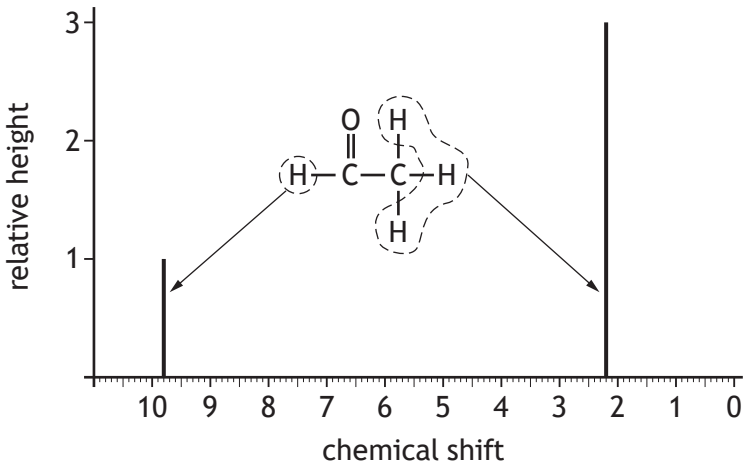
MARGIN

10. A hydrogen NMR spectrum can be used to help determine the structure of an organic molecule.

In a hydrogen NMR spectrum:

- a vertical line represents the hydrogen atom(s) in a specific structural environment in a molecule
- the position of the vertical line on the x-axis gives the 'chemical shift' value for the hydrogen atom(s) in that structural environment
- the height of the vertical line is related to the number of hydrogen atom(s) in that structural environment.

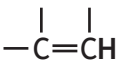
An example showing a hydrogen NMR spectrum for ethanal is shown.



(a) Chemical shift values of hydrogen atoms in different structural environments fall within a range and are listed on *page 17* of the data booklet.

For example, the chemical shift value for the hydrogen atom in the aldehyde group shown falls within the range 10.0–9.4.

Use the data booklet to find the range in the chemical shift values for the hydrogen atom in the following structural environment. **1**



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