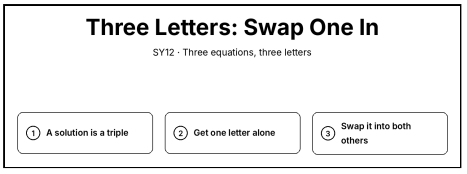
Three Letters: Swap One In: teacher script

SY12-V1 · SY12 Three equations, three letters · teachers only. Without a screen, read each Say line and draw each Draw step on the board. About 64 seconds as a video.

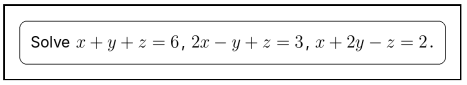
01



Say. Three letters: swap one in. A solution now is a triple. Get one letter alone, and swap it into both of the others: that leaves two equations in two letters.

Draw. Write the title “Three Letters: Swap One In” and the steps: 1. A solution is a triple; 2. Get one letter alone; 3. Swap it into both others.

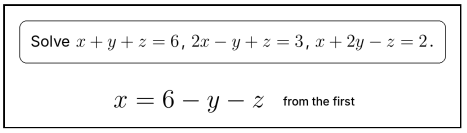
02



Say. Solve x + y + z = 6, 2x − y + z = 3 and x + 2y − z = 2.

Draw. Clear the board. Write “Solve x + y + z = 6, 2x − y + z = 3, x + 2y − z = 2.” in a box at the top.

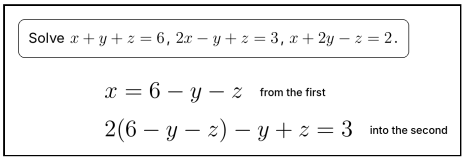
03



Say. Get x alone in the first equation: x = 6 − y − z.

Draw. Write x = 6 − y − z on the next line. Beside it, write “from the first”.

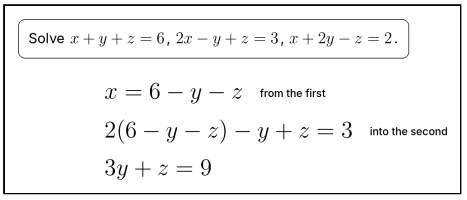
04



Say. Swap it into the second, in brackets.

Draw. Write 2(6 − y − z) − y + z = 3 on the next line. Beside it, write “into the second”.

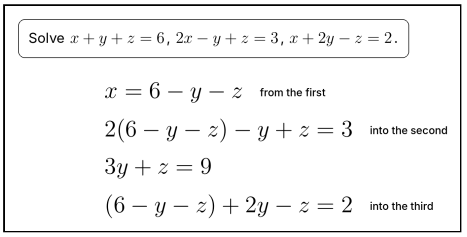
05



Say. That gives 3y + z = 9.

Draw. Write 3y + z = 9 on the next line.

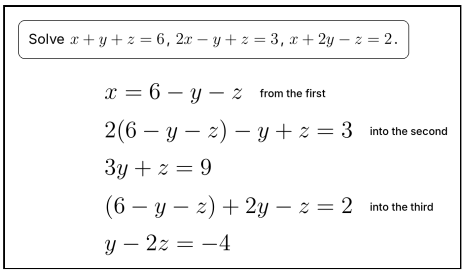
06



Say. Now swap it into the third as well.

Draw. Write (6 − y − z) + 2y − z = 2 on the next line. Beside it, write “into the third”.

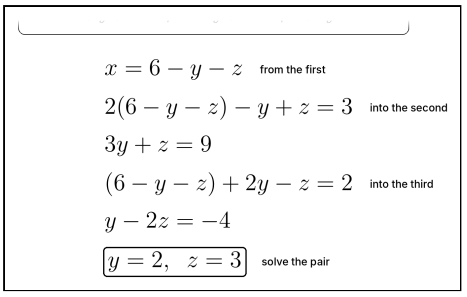
07



Say. That gives y − 2z = −4.

Draw. Write y − 2z = −4 on the next line.

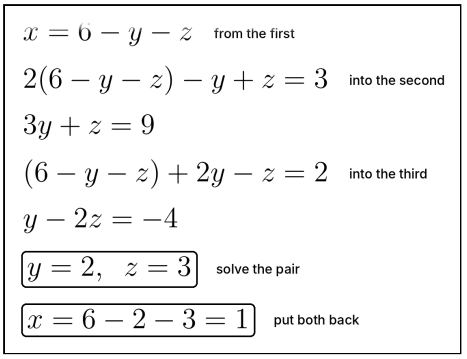
08



Say. Solve the pair: y = 2 and z = 3.

Draw. Write y = 2, z = 3 and box it on the next line. Beside it, write “solve the pair”.

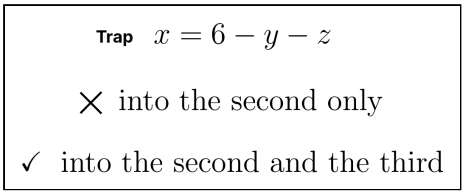
09



Say. Put both back: x = 1. The triple is one, two, three.

Draw. Write x = 6 − 2 − 3 = 1 and box it on the next line. Beside it, write “put both back”.

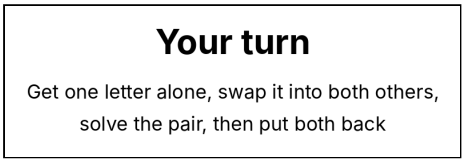
10



Say. Watch for the trap: swapping it into only one equation. For two letters you need two equations.

Draw. Clear the board. Write “Trap” and x = 6 − y − z. Below, write into the second only and cross it out ×. Then write into the second and the third with a tick ✓.

11



Say. Now it is your turn. Get one letter alone, swap it into both others, solve the pair, then put both back.

Draw. Point to today’s activity: Get one letter alone, swap it into both others, solve the pair, then put both back