



Learning Development
Web: www.plymouth.ac.uk/learn
Email: learn@plymouth.ac.uk
Tel: 01752 587456



8. Critical Thinking

Improving analysis, argument and structure in your assignments

In this study guide:

- What is critical thinking?
- Organising your thoughts, materials and structure
- Generating critical thinking
- Critical questions
- Description, analysis and arguments
- Descriptive versus critical / analytical writing
- Tips for writing a critical essay

This is a summary version of study guide 8. The full version of this guide is available from:
<http://www.learningdevelopment.plymouth.ac.uk>

What is critical thinking?

Questioning - whatever it is that you are studying: asking what, who, where, when, how, why, what if, what next, so what? ... and so on. Attempting to answer these questions leads you to fulfil functions – or do things - that are vital in scientific, academic and social life, such as:

Describing ...e.g. defining clearly what it is you are talking about, saying exactly what is involved, where it takes place, or under what circumstances

Analysing ...e.g. examining and explaining how parts fit into a whole; comparing and contrasting different elements; understanding relationships

Reasoning ...e.g. demonstrating logical thinking about causes and effects; presenting evidence to provide sound arguments and refuting unsound ones

Reflecting ...e.g. reconsidering a topic to take account of new information or experience in practice; considering other viewpoints; recognising underlying principles;

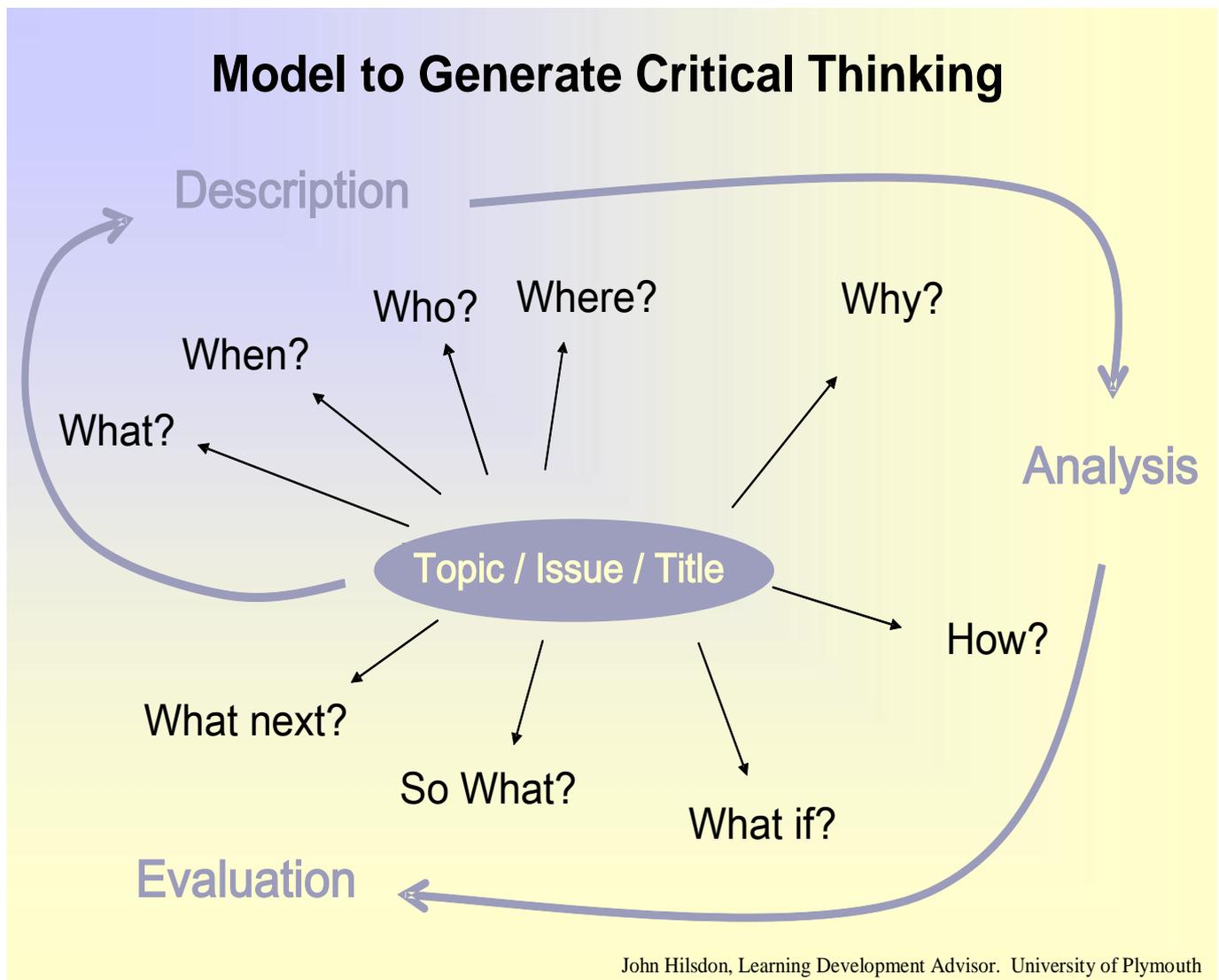
Criticising or critiquing ...e.g. identifying and examining faults and weaknesses in arguments, as well as acknowledging strengths and merits

Evaluating ...e.g. commenting on degrees of success or failure, or judging the implications, ultimate use or value of something. For further study see Cottrell, 2005.

Organising your thoughts, material and structure

A sequence of critical thinking questions like those in the next three diagrams can be used to generate ideas, to explore those ideas and turn them into arguments, and then develop those arguments into well-structured assignments. The three-part description-analysis-evaluation structure shown in these models can form a reliable basis for introducing, discussing and drawing conclusions about your topic, while the keyword questions (beginning with 'what?') encourage you to think about every aspect of your topic - starting from the basic level of description at the beginning.

Figure 1: Starting to think critically



You should aim to address most, but not necessarily all, of these questions for your topic and subtopics. The crucial questions for almost any topic are: 'What?', which identifies the issue; 'Why?', which explores it in depth, addressing causes and using theoretical work; 'How?', which helps you look at the processes at work; and 'So what?', which helps you make judgements or conclusions, showing that you have reflected on implications.

The model above can also be used in a number of ways at different stages of tackling an assignment. Use it before and during your reading; to help plan the structure of a whole assignment; and also to structure each point within it.

Generating critical thinking

1. Identify the topic (this can be your essay title, a subtopic, or a point you might want to explore in a particular section or paragraph) and write keywords in the middle of a sheet of paper, or a blank document screen, where it says 'Topic or Issue' in the diagram above. You could equally do it in a linear way and put these keywords in the place of a title, with the questions that follow spaced out in the margin or as temporary subheadings.
2. Try to answer the questions on the diagram starting with 'What?' questions. Your answers may become part of an introduction, identifying issues and defining your terms.
3. Under 'Who?', 'When?' and 'Where?', give some descriptive background information – this will provide contextual, or scene-setting, material – also useful for an introductory section.
4. 'How?' requires consideration of the ways that something operates or works. Now we are moving the function of our work from being descriptive to being analytical.
5. 'Why?' takes you deeper into analytical territory. It gets you to find reasons and logical explanations or causes. Think about all the possible questions to do with 'why' (see the Critical Questions model below for some suggestions). Your considered answers to such questions are likely to emerge over time from your reading, study and use of specific theories and findings reported in scholarly texts, such as academic journals; published books and research reports; or from other authoritative sources such as policy documents.
6. Asking 'What if?' moves you into a more evaluative phase of your thinking. It helps you to consider and test out mentally, and in your writing, the possible implications or results of a particular action. This question is also useful for considering predictive work done by others, or engaging in forecasting of your own.
7. 'So what?' is really the key question for evaluation. It gets you thinking about value or values. It is also about discriminating

between the most and the less important factors in any situation. It also helps you to think through and justify your own position, and discuss its implications.

8. 'What next?' might refer to recommendations and predictions that your argument has brought to light. It leads to more specific actions and planning for action that might be necessary in certain kinds of assignment such as a project or business report.

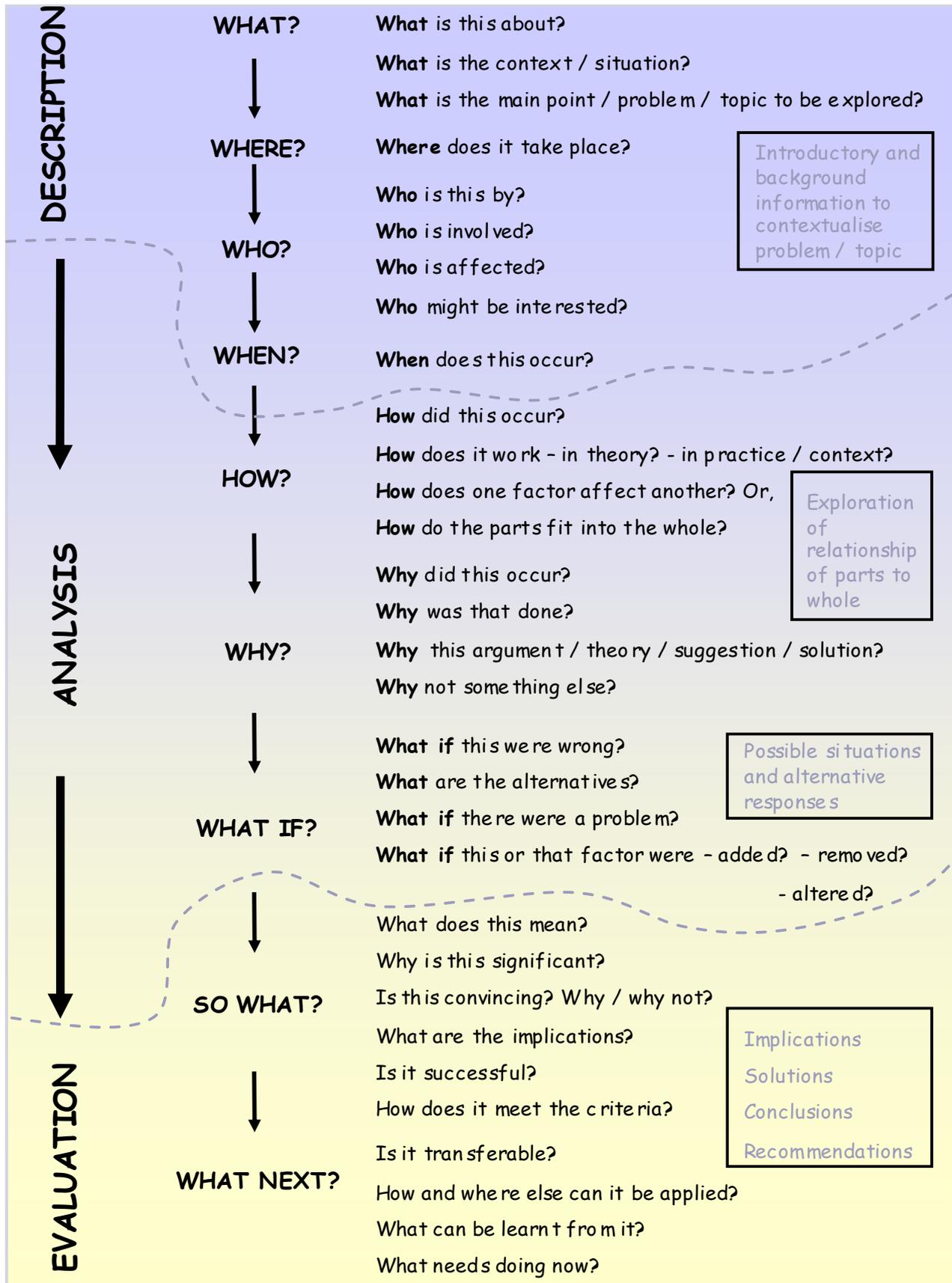
Many people prefer to see a linear model! The Critical Questions model below (figure 2) attempts to show in a simplified form how the key questions could be adapted at each stage of an assignment to generate relevant material for that section.

Notice how the questions relate to specific things that need to be done in your writing – the functions that need to be fulfilled:

- 'what' questions for description
- 'why' and 'how' questions for analysis and explanation
- 'so what' questions for evaluation, recommendations and judgements.

This is the typical sequence of functions that a coherent piece of writing will follow – it tells a story, or creates a narrative, that is logical – i.e. it follows a sequence that can make sense to the reader.

Figure 2: Critical questions



Description, analysis and arguments

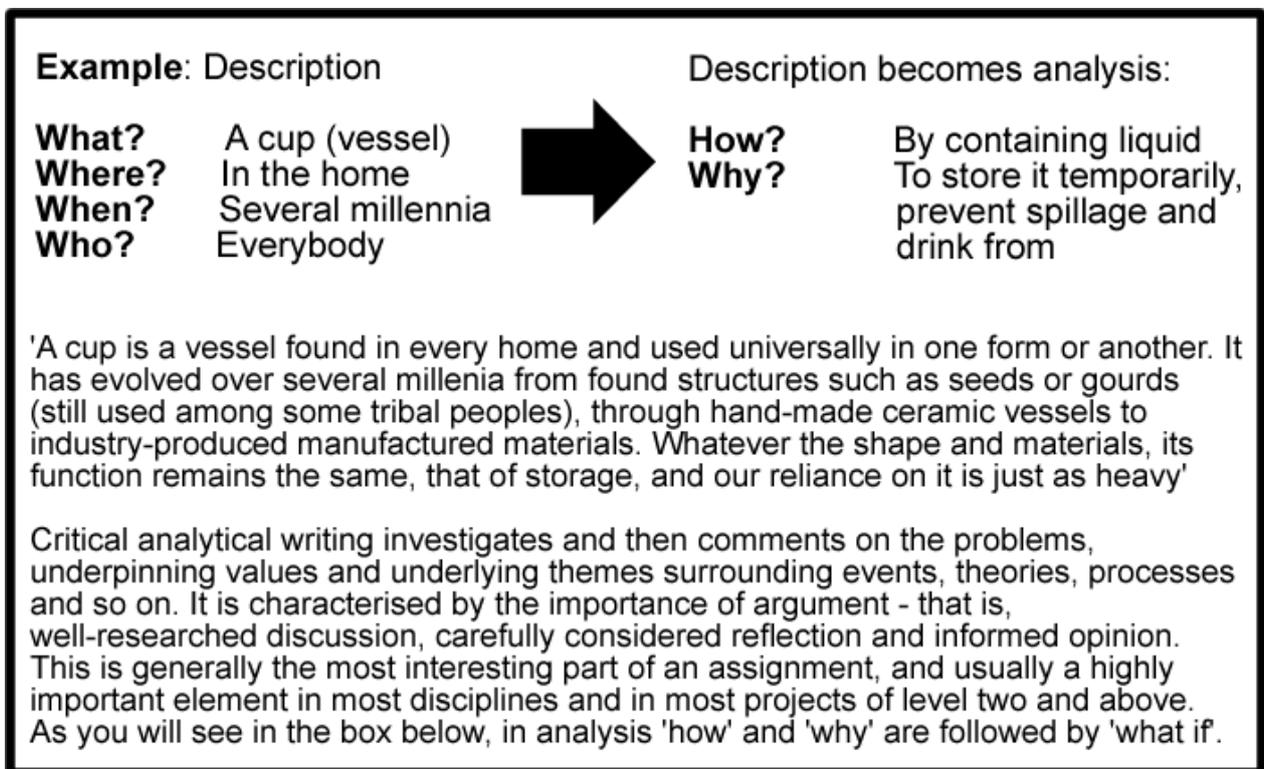
The word 'argument' can be used to represent two distinct concepts:

- A quarrel
- A thread of reasoning or 'reasons supporting a conclusion'
(Warburton 1996:16)

Here we are using the second meaning which can also be called a thesis and refers to a position/stance or idea being put forward.

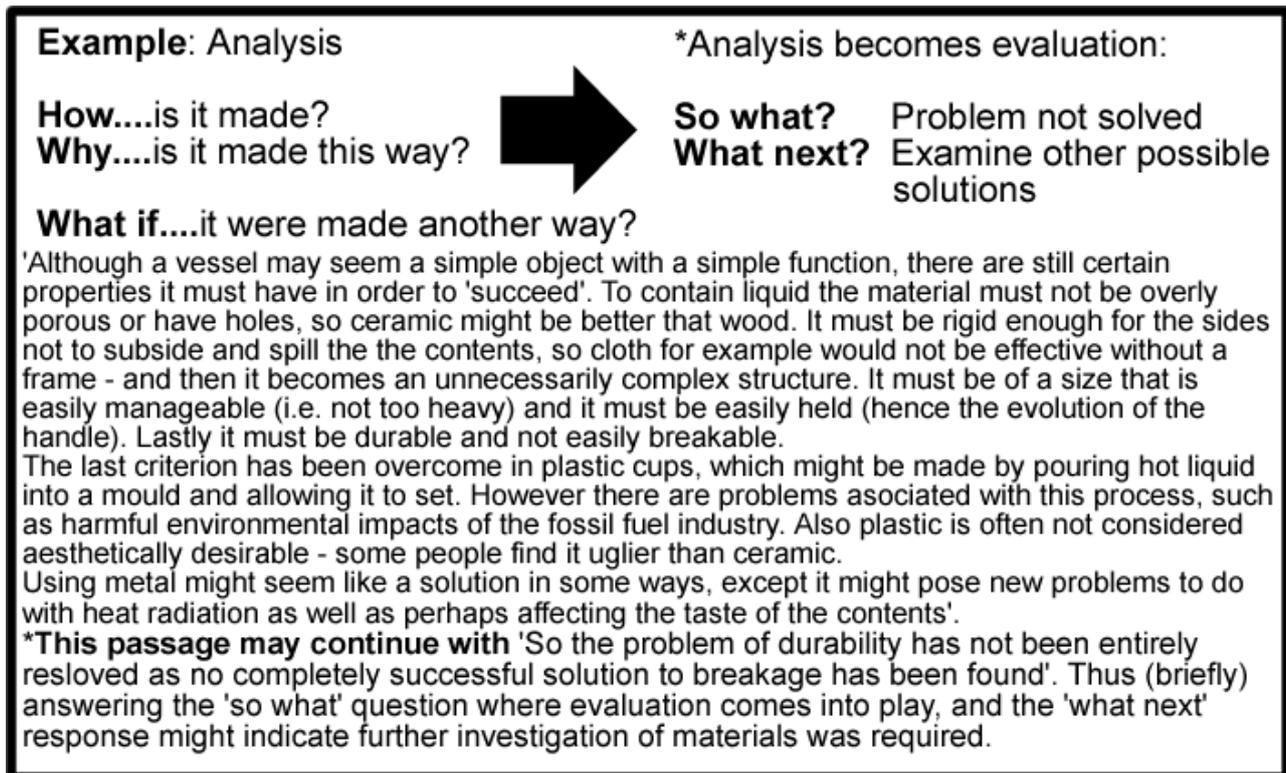
Below is an example of a simple argument being introduced and described (figure 3), then analysed and then evaluated (figure 4). The argument is that the perfect solution to this particular 'simple' problem may not yet have been reached. This is supported by discussion based on the analysis and evaluation of merits and defects.

Figure 3: Start with description and move towards analysis using the 'critical questions'



When you are asked to discuss a topic or evaluate something, some depth of analysis will be required (the depth usually depends on the level of your study, the length of your assignment and the wording of the question). Think about using the 'Critical Thinking Questions' to make your work more analytical, and bear in mind the difference between description and analysis, as summarised below (adapted from Moon, cited in Cottrell, 2003).

Figure 4: Moving from analysis to evaluation



Descriptive versus critical / analytical writing

Descriptive writing	Critical-analytical writing
States what happened	Identifies the significance
States what something is like	Evaluates judges the value) strengths and weaknesses
Gives the story so far	Weighs one piece of information against another
States the order in which things happened	Makes reasoned judgments
Says how to do something	Argues a case according to evidence
Explains what a theory says	Shows why something is relevant or suitable
Explains how something works	Indicates why something will work (best)
Notes the method used	Indicates whether something is appropriate or suitable
Says when something occurred	Identifies why the timing is important
States the different components	Weighs up the importance of component parts
States options	Gives reasons for selecting each option
Lists details	Evaluates the relative significance of details
Lists in any order	Structures information in order of importance [etc.]
States links between items	Shows the relevance of links between pieces of information
Gives information	Draws conclusions

Tips for writing a critical essay

	'DOs'	'DON'Ts'
What?	Answer the question set! Keep referring back to the title - both mentally and in your work	Forget the title. It's amazing how many people do!
What?	Contextualise – give background to help your reader - but include ONLY what is really necessary	Just narrate or 'splurge', telling the whole story starting from the big bang and including everything you ever heard about the topic!
What?	Outline, trace or summarise briefly instead of including superfluous data or detail	Describe in too much detail or include all your data - unless specifically asked to. Reserve your efforts for the most important part of the assignment – the analysis and discussion of the data.
What?	Define your terms, the problem etc	
How?	Show processes in a logical order	Muddle everything in together
How?	Explain subtle points and finer details	State the obvious, repeat or over-explain
How?	Be precise, clear, direct and to the point Be concise: reduce what you say to its essence in both your thinking and your communicating	Be vague or waffle, including detail that doesn't help answer the question
		Oversimplify or see things 'in black and white'
How?	Use definite, specific, concrete language	Use loaded or deliberately emotive language
	Use terms consistently - stick to one meaning for each, or explain if you need a different usage	Use colloquial expressions, phrases or clichés (e.g. the word 'get' can often be replaced by a more specific term appropriate to the context – e.g. 'purchase', 'arrive', 'achieve')
How? / Why?	Use 'signposting' to help the reader follow your thread: provide the reader with strong 'umbrella' sentences at beginnings of paragraphs, 'signposts' throughout, and brief 'so what' summary sentences at intermediate points to help your reader understand your comparisons and analyses (Gibbs and Gambrill, 1999)	Assume the reader knows why you are including the information you are. Instead tell them explicitly why it's relevant and what it shows, so that they can follow your line of thought without having to guess at connections you make in your head
How? / Why?	Emphasise an important point by giving it a prime place in the sentence or paragraph, or by reinforcing it with the language you use, e.g. 'Something which needs particularly careful consideration is...' or 'It may appear that x is the case, but evidence shows that what actually occurs is y'. Give specific examples to illustrate the points you make about how something happens in context.	Repeat the same information in the same or slightly different words in the hope that the reader will not notice that you are padding it out! On the contrary, the reader will definitely notice and will be bored!
Why?	Support and illustrate your claims with appropriate evidence and examples. Exploit the information you have, and show your reading with up to date and appropriate	Copy and paste from texts books and articles. Refer to books, because they sound impressive, even though you have not read

	references	them
How?	Develop your argument to reflect your actual findings and reading	Decide what you think first and then twist the facts or refer to texts selectively to make them fit your claims.
Why?	Analyse and discuss issues, looking at pros/cons, strengths/weaknesses, patterns/trends, connections and complexities, and aim to propose a convincing theory with some input of your own derived from your research	Make unproven assumptions & generalisations, especially from merely anecdotal evidence or personal experience alone
Why?	Persuade & convince, showing why you think what you're saying is interesting, relevant and valid	Rely on persuasive language alone to make your point
Why? / What if?	Start from a reliable premise (e.g. smoking has been shown to cause heart disease and lung cancer) and arrive at a reliable conclusion (therefore it is reasonable to say that smoking is a health hazard)	Construct a faulty argument on the basis of a weak premise, e.g. There is a strong correlation between people's shoe size and the size of their vocabulary. Therefore having a large vocabulary causes your feet to grow.
Why? / What if?	Make intelligent suggestions, predictions, & hypotheses using appropriate language to show that what is said is only one possible interpretation or belief. Useful words are: 'highly likely', 'probably', 'not very likely', 'highly unlikely', 'often', 'usually', 'seldom', 'I doubt', 'I suspect', 'most', 'many', 'some', 'it could be said', 'it seems', 'evidence suggests'... Choose 'it could be' rather than saying 'it is'.	Make absolute statements unless stating a very simple non-debatable fact (like 'the Earth is a planet' – and even then it is better to say 'The Earth is considered a planet because...' to allow for the possibility that someone may one day prove otherwise or re-categorise it...)
Why? / What if?	Account for weaknesses in your own argument, rather than leaving them for your reader to criticise – this will undermine your credibility, whereas pointing up your own faults will show thoroughness, and filling in the gaps will help convince	Ignore or overlook faulty logic in your own or others' work
So what?	Comment / pass judgment, giving a reasoned opinion based on evidence analysis (Cottrell, 1999)	Write wishy-washy, descriptive and repetitious comments rather giving an opinion
So what?	Consider and evaluate others' ideas, whether they oppose yours or not	Ignore opposing arguments, as this will weaken your own
So what?	Reject & refute others' theories if you find them unconvincing – AS LONG AS you can justify your response in scholarly terms, i.e. your objections are formed from your research.	Agree with or accept unquestioningly information, argument, theory or the beliefs of others just because they seem like authorities – i.e. have published their written work.
What next?	Make recommendations according to the results of your study and your findings	Moralise or preach, rant, 'get on a hobby horse' or tell people what you think they should do

References

Cottrell, S. (2003) *The study skills handbook* (2nd ed). Basingstoke: Palgrave Study Guides

Cottrell, S. (2005) *Critical thinking skills*. Basingstoke: Palgrave

Warburton, N. (1996) *Thinking, from A to Z*. London: Routledge

For more in-depth information download the full version of this study guide from

<http://www.learningdevelopment.plymouth.ac.uk>

To see one of the Learning Development team tel: 01752 587456

Email support: learn@plymouth.ac.uk

Website: www.plymouth.ac.uk/learn

Similar support services are provided by Partner Colleges: check the VLE or ask your tutor for more details

Produced by Learning Development at the University of Plymouth; last updated 2009