

DESIGN LOG: A PAPER BRIDGE

Build, test, change one thing, test again. Log every step as evidence.



NAME _____ CLASS _____ DATE _____

LEARNING GOAL

Improve a design step by step, using test evidence to decide every change.

SUCCESS CRITERIA

- ☐ I can change one thing at a time and say why.
- ☐ I can record a test result with a number and unit.
- ☐ I can use my results to plan the next step.

1 The challenge and a model entry

EXAMPLE

BUILD One sheet of A3 paper and 30 cm of tape.	GAP TO SPAN 	TEST Add 10 g masses to the middle, one at a time.	RESULT The largest load held for 5 seconds.
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Read this made-up entry. It logs one change, the reason, a result with a unit and a next step.

REV EXAMPLE	DATE Lesson 2	TEST CARRIED OUT 10 g masses on the middle, 300 mm gap	RESULT (NUMBER AND UNIT) Held 310 g ; failed at 320 g	SKETCH OR PHOTO
	WHAT I CHANGED AND WHY Folded the deck lengthways into a zigzag with 2 cm folds. Version A was flat: it sagged and held only 120 g.		NEXT STEP At 300 g the folds began to spread. For C, tape a strip across each end to hold them.	

2 Log versions A and B

Your log

Version A is your first bridge. Test it, log it, then change one thing for B.

REV 	DATE	TEST CARRIED OUT	RESULT (NUMBER AND UNIT)	SKETCH OR PHOTO
	WHAT I BUILT AND WHY		NEXT STEP	

REV 	DATE	TEST CARRIED OUT	RESULT (NUMBER AND UNIT)	SKETCH OR PHOTO
	WHAT I CHANGED AND WHY		NEXT STEP	



3 Log versions C and D

Your log

Keep the test the same every time: same gap, same masses, same place on the deck.

REV C	DATE	TEST CARRIED OUT	RESULT (NUMBER AND UNIT)	SKETCH OR PHOTO
	WHAT I CHANGED AND WHY		NEXT STEP	

REV D	DATE	TEST CARRIED OUT	RESULT (NUMBER AND UNIT)	SKETCH OR PHOTO
	WHAT I CHANGED AND WHY		NEXT STEP	

4 Decision trail

SUMMARY

Link your versions. Copy each result, then work out the change in load from the version before.

REV	MAIN CHANGE FROM THE VERSION BEFORE	LOAD HELD	CHANGE IN LOAD	KEEP IT?
B	EXAMPLE Folded the deck into a zigzag	310 g	+190 g (310 – 120)	Yes
A	My first bridge (the starting point)	g	none	Yes No
B		g	g	Yes No
C		g	g	Yes No
D		g	g	Yes No

BEST VERSION	LOAD HELD g	THE CHANGE THAT HELPED MOST, AND MY EVIDENCE



GO FURTHER

How many times stronger is your best version than A? Work out **best ÷ A**. Example: $310 \div 120 =$ about 2.6.

BEST (G)

A (G)

TIMES STRONGER