PLAN THE FIRST DESIGN

ASK. IMAGINE. PLAN.

ENGINEER _____ CHALLENGE _____

1 NAME THE CHALLENGE

What must the design do? Include the goal in one clear sentence.

2. LIST THE RULES AND LIMITS

Materials allowed _____ Size, span or height rule _____

How the design will be tested _____

3. SKETCH DESIGN ONE

Label the shapes, supports, folds or connections you plan to use.

4 PREDICT THE RESULT

What result do you expect from design one? Include a number or observable outcome.

5 EXPLAIN THE IDEA

Which feature do you think will help, and why?

BUILD CHECK: I FOLLOWED THE MATERIAL, SIZE AND SAFETY RULES BEFORE TESTING.

TEST, LEARN AND IMPROVE

BUILD. TEST. NOTICE. CHANGE ONE THING.

ENGINEER _____ CHALLENGE _____

1. RECORD BOTH TESTS THE SAME WAY

Use the same setup, loading method, stopping rule and measurement unit for both designs.

DESIGN	RESULT	UNIT	SPECIFIC EVIDENCE
DESIGN 1			
DESIGN 2			

2 NOTICE THE EVIDENCE

Where did design one bend, wobble, tip, tear or succeed?

3 CHOOSE ONE CHANGE

Which single feature will design two change?

4. SKETCH THE IMPROVED DESIGN

Circle the one feature that changed. Keep the other important conditions consistent.

5 COMPARE THE RESULTS

Which design performed better, and what numbers or observations support that answer?

6 IMPROVE OR TEST NEXT

Name one limitation, new feature or next question.

A STRONG ENGINEER USES AN UNEXPECTED RESULT AS INFORMATION FOR THE NEXT DESIGN.