

Teaching resources – Conditional Probability

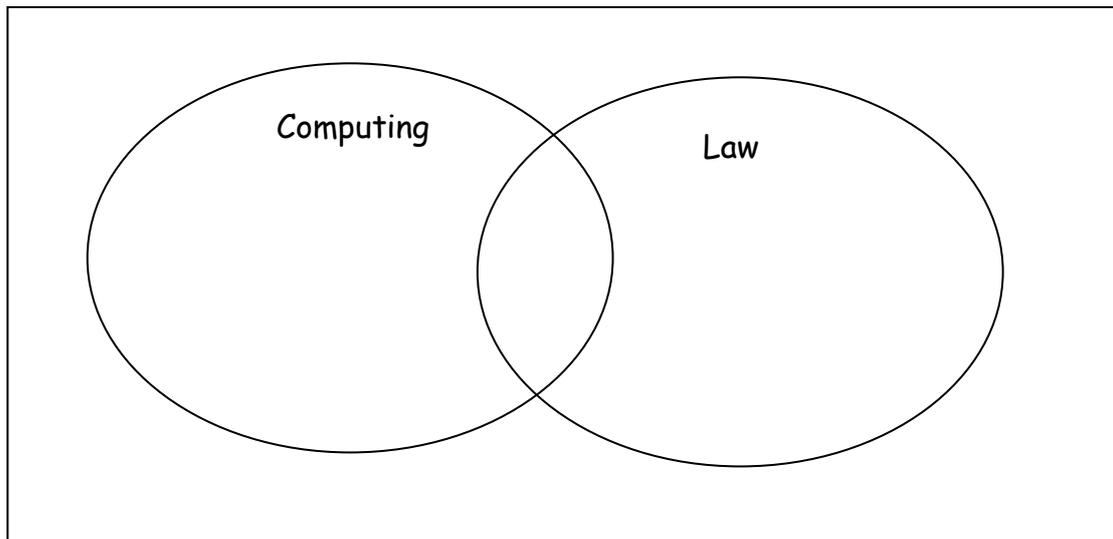
Huge Venn

This activity uses Venn diagrams to introduce the notation used in probability and the concept of conditional probability.

Give every student a piece of card and ask them to put their name on it. Use two things that most students do at least one of. This could be 2 subjects that they are studying e.g. Computing and Law or living within 2 miles of school/college and walking.

Using the Computing / Law example, ask all those who do Computing to put a red sticker on their card and those who do Law to put a blue sticker on their card. Those doing both will have both stickers on. (Obviously alternative marks could be used instead of stickers if they are not available.)

Make a huge Venn diagram either on a large sheet of paper or on the board.



Ask students to put their card in the appropriate section of the Venn diagram – possibly using blutack. For each area of the Venn diagram ask students to describe the students that are in that area (in terms of the subjects that they study!). This could be discussed in pairs or groups before feedback to the whole class.

Explain the notation of set language and ask students to describe the same sets of students using the set language. Alternatively ask questions such as 'Who is in the area that is described by...' [$C \cap L$, C' , $C \cap L'$, $C \cup L$, $C' \cup L$ etc.] Then ask students to give the answers as probabilities.

E.g. $P(C \cap L) = ?$

$P(C') = ?$

$P(C' \cup L) = ?$ etc

Lead onto conditional probability by asking students to find the probability that a student does Computing given that they do Law and use the Venn diagram to find the probability.

Repeat this for others such as $P(\text{a student does Computing given that they do not do Law})$ or $P(\text{student does not do Law given that they do Computing})$ etc.

Ask student to describe how they calculated their answers and from that derive the formula for conditional probability.

It is also possible to use students instead of cards if there is room in the classroom by asking them to stand in the Venn diagram rather than putting their cards on.