THINKING AND REASONING SKILLS

SKILL 1: UNDERSTANDING ARGUMENTS

This element of the course is a fundamental critical thinking skill. To be able to distinguish an argument from other types of written expression, and to recognise what precisely is being argued and how it is supported by reasoning, is an important academic skill. Not only does it act as a solid foundation for many of the other skills found in this qualification and AS Critical Thinking, but it also helps a student to become more analytical in their engagement with persuasive text in their other subjects and wider reading.

In teaching and assessing this skill, the aims and objectives are as follows:

RECOGNISING ARGUMENTS

Teachers should aim to:
Expose students to simple arguments, rants, lists of information and explanations and give them strategies for telling them apart.

→

STUDENTS SHOULD BE ABLE TO:

Correctly identify arguments, explanations, rants and lists of information.

IDENTIFYING THE PARTS OF ARGUMENTS

Teachers should aim to:
Teach students a range of argument indicator words that signal the presence of reasons and conclusions;
Expose students to the different parts of simple arguments (reasons, intermediate and main conclusions) and provide strategies for telling them apart; Teach

→

STUDENTS SHOULD BE ABLE TO:

Spot an argument indicator word and circle it in an argument.
Tell the difference between a reason, an intermediate and a main conclusion, and mark up simple arguments to show which is which.

IDENTIFYING ASSUMPTIONS

Teachers should aim to:
Explain the nature of unstated assumptions in arguments and teach students to recognise them and put them into words.

→

STUDENTS SHOULD BE ABLE TO:

Tell when there is a missing reason in an argument (an assumption) and write out clearly what it is that is being assumed.

MAPPING ARGUMENTS

Expose students to examples of both independent and joint reasoning in simple arguments (with up to one intermediate conclusion).
Teach students how to recognise the patterns of reasoning in these arguments and how to represent them as visual argument maps.

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STUDENTS SHOULD BE ABLE TO:

Tell the difference between joint and independent reasons.
Draw maps to show how the reasons (and any intermediate conclusions) are linked together in support of the conclusion.

RECOGNISING ARGUMENTS

Telling the difference between different methods of expressing ideas is not always easy to do.
In this qualification, these methods have been categorised as follows:

RANT

This is the name given to a series of opinionated statements that do not work together in a persuasive or structured way. The statements may be related in the sense that they are all 'ranting' about the same thing generally, but there is no structure or skill in the way they are presented.
Move your mouse cursor over the Rant to see the text.

RANT

EXPLANATION

EXPLANATION

This can sometimes look like an argument, as it will come in more than one part and may even have a 'because' in it. The main thing to remember is that an explanation presents something as factual i.e. something that has already or will happen, and will also tell you why or how that fact came (or will come) about:
Move your mouse cursor over the Explanation to see the text.

LIST OF INFORMATION

This is a term used for a series of related statements that intend to give information, such as a report or a description of the way something works:
Move your mouse cursor over the List of Information to see the text.

LIST OF INFORMATION

ARGUMENT

ARGUMENT

This is the term used for an attempt to persuade someone to accept a particular point of view. There will be at least one conclusion and at least one reason.
Move your mouse cursor over the Argument to see the text.

MONTY PYTHON ARGUMENT CLINIC

This is an excellent, short video clip to introduce argument as something different from mere assertion and contradiction.

©1972 BBC

RANT

EXPLANATION

LIST OF INFORMATION

ARGUMENT

Consider the different ways in which Tim and Tom express their ideas in the following dialogue:

Tim: Digestive biscuits are so boring. I hate them. Biscuits are meant to be enjoyable, but digestives taste like cardboard! My dog eats tastier food.

Tom: What type of biscuit do you prefer, then?

Tim: My favourite biscuit is a Jaffa cake, because it has a squishy orangey bit in the middle, chocolate on the top, and a spongy bit underneath. Yum.

Tom: But it has been debated whether a Jaffa cake is actually a biscuit at all. There was a long discussion in Parliament in around 2005 about whether VAT should be charged on them. Anything that is a chocolate biscuit has VAT added to it, whereas chocolate covered cakes don't.

Tim: What a ridiculous tax law! Politicians surely have better things to do with their time. Tax is so unfair anyway.

Tom: I agree – silly rule. The definition of a biscuit is that it goes soft when it gets stale, whereas cakes go hard when stale. Jaffa cakes go hard when they are stale. Also, they are, and always have been, called Jaffa CAKES. Therefore, they should definitely be classed as cakes.

Tim: OK then, fair enough – it's a cake. I'd have to say jammy dodgers, then, as my favourite biscuit. Have you got any?

DISTINGUISHING BETWEEN RANTS, ARGUMENTS, EXPLANATIONS AND INFORMATION

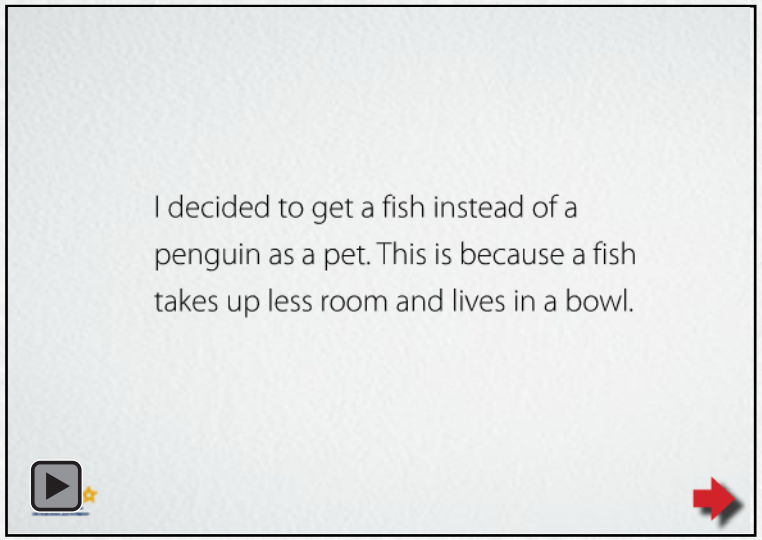
The following support materials can be found within the **Skill 1 pdf portfolio**.

1.01 Distinguishing.ppt

1.02 Distinguishing handout - including notes.pdf

1.03 Distinguishing handout - without notes.pdf

Click on the red arrow to preview



SOME BASIC TIPS IN TELLING THEM APART:

A '**because**' usually indicates a reason (which means it is an argument) or an explanation.
If there is a structure (one statement supports another) then it is probably an argument.
Look for words which suggest persuasion, such as '**should**' or '**ought**' or '**must**', found in arguments.

IDENTIFYING THE DIFFERENT PARTS OF ARGUMENTS

Good, clearly structured arguments usually have certain words signalling the presence of reasons and conclusions. These words can help us to work out the structure of the reasoning, as well as indicating that there is an argument present.

Conclusion indicator words include: therefore, so, hence, thus, in conclusion, consequently. Reason indicator words include: *because, since, as*.

There are others, but these are most commonly used, particularly *because* and *therefore*.

Words such as '*should*', '*ought to*' and '*must*' also commonly appear in arguments, though these are not strictly indicator words. They help us to see where there is persuasion, for example, of someone was saying that 'we should all do our bit for the environment' then there is an attempt to persuade us to accept that point of view, but it only becomes an argument when we are given a reason to support it (e.g. because everyone will benefit from taking care of the environment), so it is the '*because*' that indicates an argument rather than the '*should*'.

The following support materials can be found within the **Skill 1 pdf portfolio**.

1.04 Raining cats and dogs printable worksheet.doc

1.05 Raining cats and dogs answers.doc

It is often difficult to tell the difference between reasons and conclusions, especially when the author has not used indicator words to make their argument clear. One test you can do to work out the difference is called the because/therefore test.

Try imagining the argument (or saying it out loud) with a *because* before what you think is the reason and a *therefore* in front of the conclusion. Then try it the other way around. Whichever way around makes the most sense is probably correct, so the reason follows the *because* and the conclusion follows the *therefore*.

For example:

I ought to join a gym. I don't do enough exercise.

Test one: *Because* I ought to join a gym, *therefore* I don't do enough exercise.

Test two: *Because* I don't do enough exercise, *therefore* I ought to join a gym.

Clearly, test two reveals the correct meaning and so we can mark the argument up as follows:

I ought to join a gym. (I don't do enough exercise.)

So far, we have only seen arguments with one conclusion. Arguments frequently have more than one conclusion, but there should only be one main conclusion, which expresses the idea that we are being persuaded to accept and which every other reason and conclusion is designed to support.

The name given to a conclusion that appears within an argument is an

INTERMEDIATE CONCLUSION

Consider the relationship between the different parts of the following argument:

Traffic is far heavier than it has ever been before and heavy traffic causes pollution. So, we should be trying to reduce the number of cars on the road. Therefore, the government should introduce a limit on the number of cars per household.

First part

Second part

The use of indicator words (so and therefore) and persuasive words (should) here makes it clear that there are two conclusions. Telling the intermediate conclusion apart from the main conclusion is not always easy, but you can use the because/therefore test to help you with this too.

For example

If we take those two conclusions out of the argument and apply the test, it would look like this:

We should be trying to reduce the number of cars on the road. The government should introduce a limit on the number of cars per household.

Test one: *Because* we should be trying to reduce the number of cars on the road, *therefore* the government should introduce a limit on the number of cars per household.

Test two: *Because* the government should introduce a limit on the number of cars per household, *therefore* should be trying to reduce the number of cars on the road.

When we look closely, the first test reveals a more meaningful argument, so we know that the intermediate conclusion is we should be trying to reduce the number of cars on the road. The other conclusion, then, must be the main one.

The following support material can be found within the **Skill 1 pdf portfolio**.

1.06 Intermediate Conclusions.ppt

IDENTIFYING ASSUMPTIONS

You must run! There is a crocodile behind you!

There isn't really. But imagine someone really is trying to persuade you to run, and the reason they give is that there is a crocodile behind you. Are you persuaded, or would you want to look for yourself?

Unless you are Indiana Jones in the Temple of Doom when this is shouted at you, chances are you are not persuaded. There are missing steps in the argument that we have to accept if the conclusion (you must run) is to be taken seriously. Make a list of everything you think is being assumed by this argument and we'll return to it shortly.

An assumption is usually a weakness in an argument. All arguments make some assumptions, but they are often reasonable things to assume e.g. that the other person is still alive and can hear you. Anything that is not commonly understood to be true and is required for the reasoning to work (but isn't stated!) is an assumption.

For example, if I were to argue:

Zoos should be illegal, because keeping animals in small, enclosed spaces is cruel.

All of the following are being assumed by this argument, but two are reasonable and only one is not, and is important for the reasoning to work:

a) That animals are kept in zoos. ?

b) That cruelty to animals is unacceptable. ?

c) That zoo animals are kept in small, enclosed spaces. ?

One test we can do to be sure when we suspect that something is being assumed is called the reverse test. Let's take option b) from the example above to try it out:

Step one: state the *reverse* of what we think is being assumed

Zoo animals are not kept in small, enclosed spaces.

Step two: Insert it into the original argument

Zoo animals are not kept in small, enclosed spaces, so zoos should be illegal, because keeping animals in small, enclosed spaces is cruel.

Step three: look at the new argument carefully. If the reasoning no longer works, then it was an assumption.

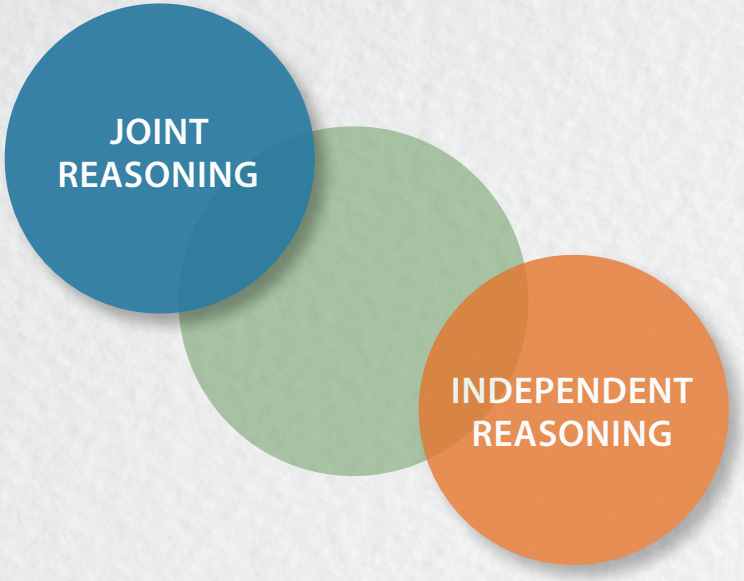
In this case, the reversed statement makes the argument contradict itself and the conclusion no longer follows logically from the reasons given. So, option c) is definitely an unreasonable assumption in the original reasoning. If you repeat the exercise with the other two options, the reasoning would not be affected as significantly.

Returning to the crocodile example, there are many assumptions being made. Some of them are listed below. However, most of them are either reasonable or wouldn't actually affect the reasoning much at all, except one. Can you work it out using the reverse test?

The following support material can be found within the **Skill 1 pdf portfolio**.

1.07 Assumption spotting printable worksheet.doc

MAPPING ARGUMENTS



As we have seen, arguments come in many shapes and sizes. In their most simple form, they have only one reason and a conclusion, or they can have a more complex structure made up of several reasons and more than one conclusion. It is important to be able to show that you understand how the reasoning leads to the conclusion, for example, if the reasons are dependent on each other (joint reasoning) or if they are separately supporting their conclusion (independent reasoning). In some cases, both types of reasoning can appear within the same argument!

As an example, let's look at arguments about vegetarianism:

a) Killing animals for meat is wrong. Therefore, we should all become vegetarians. ?

b) Killing animals for meat is wrong. Humans can survive on vegetables alone. Therefore, we should all become vegetarians. ?

c) Killing animals for meat causes the animals pain. Causing animals pain is cruel. Therefore, eating meat is cruel. ?

In both **b)** and **c)** there are two reasons, but in **b)** we could easily imagine either of those reasons supporting the conclusion by itself. It is, of course, stronger with both, but it would work. In **c)**, on the other hand, the conclusion simply would not work if you took away any of those reasons – the conclusion is not just stronger for having both, it needs them both.

The easiest examples of joint reasons are in arguments that contain the words; either/or, if and all. For example:

- Either Tom Cruise or Brad Pitt will win an Oscar this year. Tom Cruise hasn't won one. Therefore Brad Pitt must win one.
- If Madonna does not release a song this year, she will act in a film instead. She isn't releasing a song, so she must be acting in a film.
- All girls love eating chocolate. Sally is a girl. Therefore Sally loves eating chocolate.

The following support materials can be found within the **Skill 1 pdf portfolio**.

1.08 Joint or independent reasons printable worksheet.doc

1.09 Joint or independent reasons answers.doc

It is not always easy to work out what is going on in more complex arguments and so it is useful to be able to map them out visually. You may be presented with argument maps in an exam and asked to decide which one correctly represents a given argument, or you may be asked to draw maps of your own to show your understanding of the structure of a given argument.

It is useful to use shorthand abbreviations for the different parts of an argument when you are analysing how they are put together:

R1 = Reason 1, R2 = Reason 2 etc.

IC = Intermediate Conclusion.

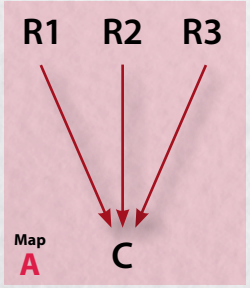
C = Conclusion

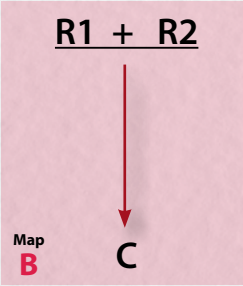
Arrows = leads to

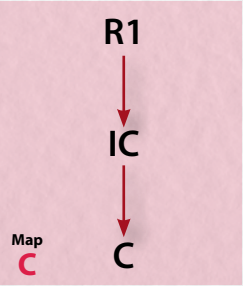
+ = jointly with

Look at the following argument, and the maps below it. Which of the maps do you think correctly represents this argument?

Most jobs require more typing than writing by hand. Also, since it is a school's responsibility to prepare children for the world of work, schools should therefore teach typing instead of writing.







Map **B** is the correct answer. There are two reasons, which jointly support the one conclusion.

The following support materials can be found within the **Skill 1 pdf portfolio**.

1.10 Argument mapping.ppt

1.11 Argument mapping printable worksheet.doc

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