

Wildlife-Tracking System Design Companion

NAME _____ | DATE _____ | PERIOD _____

Use this companion with FYF pp. 104-105

FYF gives you the jaguar mission and a full-page blueprint space. Use this companion for the engineering evidence that does not fit on the workbook page. If you do not have the workbook, draw your labeled blueprint on page 2.

1. TURN NEEDS INTO REQUIREMENTS

Model: Need: locate an animal at night. Requirement: the system must gather usable low-light or thermal evidence and return a location record to the research team.

Word bank: requirement · constraint · navigation · payload · communication · disturbance

Flight requirement:

Sensing or data requirement:

Communication requirement:

Environmental or wildlife-protection requirement:

Use this frame: “Because the mission needs __, **the** _ system must ____.”

2. Label the system

Draw in FYF p. 105. If the workbook is unavailable, draw here. Label all six system jobs and add a short job statement to each label.

- ☐ Flight
- ☐ Power
- ☐ Navigation or obstacle sensing
- ☐ Data-collection payload
- ☐ Communication or data return
- ☐ Environmental protection or reduced wildlife disturbance

One assumption the design team would need to test:

One tradeoff, including both the advantage and the cost:

3. Changed mission: sea turtles at night

The new conservation team works on a remote beach at night and must avoid disturbing nesting sea turtles.

One component I would keep and why it still fits:

One component I would change:

Mission evidence that makes the change necessary:

One occupation that would help test, build, operate, or interpret the system:

That person's work product for this mission:

Use this frame: “I would change _ ***because the beach mission*** . A _ ***would help by producing*** .”

Done when

- ☐ Four requirements
- ☐ Six labeled system jobs on FYF p. 105 or page 2
- ☐ One assumption and one tradeoff
- ☐ Evidence-based changed-mission response
- ☐ One occupation and work product