

Lump Balance

TREND

Approach: One to one

Level: Year 4 and year 8

Focus: Use of a balance.

Resources: Balance, box of raisins (42.5g), lump of plasticine.

Questions/instructions:

Check the adjustment of the balance before starting this task.

Place the balance, lump of plasticine & box of raisins in front of the student.

1. I want you to use the balance to make a lump of plasticine which is as heavy as this box of raisins.

If student just changes the shape of the plasticine:

PROMPT: You don't have to use all of the plasticine.

If student doesn't use the balance:

PROMPT: Remember you can use the balance.

	% responses	
	2001 ('97) year 4	2001 ('97) year 8
successful	78 (75)	92 (93)
almost successful	13 (14)	6 (2)
2. How do you know that the lump of plasticine and the box of raisins are the same weight?		
clear and correct explanation	29 (18)	48 (46)
fuzzy explanation, but on right track	45 (46)	45 (40)

Remove excess plasticine and give the student the lump which they have made.

3. Now use this lump to make two pieces that each weigh the same amount.

If halved visually without being checked on the balance, ask:

PROMPT: How do you know that each lump weighs the same amount?

PROMPT: Can you think of a way of checking that out to see if they are the same?

	year 4	year 8
successful	78 (81)	93 (97)
almost successful	17 (13)	7 (2)

Place the two plasticine lumps in front of the student.

4. This time I want you to try to make a lump that is one and a half times as heavy as one of these lumps.

PROMPT: How do you know that one lump is one and a half times as heavy as the other?

PROMPT: Can you think of a way of checking that?

	year 4	year 8
successful	5 (4)	12 (19)
almost successful	5 (2)	9 (7)
Total score: 5-6	8 (5)	20 (25)
4	62 (65)	68 (67)
3	15 (11)	9 (2)
0-2	15 (19)	3 (6)

Commentary

Year 4 students were much less successful than year 8 students in the explanation (question 2). The 1997 and 2001 results were very similar overall.