

EduTrend Contents

G4C · CONSTRUCTIVE PLAY · MIDDLE SCHOOL

Plan, Build, Compare

Sketch a plan, build it, record every change you make and compare the final model with the sketch

Ages 11–13	Level: Intermediate	40 minutes	Pairs · up to 30	Activity 03

Inside: activity at a glance · step-by-step session plan · facilitator notes · 3 student worksheets · assessment checklist

ACTIVITY 03 · AT A GLANCE

Plan, Build, Compare

Pairs receive a brief, such as “a shelter that keeps a toy dry under a cup of water” or “a structure that spans 30 cm”. They sketch a labelled plan, then build. Every time they change the design, they log what changed and why. At the end they compare the sketch with the final model and discuss how testing improved their idea.

Learning outcomes

By the end of the session students can:

- plan with a labelled sketch;
- log changes and reasons;
- compare plan and outcome;
- reflect on iteration.

KEY WORDS

plan · sketch · iterate · change log · compare · reflect

CURRICULUM LINKS

Design and technology. Maths: measurement. PSHE: persistence.

1	2	3	4	5	6
WARM UP	**EXPLAIN**	**PLAN**	**BUILD**	**TALK**	**CLOSE**
Minds and hands ready	One challenge card	Think before you build	Try, test, change	What would happen if…?	Photo and tidy

Materials (per pair)

- Blocks, card, tubes and tape
- Brief cards
- Sketch sheets
- Worksheets 1, 2 and 3

Before the session

- Write briefs.
- Prepare materials.
- Model a change log.
- Plan pairs.

SAFETY

Keep builds low; protect surfaces during water tests.

ACTIVITY 03 · SESSION PLAN

Step by step

Comparing the sketch with the final model shows how much testing improved the idea.

Time	What happens	Say or ask
0–5 min **Warm up**	Sketch a chair in 60 seconds.	*"What did you include?"*
5–10 min **Plan**	Read brief; sketch.	*"What will you try first?"*
10–32 min **Build**	Build, test, log changes.	*"Why did you change that?"*
32–40 min **Compare**	Plan versus final.	*"What did testing teach you?"*

CHALLENGE CARD (print or copy onto the board)

Meet the brief and log at least three changes with reasons.

ACTIVITY 03 · FACILITATOR NOTES

The constructive play know-how in brief

Planning before building helps students organise ideas.

Logging changes makes the learning from testing visible.

Common ideas to listen for

- “Changing the plan means it was bad.” Plans improve through testing.
- “Good builders don’t need plans.” Plans help thinking.
- “The final model should match the sketch.” Differences show learning.

Adapting the activity

Support

Provide a partly labelled sketch template.

Stretch

Use a limited set of parts and justify each one.

WORKSHEET 1

Plan

Name: _____ Class: _____ Date: _____

Sketch and label.

Sketch

WORKSHEET 2

Change log

Record changes.

Changes

Change	Reason	Result

WORKSHEET 3

Compare

Reflect.

Our final model differs from our plan because...

FOR THE TEACHER

Assessment checklist

Use during the session. One sheet covers up to eight students; copy as needed.

Student	Plans clearly	Logs changes	Reflects on iteration

Suggested codes: W = working towards · E = expected · G = greater depth

ABOUT THIS ACTIVITY

Plan, Build, Compare is a sample activity from the EduTrend Contents G4C Constructive Play programme (middle school, level: intermediate). Every activity in the programme follows the same format: a practical challenge, a clear session plan, facilitator notes and ready-to-print worksheets, so that teachers, club leaders and parents can run it without extra preparation.

Full 15-, 20- and 32-week programmes are available from EduStore at edutrend.org.

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