Murphy's Law

Annotation

Avi can evaluate reports, comparing findings on the basis of the process that was used to arrive at the conclusions. He can suggest possible issues with processes used to arrive at the experimental results. Avi can also recognise some potential issues with the match between the theoretical model and the real world, where additional factors might influence the chance of something occurring. He uses the data to back up his statements.

Problem: Murphy’s Law

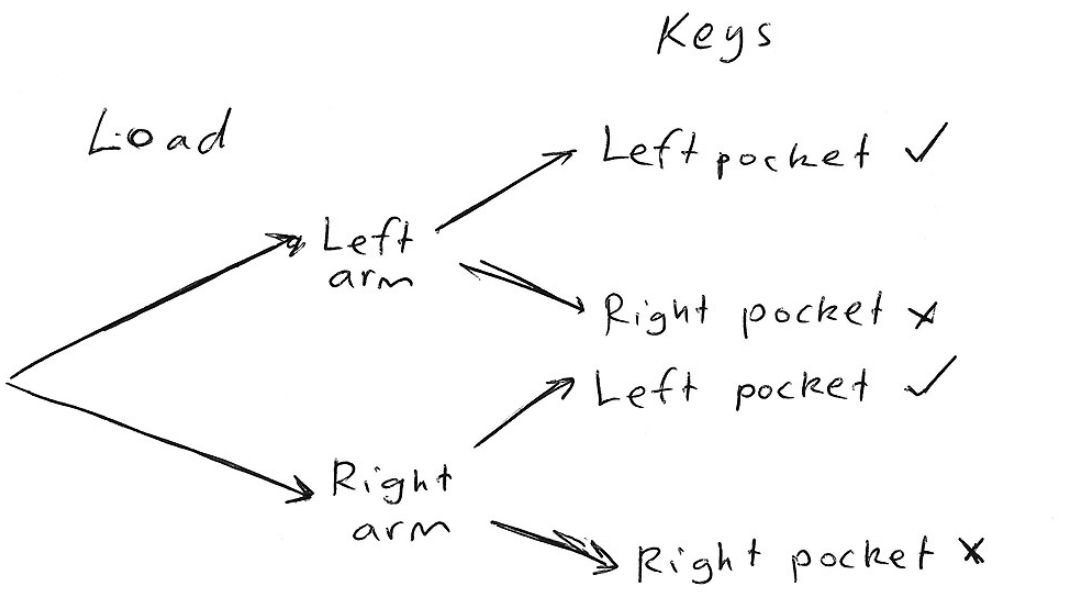
The students in Room 6 discuss Murphy’s Law – the “law” that suggests that bad things are more likely to happen than good things – and just when you least need them. For example, if you are carrying something in one hand, and you need to get your keys out of your pocket, your keys will always be in the pocket that you can’t reach.

The class work in groups to investigate whether this is true, and they take different approaches. The teacher brings the class together to discuss their findings and selects two examples for the class to talk about.

Example One

MURPHY'S LAW

We worked out that it is a 50-50 chance that your keys will be in the wrong pocket. We did it by doing a tree diagram that showed us all the possible outcomes. There are four, but two of them are what you want, so that means that half the time you'll get the right pocket and half the time you'll get the wrong pocket. Murphy's Law isn't true because it's not all the time.



Example Two

Murphy's Law

We decided that we would try it out so we asked all the people in the class to pick up some keys and put them in their pocket, and we asked them to carry something towards a closed door. We made a tally chart with the pocket and the arm on it so we could see who did what.

Most people put the keys in their right pocket and carried the box under their right arm. We only had 30 people, and we didn't have anymore who used their left pocket and left arm so we thought we had better do some more people. We did two more classes and the teachers in the staffroom at lunch time. There were too many tallies, so we summarised it onto this chart of 100 people:

	Left Pocket	Right Pocket
Left Arm	9	41
Right Arm	23	27

Most people put the keys in their right pocket and carried the box in their left arm. Murphy's Law of Keys would apply to 36 of the people, which is a bit more than a third.

The teacher asks the students:

What do you notice about these investigations?

Student Response

Avi:	The chances of Murphy's Law are quite different for each of these – one in two or nearly one in three.
Teacher:	Tell me some more about your thinking.
Avi:	Well, the first group did it by theory – they just worked it out mathematically, showing all the options. The second group did an experiment instead, and it worked out differently when they actually got people to do it.
Teacher:	Tell me more about that.
Avi:	There could be two problems here. One is that maybe it is not random which pocket or arm you choose. The tree diagram works if all the paths are equally likely, but if they are not, then it isn't a good model of what happens. So, maybe people who are right-handed are more likely to put the keys in a particular pocket, so it's not actually random what they do. In the chart, you can see there are lots more people choosing right hand, so that might be why. The other problem is that maybe they just haven't asked enough people. In the writing, they say that when they did our class it was a funny pattern, but it got better when they did more. Maybe if they did 1000, it would get more like it should be in theory.