

Approach: One to one

Year: 4 & 8

Focus: Calculating fractions using equipment

Resources: 4 chocolate bars (divided into $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, whole), 5 fraction problem cards, photo

Questions / instructions:

Arrange the four chocolate bars on the desk as shown in the photo.



Here are four chocolate bars. Use the chocolate bars to help answer some fraction problems. Here is the first problem. *[Cards identical to fractions in brackets.]*

Hand student card 1 and read it ($\frac{1}{2} + \frac{1}{2} =$).

1. What is the answer? Use the chocolate bars to explain your answer. **1**

Explanation:

clear and appropriate explanation
on right track but not clear/complete

Hand student card 2 and read it ($\frac{1}{2} + \frac{1}{4} =$).

2. What is the answer? Use the chocolate bars to explain your answer. **$\frac{3}{4}$**

Explanation:

clear and appropriate explanation
on right track but not clear/complete

Hand student card 3 and read it ($1 - \frac{1}{3} =$).

3. What is the answer? Use the chocolate bars to explain your answer. **$\frac{2}{3}$**

Explanation:

clear and appropriate explanation
on right track but not clear/complete

YEAR 8 ONLY:

Hand student card 4 and read it ($\frac{1}{4} - \frac{1}{2} =$).

4. What is the answer? Use the chocolate bars to explain your answer. **$\frac{3}{4}$**

Explanation:

clear and appropriate explanation
on right track but not clear/complete

Hand student card 5 and read it ($2 \div \frac{1}{2} =$).

5. What is the answer? You might want to use the chocolate bars to explain your answer. **4**

Explanation:

clear and appropriate explanation
on right track but not clear/complete

Y4 Total Score:

3	12 (18)
2	15 (12)
1	37 (37)
0	36 (33)

Y8 Total Score:

5	17 (18)
4	30 (26)
3	13 (17)
2	13 (18)
0-1	27 (21)

% response
2009 ('05)
year 4 year 8

62 (63)	92 (93)
55 (48)	81 (84)
7 (14)	8 (6)
22 (29)	57 (61)
17 (17)	47 (46)
8 (10)	12 (15)

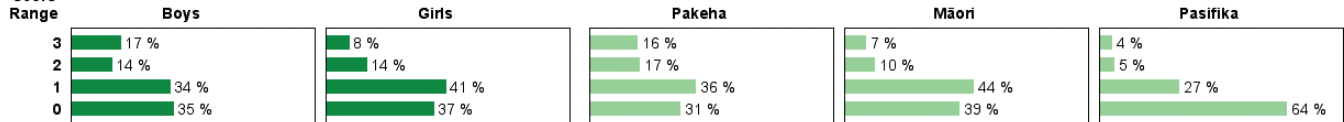
% response
2009 ('05)
year 4 year 8

18 (22)	61 (59)
17 (14)	48 (45)
4 (10)	12 (12)
	55 (56)
	44 (42)
	10 (11)
	25 (26)
	17 (15)
	7 (6)
	12 (18)
	15 (12)
	37 (37)
	36 (33)
	17 (18)
	30 (26)
	13 (17)
	13 (18)
	27 (21)

Subgroup Analyses:

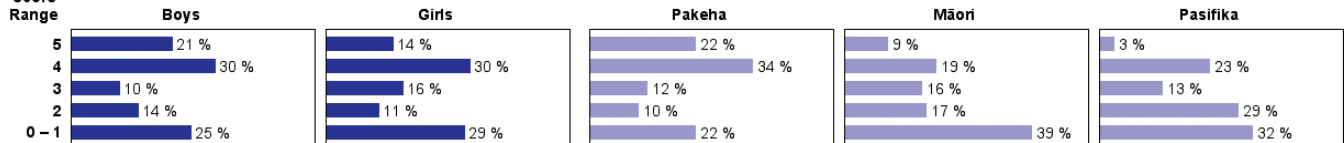
Year 4

Score Range



Year 8

Score Range



Commentary:

There was no meaningful change in performance from 2005 to 2009, at either year level. About two thirds of year 4 Pasifika students had no success with this task.