10 · Project sheet · A Bridge for Ayo's Car

Robot / Maker Lab practical · Nursery 1 · Term 3 · Week 5

1. At a glance

Time	40 minutes (or 2 × 25 minutes: push-pull-roll, then build)
Group size	Groups of 4–6
Learning goal	I can build a bridge or ramp and test it.
Coding idea	Plan, build, test, improve: if it doesn't work, change one thing and test again.
Week link	https://rhinoxscientifica.com/q/n1-t3-w5

2. Materials needed

Item	Per	Low-cost swap
Blue paper river	group	A blue cloth or chalk lines
Big blocks, boxes, card (adult cuts)	group	Shoeboxes, cereal boxes
Plank or ramp board	group	Strong card or a book
Large toy car or plastic bottle (wheels checked)	group	A ball
Box on a short string	class	Push it instead
Step Star stickers	child	Washable marker star on the hand

3. Safety and care

- Adults do any cutting; big pieces only.
- Check the car's wheels are fixed.
- No climbing on builds; towers no taller than a knee.
- Short string; never round anyone's neck.

4. Before the lesson

1. Check all pieces are big and safe; pre-cut card.
2. Lay the rivers and set up two ramps.
3. Print the build card and plan cards.

5. Step-by-step guide

Step	Teacher says	Children do
1	"Push the car. Pull the box. Roll the ball."	Push, pull, roll; cheer!
2	"The car must cross the river. Plan it!"	Lay blocks → plank → test
3	"Build your bridge."	Blocks each side, plank on top
4	"Test it! Will the car cross?"	Push the car over the bridge

Step	Teacher says	Children do
5	"It fell? Great test! What can we change?"	Change one thing; test again
6	"Name your bridge!"	Decorate and name it

6. Explore it

Question	What makes a bridge strong?
Predict	"Will the car cross if there is only one block?"
Try	Test with one block, then with a block on each side.
Observe	"Which bridge held the car?"
Explain	Blocks on both sides hold the plank up, so the bridge is strong.

7. Talk about it

1a. What did you build?

1b. Did the car cross?

1c. What did you change after the test?

2a. Did the ball go further on the low ramp or the high ramp?

2b. Is pulling the box the same as pushing it?

2c. What is your bridge called?

8. Support and stretch

Support	Build the pillars together; the child places the plank and tests.
Stretch (optional)	Make the bridge hold two cars, or a knee-high tower that stands. Never assessed.

9. How we check

Observation only, not marked. Photo each tested build.

Look for	Secure	With prompts	Not yet
Builds a bridge or ramp	☐	☐	☐
Tests it with a toy car	☐	☐	☐
Uses push, pull or roll	☐	☐	☐
Changes it after a test	☐	☐	☐

10. Take-home and parent note

Dear parent or carer

Today your child was an **engineer**: we built bridges and ramps and tested them.
At home: make a ramp with a book and roll a ball down. Try a higher ramp!

11. Show and share

- Groups test their named bridges in front of the class; countdown and cheer.
- Everyone says: "Plan, build, test… try again!"
- Every child who built and tested gets a **Step Star sticker**.



The Step Star is a weekly sticker, not a badge. The term badge "Step Thinker · Term 3" is awarded in Week 13.