

ROBOTICS — LEADER KEY

SAINTS GLOBAL MEMBER

NAME:

BATTALION:

TROOP:

SKILL BADGE ADVISOR

NAME:

EMAIL:

PHONE:

LEADER KEY

WITH EVALUATION HINTS

Gold boxes contain leader hints for evaluating each requirement

STEP 1 | DISCOVER

INITIALS

- a) Explain common hazards in robotics work (tools, electricity, heat, moving parts) and how to prevent and respond to them, including proper safety gear. _____
- b) Explain first aid and prevention for robotics-related injuries such as cuts, burns, and eye injuries. _____
- c) Explain the difference between remote-controlled systems, telerobots, and autonomous robots, giving one real example of each. _____

STEP 2 | PLAN

INITIALS

- a) Explain three major fields of robotics (sensing, programming, mobility, manipulation, or human-robot interaction) and how they work together in a robot system. _____
- b) Choose a real task for a robot or robotic subsystem to perform and describe what success would look like, including at least one sensor input. _____
- c) Create a simple design plan showing components, degrees of freedom, and how the robot will be controlled. _____

STEP 3 | ACT

INITIALS

- a) Build a robot or robotic subsystem of your own design with at least two degrees of freedom that performs the chosen task. _____



LEADER KEY

Robot must be physically built by the Saint, not preassembled or purely virtual.

- b) Program the robot using code or a flow-based system so that it responds to sensor input to complete the task. _____

 LEADER KEY

Program must include conditional behavior based on sensor input.

- c) Test the robot multiple times, identify at least one failure or limitation, and make a physical or programming improvement. _____

 LEADER KEY

Improvement must be tangible—either mechanical or logical.

- d) Demonstrate the robot performing its task reliably and explain how the design, sensors, and program work together. _____

STEP 4 | REFLECT

INITIALS

- a) Explain what part of the robotics process (design, building, programming, or testing) was most challenging and how you overcame it. _____
- b) Describe one ethical consideration or responsibility that comes with designing and using robots. _____

Continue to next page for certification signature

END OF REQUIREMENTS

**BY SIGNING BELOW, I CERTIFY TO THE BEST OF MY KNOWLEDGE THAT ALL
REQUIREMENTS WERE MET AT OR ABOVE THE REQUIRED STANDARDS AS OUTLINED
IN THE BADGE REQUIREMENTS CHECKLIST.**

SKILL BADGE ADVISOR

DATE (YYYY-MM-DD)