

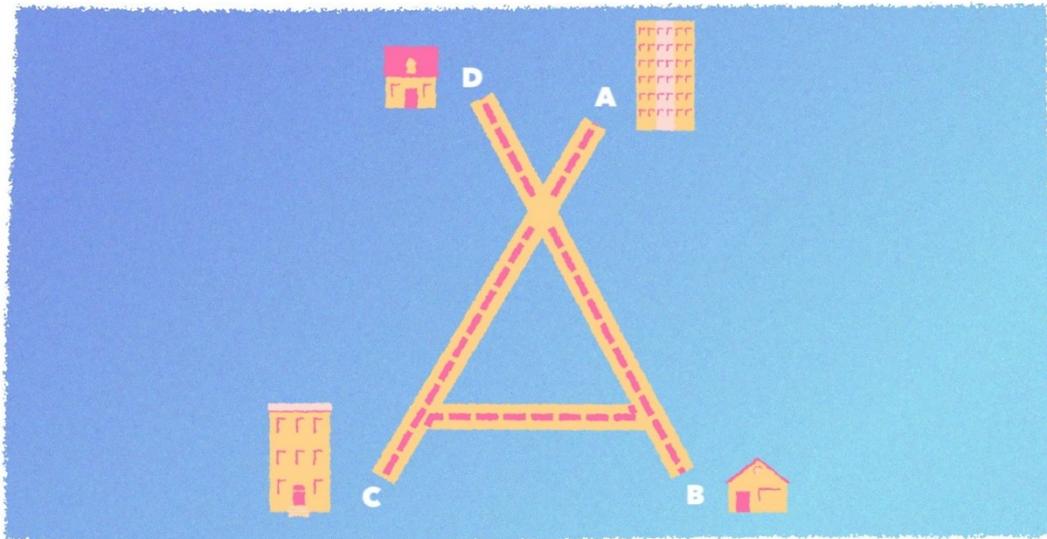
Episode 4

The main character of this episode is Tessa Hayman: a transport modeller. The puzzle is a simplified version of the kind of questions Tessa has to tackle in her job.

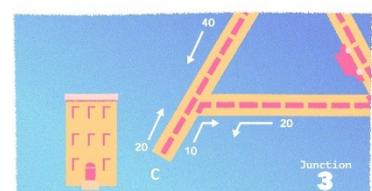
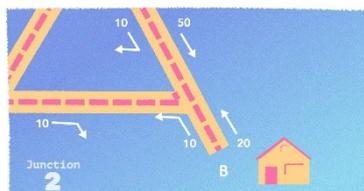
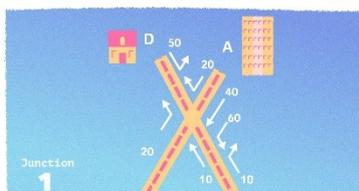
The puzzle

Question

We have a road network with four exits: A, B, C, D.



A survey company has provided junction counts for each of the three junctions. The junction counts tell us how many cars make each turn in one hour (see pictures below).



However, we do not know how many cars go from exit A to exit B, since this would be very expensive to survey. Can you work out, from the junction counts, how many cars go (in one hour) from exit A to exit B?

Aims

Engaging with that question will help students to:

- Develop problem solving skills
- Practice on their numeracy skills
- Breaking down information, transform a complicated question into a simpler question and approach it in a systematic way



If you are at the point of giving up...

The question sounds really difficult at first (honestly, it seemed almost impossible to us, but it became approachable after the first couple of hints). A really important point is being able to break down the information and encode it in a table. The first video explains how to do this.

We recommend that you watch both the interview video and the solution before showing it to the class. While watching, you will need to have a look at the screen and the road junctions at the same time. You may need to stop the video a few times to understand what part of the road network Tessa is referring to, and to do the calculations yourself. It may be at times a bit confusing, but you will realise at the end that the question was less difficult than it looked.

If your students are at the point of giving up, we recommend that you give them all the hints they need, and guide them towards the solution.

Possible extensions

After solving the puzzle, students can make their own puzzle, draw a road network with some junctions and missing data and try to work out the missing data.

Material

Students will need a handout with the pictures of the network and the junction counts. The handout is posted on the webpage.

The pictures were produced by Robert Duncan, Aaro films, and Francesca Iezzi