RESEARCH PROJECT
WORKBOOK & GUIDE

NAME:

SACE NUMBER:

☐ **RESEARCH PROJECT A OR**

☐ **RESEARCH PROJECT B**

After reading the first 5 pages of this workbook you will decide to do Research Project A or Research Project B. Come back to the cover and tick or colour in the box next to the Research Project you select.

SASTA
South Australian Science Teachers Association

The research framework for Research Project has 4 parts:

1 Initiating and planning the research

2 Conducting the research

This becomes your **FOLIO**

3 Producing the research outcome

This becomes your **RESEARCH OUTCOME**

4 Evaluating the research

This becomes your **EVALUATION** if you are doing Research Project B

If you are doing Research Project A there is a **REVIEW**

This book is colour coordinated so you can go to the relevant colour tabs for each section of work and use the Table of Contents on the following pages.

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S3 Expression of ideas

Your first decision

Research Project A
OR
Research Project B?

THINK

What are your strengths? Writing or speaking?

DO

☐ Look at the next two pages and see what Research Project A and Research Project B ask you to do.

DISCUSS

Discuss the differences between Research Project A and Research Project B with your teacher/mentor.

DECIDE

Make a decision then go to the front cover of this book and select Research Project A or Research Project B.

Folio checklist

Go through this checklist, ticking each task when finished.

Tick the last column after your teacher has checked your work.

1. Plan your research		Page	Teacher check
P1	**Thorough consideration and refinement of a research question**		
	Brainstorm possible topics	22	
	Explore your topic	26–37	
	Start your journal	28	
	Develop guiding questions to help organise your research	40–43	
	Turn your topic into a research question	46–49	
P2	**Thorough planning of research processes that are highly appropriate to the research question**		
	Plan your research	55–56	
	Plan your proposal	57–61	
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D4	**Thorough and informed understanding and development of one or more capabilities**		
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	Write how Ethics relates to your research. Show development in your proposal, planner, journal and analysis of sources	89–94	
	Select mode of research outcome	95	
	Write proposal	96	
2. Do your research; analyse your research			
D1	**Thorough and highly resourceful development of the research**		
D2	**In-depth analysis of information and exploration of ideas to develop research**		
D3	**Highly effective development of knowledge and skills specific to the research question**		
	Source analysis: accuracy, bias, credibility, currency, relevance, reliability, validity	99–114	
	Interviews	115–117	
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We will now go through the Folio performance standards one at a time.

Still not sure where or how to start?

THINK

Think of

- a book or magazine you've read
- a podcast or YouTube video you've watched
- a film you've watched or a story you've heard
- an issue in your local community
- something you've observed in your own life
- an area of interest that you have not been able to explore yet at school

that has made you think, "I'd like to know more about that."

Idea generation: examples

What I saw	What I want to find out
The news and online reports Just how big is the giant Pacific garbage patch?	What does it look like? What technology is there to fix the problem? How do you encourage people and businesses to fix the problem?
The real estate channel How do I make money from doing up houses?	How do you get mould out of the bathroom? How do I fix big cracks in the walls? How do I fix big cracks in the ceiling? What designs sell quickly for a good price?
The news How to stop a nuclear waste dump in South Australia?	What can I do? How do I organise other people? Is it safe?
"Taken" the movie	Modern slavery
Star Wars: The Clone Wars movie	How scary will robots be? What can robots do now? What will they be able to do in the future?
Reading books Your family tree	How did Highland clearances affect South Australia? Why did Prussian people come to South Australia?
Scientific reports online/TV Climate change	What crops can we grow? What is food security?
Online performers How do I make money as an artist or a singer?	What skills do I need? What knowledge do I need?
Online movies How can I make a movie and make money?	What skills do I need? What knowledge do I need?

Write your own list of ideas

What you saw: movie, podcast, story, film, observation, local issue, book, magazine that you have seen	**What you want to find out**

THINK

Highlight the ones you still like.

Cross out the ones you don't like any more.

Turn your topic into a research question

The table below shows how to develop your topic into a research question through drafting.

Can you see how draft 1 improves in draft 2 and finally becomes a refined research topic at the end?

The third column explains why the draft is a better question than the previous one.

Topic	The Mary Celeste	Is this a research question?
Draft 1	Why is there a mystery about the ship the Mary Celeste?	• This question only asks why • The answer will be a description • The answer will not require many research processes • This is the first step from topic to research question • It sounds like a guiding question
Draft 2	What are the theories regarding the disappearance of the crew of the Mary Celeste?	• The question has more structure but is still in development • The answer will be a list of descriptions of theories • This question is not seeking analysis
Refined research question	To what extent is mutiny the most likely cause of the abandonment of the ship, the Mary Celeste?	• The topic has been refined to the likelihood of mutiny compared to other theories about the Mary Celeste. • Mutiny is provocative and the research is challenging and the researcher must have access to valid and reliable sources. • The research will require analysis of sources and then a judgment

Based on 'The Design of a Research Question', SACE Board of South Australia, 14 June 2013.

Is it a thoughtful, creative and focussed question requiring challenging and provocative research?

To determine if your question needs further refinement, look at the table below and aim for a ranking of 4. Level 1 is not very good, 4 is amazing.

Ranking	Thesis/Problem/Question
4	Student posed a thoughtful, creative question that engaged them in challenging or provocative research. The question breaks new ground or contributes to knowledge in a focussed, specific area.
3	Student posed a focussed question involving them in challenging research.
2	Student constructed a question that lends itself to readily available answers.
1	Student relied on teacher-generated questions or developed a question requiring little creative thought.

Project rubric adapted from Kathy Schrock's *Guide for Educators*
http://www.schrockguide.net/assessment-and-rubrics.html

How you can make your question a challenging, provocative and focussed question?

You could focus it in South Australia or your specific region of South Australia, the Northern Territory or Malaysia.

This means you can survey local people to gather new and focussed data.

- ☐ Look at the examples on the next page for how to refine your topic using guiding questions then fill in the table on page 49.
- ☐ Write about this process in your journal on page 51.

Use your key findings to structure your Research Outcome

How to write paragraphs

Last line of introduction tells the order of paragraphs.

First line of paragraph is the topic sentence.

TEEEL	
T	TOPIC sentence
E	Explain *You might need a definition*
E	Example *Give examples and refer to your research with footnotes or intext referencing.*
E	Elaborate
L	Link back to the question

This structure can be used to organise most, if not all, research outcome presentations

Your key findings become the topic sentences for:

- Each paragraph in your report/essay
- Each page in your PowerPoint
- Each section of your speech
- Each paragraph in your producer's statement to go with your artefact, manufactured article, work of art or literature

Every sentence that you write comes out of the sentence before it:

BIG IDEA macrotheme	Your Research Question (macrotheme or big idea)

Introduction	The first sentence of your introduction comes out of the research question. It is reworded to start the paragraph. The last sentence of the introduction tells the order of the paragaphs. (hyperthemes). These become topic sentences at the beginning of each paragraph.
Key findings hyperthemes	Each topic sentence of each paragraph comes from the last sentence of the introduction (hypertheme) The start of each sentence (theme) comes out of the end of the sentence before it (rheme) even when you are using TEEEL to make your paragraphs. This way every sentence relates back to the research question or macrotheme.
Conclusion	All of the key findings or hyperthemes are drawn together to answer your research question.

Look at the example on the next page and then start your Research Outcome on pages 189–193.

The successes of your Research Outcome

Be clear on what you were trying to do with your Research Project, then you can write or speak about how you achieved what you were trying to do.

Give detailed examples of how you achieved what you were trying to do

Example 1

What were you trying to do?

How did you do it?

Example 2

What were you trying to do?

How did you do it?

Critical evaluation of decisions

E2 Critical evaluation of decisions made in response to challenges and/or opportunities specific to the research processes used

500 words

- ☐ Write 500 words about the:
  - ☐ Key challenges you faced and the decisions you made to overcome them
  - ☐ Key opportunities you had and the decisions you made to take advantage of them
- ☐ Write briefly about the challenges and opportunities, focus on the decisions
- ☐ Write about the new learning that happened as a result of your decisions

You can use the scaffolding below or on the next page.

What got in the way of your research? What were the challenges?	What did you do to overcome this? What good/bad things came out of your decisions?