BUILD-FLY-CODE
-COMPETE-

PACKAGE DELIVERY

STUDENT WORKBOOK

NAME: _____

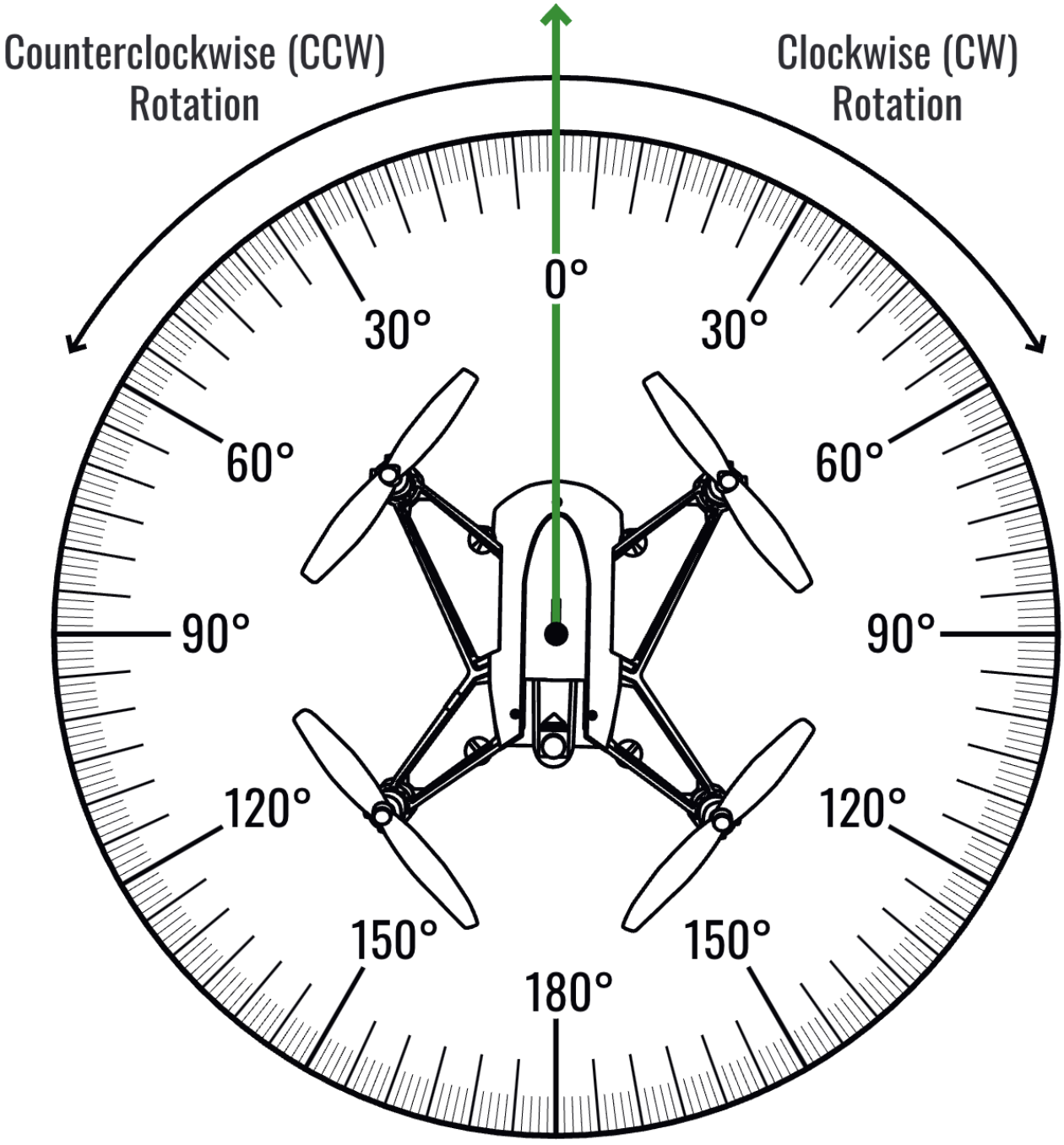
FOR THE WIN
ROBOTICS

2025 | VERSION 2

PILOT FLIGHT LOG

DATE	DRONE MODEL	LOCATION	FLIGHT TIME	NOTES

ANGLES REFERENCE



LESSON 1: FOR DELIVERY

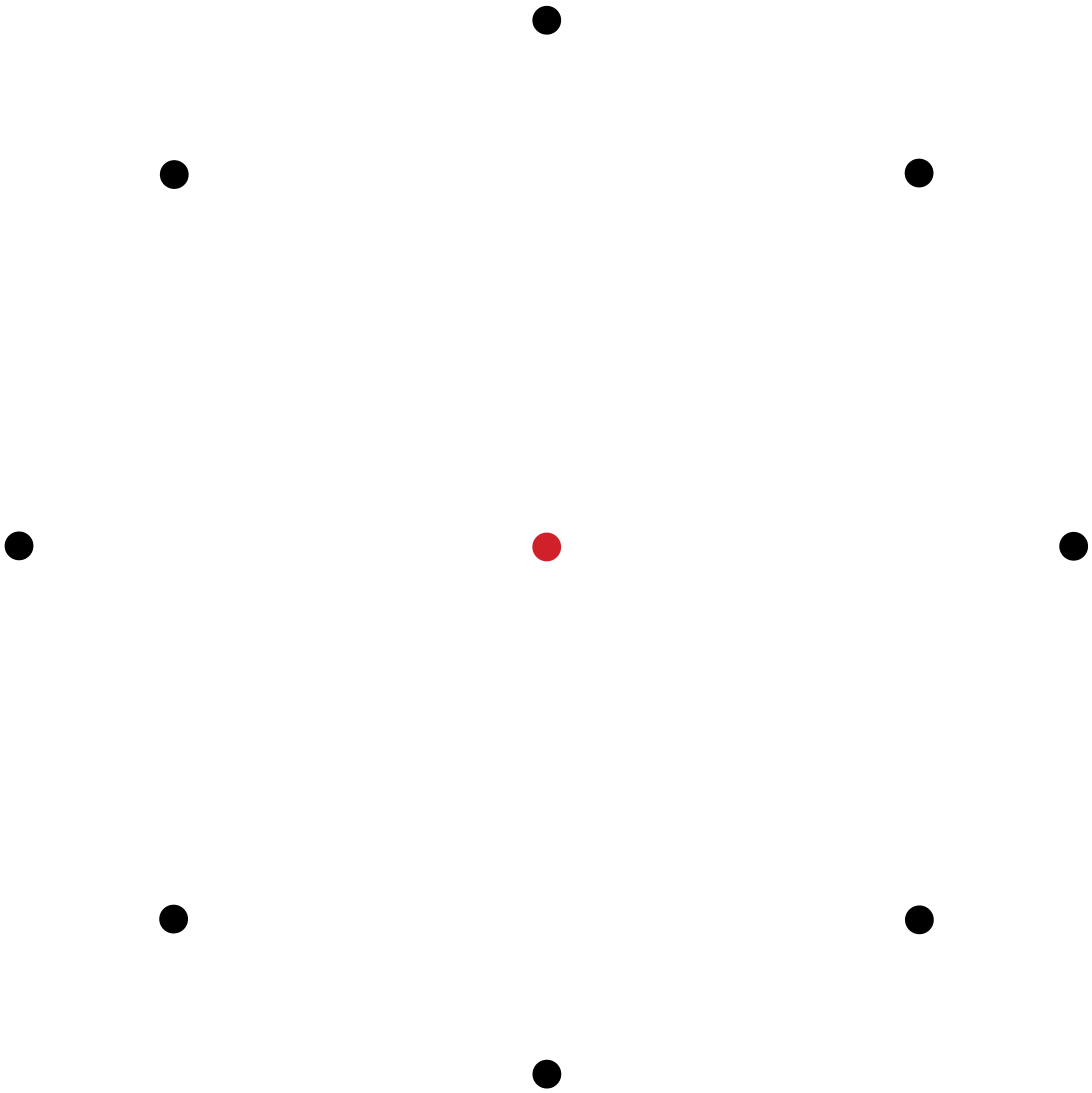
Use this page for any drawings, notes, or calculations during the For Delivery activity.

LESSON 2: RURAL DELIVERY

1. How many degrees are there in a circle? _____

2. What regular shape do the smaller islands create? _____

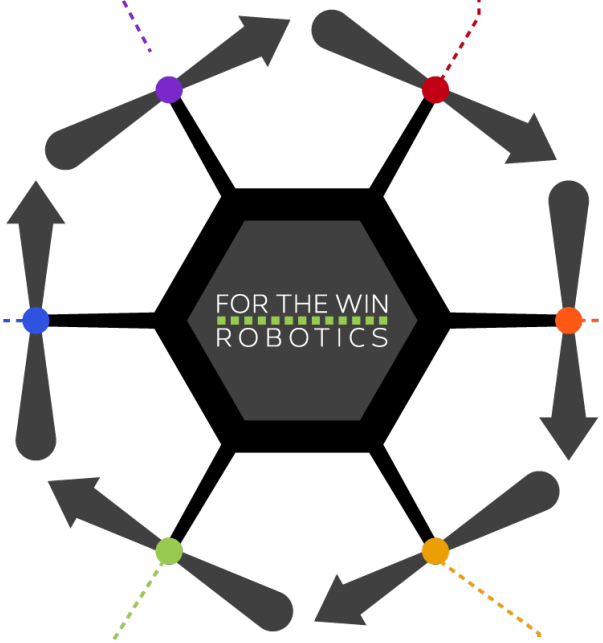
3. Draw and label on the graphic below according to the following directions:
   - Connect the black dots to form a regular polygon. Use a straightedge (such as a ruler) as needed.
   - Draw lines from the center of the regular polygon (the red dot) to each corner (the black dots) and label the distance measurement. Use a straightedge (such as a ruler) as needed.
   - Label the degree measurement between two of the lines drawn from the center of the regular polygon.



LESSON 3: ORGAN DELIVERY

Use this page for any drawings, notes, or calculations during the Organ Delivery activity.

ENGINEERING DESIGN PROCESS



MODIFICATION
Refine & enhance your thinking. Scrap ideas, prototypes, & research that is not helpful. **Start process again.**

CHALLENGE
Understand the need or challenge & define what needs to be solved.

TEST/ANALYZE
Check prototype's performance with real users and go for broke. Identify all concerns.

RESEARCH
Gather information from all angles. Explore existing solutions & learn all you can about the challenge.

PROTOTYPE
Communicate your best idea with simulations & models (digital or physical) to show how it works.

IMAGINE
Capture all ideas quickly. Brainstorm, sketch, discuss, & get feedback before prototyping.

ENGINEERING DESIGN PROCESS NOTES

Challenge:

Research:

Imagine:

Prototype:

Test/Analyze:

Modification:

GLOSSARY

Beyond Visual Line of Sight (BVLOS) – the *inability* of the RPIC (remote pilot in command) to see their drone at all times during flight

Equidistant − having the same distance

Navigator − the person responsible for giving the RPIC (remote pilot in command) directions on where to fly

Radio Frequency − an electromagnetic wave with low energy that is often used in telecommunications

Remote Pilot in Command (RPIC) − the person flying the drone

Variable − a place with a name that stores information

Visual Line of Sight (VLOS) – the *ability* of the RPIC to see their drone at all times during flight

Visual Observer (VO) − the person maintaining visual contact with the drone and in communication with the RPIC

MATH FORMULAS:

Central Angle Formula − For any regular polygon with n sides, the measure of a central angle is equal to $360° \div n$.

Distance Formula − distance = rate × time