NEMP Access Task

		Year:	8
Approach:	One to one		
Focus:	Use probabilities for prediction		
Resources:	1 die, recording book		

Questions / instructions:

% response 2009 ('05)

year 8

Table 1. Predictions	
Number on Die	How many times each number might come up in 30 tosses
1	
2	
3	
4	
5	
6	

Imagine you threw a die 30 times.

1. Fill in the table to show how many times you think each number would come up [Table 1].

   Allow time.

   Predictions:

   ✓   varied for each number but no number was given more than 10   49 (56)

       prediction for each number was 5   42 (35)

       any other response   9 (9)

2. Why do you think those numbers are reasonable?
   Explanation:

   ✓   showed a <u>clear</u> understanding of variation in probability   3 (3)

       showed expectation of an even distribution from throws   38 (34)

3. If someone put down that 12 out of the 30 would be sixes, would that be unusual or surprising?   yes   81 (70)

4. Why do you say that?
   Explanation:

   ✓   showed a <u>clear</u> understanding of variation in probability, but indicated 12 out of 30 would be unusually high   3 (3)

       showed a clear understanding of variation in probability, and thought 12 out of 30 was a reasonable possibility   4 (2)

       showed an expectation that the distribution would be even   13 (8)

% response 2009 ('05)

year 8

Table 2. Actual Amounts		
Number on Die	How many times each number came up in 30 tosses	
	Tally	Amount
1		
2		
3		
4		
5		
6		

5. Throw this die 30 times. Use this tally chart to record how often the numbers come up [Table 2].

   Allow time. Count the 30 throws for the student but don't tally for them.

   Used tally system:

       yes, including clusters of five   79 (73)

       yes, not including clusters of five   18 (22)

   Tallies totalled 30:   76 (76)

6. Why do you think there are differences between your predictions and what you actually got?
   Explanation:
   (extent to which the explanation showed understanding of appropriate variation in probability)

       strong   1 (1)

       moderate   21 (23)

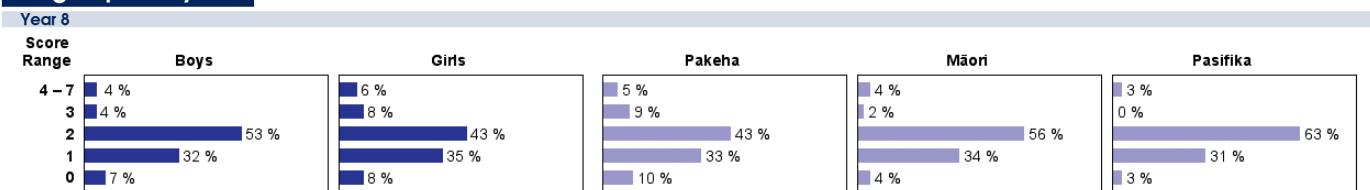   weak or no explanation   78 (76)

Total Score:		
4–7	5 (4)
3	6 (9)
2	48 (49)
1	33 (21)
0	8 (17)

Subgroup Analyses:

Year 8

Score Range	Boys	Girls	Pakeha	Māori	Pasifika
4 – 7	4 %	6 %	5 %	4 %	3 %
3	4 %	8 %	9 %	2 %	0 %
2	53 %	43 %	43 %	56 %	63 %
1	32 %	35 %	33 %	34 %	31 %
0	7 %	8 %	10 %	4 %	3 %

Commentary:

The total score centred on understanding of randomness and probability, and few year 8 students performed well. All subgroups performed similarly.