

STOP AT 4

Answer Guide B

This variation will test whether students have properly grasped the logic of the previous 'tricks'. You might use it as a challenge for advanced students.

1. The procedure will always bring the 'target card' to the top. Here is why.

There will be $14 - a$, $14 - b$ and $14 - c$ cards in each of the three piles. On top of the 12 cards you have put $40 - [3 \times 14 - (a + b + c)] = (a + b + c) - 2$ cards. This is 2 less than the sum of the three card numbers. When you add the three values you get $(a + b + c)$ and count off that many cards, you have gone two cards down into the 12. So the card there must be the target card. Fools the audience every time!

2. This time there are $26 - [3 \times 11 - (a + b + c)] = (a + b + c) - 7$ cards. The 'trick' will only work if the three numbers add to at least 7.
(If they add to 7 there will no cards to put on top of the first pile of 26. But you will then count down 7 to the target.)