

Academic reading: Skimming, scanning, synthesising

Emma Williams



Over to you



Challenges

- Finding sources
- Volume
- Terminology
- Accessibility
- Literacy
- Consistency and Approach
- Understanding and Experience
- Why?



Why is it Needed?

“Highly effective, consistent and accurate use of an academic method of referencing with no omissions”

Apply Critical Thinking and Problem Solving skills

Award 0 for any of the skills below if there is no evidence or submitted work is not worthy of credit.

Demonstrated specific skills	Suggested Evidence	Marks available for each specific skill			
		1	2	3	4
Apply methods to solve complex problems, including using research techniques to gather primary and secondary information.	Research plan/development record	There is a limited attempt to use methods to solve problems. There is a lack of a variety of research techniques and the learner may have only gathered primary or secondary information.	There is some use of methods to solve problems that include a selection of research techniques to gather primary and secondary information, but the quality of one may be limited.	Effective use of methods to solve complex problems that include a range of research techniques to gather an appropriate range of both primary and secondary information.	Highly effective use of methods to solve complex problems that include a comprehensive range of research techniques to gather a wide range of both primary and secondary information.
Select appropriate information by critically evaluating credibility and recognising bias and assumptions.	Research plan/ main body/ development record	Some of the information selected is appropriate to the chosen topic, but some may be irrelevant. There may be no reference to credibility, bias and/or assumptions.	All information selected is appropriate to the chosen topic. Reference to credibility, bias and/or assumptions is described, and may be general and not contextualised.	Effective selection of appropriate information which demonstrates evaluation of credibility, bias and assumptions for most sources.	Highly effective selection of appropriate information which demonstrates comprehensive critical evaluation of credibility, bias and assumptions for all sources.
Accurately use an academic method of referencing.	Main body/ reference list	Evidence of research sources is given but does not demonstrate an academic method of referencing.	Elements of academic referencing are evident, but this may not be consistent and there will be a number of omissions.	Effective and accurate use of an academic method of referencing with only minor omissions.	Highly effective, consistent and accurate use of an academic method of referencing with no omissions.
Analyse complex information and draw out key points.	Main body/ development record	A narrative description or list of points is offered with no analysis.	There is some attempt to analyse complex information. However, this is not sustained throughout. Some key points may be raised but are not developed.	Effective analysis of complex information is demonstrated which draws out a range of key points relevant to the topic.	Highly effective analysis of complex information that draws out a wide range of key issues, points and concepts in a sophisticated manner.

AO2 USE RESOURCES

Learning Outcomes	Mark Band 1 1-3 marks	Mark Band 2 4-7 marks	Mark Band 3 8-10 marks	Max. Marks
LO3 Be able to conduct research using a range of resources, select and apply information/data relevant to the planned outcome.	Conducts research using a limited range of resources, selects and applies some information/data relevant to the planned outcome. Limited use of referencing and acknowledgement of resources.	Conducts research using a range of relevant resources , selecting and applying information/data relevant to the planned outcome. Resources are mostly acknowledged and referenced to a reasonable standard of competency.	Conducts research selecting from a wide range of relevant resources , including complex material and consistently applying information/data to the planned outcome. All resources are acknowledged and referenced using a recognised form.	10
LO4 Be able to interpret and analyse information/data showing understanding of links and connections within the complexities of the outcome.	Interprets information/data with minimal analysis to support the outcome and conclusion. Limited understanding of links within the complexities of the topic, making minimal connections.	Interprets and analyses the relevant information/data to contribute to the outcome and conclusion. Recognises and records the validity and bias of resources. Clear understanding of links and clearly articulates connections within the complexities of the chosen outcome.	Interprets and analyses the relevant information/data to inform a cohesive outcome and conclusion. Explores and confirms the validity and bias of resources. Demonstrates ability to synthesise complex information/data. Comprehensive understanding of links, fully explores and establishes sophisticated connections and fully appreciates within the complexities of the chosen outcome.	10

Benefits: The Bigger Picture

- Needed for AO/LO's of EPQ and Individual Project + a lot of other level 3 specifications.
- Preparation for HE.
- Critical Thinking.
- Independent learning.
- Literacy.
- Individual Project/EPQ levels the playing field with learners in England who will not have AS results when they apply to HE.



Lesson Resources and Ideas



- Lots of focus on picking a title/question but not much after.
- Learners struggle with “getting started”.
- More guided research time.
- It’s not just about SWOT.
- BYOD or ensure one can be provided.
- Literacy vs digital literacy.

Secondary Research

- Makes more sense to start with this.
- “Easier”.
- More accessible – IF they’re selecting appropriately.
- Reliant on access.
- Often rushed.
- Often done backwards e.g. “This is what I want to say, now I’ll find something that supports it...”



Tools to Support Learners

3 lessons:

- 1: Secondary research: find and select
- 2: Primary research: Informed practice
- 3: Synthesise your findings



Lesson 1: Secondary Research

- JSTOR
- Google Scholar
- UK Data Services
- BYOD
- Guided research time, walkthroughs, explanations





Examples

Antimicrobials: access and sustainable effectiveness 2

Understanding the mechanisms and drivers of antimicrobial resistance

Alison H Holmes, Luke S Moore, Anjolin Sundique, Martin Stenbak, Sade Regni, Abimbola Kolaja, Philippe Goutin, Iqbal V Piddock

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e1, e2, and e3
See Discussion page 1218
This is a medical article. For more information about access to this article, see [our article on article access](#).
antimicrobials

National Institute of Health Research Health Protection Research Unit in Healthcare Associated Infections and Antimicrobial Resistance, and Department of Infectious Diseases, Imperial College London, UK
L.P. Holmes (PHI), Norwegian Directorate of Antimicrobial Resistance, Department of Clinical Microbiology and Infection Control, University

- Key messages**
- The emergence of antimicrobial resistance is a natural evolutionary response to antimicrobial exposure. At a societal level, complex and interlinking drivers are increasing the prevalence of antimicrobial-resistant microorganisms, predominantly arising from use in human beings and agriculture and the pollution of the environment.
 - Acquisition of antimicrobial resistance mechanisms does not necessarily compromise microbial fitness. Worldwide clonal spread and long-term persistence of resistant bacteria are also seen in the absence of direct antibiotic selection pressure.
 - Brevity of antimicrobial resistance after withdrawal of antimicrobial selective pressure is consequently not clear cut, minimisation of emergence of resistance to new and future agents as therapeutic options.
 - Gaining insight into the mechanisms of antimicrobial resistance, long-term persistence, and successful clonal spread, is fundamental to the development of novel targets for both diagnostic tests and therapeutic agents with integration of these into sustainable antimicrobial resistance strategies.
 - Gaps in understanding and areas for innovation are clear, yet progress towards these goals is still largely limited, with a careful awareness of any potential effect on access to effective antimicrobial treatment.
 - There is no single solution and several, synergistic, overlapping, and complementary approaches will be needed, with a strong overarching shared goal to ensure and sustain access to effective antimicrobial therapies.

Introduction
The increasing challenge to health care attributable to antimicrobial resistance, and the subsequent absence of access to effective antimicrobials, is of worldwide concern. There is a real threat that the public health gains from improved access to antimicrobials, including the improvements in childhood survival, could be undermined.¹ Understanding the scientific basis of antimicrobial resistance is essential to combating the public health threat. This understanding should cover the resistance mechanisms, enabling novel approaches

to diagnostic and therapeutic, through to the drivers of antimicrobial resistance in society and the environment, essential for the development of appropriate intervention policies.² The many factors contributing to the present worldwide status of antimicrobial resistance are reviewed in this Series paper, with a particular focus on emergence of resistance, transmission, bacterial fitness, and potential for reversibility. The evidence for, and the role of, important drivers of antimicrobial resistance are considered and assessed in the context of the community (including the environment and agriculture) and in health-care systems. Please see appendix for a list of supplementary references. From this evidence, stakeholders can engage with issues specific to their area of practice, yet also be mindful of cross-sector interconnectivity and the need for a One Health approach to antimicrobial resistance.

Emergence of resistance
1) Why does resistance emerge within a micro-organism?
Through a darwinian selection process microorganisms have developed robust mechanisms to evade destruction from many toxic substances. Most antimicrobial drugs are naturally produced by microorganisms, including environmental fungi and saprophytic bacteria, or are synthetic modifications of them, with only a few drugs (eg, sulphonamides and fluoroquinolones) being wholly synthetic. The protective mechanisms that have evolved include preventing entry of or exporting the drug, producing enzymes that destroy or modify the antimicrobial, or making changes to the antimicrobial target. Therefore, antimicrobial resistance could be considered to simply represent the darwinian competition from natural microorganism-derived antimicrobial molecules. Functional meta-genomic studies of soil microorganisms have shown a widespread

Globalised economies require a labour force of a size that must include women, but women's employment varies greatly by region. A gender gap exists in employment: a 24.8 percentage difference between men and women in the employment-to-population ratio in 2012 according to the Millennium Development Goals Report. In 2012, 64 per cent of women were in the work force in Eastern Asia and Oceania, the greatest proportion among all regions. In North Africa, only 18 per cent of women work. The vastly different percentages may be attributed to social-cultural factors, such as the belief in many Arab nations that women should not work, or the tight political control over women in places such as Saudi Arabia. Similarly, South American women participate in the labour force more as they age, while women in the Middle East and North Africa drop out of the labour force in great numbers when they marry and have children.

A gender wage gap exists all over the world, ranging from a 9.3 per cent difference between men and women in Belgium to 40 per cent in South Korea. This can be largely explained by the type of work that women go into or, for many women, the type of work that is available for them. What accounts for these differences? In many cases, cultural barriers, especially in the relationship between women and men within households and communities, impede increased economic participation, or undermine the quality of that participation. Globalisation is changing this. Globalisation has the potential to improve women's economic achievement. Increased employment opportunities for women in non-traditional sectors might enable them to earn and control income, provide a source of empowerment and enhance women's capacity to negotiate their role and status within the household and society.

Increased participation in the work force also implies increased hazards for women. Jobs outside the home tend to be the lowest earning, least secure, and most dangerous in the economy, especially in periods of recession that plague most developing countries.

In 2013, Rana Plaza, a garment factory outside Dhaka, Bangladesh, collapsed, killing at least 1127 workers. Over half were women. Bangladeshi women are often supporting large extended families, and working for the garment industry is often the only option other than working as a farm hand. Jobs in the garment industry do elevate their status, but women are often powerless in the face of dangerous working conditions.

The dearth of labour laws, or ignorance of enforcement of the labour codes in practice, allow for the exploitation of women. In Guatemala, women constitute 80 per cent of the textile factory sector, and thousands provide services as domestic servants. In both sectors, women have only a precarious claim on the rights to Guatemala's legally mandated minimum wage, work-week lengths, leave time, health care under the national social security system, and privacy protections. Often they are subject to physical and/or sexual abuse.

Though globalisation may have increased women's vulnerability and dependency, there is still hope that prioritising women's issues has yielded progress and will continue to do so.

Jane Eyre, from Governess to Girl Bride

ESTHER GODFREY

"Yes; Mrs. Rochester," said he; "Young Mrs. Rochester—Fair-fax Rochester's girl-bride."
—Rochester to Jane, *Jane Eyre*¹

Since its publication in 1847, readers of Charlotte Brontë's *Jane Eyre* have debated the subversive implications of this text. The plot conventions of Jane's rise to fortune and the marriage union that concludes the novel suggest conservative affirmations of class and gender identities that seemingly contradict the novel's more disruptive aspects. Despite the personal or professional motivations that led Brontë to conform the conclusion to sentimental norms, the novel continues to prove unsettling in its use of gender identities and its associations of gender with class and age.² Notably, while challenging gender identities, the text does more than simply transfer power from the patriarchal grasp of Rochester to the powerless hand of Jane, and it does more than feed post-Butlerian critical perspectives; the text highlights the anxieties and complexities of the Victorian understanding of gender by paradoxically dismantling and reifying nineteenth-century notions of masculinity and femininity. Masculine and feminine constructions in *Jane Eyre* ultimately cannot be separated from the larger gender anxieties raised by Jane's class position or from the "twenty years of difference" (p. 333) between the partners of the novel's marriage plot. Jane's roles as governess and as girl bride

¹Esther Godfrey is a doctoral candidate in English at the University of Tennessee. Her dissertation, "Gender, Power, and the January-May Marriage in Nineteen-Century British Fiction," examines the politics of older man/

Science

Economics

Literature

What project topics would these be useful for? Build one together.

Examples

Provide a different random academic article OR subject specific documents such as applications for research funding, abstracts, reports etc. each lesson to familiarise learners with both unfamiliar content and tone of the format and tone of different text sources



Antimicrobials: access and sustainable effectiveness 2

Understanding the mechanisms and drivers of antimicrobial resistance

Alison H Holmes, Luke S Moore, Anjolin Sundaraj, Martin Steinhilber, Sade Regmi, Abimbola Koluyi, Philippe Gustin, Lianne V Piddock

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See comments on page 110
e1, e2 and e3
See the editorial on page 10
This is the second of a 2-part series of papers about access to and sustainable effectiveness of antimicrobials.

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L.P. Moore (NPI), Norwegian Directorate of Antimicrobial Resistance, Department of Clinical Microbiology and Infection Control, University

Key messages

- The emergence of antimicrobial resistance is a natural evolutionary response to antimicrobial exposure. At a societal level, complex and interlinking drivers are increasing the prevalence of antimicrobial resistance microorganisms, predominantly arising from use in human beings and agriculture and the pollution of the environment.
- Acquisition of antimicrobial resistance mechanisms does not necessarily compromise microbial fitness. Widespread clonal spread and long-term persistence of resistant bacteria are also seen in the absence of direct antibiotic selection pressure.
- Reversibility of antimicrobial resistance after withdrawal of antimicrobial selective pressure is consequently not clear cut, minimisation of emergence of resistance to new and future agents through stewardship is essential.
- Gaining insight into the mechanisms of antimicrobial resistance, long-term persistence, and successful clonal spread, is fundamental to the development of novel targets for both diagnostic tests and therapeutic agents with integration of these into sustainable antimicrobial resistance strategies.
- Gaps in understanding and areas for innovation are clear, yet progress towards these goals is still largely limited, with a careful awareness of any potential effect on access to effective antimicrobial treatment.
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older man/

Science

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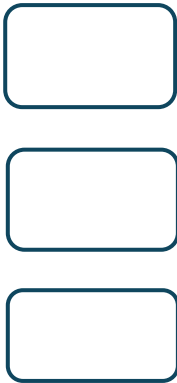
Economics

Literature

What project topics would these be useful for? Build one together.

Skim Reading

Adds an element of competition and improves student's ability to record information faster



Three empty rectangular boxes with rounded corners, stacked vertically on the left side of the page. These boxes are intended for recording information skimmed from the text.



The boxes on the left will move across the text.
Note down as much information as the box skims the text.

The Joy of Skim Reading

- Lessens the task.
- Opportunity to go over the basics: Don't use the intro, look for findings and declarative statements.
- Learners need to be told how to select from unfamiliar information.
- Especially difficult for STEM learners who are out of practice.
- PEE can help, but not if they analyse in the same way they did in GCSE English.
- What research did the researcher use?

Modelling



Antimicrobials: access and sustainable effectiveness 2

Understanding the mechanisms and drivers of antimicrobial resistance

Allison H Holmes, Luke S P Moore, Arnfinn Sundsfjord, Martin Steinbakk, Sadiq Regmi, Abhilasha Karkey, Philippe J Guerin, Laura J V Piddack

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Pages 102, 103, 104, and 105

See [Perspective](#) page 112
This is featured in [Series](#) of five papers about access to and sustainable effectiveness of antimicrobials

National Institute of Health Research Unit in Healthcare Associated Infection and Antimicrobial Resistance, and Department of Infectious Disease, Imperial College London, London, UK (Prof A H Holmes MD)

L S P Moore MPH, Norwegian National Advisory Unit on Detection of Antimicrobial Resistance, Department of Clinical Microbiology and Infection Control, University

To combat the threat to human health and biosecurity from antimicrobial resistance, an understanding of its mechanisms and drivers is needed. Emergence of antimicrobial resistance in microorganisms is a natural phenomenon, yet antimicrobial resistance selection has been driven by antimicrobial exposure in health care, agriculture, and the environment. **Onward transmission is affected by standards of infection control, sanitation, access to clean water, access to assured quality antimicrobials and diagnostics, travel, and migration.** Strategies to reduce antimicrobial resistance by removing antimicrobial selective pressure alone rely upon resistance imparting a fitness cost, an effect not always apparent. Minimising resistance should therefore be considered comprehensively, by resistance mechanism, microorganism, antimicrobial drug, host, and context; parallel to new drug discovery, broad ranging, multidisciplinary research is needed across these five levels, interlinked across the health-care, agriculture, and environment sectors. Intelligent, integrated approaches, mindful of potential unintended results, are needed to ensure sustained, worldwide access to effective antimicrobials.

Introduction

The increasing challenge to health care attributable to antimicrobial resistance, and the subsequent absence of access to effective antimicrobials, is of worldwide concern. There is a real threat that the public health gains from improved access to antimicrobials, including the improvements in childhood survival, could be undermined.¹ Understanding the scientific basis of antimicrobial resistance is essential to combatting the public health threat. This understanding should cover the resistance mechanisms, enabling novel approaches

to diagnostics and therapeutics, through to the drivers of antimicrobial resistance in society and the environment, essential for the development of appropriate interventional policies.^{2,3} The many factors contributing to the present worldwide status of antimicrobial resistance are reviewed in this Series paper, with a particular focus on emergence of resistance, transmission, bacterial fitness, and potential for reversibility. The evidence for, and the role of, important drivers of antimicrobial resistance are considered and assessed in the context of the community (including the environment and agriculture) and in health-care systems. Please see appendix for a list of supplementary references. From this evidence, stakeholders can engage with issues specific to their area of practice, yet also be mindful of cross-sectoral interconnectivity and the need for a One Health approach to antimicrobial resistance.

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- Reversibility of antimicrobial resistance after withdrawal of antimicrobial selective pressure is consequently not clear cut; minimisation of emergence of resistance to new and future agents is therefore essential.
- Gaining insight into the mechanisms of antimicrobial resistance, long-term persistence, and successful clonal spread, is fundamental to the development of novel targets for both diagnostic tests and therapeutic agents with integration of these into sustainable antimicrobial resistance strategies.
- Gaps in understanding and areas for innovation are clear, yet progress towards these goals is still urgently needed, with a careful awareness of any potential effect on access to effective antimicrobial treatment.
- There is no single solution and several, synergistic, overlapping, and complementing approaches will be needed, with a strong overarching shared goal to ensure and sustain access to effective antimicrobial therapies.

Effects of onward transition

Section specifically for key messages

Model how to critically select, identify validity/bias/reliability

Q&A for clarity

Reading with Artificial Intelligence

“In 20 bullet points, summarise this article.”

“What does the following article say about how antimicrobials are used?”



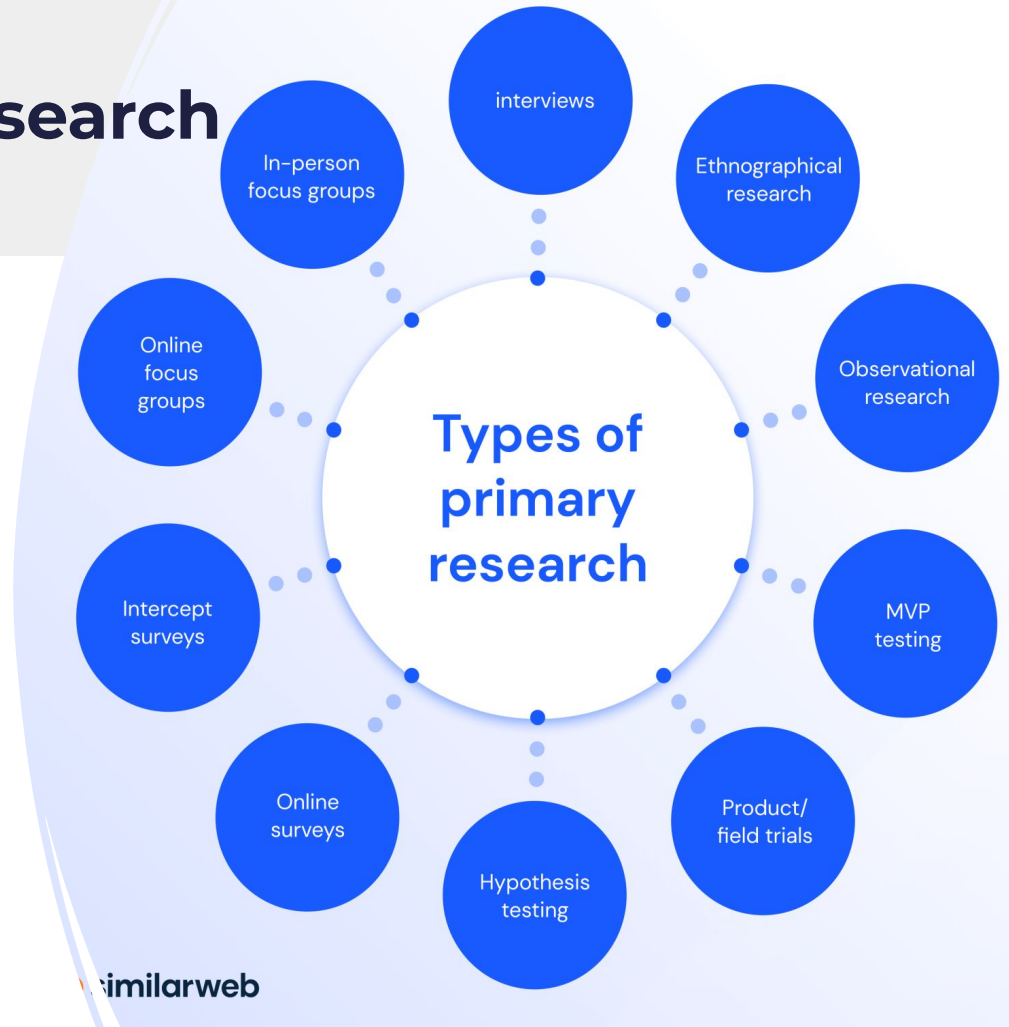
Conducting Their Own Research

- Opportunity for them to find their own relevant sources.
- Identify reliability/validity.
- Opportunity to start building bibliography or work in groups with subject specialisms.
- Introduce Harvard/other recognised reference system.



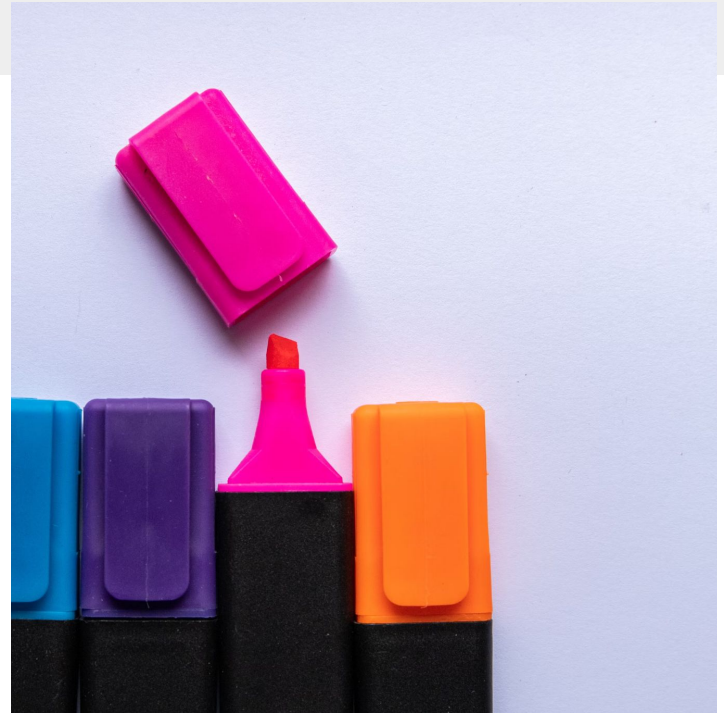
Lesson 2: Primary Research

- Need to understand the different types.
- Identifying what's missing or questioning findings from secondary research.
- Opportunities to collect.
- Confidence to pursue.



Independent Work

- “Find me...” and relate to Assessment Objective.
- “Find me a secondary research source in your bibliography that uses or refers to numerical data”.
- “Find me a source in your bibliography that demonstrates an element of bias”.



Modelling



- Examples of effective and redundant interview questions and surveys.
- Demographic targets.
- Endorsements/ensuring responses.
- Contacts.

Lesson 3: Synthesising Your Findings

Here is my topic, which is significant [because of this eye-catching fact or important detail]. It has been shown that [important finding about topic] (Author1, YYYY). Author2 and Author3 (YYYY) [additive transition: also] revealed in their research that [2nd important fact about topic]. [Relationship Transition], Author4 et al. (YYYY) have noted [3rd important fact about topic]. [Summative transition: Therefore], practitioners should know [insert connection of the importance of the topic to the overall argument the writer wants to make].

Questions for Generating Synthesis:

- What is my topic for this paragraph?
 - What is its significance to my overall argument?
- What researchers/sources talk about this topic?
- What are the important things my reader should know about this topic?
- What is the relationship between my sources? Do they agree or contradict?

Example of Synthesis:

The use of synthesis is important [because it strengthens a writer's overall argument]. It has been shown that [synthesis puts sources in conversation with each other, creating convincing consensus] (Valentic, 2018). Marshall and Valentic (2019) [also] revealed in their research that [synthesis of sources can make the author of a paper seem more credible]. [Moreover], Marshall et al. (YYYY) have noted [that synthesis is also needed to prove why the author's opinion matters through contextualization within prior research]. [Therefore], writers should know [synthesis is a higher order writing skill that yields higher quality arguments and powerful, persuasive written text].

Checklist for Synthesis:

- I introduced a clear topic in the first sentence.

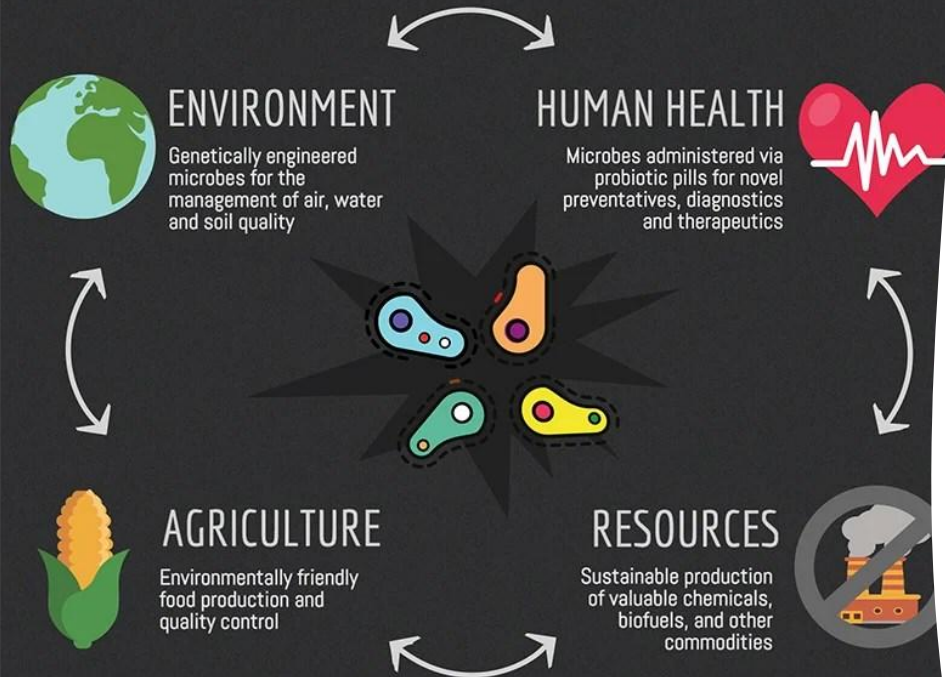
Learner-led synthesis

Connecting research by:

- Identifying similarities or trends.
- Observing gaps, misinformation or bias through use of additional sources.
- Responding to gaps within own research.
- Call on English GCSE e.g. infographics and get them to make their own as part of planning.

A Unified Microbiome Initiative

The coordinated initiative proposed in Science journal would empower development of novel investigative tools and collaborative research efforts to better understand microbes and how they could be harnessed through genetic engineering for a wide variety of beneficial applications



Padlet

How do you make academic reading more engaging for Level 3 learners?



Academic reading: Skimming, scanning, synthesising

Emma Williams

