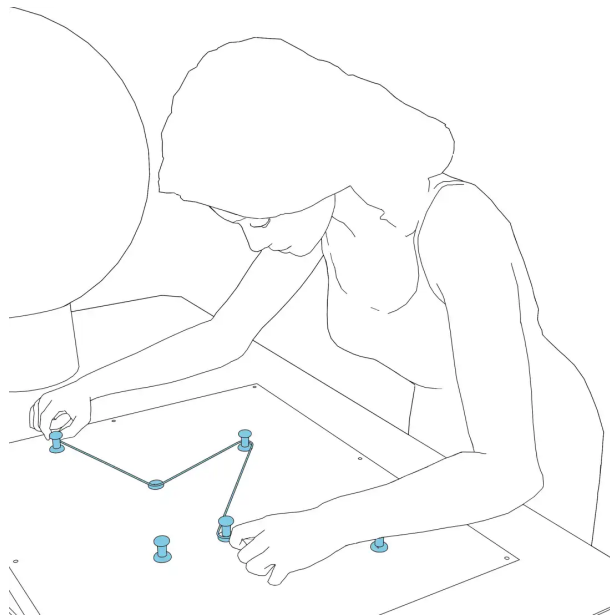


Shortest route

Do you find the shortest route that visits all the towns marked with pegs?



Use the string to try to find the shortest route that visits all the towns marked with pegs on the globe and on the flat map.

In each case the shortest route uses only the marked part of the string.

In mathematics this challenge is known as the „travelling salesman problem“. This problem is easy with a small number of towns, because you can try every route to find the shortest one. With even a moderate number of towns, this strategy becomes very hard.

The exact number of all routes follows from the formula $(n-1)!/2$. With 18 cities for instance this leads to $(17 \cdot 16 \cdot 15 \cdot 14 \cdot \dots \cdot 2 \cdot 1)/2 = 177,000,000,000,000$ possible routes. One of them the shortest.