A level Thinking Skills 9694
Unit 5: Critical Thinking - Advanced

Recommended Prior Knowledge
Students need to have an understanding and proficiency in the analytic techniques of either O level English or IGCSE English.

Context
This unit develops the skills introduced in Units 1 and 2. The same analytic skills are applied to more challenging pieces of text and longer pieces of argument. The Unit prepares students for the Critical Thinking in Paper 4 of the A Level examination.

Outline
In this unit the ability to extract the logical structure from an argument and expose its weaknesses is applied to more realistic arguments – these may have more complicated logical structure, and be longer in length. The logical underpinnings of arguments need to be looked at in more detail, aided by argument diagrams, and the ideal of validity demonstrated in syllogisms.

Topic	Learning outcomes	Suggested Teaching activities	Learning resources
1	Recognising arguments	Recognising what is an argument, and what its overall structure is could be revisited but using the Argument Diagrams discussed in Fisher's book (see Resources). This also introduces a number of more subtle arguments to discuss.	**Butterworth and Thwaites – chapter 26** draws together the skills from the AS course, and applies them to a longer passage. **Fisher** – eight examples of more sophisticated argument are introduced and discussed in the Introduction (pages 6 – 14). The general method for structuring arguments is described in Chapter 2. There are 18 exercises at the back of **Fisher (pages 188-218)** , which contain more sophisticated arguments for the student to analyse and evaluate. www.austhink.org/critical includes online argument mapping tutorials

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2	Identifying conclusions	Toulmin's means of analysing argument structure can be evaluated by the class as an alternative. Students can be given a range of argument types (deductive/ from analogy/ inductive) and see if they can fit them to the general form Toulmin identifies, its strengths and weaknesses discussed. The consequence cards/ lists activity from Unit 4 can be revisited for deciding what can be deduced and with what certainty from a spread of claims/ evidence.	Toulmin Project Home Page (University of Nebraska-Lincoln) – Simple introduction to Toulmin's method www.unl.edu/speech/comm109/Toulmin/
3	Drawing conclusions / Engaging in Inference and Deduction		A wealth of arguments, of an appropriate level for analysis and evaluation, is available at www.debate-central.org/research/
4	Recognising implicit assumptions	Students could build on the skills introduced in units 1&2, by repeating the game described in Anne Thomson's book, but with the added requirement that they try to look for the extremes which the assumptions could take. For example in saying "*the only people who gain are the casino owners"* in support of the statement "*gambling ought to be banned*", one assumption could be phrased as *"casino owners should not prosper*" or (more leniently) as *"gamblers are unable to appreciate this".*	Revisit Thomson – Exercise 6 (Pg 34)

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5	Assessing the impact of further evidence / Analyse and Evaluate evidence and argument	Students in groups, or two teams (depending on class size) are each given an argument to defend – like a 'ship' – from attack from the other side. Lists of 'Further Evidence' are given to each side from which they are allowed to select pieces, in turn, to 'throw' at the the other team; the latter have to work out what damage has been done to their argument, whether it is to a reason, to its cargo (the conclusion itself), or to one of the underlying assumptions (below the surface of the water!).	
6	Recognising flaws in reasoning / Analyse and Evaluate evidence and argument	Mastery of a greater range of flaws and expertise in their identification – *the taxonomy of logical fallacies* (see resources) is good place to start. Students should be encouraged to produce their own examples of the fallacies. This is a useful stepping stone to recognising them. For those interested in the more logical underpinnings of argument, syllogisms provide a good entry point – they are not explicitly required by the course, but the study of syllogisms heightens awareness of a number of logical fallacies. Lists of flaws and fallacies can get very long. Group them into e.g. logical and causal, then consider further types e.g. irrelevant appeals (alternatively, get students to organise flaws in an appropriate way – this can then lead into large, visual presentations of different types of flawed thinking). Students can be encouraged to bring in examples	www.fallacyfiles.org/taxonomy.html contains an accessible library of logically categorised flaws. For some memorable examples of flaws (demonstrating their structure) http://pages.csam.montclair.edu/~benham/funstuff/logical.html There is a good introduction to syllogisms in "Logic and its limits" by Shaw – chapter 9 and 10. Further explanation of syllogisms and Venn diagrams is to be found at http://philosophy.lander.edu/logic/syll_venn.html A good interative test of students knowledge of syllogisms is to be found at www.nonags.org/members/fduniho/sillysyllogisms.html . Students need to have been introduced to valid and invalid syllogisms and their Venn diagram representation before tackling this. 42 fallacies with clear explanations and examples – Labossiere's list of fallacies – www.nizkor.org/features/fallacies/

	Construct argument	from real life/ the Media; sources such as Debate programmes/ Radio Phone-ins etc. are useful if available. The ship exercise can be modified to the more common argument as building analogy – students can decide whether or not arguments are structurally sound enough to walk on? Where are the weak spots? – if they don't spot a significant weak point they 'fall' through. Students can then produce more robust arguments for the various positions adopted. (NB students can of course evaluate the very analogies of 'ships' and 'houses')	
7	Selecting plausible explanations Select and synthesise information Construct argument	Radio Plays when there is a puzzle involved e.g. crime/ detective genre (e.g. those archived on the BBC Radio 4 website) offer a purely auditory learning medium: students consider the different explanations available at different stages of the play, and in teams discuss the most plausible. Otherwise classic puzzle stories e.g. Edgar Allan Poe's Murders in the Rue Morgue/ Conan Doyle's the Speckled Band give a good chance to consider the plausibility (or otherwise!) of the 'explanations'. They can take over the detective role and put together reasoned cases/ hypotheses before listening/ reading on	
8	Recognising the logical functions of key elements of an argument	The argument diagrams described in Fisher are the best way to lay out the logical structure of an argument. Erase connecting words/ phrases from longer passages and get students to work out what they might be	Fisher – chapter 2 http://philosophy.lander.edu/logic/diagram.html gives a clear description of argument diagrams. There is also a self-checking quiz at http://philosophy.lander.edu/logic/diagram_quiz.html.

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9	Understanding and clarifying key terms and expressions.	A compare and contrast activity on ‘Ambiguity’ and ‘Vagueness’ is effective in fostering understanding of these – students analyse according to the similarities and differences between these concepts, illustrating with examples	See Thomson chapter 4 A discussion of a number of “myths” in which ambiguous and vague terms are pivotal is to be found at: www.huppi.com/kangaroo/LiberalFAQ.htm#Backglobalwarming