Approach: One to one   *Level:* Year 4 and year 8
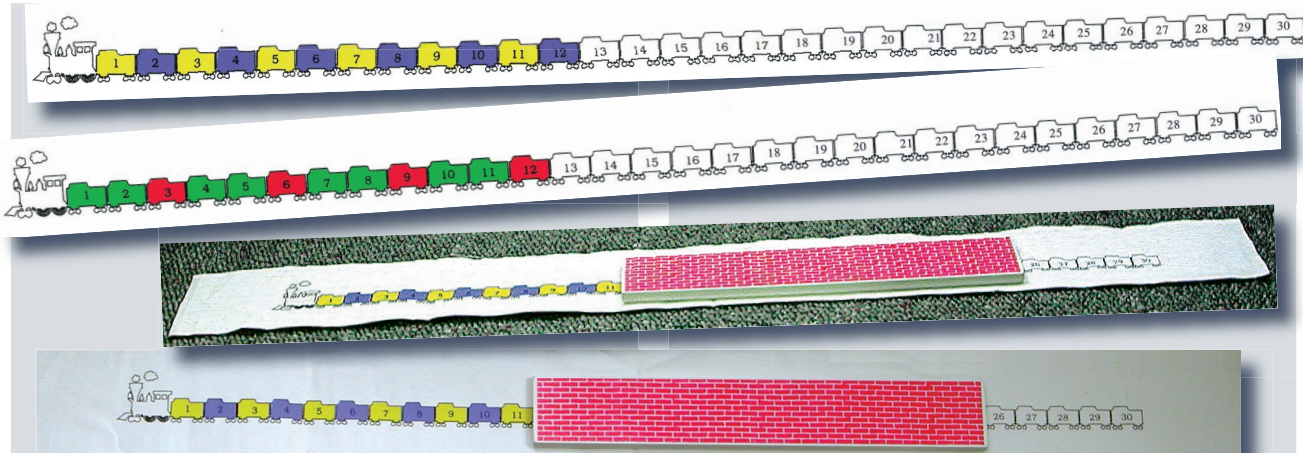*Focus:* Patterns/sequences.
Resources: Yellow/blue train; red/green train, garage.

Questions/instructions

Show the yellow/blue train.

The trucks on the train are being painted yellow and blue. You will see that there is a pattern in the way they are being painted, and that not all of the trucks have been painted yet.

1. If the painters keep on painting the trucks, what colour will truck 18 be? (Point to number 18)

Now I'll put a garage over some of the trucks.

Cover numbers 12 to 25. Leave garage on through to question 6.

2. What colour will they paint truck 21?

3. What colour will they paint truck 26?

4. If the train went on to have more trucks, what colour would they paint truck 39?

5. How did you work that out?

6. If the train had 60 trucks, how many would be painted yellow?

7. If Batman came swooping down and landed on a truck, do you think he would definitely land on a blue truck, he might land on a blue truck, or he wouldn't land on a blue truck?

	% responses	
	2001 ('97) year 4	2001 ('97) year 8
blue	97 (95)	97 (97)
yellow	81 (76)	87 (83)
blue	69 (69)	85 (78)
yellow	64 (59)	83 (75)
not marked		
30	57 (53)	84 (86)
might	74 (62)	90 (88)

8. What is the chance of him landing on a blue truck?

Show second train with *[green]* and *[red]* trucks.

Here is another train, and it has its trucks painted in a different pattern.

9. What colour will truck 18 be?

10. If the train went on to have more trucks, what colour would they paint truck 42?

11. How did you work that out?

12. How many green trucks would there be all together up to 42?

13. If Batman came swooping down and landed on a truck of this train, do you think he would definitely land on a green truck, he might land on a green truck, or he wouldn't land on a green truck?

14. What is the chance of him landing on a green truck?

	% responses	
	2001 ('97) year 4	2001 ('97) year 8
50%, 50/50, equal	•	72 (62)
red	92 (90)	93 (91)
red	•	50 (53)
not marked		
28	•	20 (17)
might	59 (51)	74 (73)
2/3, 2 out of 3, 67% or similar	•	23 (26)

Commentary

The 2001 year 4 students were a little more successful than their 1997 counterparts. The results for year 8 students were more mixed.