



EduTrend Contents

G4C · LOGICAL THINKING GAMES · MIDDLE SCHOOL

If-Then Chains

Build and test chains of if-then statements, sorting valid conclusions from tempting mistakes

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

If-Then Chains

Pairs receive statement cards such as “If it is raining, the ground is wet” and “If the ground is wet, the grass is shiny”. They link cards into chains and draw conclusions. Then they judge argument cards as valid or invalid, watching for tempting mistakes, such as assuming “the ground is wet, so it is raining”. Pairs write their own chain and a trick argument for others.

Learning outcomes

By the end of the session students can:

- link if-then statements;
- draw valid conclusions;
- spot reversed reasoning;
- write test arguments.

KEY WORDS

if-then · valid · invalid · conclusion ·
reverse · chain

CURRICULUM LINKS

Maths: logic and reasoning.
English: argument. Computing:
conditionals.

1

WARM UP

Minds ready

2

EXPLAIN

One game, clear
rules

3

NOTICE

Spot the pattern

4

TEST

Try an idea

5

REASON

How do you know?

6

CLOSE

Calm and positive

Materials (per pair)

- Statement cards
- Argument cards
- Worksheets 1, 2 and 3

Before the session

- Print cards.
- Model a chain.
- Model a reversal mistake.
- Plan pairs.

SAFETY

Use everyday, neutral statements.

ACTIVITY 03 · SESSION PLAN

Step by step

Saying the reason aloud turns a guess into a method.

Time	What happens	Say or ask
0–5 min Warm up	Complete “If... then...” about the school day.	<i>“Does the reverse work?”</i>
5–10 min Explain	Chains and validity.	<i>“Does this conclusion follow?”</i>
10–32 min Reason	Build chains; judge arguments.	<i>“Why is it invalid?”</i>
32–40 min Share	Swap trick arguments.	<i>“Did anyone fall for it?”</i>

CHALLENGE CARD (print or copy onto the board)

Build a three-link chain and spot at least two invalid arguments with reasons.

ACTIVITY 03 · FACILITATOR NOTES

The logic game know-how in brief

Logic games ask players to test an idea and give a reason.

Reversing an if-then statement is a common reasoning error.

Common ideas to listen for

- “If A then B” means “if B then A”. It does not.
- “True conclusions mean valid reasoning.” Not always.
- “Logic is only for maths.” It is everywhere.

Adapting the activity

Support

Use picture-based statements.

Stretch

Write a chain with a “not” statement.

WORKSHEET 1

Chain builder

Name: _____

Class: _____ Date: _____

Link statements.

Chain

If...	then...

WORKSHEET 2

Valid or invalid?

Judge arguments.

Arguments

Argument	Valid?	Reason

WORKSHEET 3

Reflection

Reflect.

A reasoning trap to watch for is...

FOR THE TEACHER

Assessment checklist

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

Student	Builds chains	Judges validity	Explains errors

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

ABOUT THIS ACTIVITY

If-Then Chains is a sample activity from the EduTrend Contents G4C Logical Thinking Games 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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