

Engineering Notebook

964285D

Team Number

Junior Noodles

Team Name

Desert Christian

School

09/2/25

Start Date

End Date

1

Book #

of 1

V4.0 Date 3.27.25



Resources

students.vex.com

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



mentors.vex.com

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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

V5RC 2025-2026 Game - Rules & Game Video

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

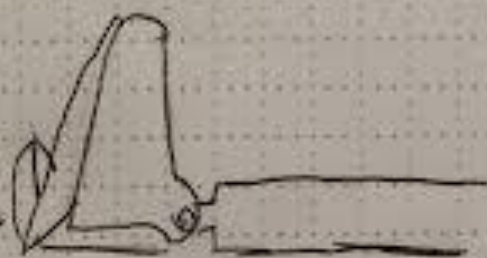
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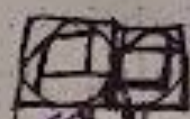


We could use something like this

Or this



door so the item
can't get out



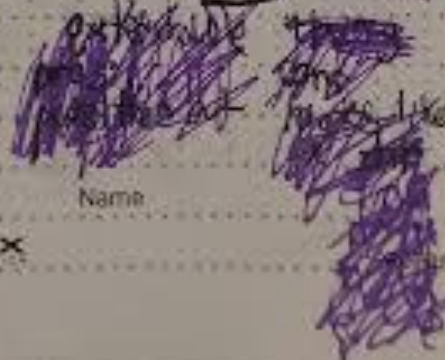
These hold the
blocks and can
push them out

Clamps

Gears



This push
the blocks
to score

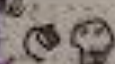


Project

Date

VEX

Name



SECRETERY INFORMATION



Drivetrain







ConveyorMotor

5



IntakeMotor

3



BumperD

D



Controller1

+

Add a device

when started

set drive velocity to 150 %

set turn velocity to 150 %

set ConveyorMotor velocity to 150 %

set IntakeMotor velocity to 150 %

when started

forever

if battery capacity in % = 25 then

set cursor to row 1 column 1 on Controller1

clear Controller1

print BATTERY AT 25% REPLACE NOW on Controller1

play rumble Pulse on Controller1

when autonomous

set cursor to row 1 column 1 on Controller1

clear Controller1

print auto on Controller1

spin IntakeMotor Intake

drive forward for 32.5 inches

wait 0.5 seconds

turn right for 140 degrees

wait 0.5 seconds

drive forward for 235 mm

repeat 3

spin ConveyorMotor up

drive reverse for 1000 mm

wait 1 seconds

spin IntakeMotor Intake

drive forward for 100 mm

wait 1 seconds

when driver control

set drive velocity to 1000 rpm

set turn velocity to 1000 rpm

set cursor to row 1 column 1 on Controller1

clear Controller1

print driver control on Controller1

when BumperD pressed

set cursor to row 1 column 1 on Controller1

clear Controller1

print block detected on Controller1

set cursor to next row on Controller1

Section A

Ideas

BLOCK Shotgun
Color Sorting System
Launcher
Pin-ball Hitter
Tweaked Vex Striker
Tweaked Hero Bot

Pros: Cons:
Works well Basic

9/16/25

Are we making
decisions?
"Probably not LOL"
Working on the hero
Bot
Tryin to get to step
60 on herobot

9/28/25

Continuing herobot
Trying to get to step 60+
Making the herobot
Stephen: Made a
shredder for some
reason

9/30/25

Trying to get to
step 70
Beat the goal

10/2/25

Do at least 1 step

10/14/25

Get coding over with

10/16/25

Do 5 steps on Tuesday

10/21/25

Trying to get to step
100

10/23/25

Trying to get to step
112

10/28/25

Were trying to get
as much done as
possible

11/4/25

Figure out what
objective we have!

11/13/25

Get to step 115
We're on step 107
We got to step 110 :|

11/20/25

Got some steps done

Started driving

Fixed the wheels

12/2/25

Working on step 129+

12/4/25

Got to step 136

Get some coding
done

12/8/25

Coded auton

Got a few steps
done

12/9/25

Got great
progress on the
bot

Didn't code

12/11/25

Finished the bot

12/12/25

Tested new
drivetrain

Preparing for
tournament
tomorrow(hope it
goes well)

Brainstormed
ideas, coded a bit,
port 4 doesnt
work.

12/15/25

We need to troubleshoot
our problems on the bot.
We learned that having a
strategy is very
important
We found out that we
need to scout more.

1/20/26

Driver suggested
we should try to
play offensive if
possible
Have our bot ready
for inspection by
thursday
Have Stephen be
the thingy-doer
We need to get
stephen's code
done

1/22/26

Coding skills & match
auton
Getting measurements
for the arena thingy (i
think)
Stephen wants to
believe that he won't
finish his auton but WE
can't afford that
Kyle took over for
Stephen.

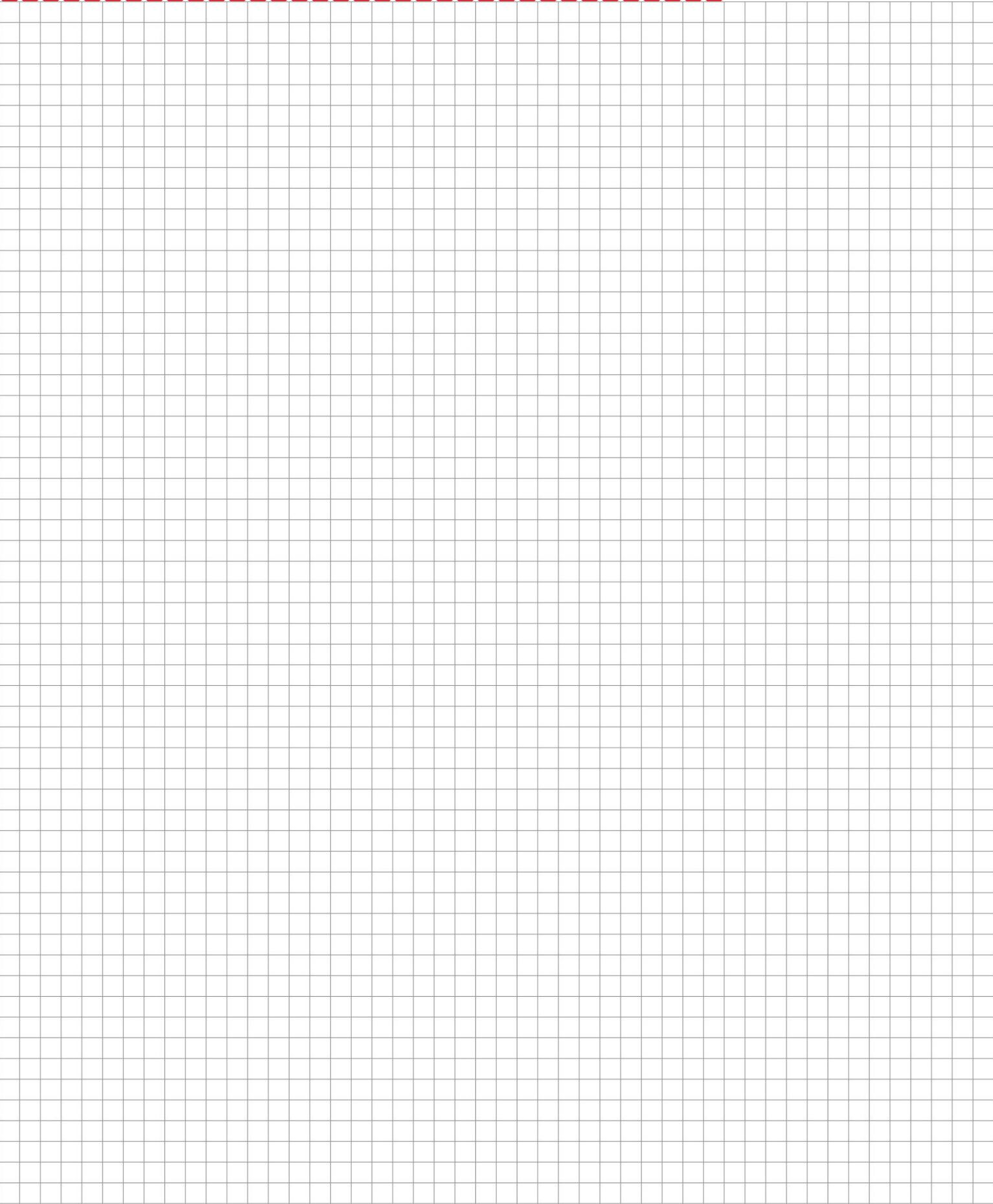
Full Scale

Half Scale		

Name _____ Date _____ Page _____

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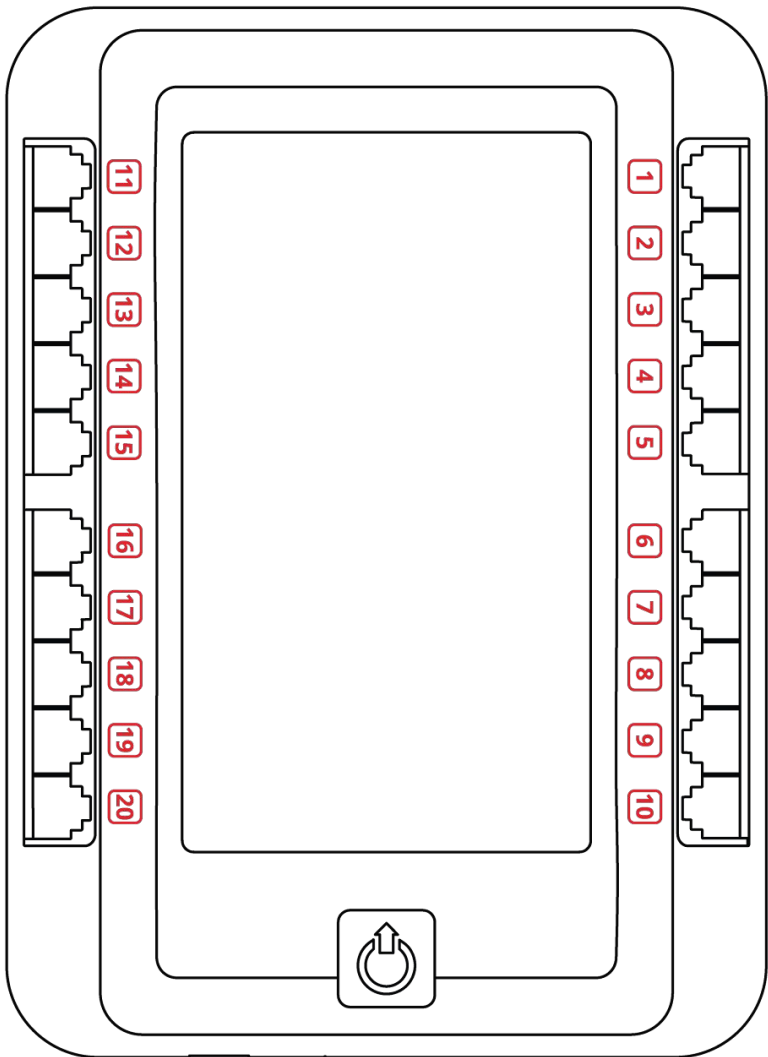


Third Scale

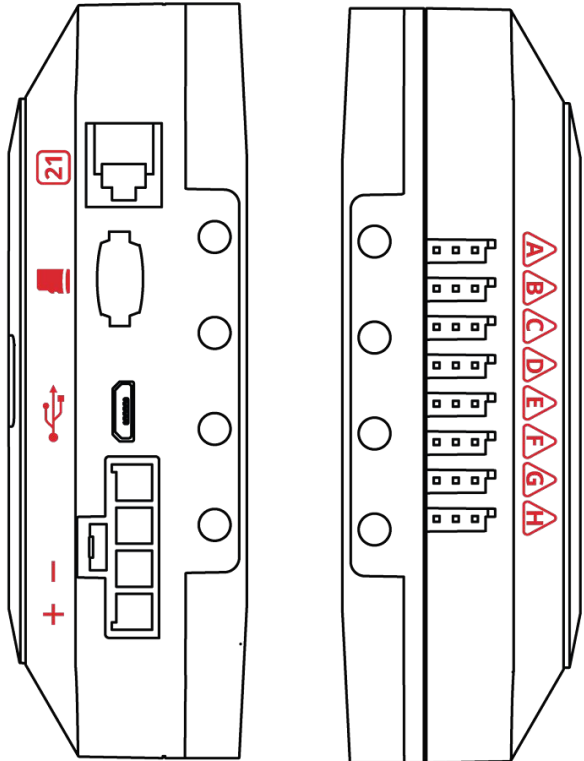
Project

Name Date Page

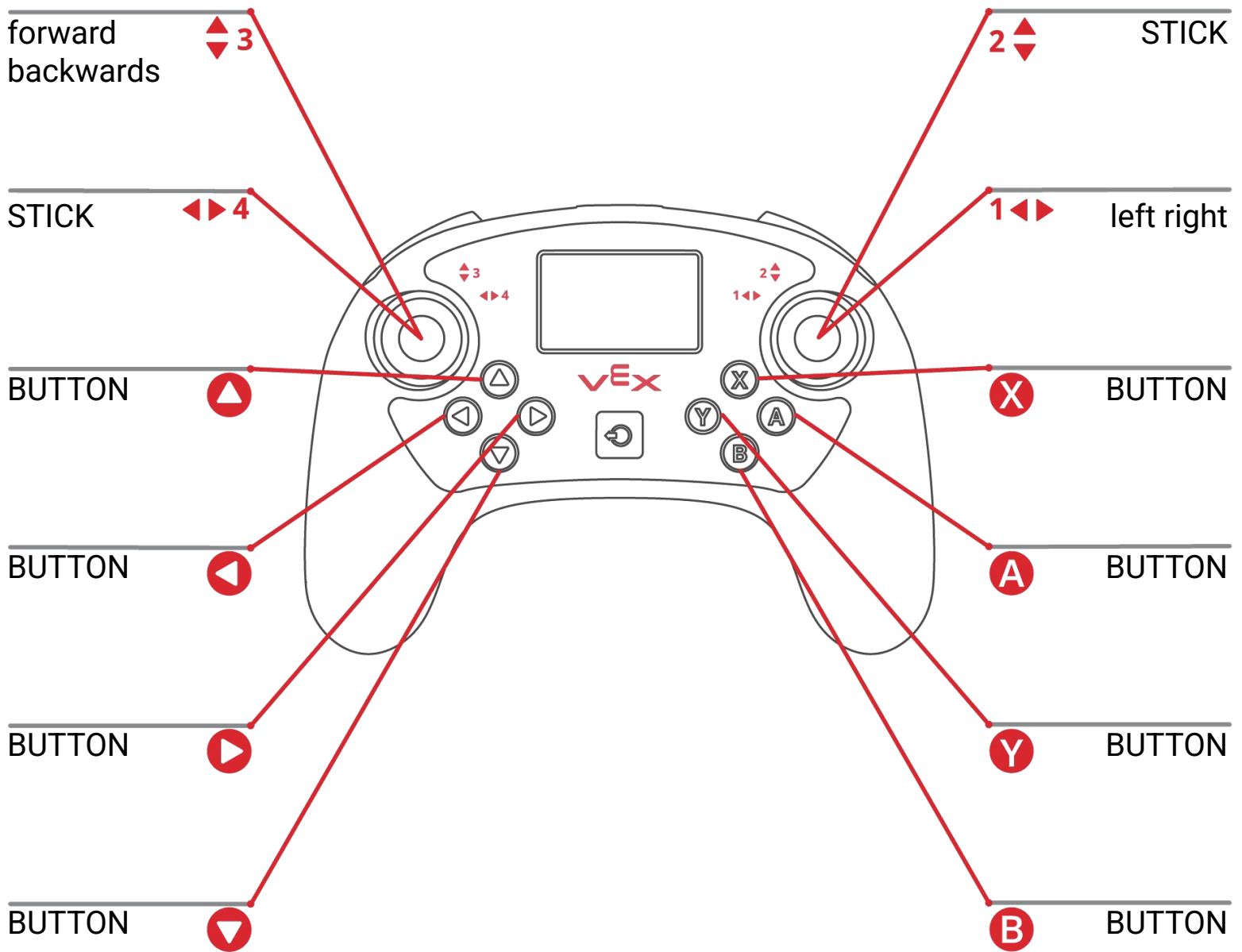
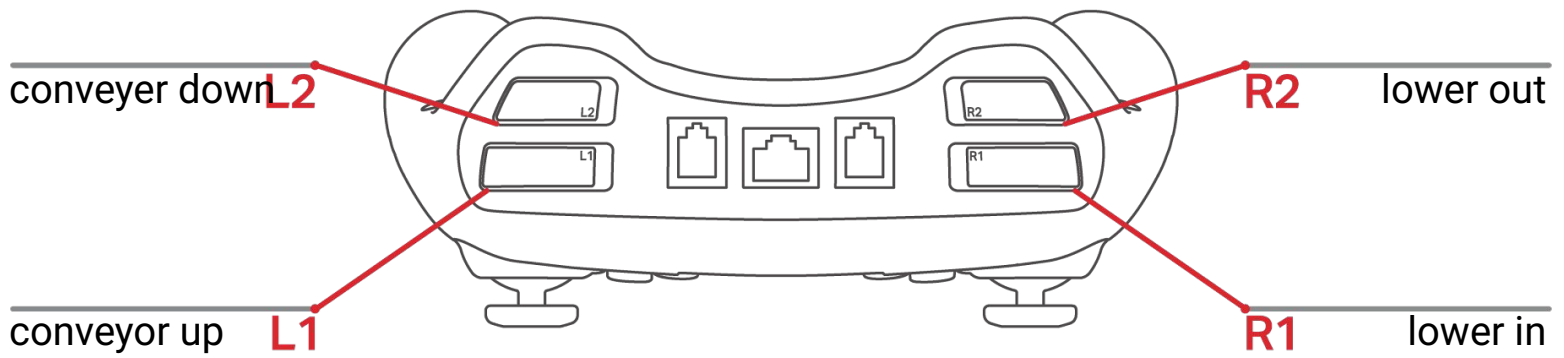
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- PORT 21

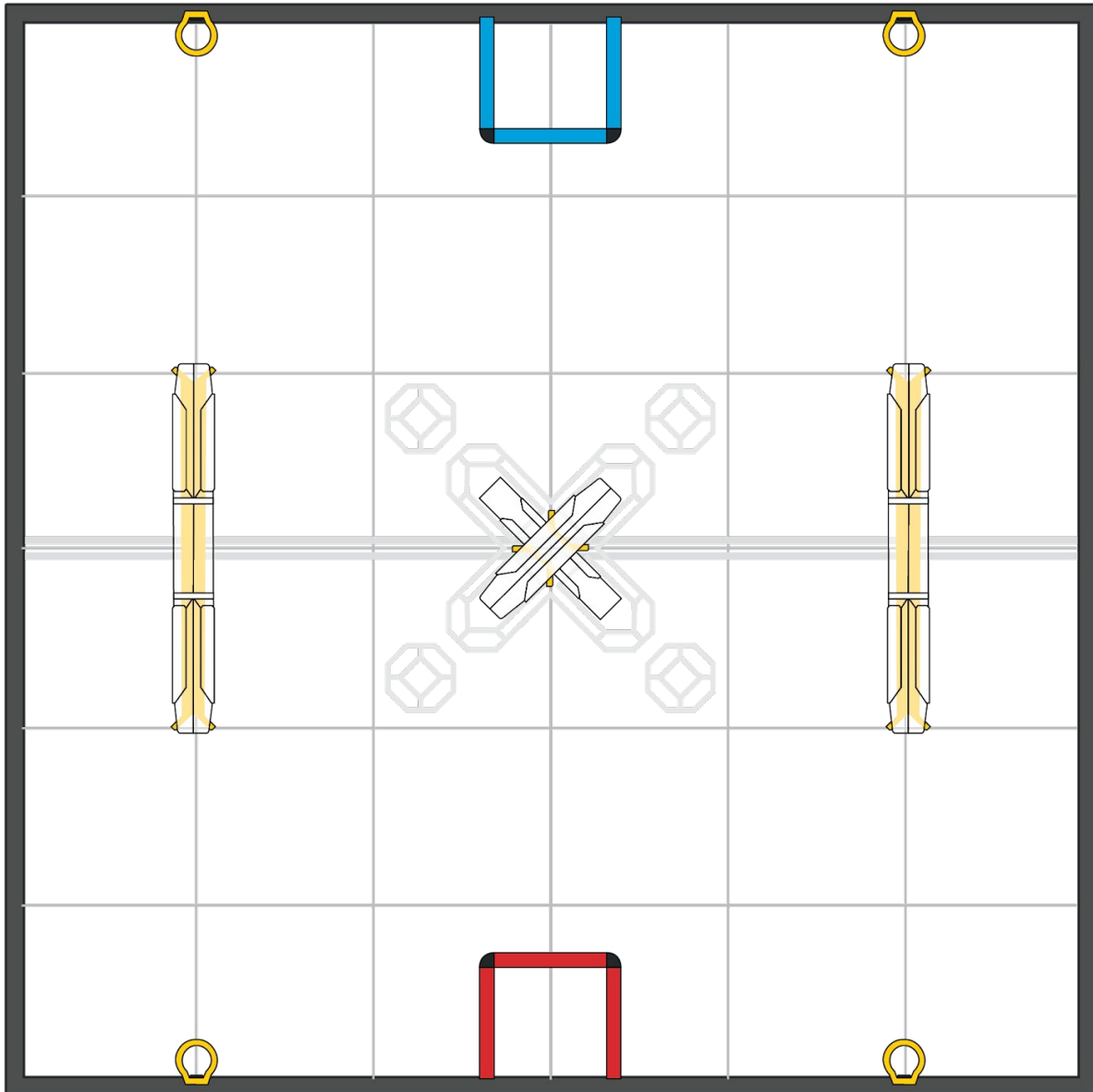


- 1 left wheels
- 2 right wheels
- 3 intake
- 4 PORT
- 5 conveyor
- 6 PORT
- 7 PORT
- 8 PORT
- 9 PORT
- 10 PORT



- A PORT
- B PORT
- C PORT
- D bumper switch
- E PORT
- F PORT
- G PORT
- H PORT



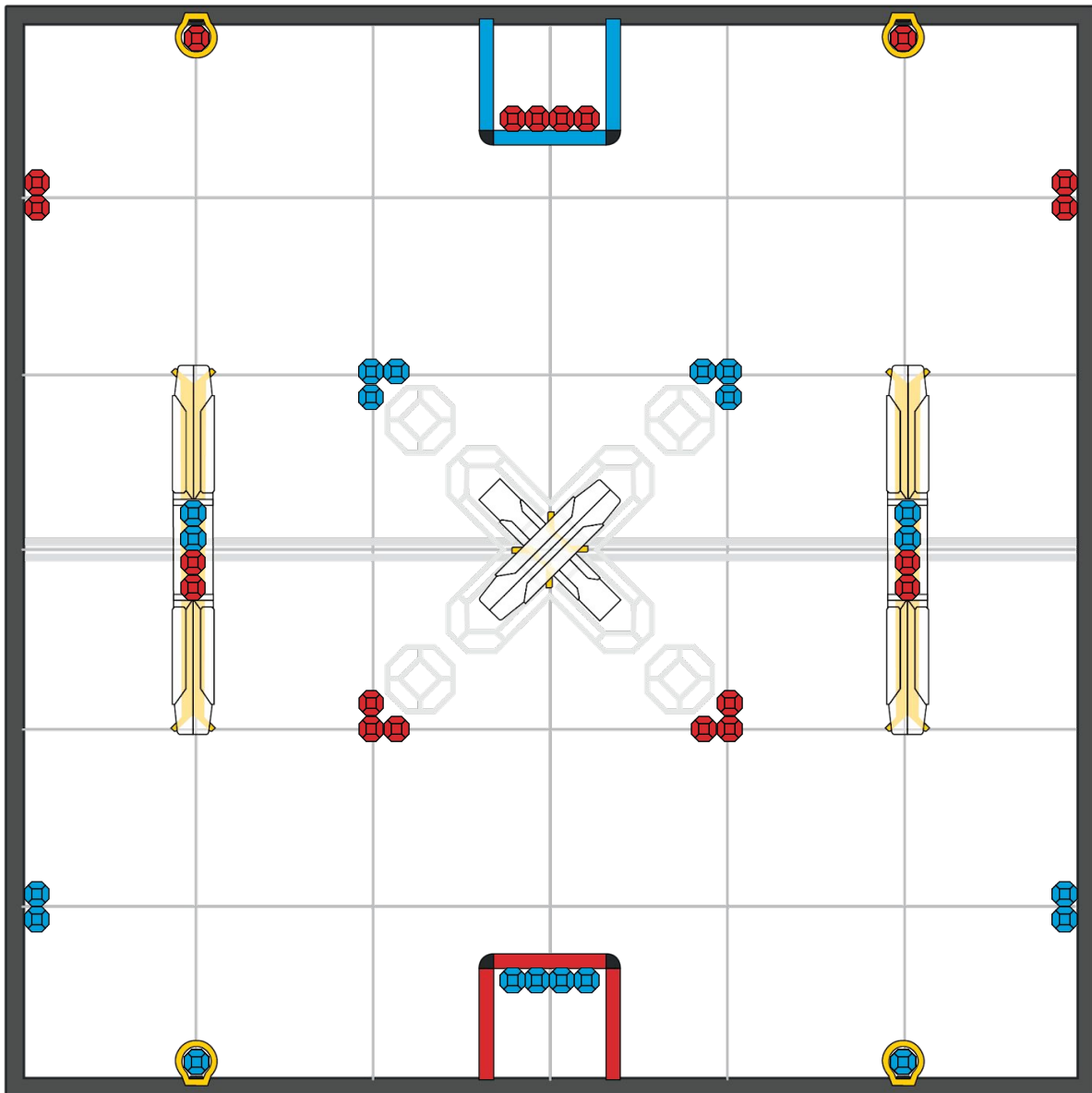


1/24th Scale

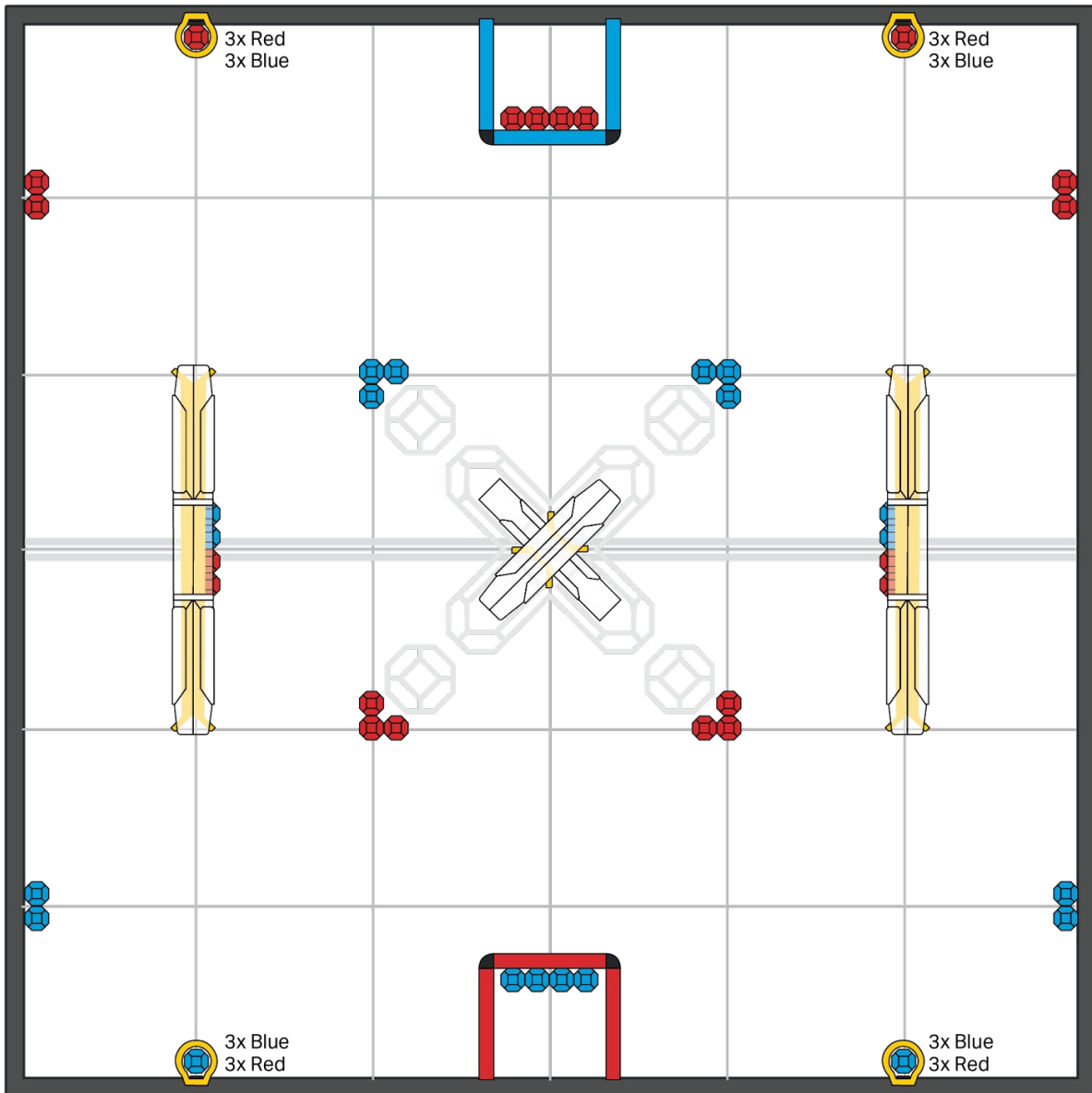


Project "Push Back" Blank Field

Name Date Page



1/24th Scale



1/24th Scale

Gear Formulas

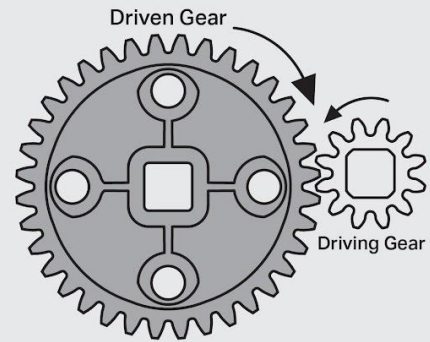
$$\text{Gear Ratio} = \frac{\text{\# of Driven Gear Teeth (Output)}}{\text{\# of Driving Gear Teeth (Input)}}$$

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.

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



Motion Formulas

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

Distance is from the axis of rotation

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

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

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

$$\pi \approx 3.14$$

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

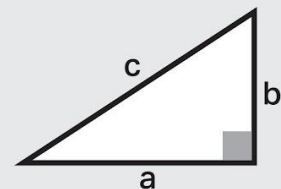
$$\text{Force} = \text{Mass} \times \text{Acceleration}$$

Mathematical Formulas

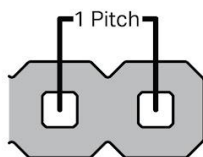
Complimentary angles are angles that sum to 90°

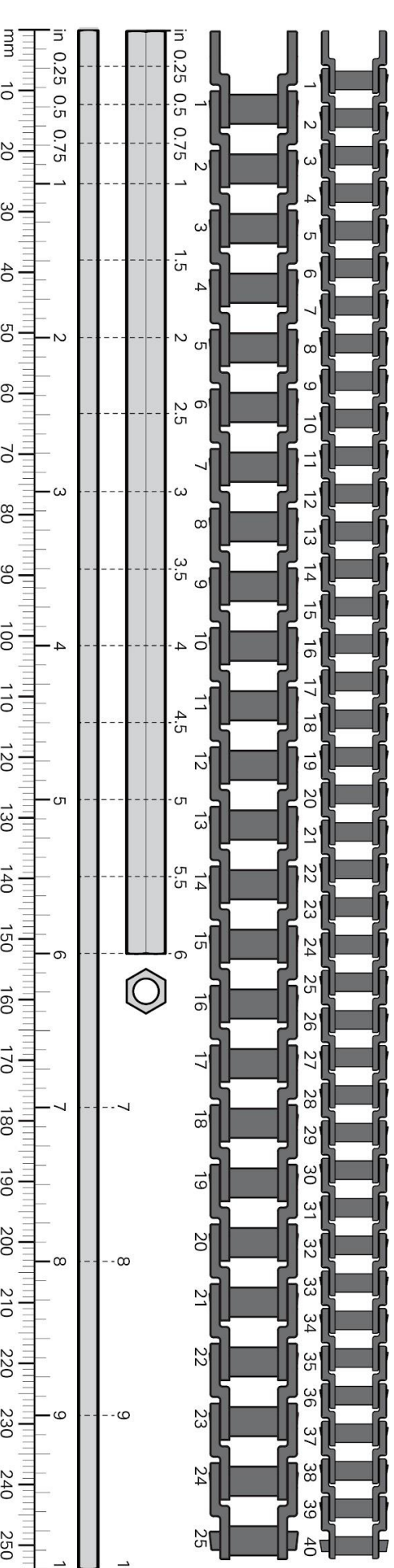
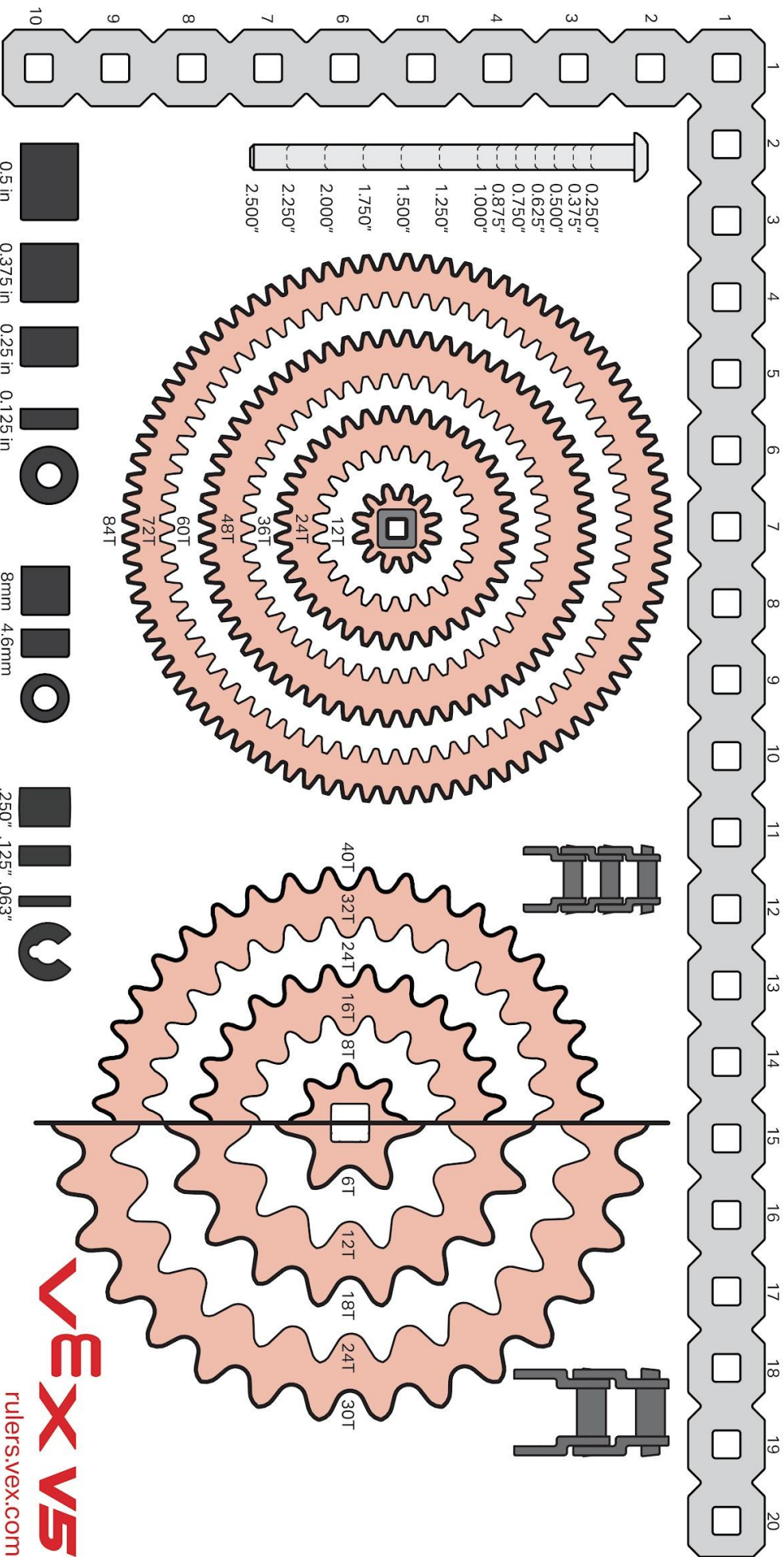
Supplementary angles are angles that sum to 180°

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



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





Week of: MM/DD/YYYY

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May 2025

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June 2025

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July 2025

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August 2025

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November 2025

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December 2025

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January 2026

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February 2026

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March 2026

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April 2026

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May 2025

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June 2025

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July 2025

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August 2025

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September 2025

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October 2025

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November 2025

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December 2025

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January 2026

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
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February 2026

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March 2026

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April 2026

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May 2026

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