

Digital & Print resource

Key Information Sheet



Teacher Information

Design, Engineer and Build resources have been created to help mid school students engage with STEM/STEAM. Students use their scientific /engineering), technological, mathematical skills to help problem solve and create an end product. They are then to use their artistic skills to help create a design/ look that will appeal their targeted audience.

Items needed to successfully run each challenge:

The resources used are readily available in most classrooms or can be purchased at a local shop. You can negotiate with your students about additional materials or take one out if you don't have access. Students the company is currently out of.

Build the Strongest Bridge




Design Engineer & Build!

CONSTRUCT A BRIDGE

Working with numbers up to 100

The Scenario: You have been asked to build a bridge to allow pedestrians to walk safely over a busy road. It needs to be wide enough to cater for both walkers and cyclists.



The challenge: To design and create a model of a bridge that is both sturdy and appealing to view. You will need to stay within budget, whilst using the strongest materials for the construction. It will need to allow for:


- walkers: 2.5cm (1 inch) per lane.
- Cyclists: 5cm (2 inches) per lane.

It must be able to hold several people at a time. (minimum 1 Kg (2.2 pounds)).

Your Budget: \$100

Material costs:

Material	Cost
\$1 each	



4 Levels: Differentiation

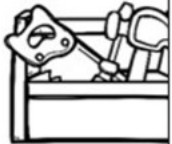
Cater for all students will \$100 & \$1,000 budgets

**Design
Engineer & Build!**

CONSTRUCT A BRIDGE

Working with numbers up to 1,000
* Labour Costs included

The Scenario: You have been asked to build a bridge to allow



The challenge

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Group Planning Sheets



Design Engineer & Build!

CONSTRUCT A BRIDGE
Student Worksheet

My Budget: \$100 or \$1,000 (circle the set amount)

My Timeframe: 30 60 90 minutes (circle the time allocated)

Co-workers (Team Members): _____

Restrictions:

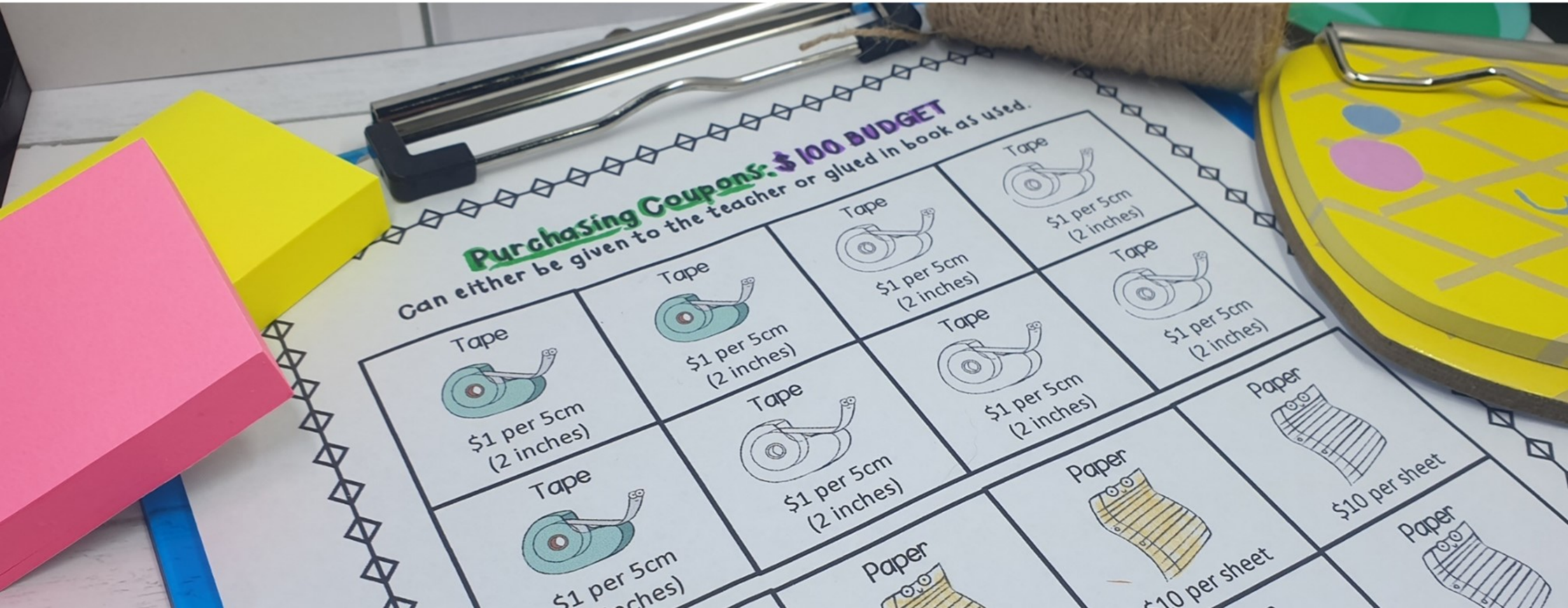
- Remember you must use a range of resources, no excessive use of one material.
- The finished product must not be bigger than:
Height: _____
Length: _____
Width: _____

TITLE: _____

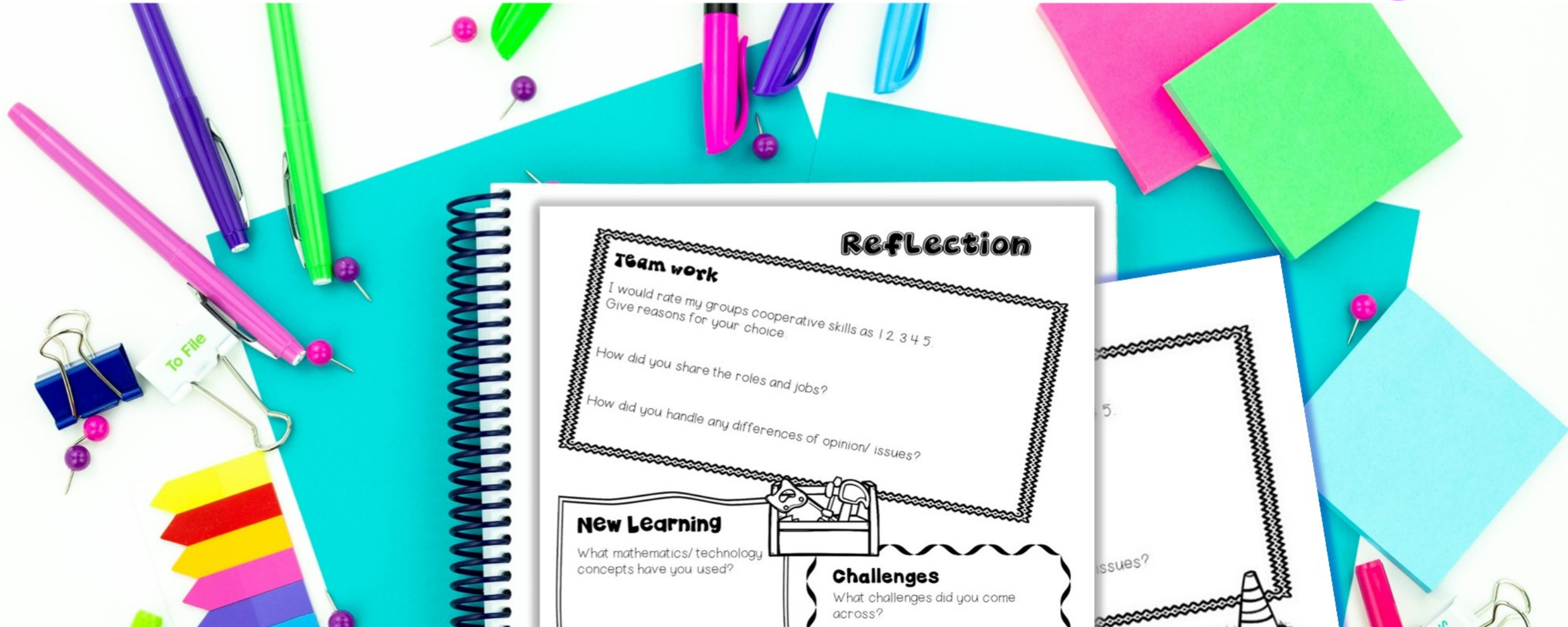
DESIGN IT!

A hand holding a blue and white striped pencil is drawing a bridge on a worksheet. The drawing shows a bridge with arches and a road on top. The worksheet has a decorative border and a "DESIGN IT!" section.

Have students work within a set budget



Encourage groups to Reflect on their learning



Reflection

Team work

I would rate my groups cooperative skills as 1 2 3 4 5.
Give reasons for your choice

How did you share the roles and jobs?

How did you handle any differences of opinion/ issues?

New Learning

What mathematics/ technology concepts have you used?

Challenges

What challenges did you come across?

Quick & Easy Assessment

TEACH
to
DREAM



BRIDGE BUILD

On task learning	/5
Working out	/5
Correct calculations	/5

BRIDGE BUILD

On task learning	/5
Working out	/5
Correct calculations	/5
Team work	/5
	/20

