



A student's guide to writing an extended essay

A resource created for use with the
IB Diploma Programme

Draft version September 2007

RationaleTM



This guide and Rationale™ materials have been developed independently of the International Baccalaureate, which in no way endorses it.

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First Edition September 2007

Acknowledgments:

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Welcome to Rationale™

Rationale™ is a software program developed to make your life easier. Writing a 4000 word essay takes a lot of effort and a lot of brain space; there is so much information you will need to review and make judgments about; there are so many connections you will need to make between ideas and evidence; and pulling all this together into a meaningful, articulate and structured form is difficult. But that's the challenge and it holds great personal rewards.

Rationale™ is a tool. It gives you the power to quickly gather and organise information, evidence, ideas and reasoning. It gives you a visual field of reference for your planning and your final essay. It gives you the tools to make judgments and articulate these in structured prose. But Rationale also challenges you. It does this by making you think about where information and evidence comes from, how it fits together, what is true or false, and how all this information comes together to form a strong argument. Rationale makes you think about what the essay is about and what you really want to say. And it requires that you think logically, systematically, critically. It demands that you produce an essay which is worthy of your research, ideas and conclusions.

If you're up to the challenge, then have a look at this guide and think about how Rationale can help you achieve your goals.



Rationale's 10 steps to achieving a great extended essay

1. Choosing a Topic
2. Brainstorming Ideas
3. Research your topic
4. Organising the argument structure: Preliminary outline
5. Refine Argument: Extended Outline
6. Consider Evidence
7. Assumptions/ cognitive bias
8. Evaluate
9. Draft Essay
10. Final Essay
 - Annotated bibliography
 - Write abstract



How to use this guide

In this guide, you will find four Diploma students, each writing an extended essay for a different subject area. You will be able to see how they follow Rationale's 10 steps to help them reach their goal.



Hello, my name is Grace and I live in Singapore. I speak 6 languages and wish to go to University next year and study Psychology. I enjoy school though it is a lot of work. To relax I like to watch Bollywood films. My all time favourite is *Kal Ho Naa Ho*. I am writing my essay on Panic Disorder for Psychology. The title of her essay is "The influence of models on the diagnosis and treatment of Panic Disorder"



Hi, I'm James and I live in Surrey in the UK. I love science, and would like to study Pharmacy next year at University. I am writing my extended essay for Chemistry. The title of my essay is "The effect of storage on vitamin C levels in orange juice"



Hi, my name is Matilda and I live in Copenhagen, Denmark. I take three languages— English, Danish and French. I love reading everything—poetry, novels and non-fiction, and hope to be a journalist. Next year, I hope to travel before beginning my university studies. I am writing my extended essay for English, on Blake's *Songs of Innocence and Experience*. The title of my essay is: "Contrariety in Blake's *Songs of Innocence and Experience*."



Hi - I'm David. People usually think I'm Greek, an Aboriginal Australian or Indonesian. Actually I'm just an Australian but with parents who were born in Fiji and New Zealand! As a result I consider myself a global citizen who lives in a great country (though I don't always like the politics). I really enjoy the DP – particularly having debates with my friends. I hope to go to Uni, travel the world and become an Ambassador in an overseas country. I am writing my extended essay on propaganda in Nazi Germany that was aimed specifically at the youth. The title of my essay is "Propaganda aimed at the youth in Nazi Germany"



Step 1: Choosing a topic.

Choosing a topic for your Extended Essay can be a daunting task. It has to be something you are sufficiently interested in write 4000 words on, while the scope must be appropriate for an essay of this length.

Creating a Rationale grouping map can help you identify a range of possible topics. Start by making a grouping map of the subject area that interests you. Think about areas of debate, issues that contain a mystery or subjects that require more investigation. Think about something that has been said or suggested that raises your curiosity. Add all these ideas to your map. As the extended essay needs to be in one of the given subject areas, ensure that your ideas clearly fit into this discipline.

You may build this map starting with the subject areas you are interested in writing your extended essay in, and then build topics under that. If you are having trouble thinking of specific topics, think of more general topic areas within the subject area first, to narrow down your scope.

Grouping principles to remember:

- Higher order categories or groups go at the top of the map.
- Lower order categories or particular examples go below.
- No item should belong to more than one category.
- Specific items should not go on the same level as more general ideas.
- If items don't fit under any of your categories create a new one.
- Make sure each item is best described by the category above. If the item would fit better under an absent category, create a new one.

Once you have identified which topic area you want to investigate, you need to define your **thesis statement**. Here, you want your thesis statement to be a clear, simple and precise statement that sums up your topic. While most of the detail can wait until your essay, your topic does need to show your specific research question, rather than a vague subject area. (Writing simple clear sentences like this will also help with building reasoning maps later.)

In our grouping map, we only had very general topics, such as "Adaptations of plants" or "Hydrocarbons as fuels." These need to be expanded to show the research question they address.

When refining your topic, make sure it is as simple as possible and get rid of unnecessary words. For example, "The influence of models on the diagnosis and treatment of Panic Disorder" is more concise than "Various models of Panic Disorder and how these models influence diagnosis and treatment in a clinical setting." The second topic is overly wordy, without conveying additional information. Your title needs to be as simple as possible, while still identifying your specific research question.

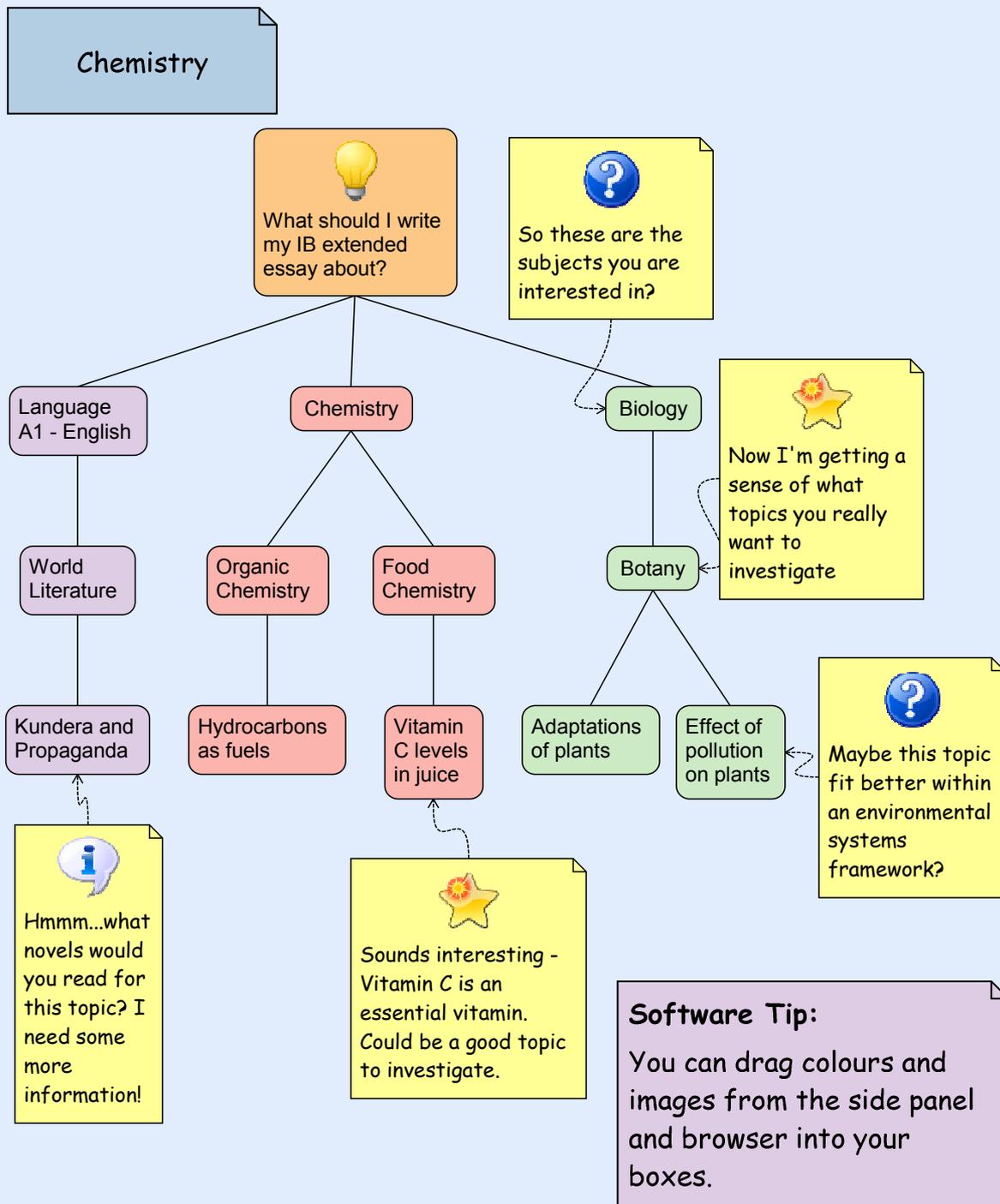
Outcome of this step: You should have a clear idea of your research topic, as well as how it fits into your more general area of study.

To practice these principles, try the **Rationale online exercises** for "Grouping" (Set 1) and "Refining Claims" (Set 4) at <http://learn.austhink.com/rationale/exercises/>. You can open these in the EXPLORE panel of Rationale, so you can drag the maps onto your workspace and practice your skills.



This is a grouping map, showing the subjects James is considering choosing for his extended essay. He feels the sciences, Chemistry and Biology, are his strongest subjects, but is also considering writing an essay for English.

Example





Step 2: Brainstorming Ideas

In order to begin your Extended Essay, you should start by getting your ideas down on paper. A good way to do this in Rationale is to make a grouping or dialogue map (see the latter in templates) to brainstorm your ideas on the topic. Try to get down everything you know about the general topic, even if you are not sure how it relates to your specific question. Structure is not important at this stage. What is important is getting your ideas onto paper, so that you have something to focus upon.

Brainstorming in Rationale.

When brainstorming in Rationale, type your topic into a box on your workspace, then build down and across as ideas come to you. Use sticky notes if you want to add on extra information to certain boxes. You may also find adding icons, colouring boxes or dragging an image from the web helps you to create a visual representation of your ideas. If you are not sure how an idea fits in, you can leave it unconnected from you map.

To help yourself come up with ideas, ask yourself some questions, such as:

- *What current issues surround the topic?*
- *What examples I can use?*
- *What do the key words in the topic mean?*
- *How is this topic globally significant?*
- *Are there important implications that arise from this topic?*
- *Do I have a personal experience that I can relate to this topic?*
- *What do I find interesting about this topic?*
- *Where will I find reliable information?*

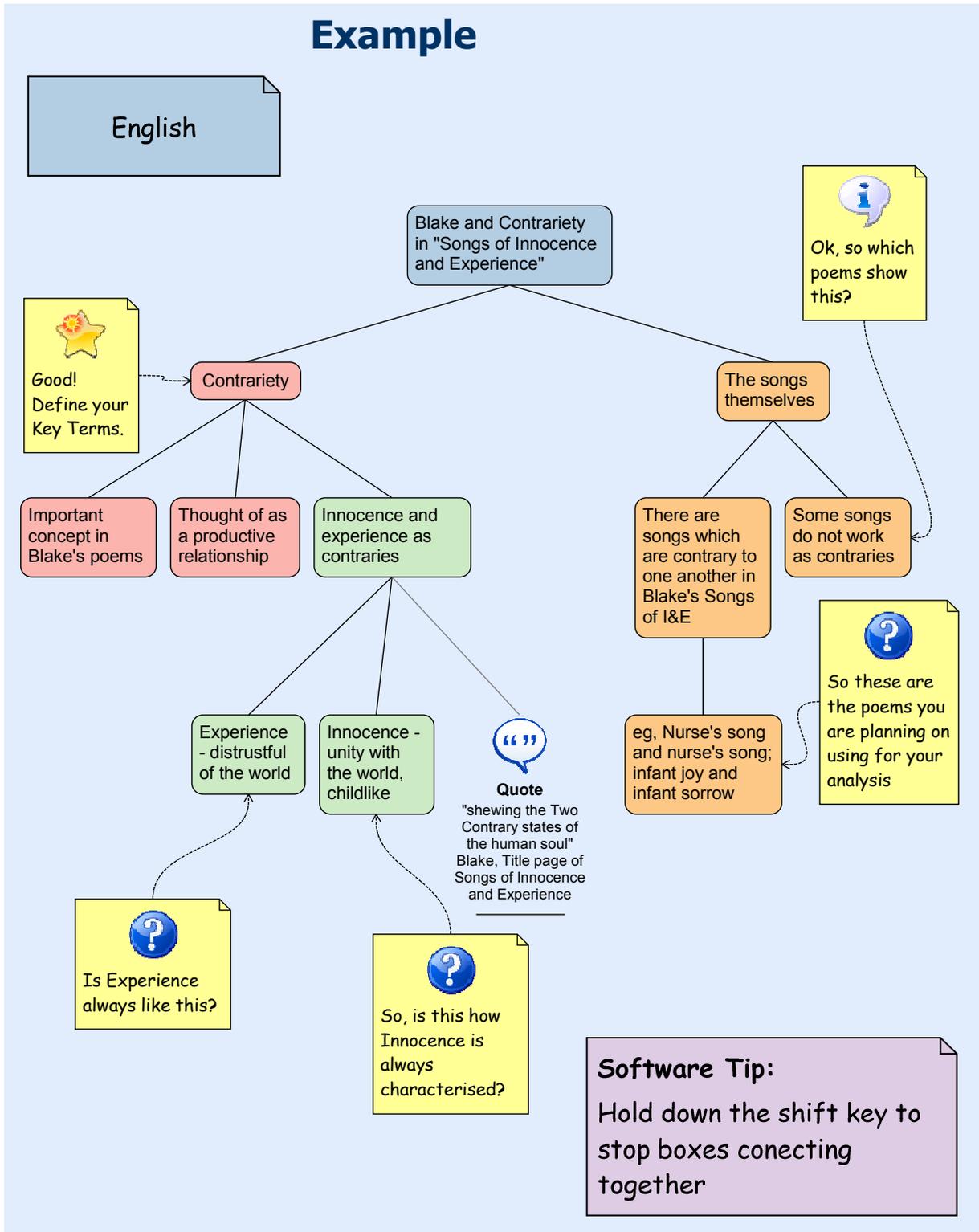
Once you have your ideas down in the program, you can play around with structuring them. You can use colour and images to mark particular areas of interest, to help you sort through them, and add in extra information using sticky notes. You may wish to use this grouping map to develop an “action plan” for researching your essay, distinguishing between definitions, examples or quotes, and areas that need further research.

Outcome of this step: You should now have a plan of attack for writing your essay: where to start researching, what key questions you want to consider as you read, and even have some early ideas about how you might want to structure your essay.

To practice these principles, try the **Rationale online exercise** for Grouping (Set 1) at <http://learn.austhink.com/rationale/exercises/>. You can open these in the EXPLORE panel of Rationale, so you can drag the maps onto your workspace and practice your skills.



The following map shows Matilda's brain storming on her topic.





Step 3: Research your Topic

Once you have brainstormed your ideas, you will have some idea about how to direct your reading. Research with your essay question and thesis in mind. As you read, ask yourself some key questions:

- *Am I convinced by this argument?*
- *How does this argument fit with my view?*
- *Is this argument current?*
- *Has it been refuted?*
- *What are these sources telling me?*

It is a good idea to take clear notes while you read, even to create a map to show how the ideas relate to one another.

Finding sources.

Consider what kinds of sources are most relevant to your area of research:

- Text Books
- Journal articles
- Novels
- Newspaper articles or other historical printed material
- Interviews
- Experiments
- Reports

Visit libraries to access scholarly journals and books. University libraries will have a variety of sources available, and most of them have catalogues that you can access online. Recent journal articles will allow you to gauge the latest debates surrounding a topic, or use the most recent findings.

Be wary of online sources. Some are reliable, but it may be hard to verify the level of expertise of the author. It's a good idea not to rely too heavily on internet sources, unless you are sure it is a reputable resource.

You may like to take notes in Rationale, either on the work space or on the scratchpad. The advantage to taking notes in Rationale is that you can then structure them easily into a grouping or reasoning map as you go. Add in Basis boxes where appropriate, complete with bibliographic information. This will make writing your bibliography easier once you have completed your essay.

You might find it useful to map arguments that you find in your research. To learn how to map an argument from prose, you can complete the online exercises.

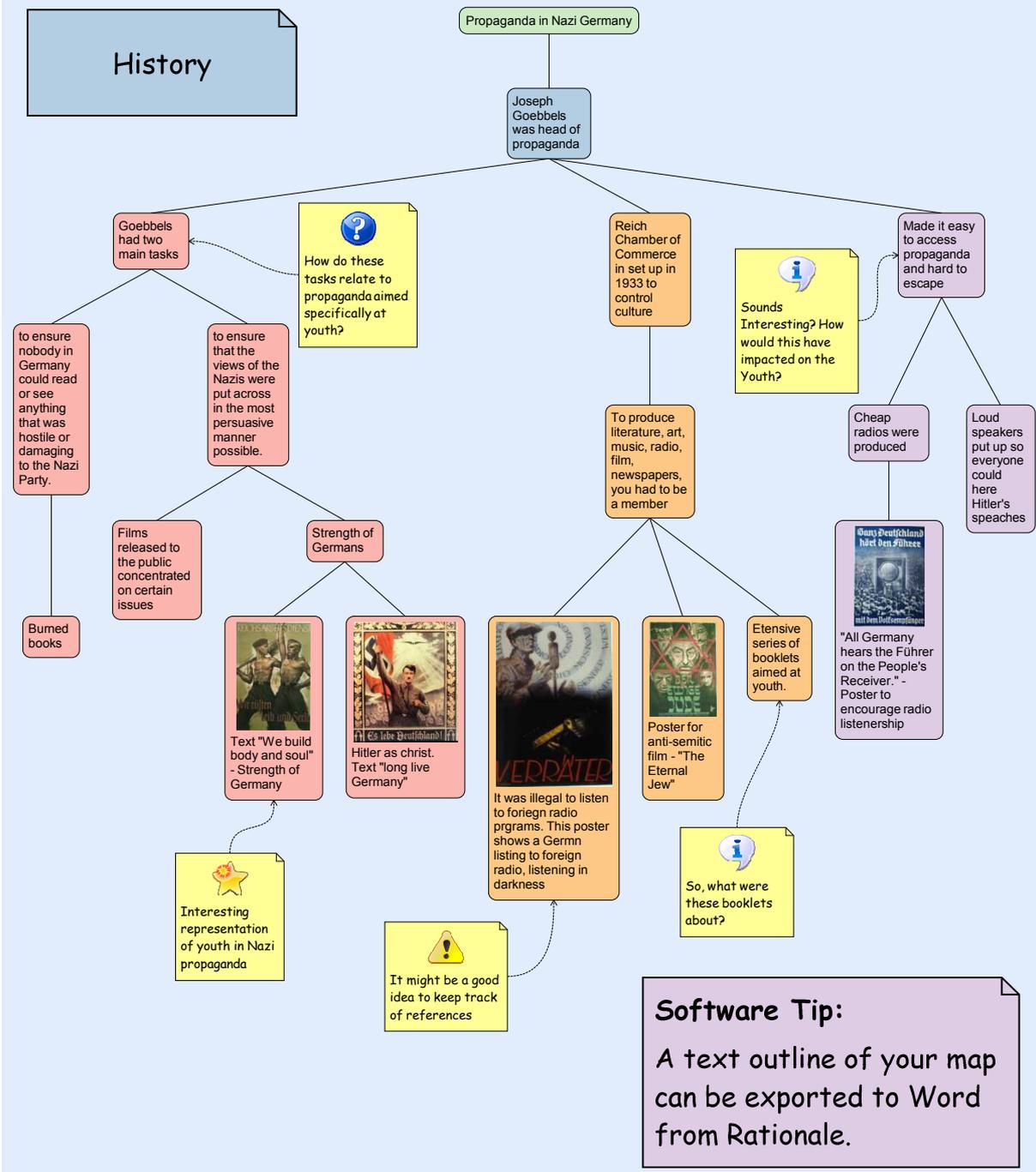
Outcome of this step: You have read widely on your topic, and organized your reading and

To practice these principles, try the **Rationale online exercises** for "Argument Parts" (Set 2), "Locating Arguments in Text" (Set 5) and "Basis Boxes" (Set 7) at <http://learn.austhink.com/rationale/exercises/>. You can open these in the EXPLORE panel of Rationale, so you can drag the maps onto your workspace and practice your skills.



This map shows David's research on the general role of Propaganda in Nazi Germany. He will use this information to provide the context for his key interest—propaganda that was aimed at the youth.

Example





Step 4: Organising the argument structure: preliminary outline

Build a grouping map outlining what information should be included in each section of your essay. In order to do this, you will need to decide on the structure of your essay. The simplest structure will be to have an Introduction, main body and conclusion. However, you may choose to have subheadings within sections, and some Extended Essays will require this. For example, group 4 essays generally follow the format of a Lab report, and so have a clearly defined structure, with many sections.

Things to consider when planning structure:

- *How many, and what sections should I include in my essay?*
- *Does my extended essay naturally divide into sections?*
- *What themes and issues will I address?*
- *Do I need to provide extensive background information?*
- *Do I want to make some general points before discussing my specific question?*

Building your map:

Using Rationale to outline your essay allows you to move around your ideas, eliminating the need to write them out again. Through building your map, you can enter pieces of information onto the workspace that you feel you should include, then think about where they should go. Begin with your structure, lay out your headings and begin grouping information under them. It is a good idea to lay things out in order left to right, so that they are in order when you export your text outline into your word processor.

You may wish to colour code your work, so that at a glance you can see how much information you have for each section. Sticky notes can also be useful for adding in extra information and highlighting important questions.

Things to consider when planning your essay:

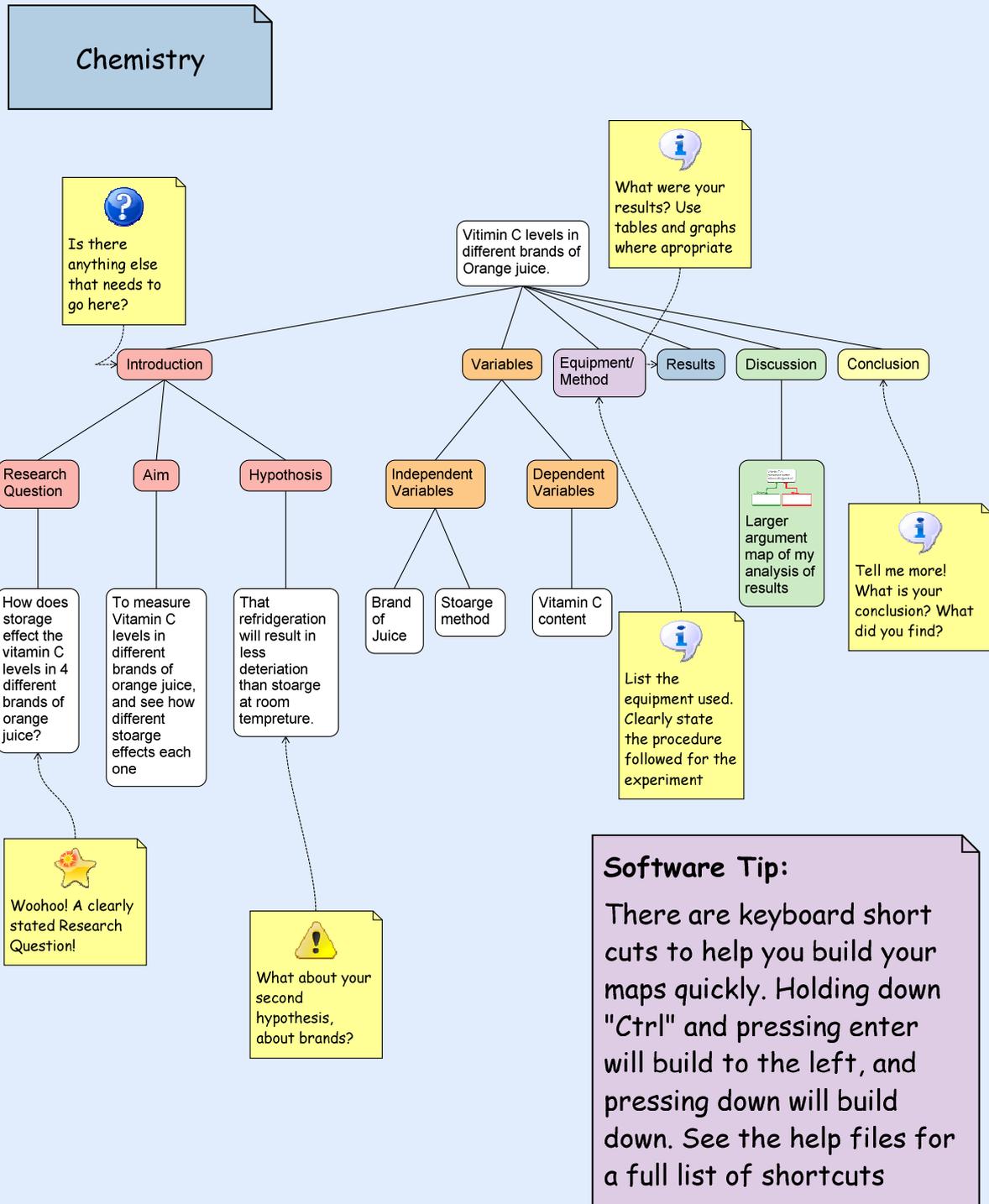
- *What are the criteria for my essay? Where in my essay will I address each criteria?*
- *Which key terms should I define in my introduction?*
- *Have I outlined any relevant background information?*
- *Have I clearly stated my research question?*
- *What will be my main argument?*

Outcome for this step: Developed a structure for your essay, which groups your research into a logical order



The following map shows James' preliminary outline of his Extended Essay.

Example





Step 5: Refine argument: extended outline

If you have tried to map an argument from prose, you have probably noticed how it is not always the straightforward process one would hope for. This is because much of the prose that we read is not as clear as it could be. Building an argument map of your essay should help you to write your essay more clearly, as it provides a clear direction for where your essay is going. In this sense, it is like a map that will help you stay on track with your writing.

Reasoning maps and your extended essay

The topic you have chosen to write your extended essay about will influence how many reasoning maps you build, and how large they are. If your essay consists of an introduction, body and conclusion, you might only need one big reasoning map to cover your main arguments. If your essay comprises of several sections, you may wish to make a different reasoning map for each section, and keep the bigger picture in view through a grouping map; and if you are writing a group 4 extended essay, you may find only the discussion section lends itself to argument mapping. However, detailed grouping maps can be useful to make sure you have covered all aspects of your experiment.

Rationale allows you to build a reasoning map, showing reasons, objections and rebuttals, and show you visually how these all fit together.

Tips for building your reasoning map:

- Begin by putting the position at the top. This is the main issue or contention at hand. You do not necessarily have to agree or disagree with this position statement at this time. It is there to direct the reasoning and provide a direction to ascertain whether ultimately it should be accepted or rejected.
- Reasoning maps follow similar principles to grouping maps. The more general reasons should go at the top of the map, with more specific examples below.
- When adding a reason, ask yourself : *Does this reason provide support for the claim above?*
- Be sure to map out any objections you have come across. If you can, rebut them. A rebuttal is an objection to an objection and will automatically become an orange box in Rationale.
- Try to keep your claims as simple as possible, being careful not to put two claims in one box. If you have included the word 'and' in a claim box, you probably have two reasons rather than one.
- If you have words like 'because,' 'but' or 'therefore', you may have reasoning within a box. You will need to add in another claim box and separate these ideas.

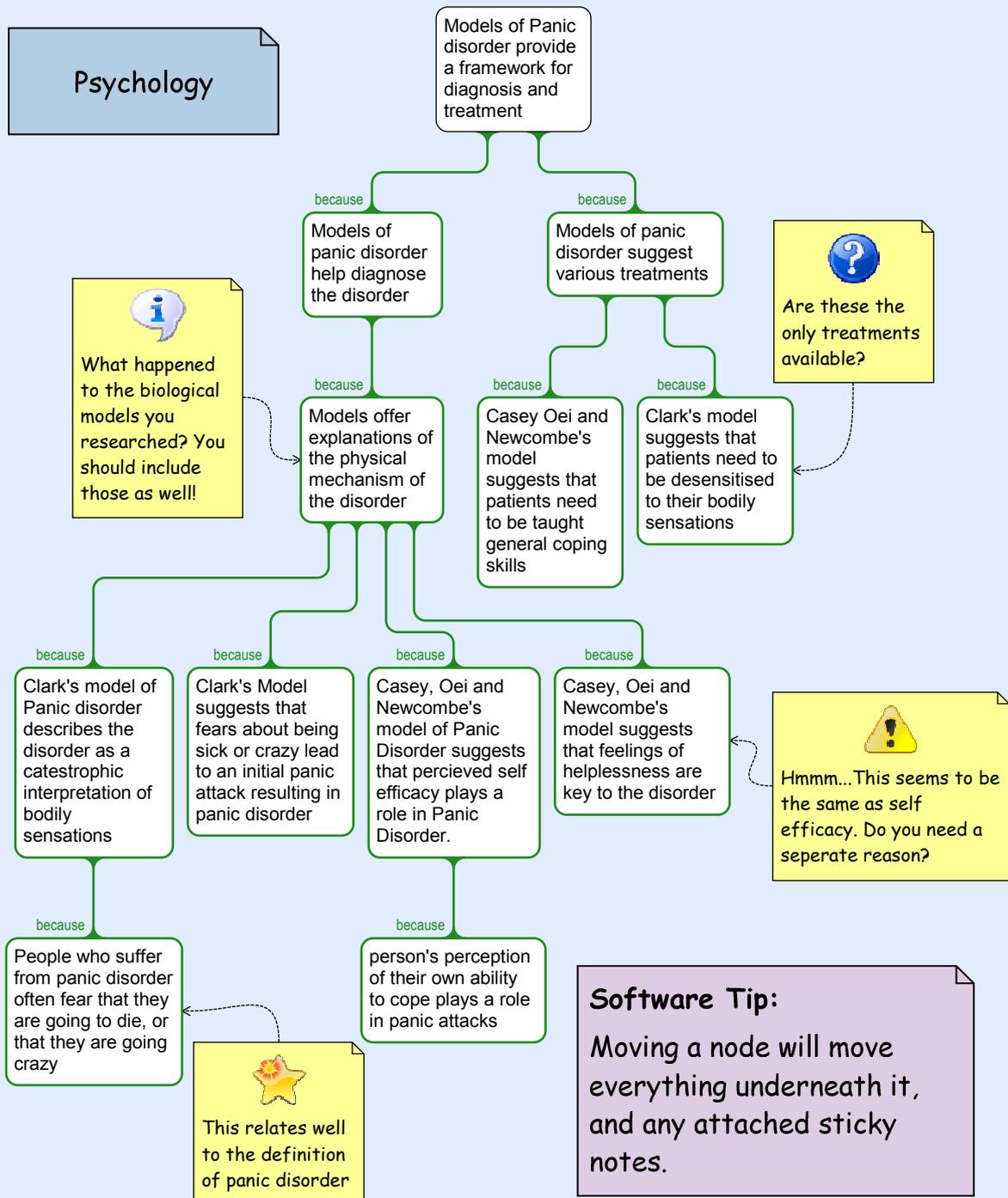
Outcome for this step: Develop a clear argument structure through building a reasoning map. Show all key points in your map, with supporting reasons, possible objections and rebuttals.

To practice these principles, try the **Rationale online exercises** for "Indicators" (Set 3) and "Argument Parts" (Set 5) at <http://learn.austhink.com/rationale/exercises/>. You can open these in the EXPLORE panel of Rationale, so you can drag the maps onto your workspace and practice your skills.



This reasoning map is a segment of Grace's extended outline. She hasn't finished putting in all her research yet.

Example





Step 6: Consider Evidence

Once you have built your reasoning map, you need to add in the evidence for your claims. Rationale allows you to do this by adding basis boxes to your argument map. These indicate the basis or evidence that is the foundation for each claim.

Mapping your evidence:

Locate evidence from research, then copy it onto your workspace. You can change a claim box to a basis box, and indicate the kind of basis box it is, for instance, expert opinion, statistic or data. If you have kept a list of key quotes or examples, you may wish to add them onto your workspace, then place them on the map as appropriate.

When considering evidence, ask yourself:

- *Are the main claims supported by evidence?*
- *Is this evidence itself questionable or does it just form the basis of the claim to which it is attached?* (The idea of a basis box is to identify the sort of basis a claim has, so if it is questionable, then it may need to be in a reason box with supporting reasons or objections which refute it, rather than a basis box).
- *Do I have a good range of basis boxes?* At a glance you will be able to judge whether you have researched widely by the variety of basis boxes you have.

Kinds of evidence you might want to consider:

Language A1—quotes from texts, examples from texts, publications.

Language A2— quotes, examples, publications, statistics, personal experience

Group 3—publications, data, expert opinions, examples, personal experience. You might wish to create your own basis, such as laws, or interviews you have conducted.

Group 4—Data, Statistics, publications, expert opinion.

Group 5—publications, definitions,

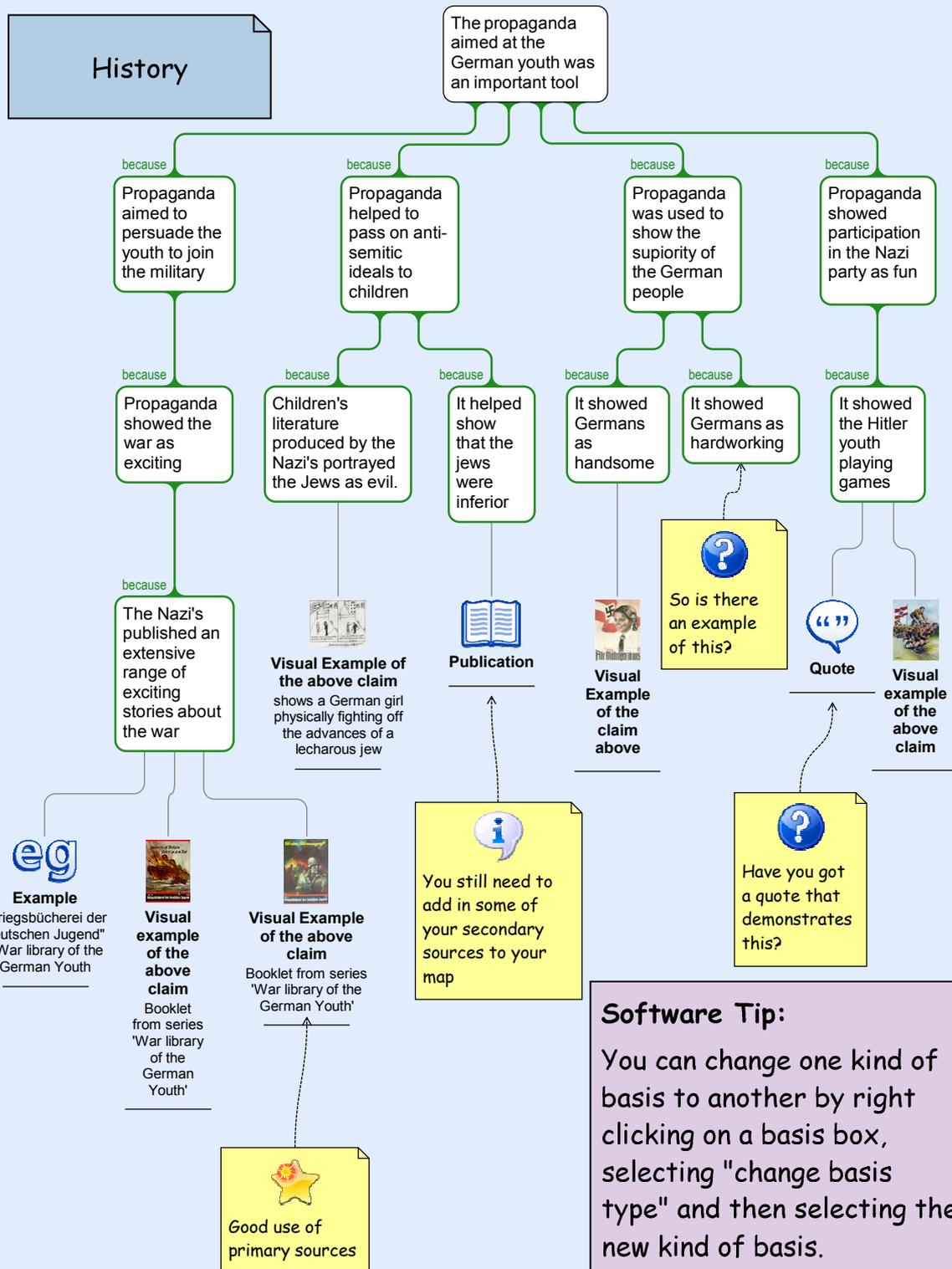
Group 6—publications, personal experience, examples. You might wish to create your own basis, adding in pictures of specific artworks.

Outcome for this step: Show a wide range of evidence on your map

To practice these principles, try the **Rationale online exercise** for “Basis boxes” (Set 7) claims at <http://learn.austhink.com/rationale/exercises/>. You can open these in the EXPLORE panel of Rationale, so you can drag the maps onto your workspace and practice your skills.



Example





Step 7: Assumptions/ Cognitive bias

When you build an argument map in reasoning mode, there are often hidden assumptions that go along with claims. Changing your reasoning map into an analysis map will allow you to show these assumptions on your map. This will allow you to map any objections to the assumptions. Identifying assumptions and their possible objections will strengthen your argument and show that you have thought about underlying issues and arguments.

To change your reasoning map into an analysis map, change the map mode from reasoning to analysis, or drag an analysis box into the map (this will change the whole map). You might want to copy your reasoning map first, so that you can keep both formats.

You can now drag in co-premises to your reasons, objections and rebuttals. It is here that your assumptions go.

Identifying assumptions.

A good way to try to identify assumptions is to find the key words in your claim boxes. These words need to appear in the co-premises of the reason that supports the claim.

For example, if you have the claim "Orange Juice is good for you," supported by the claim "Orange juice contains vitamin c," then the assumption is that "Vitamin c is good for you." Here, the two co premises work together to show the reasoning of why Orange juice is good for you. This is apparent because all of the key words that appear in the initial claim appear in the claims below.

As you build your analysis map, you may find that some of your reasons belong elsewhere on your map; either as co-premises, or supporting an unfolded assumption.

The assumptions that you unfold may at times seem obvious. When you come to write up your essay, it is probably best to leave out any assumptions that seem to obvious. However, your essay will be strengthened through showing your reasoning, and addressing objections based on these.

Note—Strongly recommended that you do analysis online exercises first.

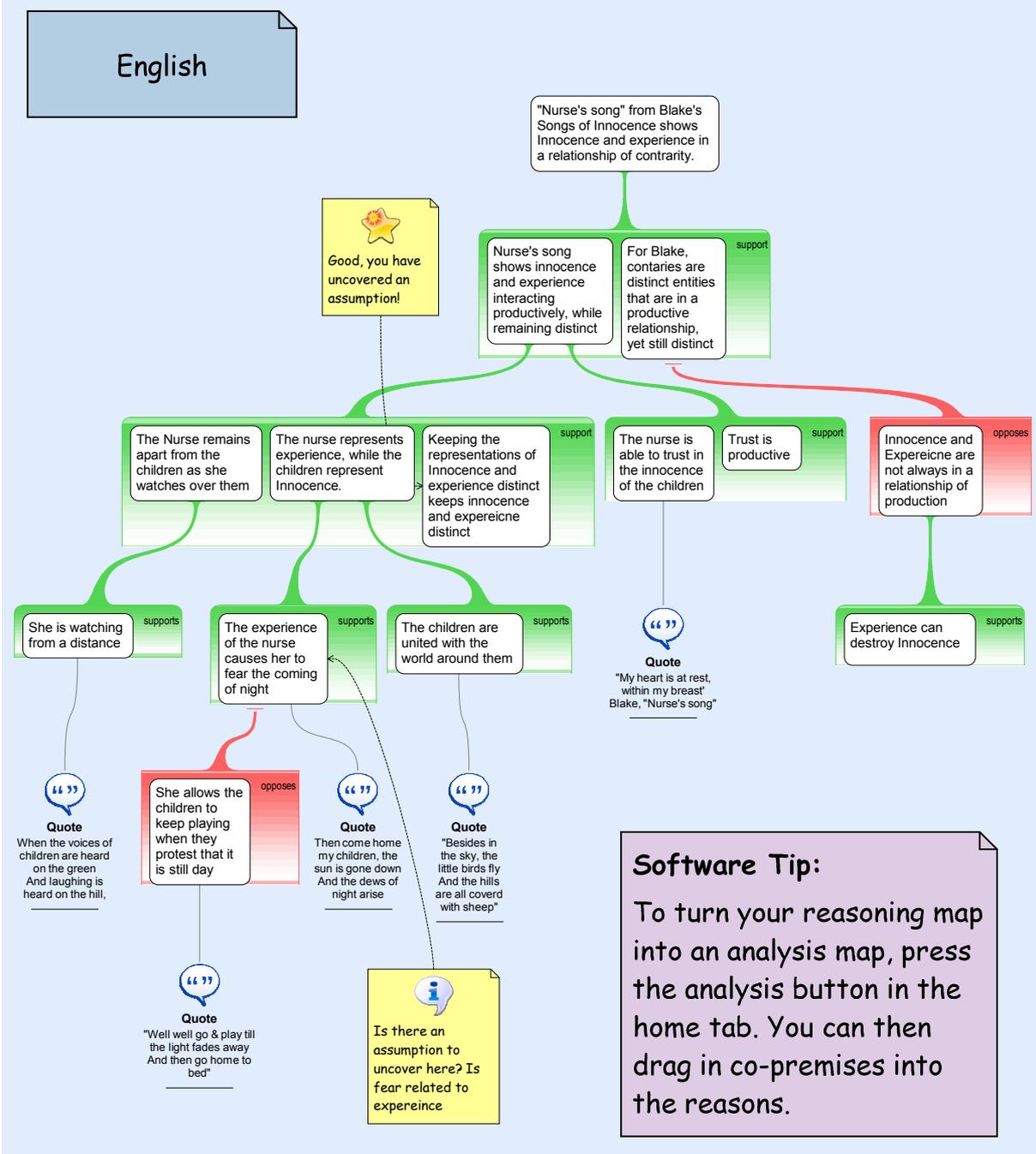
Outcome of this step: Transform your reasoning map into an analysis map, unfolding assumptions and identifying possible objections to them.

To practice these principles, try the **Rationale online exercises** for analysis maps (set 10) at <http://learn.austhink.com/rationale/exercises/>. You can open these in the EXPLORE panel of Rationale, so you can drag the maps onto your workspace and practice your skills.



The following argument map represents Matilda's analysis of one of Blake's poems. She has begun the process of uncovering her assumptions.

Example





Step 8: Evaluation

Evaluating your map can help you assess the strength of your own argument. This will help with critical evaluation in your essay, as you will not just be considering arguments for and against, but explicitly considering how convincing these arguments are.

Evaluating in Rationale

Rationale allows you to evaluate your map by marking each claim with a symbol (a tick, cross or question mark), to help you keep track of your evaluation. You can indicate the strength of an argument (strong, weak or nil) through the strength of the colour of the box. Strong reasons will be coloured dark green, weak reasons pale green and invalid reasons grey. Similarly, strong objections will be dark red, weak objections pale red and rejected objections grey.

Evaluating your map

- Start your evaluation at the bottom, and work up, going one branch at a time. Ask yourself two questions: *Is this claim true?* and *Given it is true, to what extent does it support the claim above?* If it is not true, then it will not provide support for the claim to which it is attached.
- Evaluate each claim in a reason (if it is an analysis map), then evaluate the reason as a whole
- Make sure you have evaluated everything below a box before evaluating that box.
- Basis Boxes—Ask yourself how reliable this basis is as a source of information. It can be evaluated as solid (a good source), shaky (no reason to believe it is wrong, but its also not quite reliable) or nil (providing no support.)
- Reasons—How good is this reason, given your assessment of the basis. Is it relevant to the claim above. Reasons can be evaluated as providing strong, weak, or no support.
- Objections and Rebuttals—How well is this claim supported by evidence below? Does it seem plausible? Is it a relevant objection to the claim above?
- Once we have evaluated all reasons and objections, we can then accept, reject or remain undecided on the position. When evaluating the position, consider the strength of the reasons and objections below. Strong reasons should count for more than weak ones

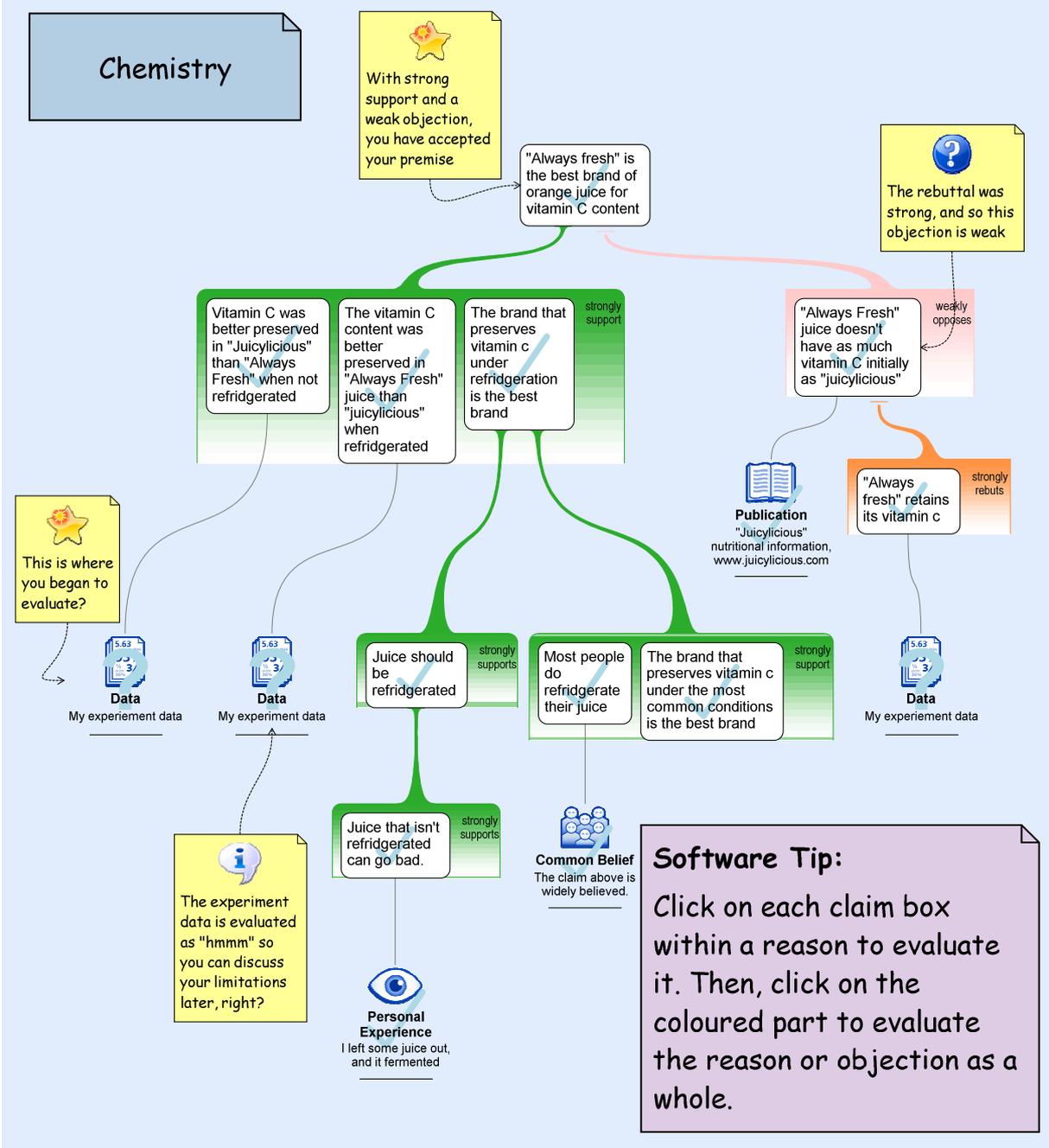
Outcomes for this step: Evaluate your analysis map, identifying strong, weak and invalid arguments.

To practice these principles, try the **Rationale online exercises** for Assessing (set 8), More on Assessing (set 9) and Assessing Again (set 11) at <http://learn.austhink.com/rationale/exercises/>. You can open these in the EXPLORE panel of Rationale, so you can drag the maps onto your workspace and practice your skills.



This example shows a small selection of James' evaluated map, which will form the basis for his discussion of his results. This map does not include his discussion of limitations of his experiment.

Example





Step 9: Draft essay

Now that you have built and evaluated your argument maps, you are ready to draft your essay. Begin by copying the text outline of your grouping map and any reasoning maps into your word processor in order. You can then edit the text to write a completed essay.

Your text outline

Rationale will label different reasons and objections with numbers. Supporting reasons and objections to a reason are indented, so that everything that is further right of a premise comes below it. Co-premises in the text outline are shown by letters, such as 'a;' and 'b,' rather than numbers. The colours of reasons, objections and rebuttals are preserved when you paste into a word processor. Your evaluations are indicated by stars next to the reason—two for strong, one for weak and none for nil support.

What to add to your outline.

- Full sentences: Your grouping maps in particular may have sentence fragments rather than fully developed sentences.
- Indicator words: You will need to add important connectives to show the reasoning.
- Signposts: You should always make sure your reader knows where you're going and what you are saying. Be clear in directing your reader

Assumptions in prose

You will want to show relevant assumptions in your prose.

Evaluations in prose

You will also want to show your evaluations or claims in your essay.

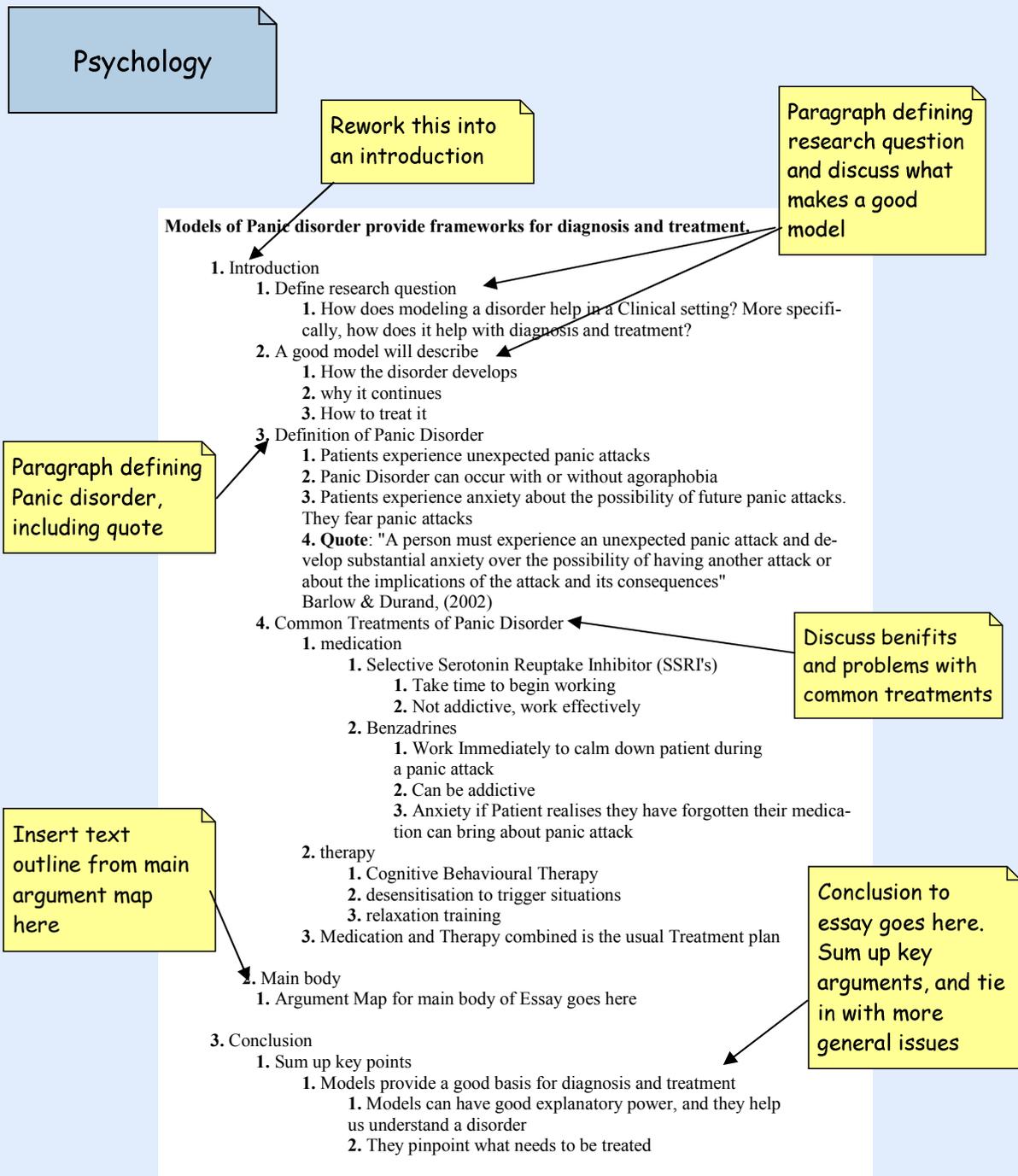
Outcome for this Step: Use the structure provided by your analysis map to draft your essay.

To practice these principles, try the **Rationale online exercises** for Essay (set 6) and a challenge (set 12) claims at <http://learn.austhink.com/rationale/exercises/>. You can open these in the EXPLORE panel of Rationale, so you can drag the maps onto your workspace and practice your skills.



Grace has copied her text outline into her word processor. The sticky notes show the changes she will make.

Example





Step 10: Final Essay

Now that you have a draft of your essay, you will need to revise it several times, write your abstract and bibliography, and finally proofread your essay as a whole, checking for the small errors that are easy to miss when you have become absorbed in your own work.

Revising your Essay

- Make sure your writing is clear and simple.
- Is your conclusion clear and consistent throughout your essay?
- Have you provided adequate signposts to guide your reader along the path to your investigations?
- Does your introduction state your contention clearly? Does it tell your reader what you will be considering in the body?
- Does each paragraph contain one clear idea or theme? If not, maybe you need to break it up and providing an appropriate bridge to the new idea.
- Does your essay comply with the word limit? If you are over, you will have to read through your essay and cut unnecessary waffle or limit examples or quotes.

Abstract

To write an abstract, return to your earlier outlines, to help you stick to key points. An abstract is a summary of your essay; it should outline your research question, and what you found. If you conducted an experiment, make sure you include what was tested, a brief sentence of how it was tested, what you found and what you concluded. Look at your preliminary outline, and write a sentence to summarise each section.

Bibliography

- Check with your basis boxes that you have included all the sources that you have used.
- Make sure you include all sources consulted, not just those cited. Look back to your research map to make sure you haven't forgotten any.
- Reference in a consistent system.

Proofreading

Read your Extended Essay very slowly and carefully. Be sure to look out for words that would be missed by a spell check (eg 'were' instead of 'where'). If you can, get someone else to read your work as well.

Outcome for this step: Complete and refine your essay. Complete a clear abstract to summarise the issue, your conclusion and the central points and check your Bibliography is complete and accurate. Congratulate yourself. You met the challenge and succeeded!



Here are some selections from Grace's final essay, showing some of the editing process.

Example

Psychology

Your point in the second half of the sentence is a little unclear. Reword so it is clear you are talking about uses beyond a theoretical level

This sentence is repetitive

Psychological models provide a useful framework for thinking about clinical diagnosis and treatment, as well as for investigating theories about psychological mechanisms. A model of a psychological disorder should provide a description of how the disorder develops, why it continues and point to how to most effectively treat a disorder. ~~How effective a treatment is, and how well the model describes the aetiology of the disorder, provide ways of assessing the usefulness of the model, leading to changes in it to create a more complete picture.~~ In this essay, I will use the example of panic disorder to examine how psychological models enrich our understanding of a psychological disorder to more precise diagnosis and better treatments.

Add in another sentence to explain your research question further.

This first sentence should probably be a bit snappier

Models of Panic disorder provide a description of the mechanisms of a disorder, which can help with diagnosis and treatment. Clark's (1986) cognitive model of panic disorder has had particular influence on how panic disorder is treated within a clinical setting. However, competing models, such as that proposed by Bandura (1988), which links panic disorder with low feelings of self efficacy, expand on Clark's model, and so offer additional treatment options. However, these competing models often do not contradict each other, and so can be integrated to provide a more complete picture of a disorder. In this essay, I examine the support for different models of panic disorder, as well as common criticisms. I then discuss how integration of various models can provide a more complete picture of a disorder, as well as opening up more possibilities for treatment.

Briefly discuss the other models you talk about in your essay

Say more here about the conclusions you draw about how models of panic disorder are used in a clinical setting