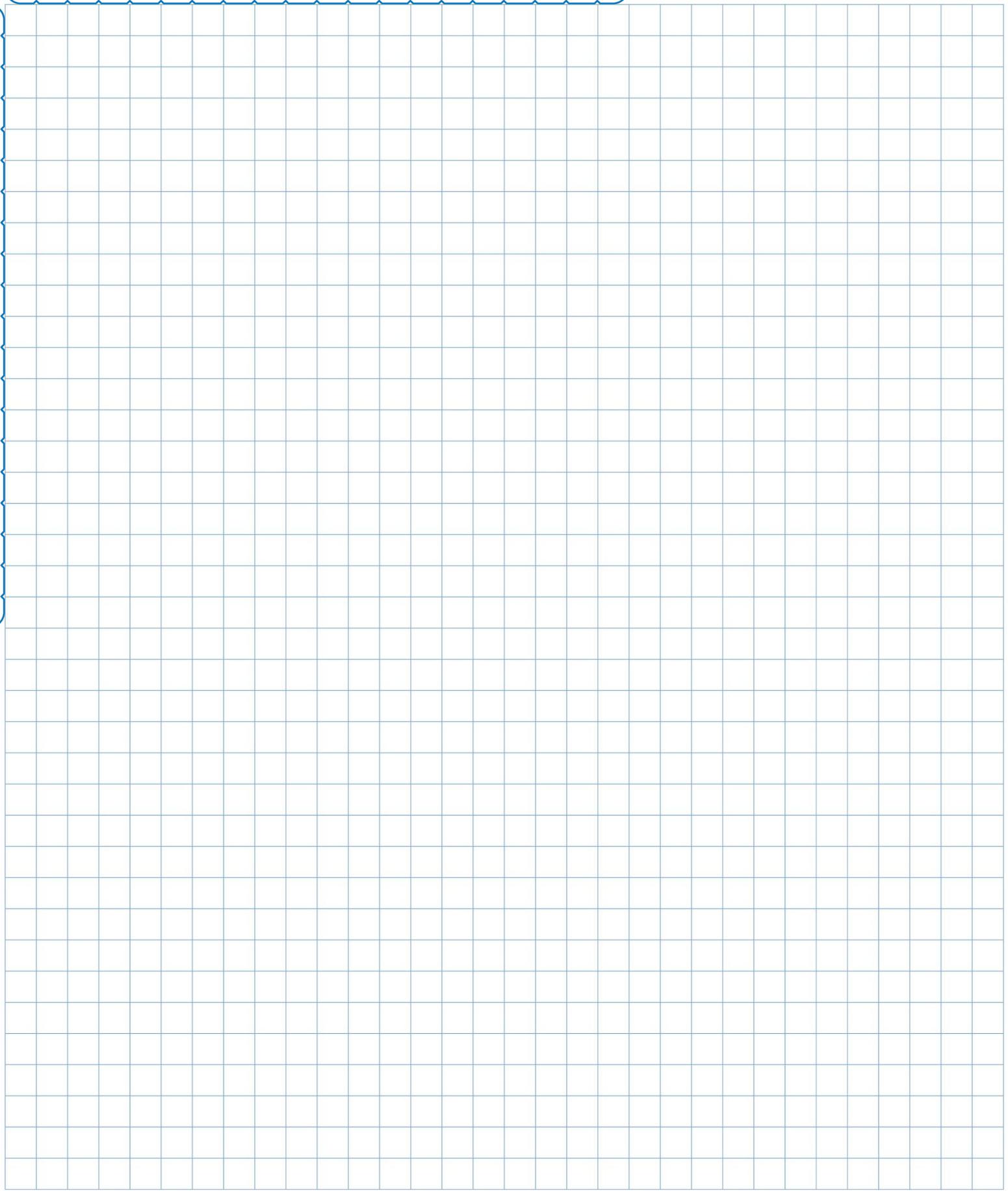
Full Scale

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Half Scale

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Third Scale

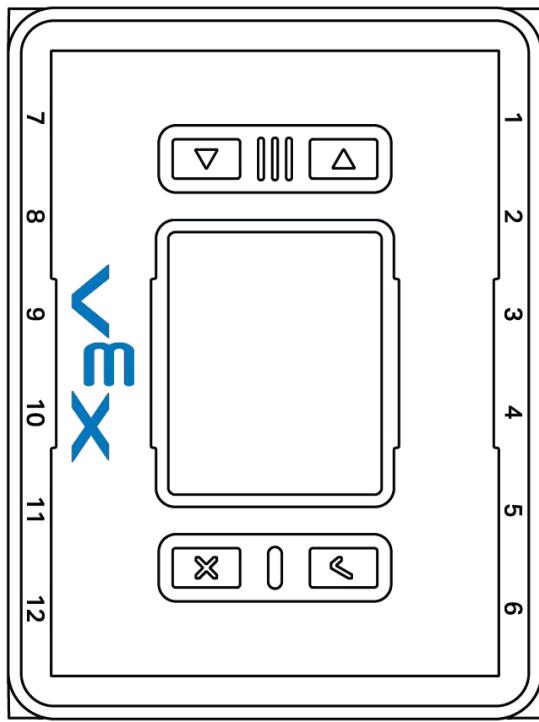
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Port 7
Port 8
Port 9
Port 10
Port 11
Port 12



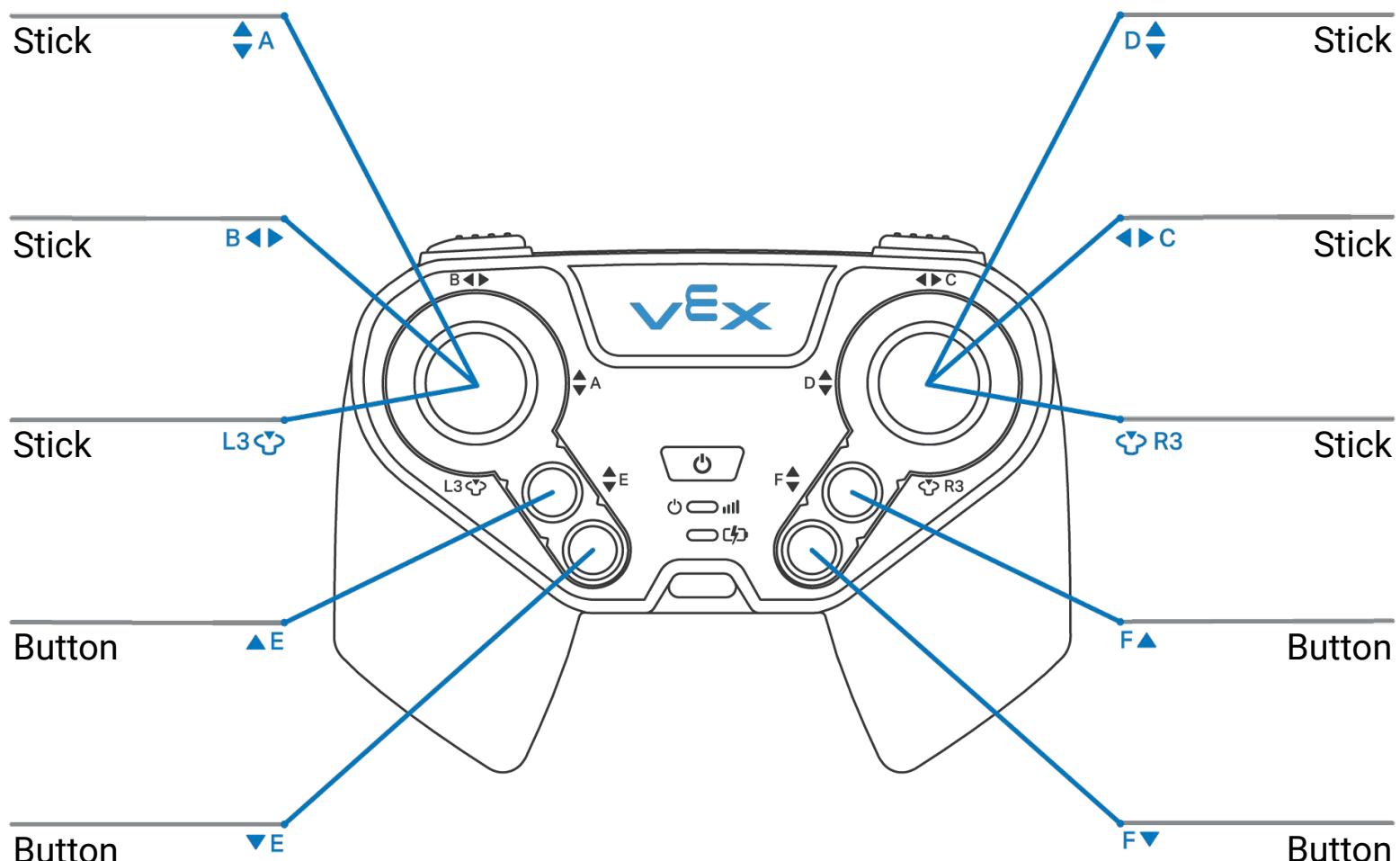
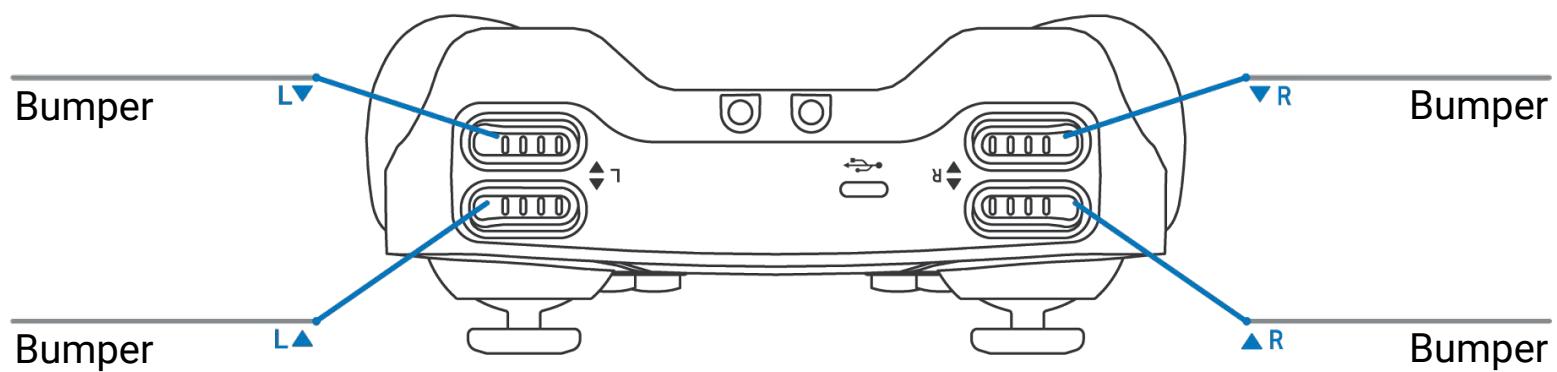
1 Port
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5 Port
6 Port

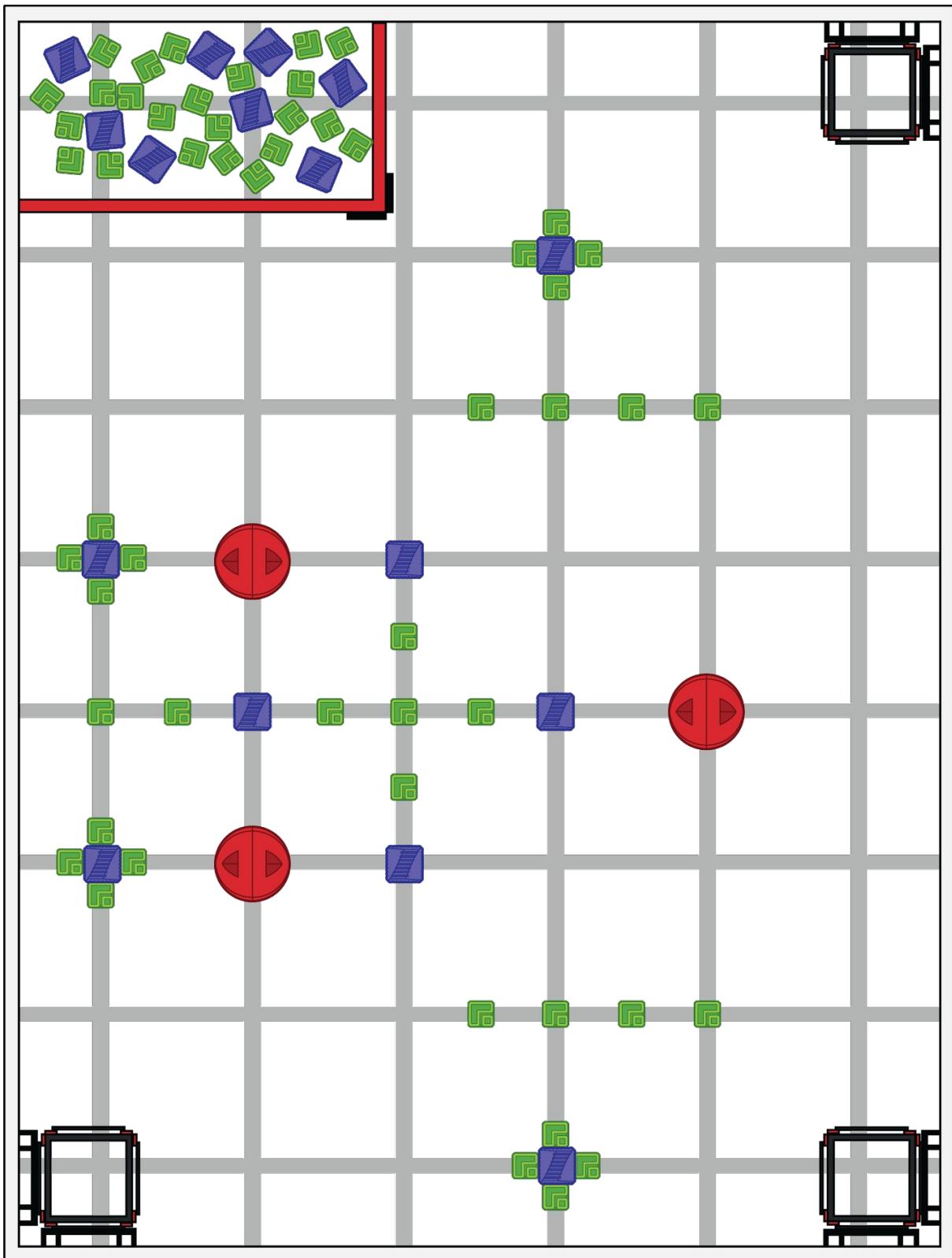
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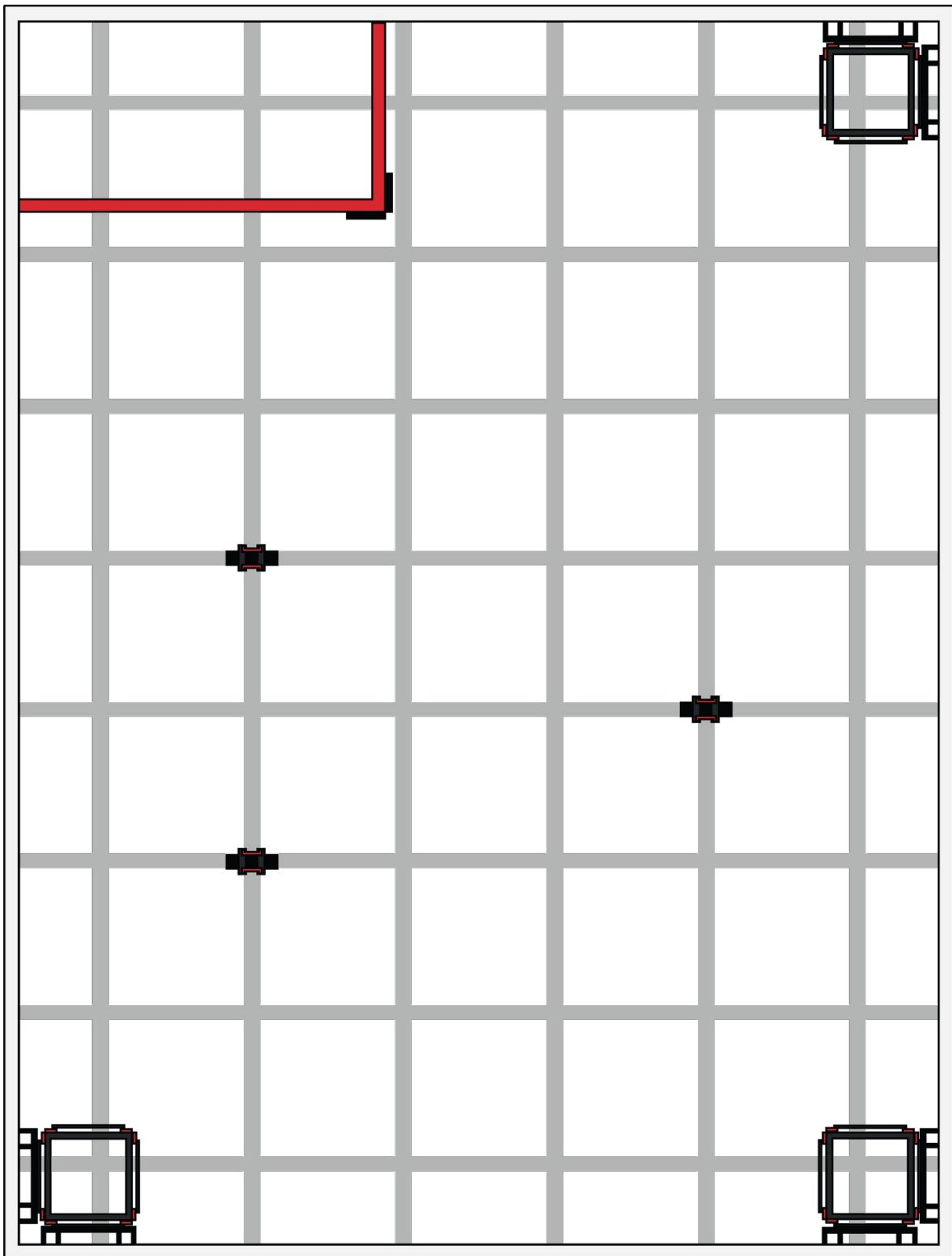


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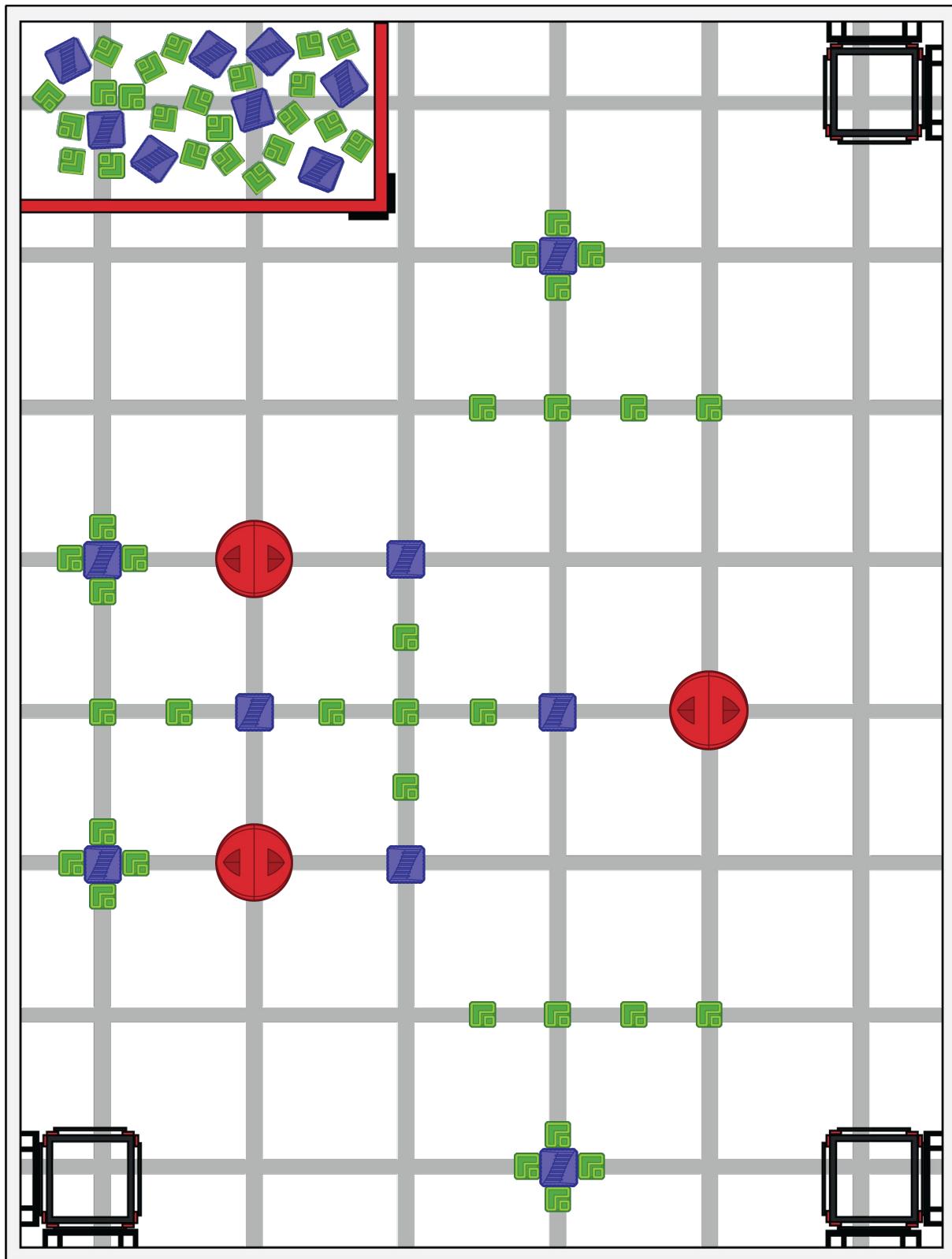
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The game objects on this page are
moveable



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Gear Formulas

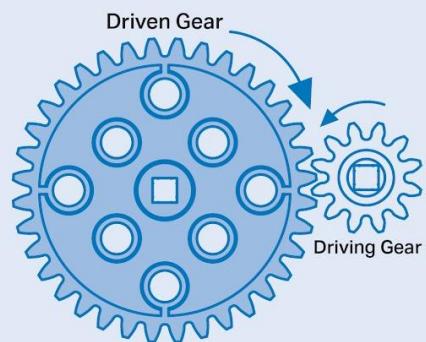
$$\text{Gear Ratio} = \frac{\# \text{ of Driven Gear Teeth (Output)}}{\# \text{ of Driving Gear Teeth (Input)}}$$

Power Transfer is a 1:1 gear ratio where the driving and driven gear have the **same number of teeth**.

Increasing Torque (lowering speed) is a gear ratio where the driving gear has **fewer teeth** than the driven gear.

Increasing Speed (lowering torque) is a gear ratio where the driving gear has **more teeth** than the driven gear.

$$\text{Compound Gear Ratio} = (\text{Gear Ratio 1}) \times (\text{Gear Ratio 2}) \times (\dots)$$



Motion Formulas

$$\text{Average Speed} = \frac{\text{Total Distance}}{\text{Total Time}}$$

Distance is from the axis of rotation

$$\text{Rotational Speed} = \frac{\# \text{ of Turns}}{\text{Time}} = \frac{\text{Degrees}}{\text{Time}}$$

$$\text{Circumference} = \pi \times \text{Diameter}$$

$$\text{Power} = \text{Force} \times \text{Velocity}$$

$$\pi \approx 3.14$$

$$\text{Torque} = \text{Force} \times \text{Distance}$$

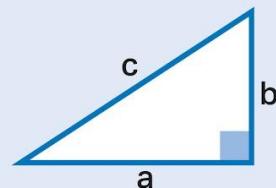
$$\text{Force} = \text{Mass} \times \text{Acceleration}$$

Mathematical Formulas

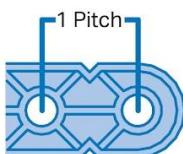
Complimentary angles are angles that sum to 90°

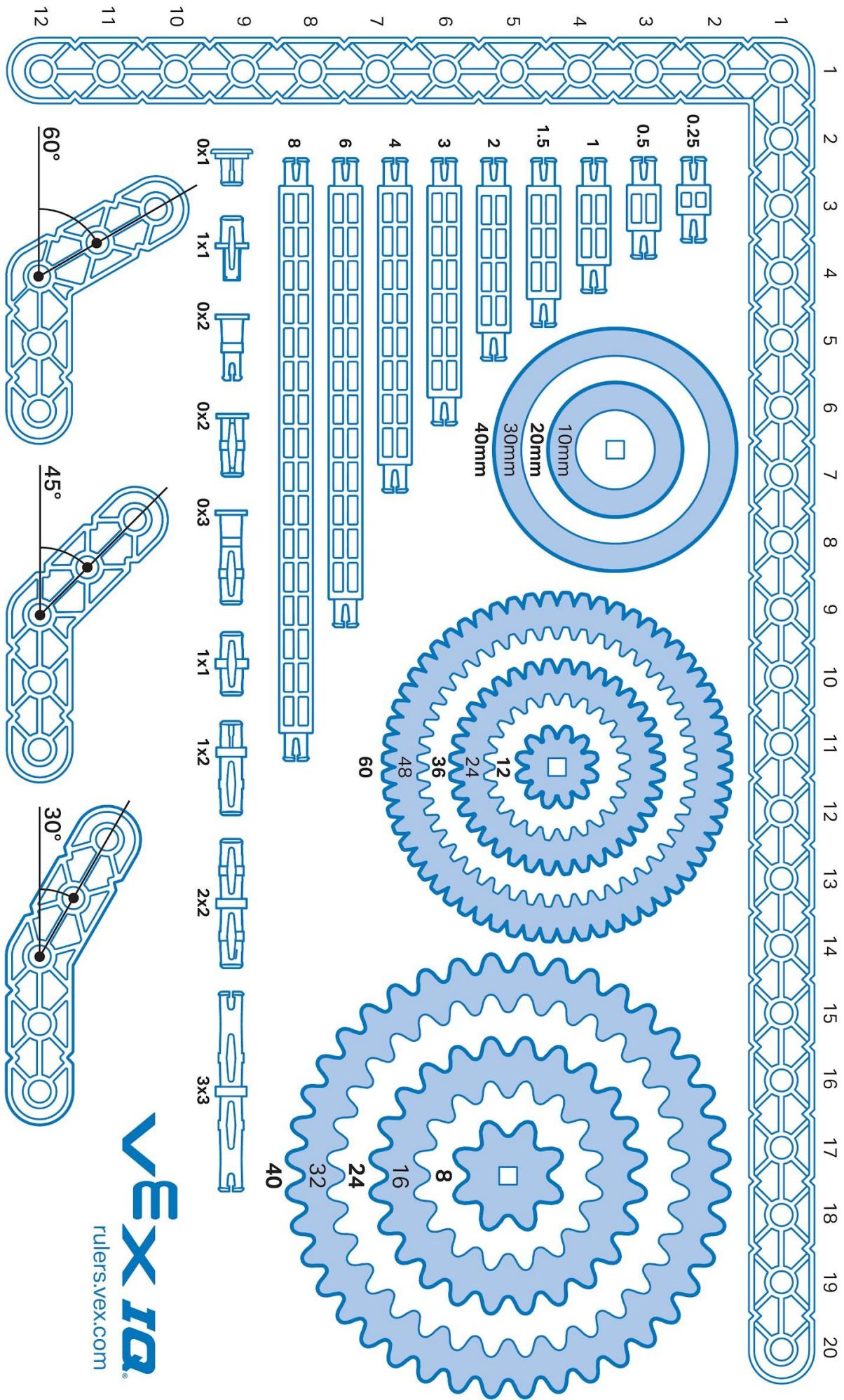
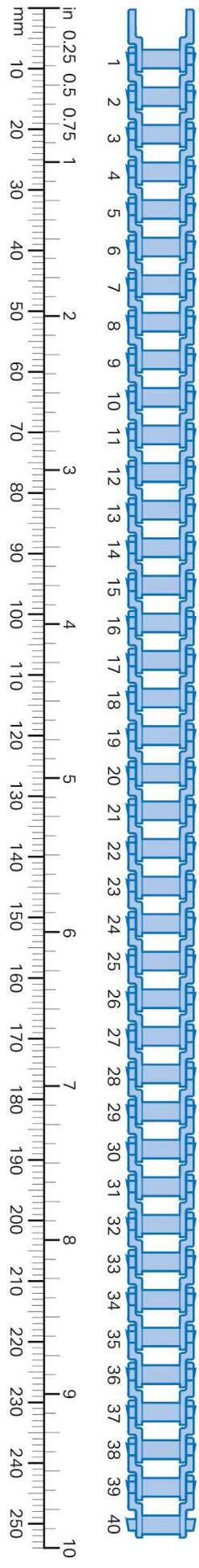
Supplementary angles are angles that sum to 180°

$$\text{Pythagorean Theorem: } c^2 = a^2 + b^2$$



$$1 \text{ Pitch} = 0.5 \text{ in} = 12.7 \text{ mm}$$





Week of: MM/DD/YYYY

Monday

Tuesday

Wednesday

Thursday

Friday

Saturday

Sunday

April 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
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May 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

June 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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July 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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30	31					

August 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
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September 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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October 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3	4	5	6	7
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November 2023

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2	3	4
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December 2023

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January 2024

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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February 2024

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March 2024

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April 2024

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May 2024

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