POE 0.1 — ENGINEERING FOR THE MISSION

Student Worksheet

Name: _____ Period: _____ Date: _____

ESSENTIAL QUESTION: How do different engineering systems work together to make an aerospace mission successful?

START — Identify the Systems

Examine the aerospace examples shown by your teacher. For each example, identify the engineering system(s) you see and explain what each contributes to the mission.

STRUCTURES	MECHANISMS	CONTROLS	DATA SYSTEMS
Support loads and maintain shape	Create or transfer motion	Direct or regulate behavior	Measure, process, or communicate information

Aerospace Example	System Type(s)	What does it do?	Why does the mission need it?

Choose One System to Analyze

Mission / purpose of the aerospace system: _____

Most important structure or mechanism: _____

Important control or data input: _____

What could happen if this system failed? _____

BUILD / ANALYZE — Connect POE to a Mission

Mission Scenario: Your engineering team must design an unmanned aircraft capable of completing a remote environmental monitoring mission.

POE Area	What could this area do for the mission?	Example component / system	Question engineers must answer
Energy & Power			
Mechanisms			
Structures & Materials			
Control Systems			
Sensors & Data			
Robotics / Automation			
Engineering Analysis			
Design & Testing			

Document and Defend an Engineering Decision

Your team is deciding between two designs for the unmanned aircraft. Record how an engineer should justify the decision.

DECISION	What should the team choose?
EVIDENCE	What data, calculations, research, or testing support the choice?
REASONING	Why does the evidence support this choice?
NEXT STEP	What should be tested, checked, or improved next?