Week / Date	Key Topics	Learning Objectives	Tasks / homework
	Spectroscopy + Organic groups	☐ I can give a brief definition of what spectroscopy is	
		☐ I can name the three types of Spectroscopy data to be used in this Internal	
		☐ I can recall and identify the main functional organic compound groups including: alkanes, alkenes, carboxylic acids, alcohols, aldehydes, ketones, esters, haloalkanes, amides, amines, acid chlorides	
	NMR Spectra - Carbon Environments	☐ I can define a carbon environment	
		☐ I can identify the number of carbon environments in a molecule	
		☐ I can identify the number of carbon environments in a NMR spectrum and match them to a molecule.	
		☐ I can identify some functional groups using chemical shift data on NMR spectra linked to bond types	
	Mass Spectra - Fragments	☐ I can define a molecular ion and a fragment	Page 3. Mass Spectroscopy
		☐ I can calculate molecular mass of an organic compound	
		☐ I can identify the molecular ion peak on a Mass Spectra	
		☐ I can identify the double Cl peaks M^+ peak and isotopic peak are <u>two units</u> apart in a <u>3:1</u> ratio	
		☐ I can identify the double Br peaks M^+ peak and isotopic peak are <u>two units</u> apart in a <u>1:1</u> ratio. M^+ peak >> 80	
		☐ I can identify if N is present (M^+ peak is odd, fragments containing N are even	
		☐ I can identify the m/z (equivalent to Molar mass) of common fragments, including CH3 (15), CH_3CH_2 (29)	
	IR Spectra	☐ I can define and identify a peak, band and region on an IR Spectra	

		☐ I can identify the presence or absence of the O-H band to indicate an alcohol on the IR spectra	
		☐ I can distinguish between and alcohol and a carboxylic acid on the IR spectra	
		☐ I can identify the two pronged peaks on IR spectra to indicate primary amines	
		☐ I can distinguish between the IR spectra for amines and amides	
		☐ I can distinguish between groups that have a C=O groups on the IR spectra: Aldehydes, ketones and esters	
		☐ I can identify the functional group from the structural diagram of an organic compound	
		☐ I can identify at least of 2 peaks (with numerical data) AND justify by the absence of peaks that the compound is not from another functional group	
	Practice assessments	☐ I can identify a molecule with one piece of evidence from each spectrum (M)	
		☐ I can identify a molecule by integrating evidence from spectra for 3 features. (E)	
5 24-28 Feb	Assessment	This assessment requires you to; • identify discrete aspects of the structure of organic molecules using provided spectroscopic data. • determine the structure of organic molecules using spectroscopic data. • justifying the structure of organic molecules by integrating spectroscopic data. Data provided is: mass spectra, IR spectra, and ^{13}C NMR spectra. This is an individual task and <u>will take place over 1 class period.</u> You will be assessed on the comprehensiveness of your understanding of spectroscopic data in chemistry so to achieve merit or excellence you will need to link as much information as possible from the spectra to the molecules.	*Last minute reminders*