

The Doubling Trail

PLAYER SHEET - no solutions | US Letter | v1.0.0

2-6 players, with an adult host | Suggested ages 8-11 | Plan 20-30 minutes

Follow a trail whose numbered boxes double the marks at every step. The surprising part is the difference between the marks in the newest box and the marks accumulated across all boxes. Work with written numbers, so the session needs no pile of beans, counters or food.

Set up and play

One player sheet per team, pencils and an eraser. Print in black and white at 100% / actual size. No cutting, folding, props or account required. Keep the host guide separate.

1. Box 1 contains 1 mark. Each next box contains twice as many marks as the box before it.
2. A box value means only that box. A running total includes every box from 1 up to the box named.
3. Keep a two-column record: marks in the box, and marks so far. For large values, write numbers instead of drawing every mark.

Warm-up: four boxes

Write the value of boxes 1-4, then the total of all four boxes.

Round 1: the sixth stop

What is in box 6, and how many marks are in boxes 1-6 altogether?

Round 2: test a claim

A host says, "Box 8 contains 256 marks." Give the correct box-8 value and the total for boxes 1-8.

Final: stay within 1000

A pretend budget allows 1000 marks in total. Starting at box 1, what is the greatest number of complete boxes you can include? Show why the next box cannot fit.

Finish together

Finish by proving the final stopping point with two totals: the last affordable total and the very next total. A close guess without both checks is not enough.

Mechanism reference: Project Gutenberg 49137, THE PROGRESSION OF NUMBERS.. New session instructions and examples.

Age and time are planning estimates. No child playtest or physical print trial is claimed.