

Weigh-Up

Approach: One to one

Level: Year 4 and year 8

Resources: 4 boxes of Pebbles differing in weight but not size (labelled A, B, C, D); balance scales; mat to place boxes on, in order of weight.

Questions/instructions

Re-check the adjustment of the balance before starting. Throughout this activity encourage the student to explain what they are doing and thinking.

Place the 4 boxes in a row in front of the student, in the order A, B, C, D.

- Here are four boxes of Pebbles. They look the same, but they each have a different weight or mass. Think about how you could put them in order from the lightest to the heaviest — then tell me how you would do it using the balance. Don't use the balance yet.

If the student simply says “Weigh them”...

How would they go about weighing them?

% responses	
y4	y8

Plan for ordering: clear, logical, complete	6	18
nearly complete	15	28
on right track, but substantially incomplete	24	20
other	55	34



Put the placement mat in front of the student.

% responses

y4	y8
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- I want you to use this balance to help you work out the order of the objects, from the lightest to the heaviest. Tell me how you are working it out as you are doing it and put the boxes in order on the placement mat.

Order: all correct	46	75
one inversion	24	14
worse	30	11

Explanation: clear, logical and complete	10	32
nearly complete	18	26

on right track but substantially incomplete	31	25
other	41	17

Once the student has arranged the boxes in order from lightest to heaviest, record their decisions on the recording sheet.

- If you had to explain to someone else in your class how to work out the order from lightest to heaviest, what would you tell them to do?

Explanation: clear, logical and complete	8	27
nearly complete	23	36
on right track but substantially incomplete	40	13
other	40	13

Commentary

Students were better at doing than explaining. Explanations improved a little after students did the task.