

Translation and Vectors part 2

Whether you are a parent, teacher or home school educator, we've compiled examples of activities, games and puzzles which can be used to support the learning of shape and space.

These examples are taken from the 'Translation and Vectors' packs found in our SMILE resource collection. The mathematical demand increases as you work through the packs. There are lots more ideas in the complete packs, which can be downloaded at <https://www.stem.org.uk/rxzfo>

Answers to cards can be found at <https://www.stem.org.uk/rxxo5>

SMILE

0725

Materials: Race track sheet 0725A

RACE TRACK

This is a game for 2 - 4 players.
Each player moves in turn and the moves must be written as vectors.

John's first 4 moves are:

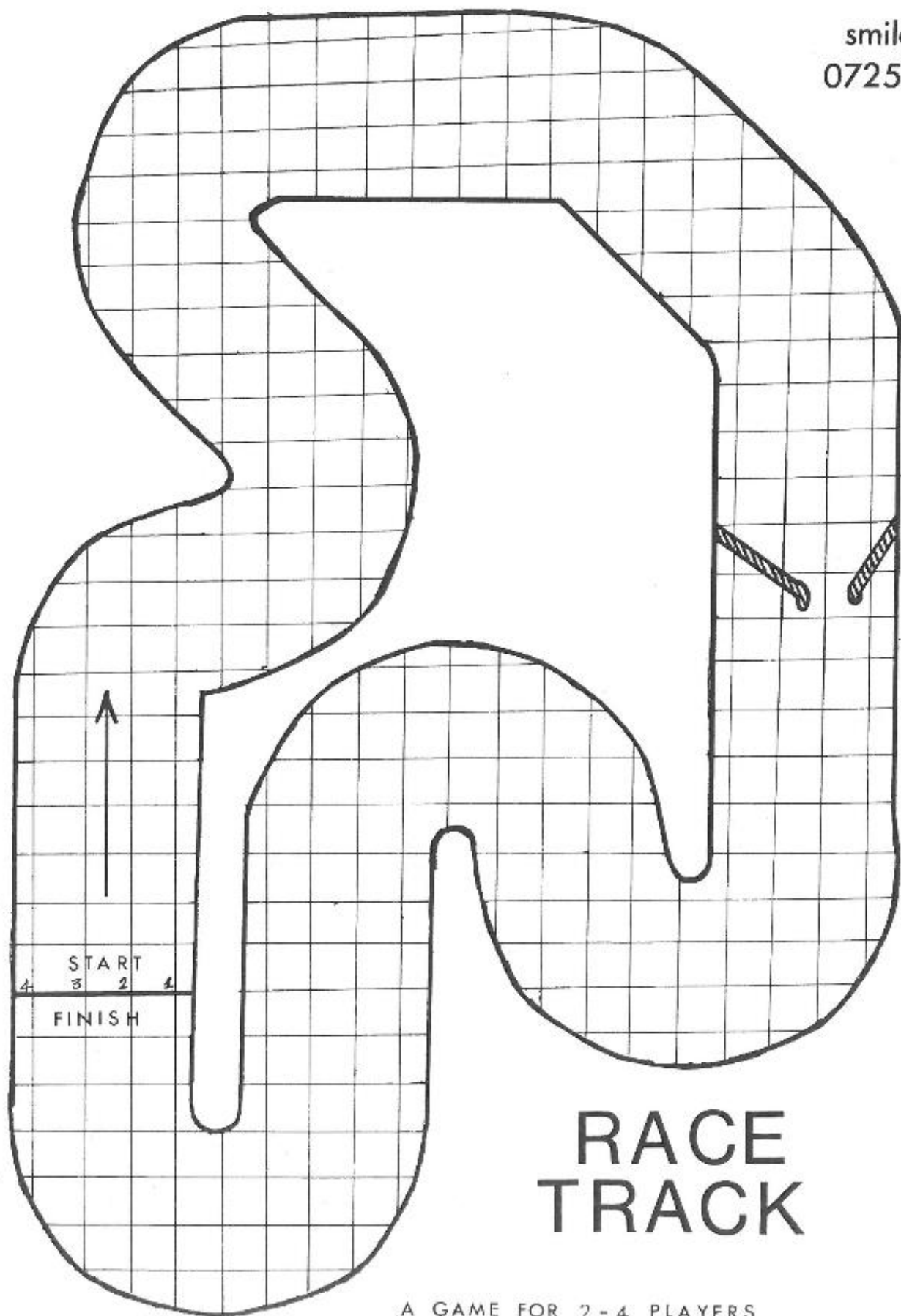
$$\begin{pmatrix} 0 \\ 1 \end{pmatrix}, \begin{pmatrix} 0 \\ 2 \end{pmatrix}, \begin{pmatrix} 1 \\ 3 \end{pmatrix}, \begin{pmatrix} 2 \\ 2 \end{pmatrix}, \dots$$

RULES

(1) Each player starts off from rest, i.e. with the vector $\begin{pmatrix} 0 \\ 0 \end{pmatrix}$

(2) To move, each component of your previous move may be changed by 1 or left alone.
After a move of $\begin{pmatrix} 0 \\ 3 \end{pmatrix}$ any of the following moves are possible:

$$\begin{pmatrix} 0 \\ 3 \end{pmatrix}, \begin{pmatrix} -1 \\ 3 \end{pmatrix}, \begin{pmatrix} 1 \\ 3 \end{pmatrix}, \begin{pmatrix} 0 \\ 2 \end{pmatrix}, \begin{pmatrix} -1 \\ 2 \end{pmatrix}, \begin{pmatrix} 1 \\ 2 \end{pmatrix}, \begin{pmatrix} 0 \\ 4 \end{pmatrix}, \begin{pmatrix} -1 \\ 4 \end{pmatrix}, \begin{pmatrix} 1 \\ 4 \end{pmatrix}$$

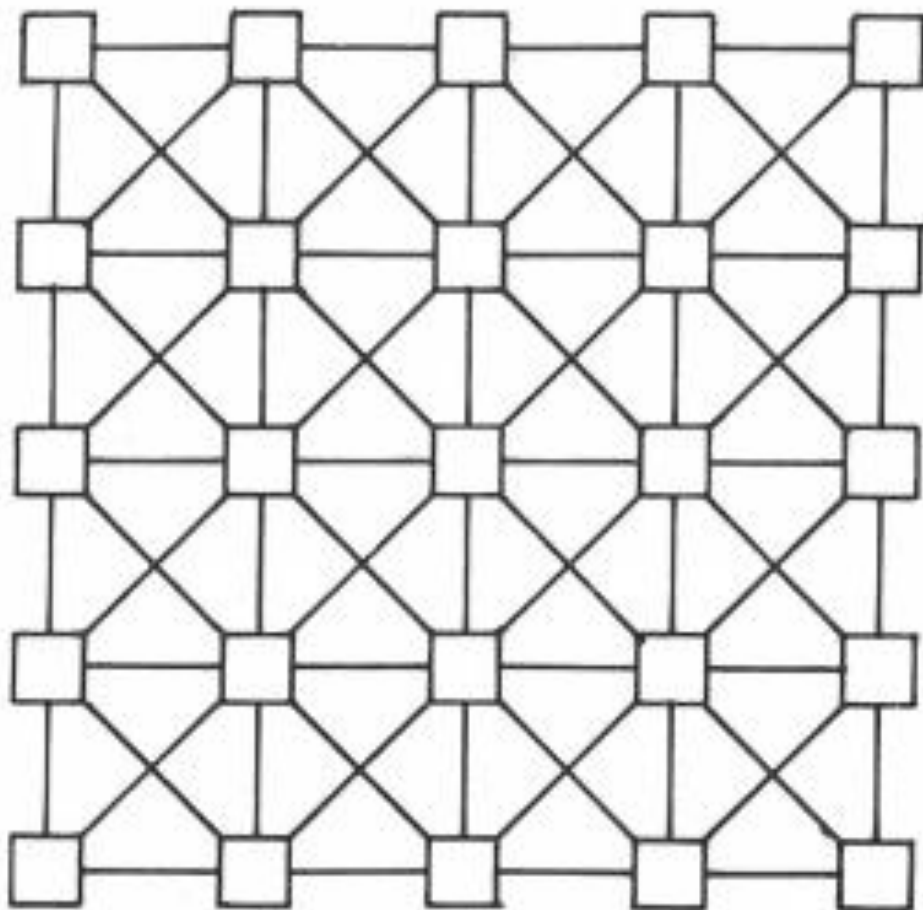
smile
0725A

A GAME FOR 2-4 PLAYERS

You will need Materials: 25 counters
(5 red, 5 blue, 5 green, 5 white, 5 yellow)

0144

All out of line



Puzzle 1

You must put 5 red counters on the squares so that no 2 counters are on a straight line.

Puzzle 2

Add 5 blue counters so that no 2 blue counters are on a straight line either.

Puzzle 3

Fill the board using 25 counters (5 colours) so that no 2 counters OF THE SAME COLOUR are in a straight line.

Draw your answers.

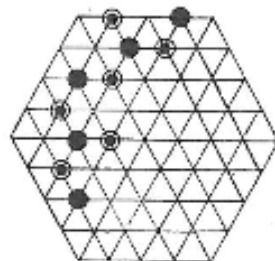
You will need red and blue counters.

Smile 1398

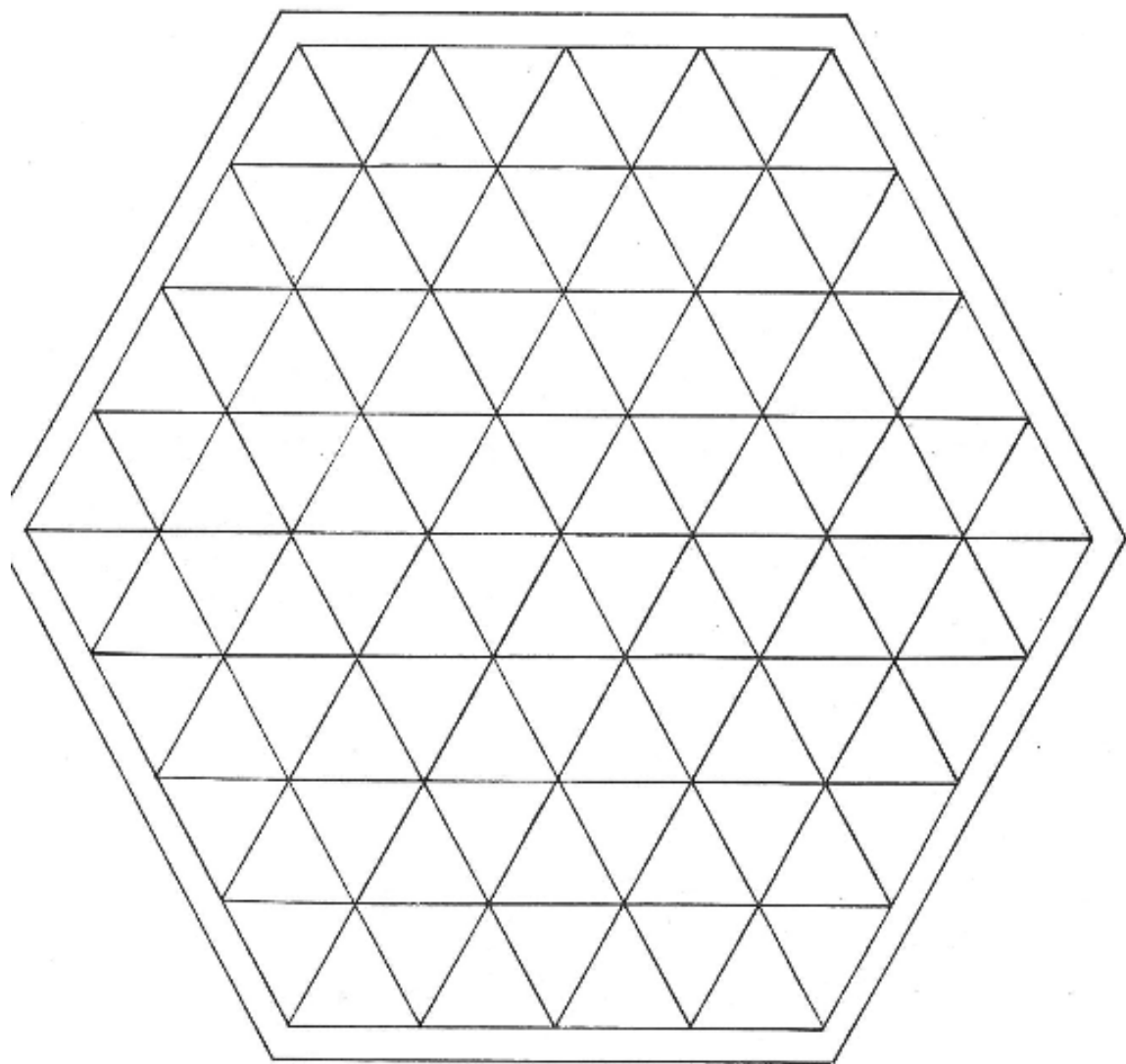
Trigg

– a game for 2 players

Red ● puts her counter on one vertex of the grid.
Blue ● puts her counter on any vertex next to any
of her opponent's but not next to her own.



Win by preventing your opponent from moving.



Large board Trigg

If you have enjoyed playing Trigg, you might like to make it more difficult by using a larger hexagon on which to play.