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MORAL, SOCIAL AND CULTURAL STUDIES



Grade
12

Moral, Social and Cultural Studies

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Grade 11

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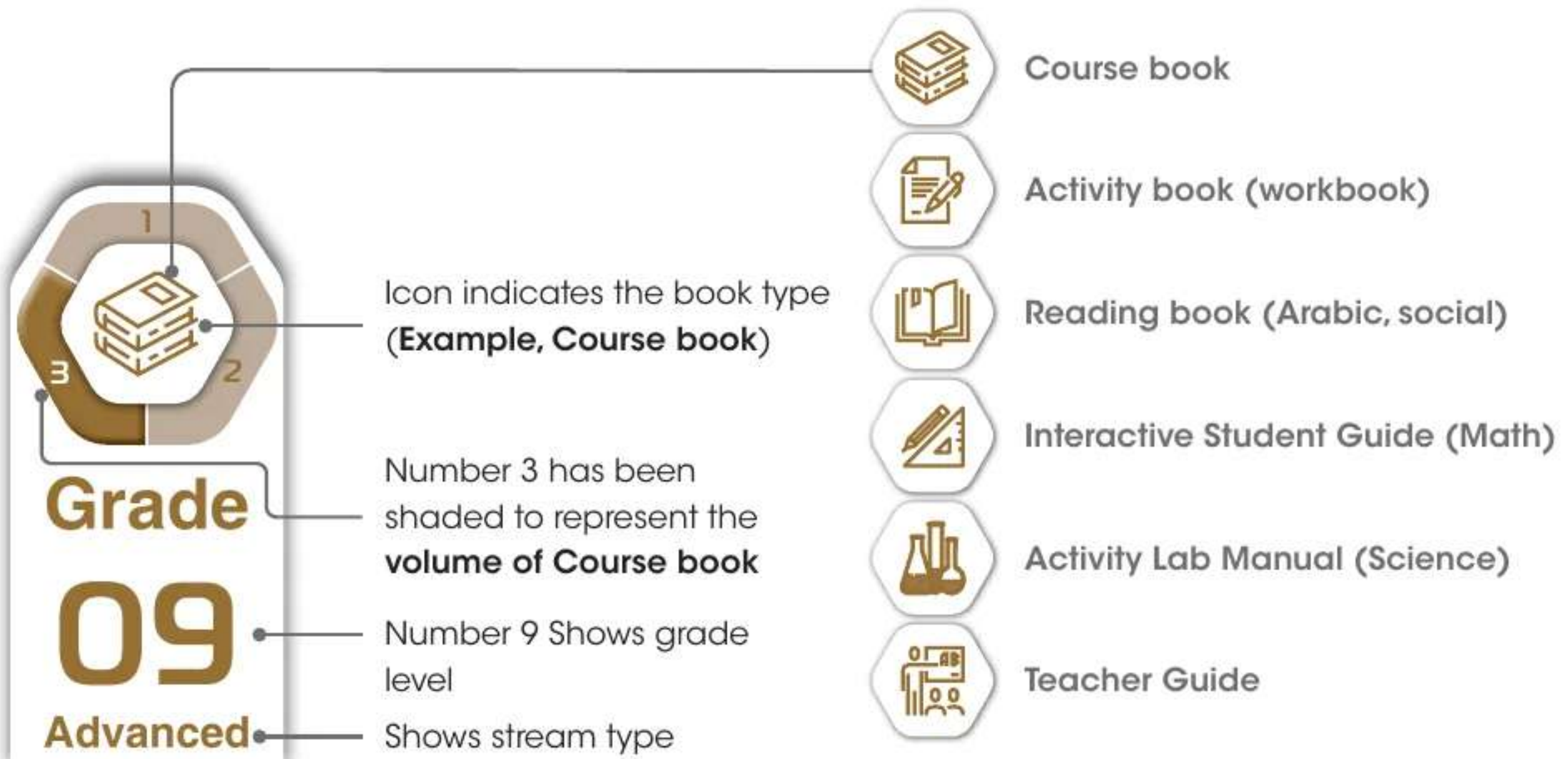


Those who take the lead take it by doing three things. First, science to be able to manoeuvre; second, knowledge to be able to heavily invest in education; and third, a very wise leadership with a clear vision and a roadmap to the right direction.

His Highness Sheikh Mohammed bin Zayed Al Nahyan

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Unit 4: Morality in Practice

Lesson 1: Introducing the Project	8
Lesson 2: Project Learning Outcomes and How to Achieve Them	15
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- **What should my project be?**
- **How do I demonstrate understanding of the key concepts in my project?**
- **How do I evidence the skills and strategies used?**

Lesson 1: Introducing the Project

- What will I be working on this term?
- Why is this work important?



Key Vocabulary

showcase

scope

evidence

civic

assess

academic research

artefact

performance art

This project is a requirement of the Moral, Social and Cultural Studies Programme (MSC). Towards the end of your studies, you are required to complete a project that draws together the pillars of the Programme and gives you an opportunity to **showcase** the learning and skills you have developed, based on the foundations of the Programme.

The project focuses on a topic of your own choice related to your learning on the MSC, and you will bring these components together by producing a project which brings morality into practice.

You will be required to **scope**, plan, design and complete a project that is significantly complex to allow you to **evidence** the following:

- Effective research
- Data analysis
- Presentation skills
- A critical understanding of key ethical considerations and concepts

You can do an individual project, or you can do a project as part of a small group. If you work in a group, you must be able to provide your teacher with evidence of the contribution you, as an individual, have made to the group.

The Pillars of the Moral, Social and Cultural Studies Programme

The MSC has four pillars of teaching and learning:

- Character and Morality
- The Individual in the Community
- **Civic** Studies
- Cultural Studies

These pillars are meant to complement each other. The curriculum you have been studying is underpinned by thinking, learning and communication skills designed to support your development and progression.

The key learning skills you will have been developing are:

- Handling and understanding information – collating, synthesising and managing information
- Thinking, solving problems, and decision making – reasoning, predicting, hypothesising, and finding solutions
- Being creative – being curious, learning from mistakes, and developing new ideas and ways of thinking about the world
- Working with others – teamwork and leadership
- Managing yourself – working independently, self-motivation, setting own targets and goals, reflection and evaluation

The Foundations of the Moral, Social and Cultural Studies Programme

The MSC Programme is underpinned by several foundations. These foundations represent personal qualities which the Programme has been designed to help develop over your learning period. These foundations are:



- Moral values: honesty, tolerance, respect, responsibility, thoughtfulness, harmony, courage, helpfulness, moderation, humility, kindness, consciousness
- Thinking, learning and communication skills: handling and understanding information, thinking, solving problems and decision making, being creative, working with others, and managing oneself
- Qualities of character: perseverance, cooperation, resilience, self-control, altruism, ambition, independence, hospitality, grit, self-confidence, discipline, wisdom, generosity, passion
- Interpersonal and societal competencies: solidarity, civic duties, respecting law and order, recognising societal diversity and inclusivity

The aim of the project, as a conclusion to your MSC learning, is to equip you with the skills, knowledge and thought processes that will assist you in:

- Living a moral life
- Becoming a responsible member of your community
- Becoming a global citizen

Through the project, you will be expected to reflect on the previous elements of your learning, and it will allow you to further:

- Critically **assess** your current moral perspective
- Reflect on changes you may wish to make to become a responsible member of society
- Explore ways in which your integrity may be challenged
- Explain how you can, as an individual, respond to these challenges

This part of the Student Book will be a guide to help you in thinking about, planning, preparing, developing and carrying out your project. It is not anticipated that you will have formal lessons when you are planning and preparing your project, and certainly not when you are producing your project, so this Unit is in the form of a guide which is broken down into sections which deal with different aspects of planning and producing a project.

Morality in Practice – Unit Description

The following is information that you must consider properly before embarking on your project. It is important that you take time to read and understand this rather than just rush to get started.

Activity 1: Thinking Task

Why do you think it is important to read and understand the preparation for the project and not just 'rush in'?

There are several options from which you can choose for your project. You have the individual opportunity to decide the focus of your study, and it should be based upon your own individual moral thinking, reasoning, and behaviour.

Project Style

The project can take any format that enables you to evidence what has been described and what you have done and learned as a moral citizen. Your project could be a research project, a practical project, or a combination of the two.

A research project could be:

- A piece of extended reflective writing on a subject of your choice based on the MSC content
- A piece of **academic research** that links closely to the next stage of your education or future career aspiration
- Research in more depth into a specific conceptual framework that you are studying for other qualifications at this stage in your learning
- An analysis of a piece of literature

A practical project might be:

- An **artefact** – such as a piece of art or sculpture
- A **performance art** piece, for example, poetry or a devised theatrical performance
- Voluntary work or activity undertaken in the community
- Organising an event
- A poster presentation covering a specific topic or concept
- A formal presentation to a selected audience

These are merely suggestions – your project can be what you wish it to be, and what suits best your style of learning and presentation. You should frequently discuss your project plans with your teacher to ensure that your project is suitable.

Top Tip

Either choose a style of project that best suits your preferred learning style or challenge yourself to do something that is outside your comfort zone. The first of these you will find easier to do, but somewhat harder to critically reflect upon. The second you will likely find harder to do, but much easier to critically reflect upon.

This guide goes on to explain in more detail what each of the project styles is, and how to develop each. The more detailed explanation may influence the type of project you decide to produce.

You will firstly need to justify your choice of project, both format and content, by presenting a short rationale stating what benefits this will bring to:

- your own learning and development
- others, for example, supporting the community

You should be prepared, at the end of your project, to share with others what you have learned through the development and completion of your project. In doing so, this will help you reflect on what you have learned and how this will prepare you for your future.

Working in Teams

You may work either as an individual or as part of a small group to produce the project. If you are working as part of a small group, you must, throughout the project, be able to identify and evidence your own individual contribution to the overall project. It is also important to show that you can demonstrate the contribution you can make to a team and that you have taken responsibility for the role you are playing as part of a team.

Teamwork is vital in all aspects of life. For example, in your school it is likely that the success of your education will depend in part on the teamwork demonstrated by your teachers, the senior managers and leaders of the school in setting the direction and policy of the school, administrators in helping the school run efficiently, cleaning and maintenance staff, catering staff and so on. All these people bring different skills and experiences but have to work together to help provide a high-quality education.

“



“Officials must encourage collective action and unleash the creative energies of young people, and guide them towards what benefits them and their society.”

Sheikh Zayed bin Sultan Al Nahyan
(May Allah have mercy upon his soul)

”

Top Tip

Never assume that because you have discussed what other members of a group will do, that they are doing this. A group project requires frequent review of progress to ensure that everyone is doing what everyone else thinks they are, to contribute to the overall project.

Lesson 2: Project Learning Outcomes and How to Achieve Them

- What do I need to complete my project?
- What can I use to help me complete this project?



Key Vocabulary

project

journal

time frame

time management

critical thinking

Activity 1: Thinking Task

How do you think that your project can help you to meet all the learning outcomes for the unit as a whole?

How to Achieve the Learning Outcomes

- Follow the advice in this guide
- Complete all activities fully
- Act on advice offered by your teacher
- Maintain records – use the tables and templates provided in this book
- Evidence everything you do that contributes to your project
- Select a project type and title that you are comfortable with, and confident about
- Remain reflective and honest about your progress
- Reflect on the journey you have taken and the learning you have gained as a result
- Reflect on the extent to which the project work has enabled you to live a more moral life

Top Tip

Check regularly with your teacher that you are progressing as planned.

A hand holding a large alarm clock, surrounded by various educational icons such as a lightbulb, calculator, globe, and mathematical formulas like $E=mc^2$ and $f(x)$. The background is a colorful, abstract splash of paint.

It is expected that this project will take you two terms to complete. The time allocated to the project will include the following:

- Unit 4: Morality in Practice

Top Tip

Always allow longer than you think each component will take to successfully complete to your very best.

Activity 2: Discussion Point

Discuss some of the key time-related factors that can influence the progress and completion of your project.

Project Journal

One of the things that will help you manage your time and workload is a project journal. The journal will not only help you plan but can also be submitted with your project as evidence of your planning and time management. Your project journal should show evidence of the following:

- Focus and method
- Project management
- Knowledge and understanding
- **Critical thinking**
- Reflection on process
- Good use of presentation skills
- Engagement with the topic

Activity 3: Thinking Task

One of the key skills you will have to demonstrate through your project is 'critical thinking'. What do you think critical thinking means and how might you show evidence of critical thinking in your project?

The journal will be individual to you and your project content and type. This should be discussed and agreed with your teacher to ensure that it is appropriate in terms of length and type.

Your project will come together piece by piece and the success of it will always depend on you doing the following properly:

- Planning
- Recording
- Reviewing

A **project journal** is one way to check that you are adhering to these three important elements of preparing your project.

A project journal is like a diary which records what you have done, when you did it, and what the results were, as well as being a chance to write down your reflections on what you are doing. For example, on October 5, you might have written an email to a government organisation asking for permission to use an image of Sheikh Zayed bin Sultan Al Nahyan (May Allah have mercy upon his soul) in your project. Recording this is evidence that you have carried out the right procedures. You may get an email reply three days later

acknowledging your request and can record this as well. Then a week later, you may get a further email which includes an attachment of the image. Again, this can be recorded in your journal.

Your project journal shows how you have undertaken your project and is about the *process* of creating your project not about the *content*.



Maintaining a journal during the time you are carrying out your project is a useful way to record how the project developed and helps in providing evidence of the research and thinking you undertook as part of the project development.

Maintaining your project journal will help you to do the following:

- Keep to timescales and deadlines
- Keep on top of tasks you have set yourself or have been given
- Provide a focus for discussions with your teacher
- Record and remember the advice and guidance you have received
- Record when, where and how you have developed a skill
- Record all activities related to your project
- Make a note of and keep a record of the resources you may need for a particular day
- Identify and record places and locations which you interacted with or visited on a particular day
- Plan the **time frame** for a day in which you have appointments or commitments related to your project

- Note the people you may need to contact as part of your project along with their contact details
- Reflect and comment on what happened while you have worked on your project during the lesson
- Note important updates
- Note key challenges
- Note next steps

Your project journal also allows you to show how you have made decisions, overcome any difficulties, and reflected on your work.

The following is a template and example entries for a project journal. You will devise a format for and complete yours according to the timescales and plans agreed with your teacher.

Table 1: Project Journal Template

This week's focus _____	
Date _____	
Research _____ _____ _____ _____ _____ _____ _____ _____	• List the areas you are researching • Make a note here of any research materials you have used and where you can find that information again. Put in: Author, Date, Title, Publisher, Edition, and Page numbers • Indicate when and where you accessed the materials Example: <i>This week I looked at... I recorded... and thought how to include this in my project.</i> <i>The source of the material was: A.N. Author (2017). Research Methods for Project Work 3rd edition. Book Publishers Limited. Pp 34–43.</i>

Skills 	Include any skills work you have undertaken. Example: <i>This week I learned how to create and use a Gantt chart. I managed to download a template from this site: https://www.smartsheet.com/blog/where-do-you-find-best-gantt-chart-spreadsheet-templates</i>
Discussion/tutorial with my teacher 	Include discussion with and advice from your teacher. Example: <i>My teacher suggested that I need to make sure I keep on track as I have missed a deadline. To do this I intend to...</i>
Reflection of learning/progress/research 	Include what you think went to plan or worked out particularly well, what was problematic and, most importantly, what you are going to do about it. Example: <i>I have learned that I am not good at balancing my time and I need to revise my planning for my project. One thing I have noticed is that I get distracted easily when I am working at my laptop on my project, so I am going to ensure that I do not have a web browser open and switch off my social media for one hour at a time to help me focus.</i>
Notes and planning for the future 	Put in here what you will do next. Example: <i>I will create a weekly time management planner to help me meet deadlines.</i>

Lesson 3: Key Information – Deadlines and Timescales

- How do I divide my work into manageable steps?
- How should I plan my time while working on my project?



Key Vocabulary

timescale

interim

deadline

introductory

manageable

Managing a project requires a set of **timescales** and **deadlines** to be set and agreed. Your teacher will have these planned in advance.

With an understanding that much of the work you will be doing is independent, it is essential that timescales and deadlines are agreed in advance, but they also may be adjusted according to the progress you are making with your individual project.

At the **introductory** stage you will be issued with deadline dates which allow you to take **manageable** steps towards the production, presentation and/or submission of your final project.

In this guide, there are templates for you to record your activities including one-to-one progress tutorial discussions with your teacher. Your teacher also has recording sheets for recording your one-to-one support including the issues raised and feedback given.

The timescales and deadlines that are set will have been determined by your teacher to include the following:

- Introducing the project
- Early planning sessions – these will be teacher-led sessions
- Introducing skills – group activities
- Introductory student presentations
- **Interim**/draft deadlines
- Project research time for you
- Final presentations and project submission

One-to-one interventions may be more spontaneous. You may identify a need for support and advice as your project is developing. Alternatively, it may be scheduled as a follow up to a group activity or a draft submission deadline.

Your teacher will produce a calendar or outline scheme that is distributed to you in an early project session to aid your planning and understanding.

Activity 1: Thinking Task

Benjamin Franklin, the American polymath and one of the founding fathers of the USA, is reputed to have said: "If you fail to plan you are planning to fail". Why do you think planning is such an important part of the process in producing a project?

Top Tip

Keep the dates and deadline information safe and refer to it regularly to check your planning and progress. Keep information safe by ensuring you have backed up documents to a separate storage device such as a memory stick.

Unit 5: Background Research

Lesson 1: Introduction to Research Methods 28

Lesson 2: The Research Proposal 42

Lesson 3: Literature Review 57



- **What research methods and strategies will I need for my project?**
- **How do I develop the research proposal for my project?**
- **How do I keep track of the sources I used for my research?**

Lesson 1: Introduction to Research Methods

- What is academic research?
- What are the different stages of research?



Key Vocabulary

systematic
stakeholder
literature
sustainability
deplete

resources
irreplaceable
renewable
conserve
food security

Activity 1: Thinking Task

You have probably done some form of research before in your schools. What is your understanding of research? Put a definition in the middle box. Then complete the mind map below with your ideas. Add extra boxes if you have more ideas.



Why Do Research?

Can you imagine a world where nothing changes? Imagine there were no new breakthroughs in medicine or science. Imagine if space exploration and the automobile industry were the same as when they began. It is difficult to imagine, but this is what our world would be like if we did not engage in research. So, what is the purpose of research? Among other things, research creates the need for action and change. New knowledge and insight from the results of these studies allows researchers, scientists, doctors, teachers, and engineers to progress and to understand more about the world in which we live.

Research allows researchers to build up a bank of knowledge and information, discover new opportunities, prove theories, share valuable information, aid in the success of business, and above all, exercise the mind.

Research is a highly specialised activity that involves a systematic collection of information, which is then analysed. This enables research questions to be answered and results evaluated. As the new generation of entrepreneurs, scientists, astronauts, teachers, and engineers, it is critical that your desire for knowledge is deep, and your curiosity is sparked to encourage you towards discovery and learning. This desire for knowledge and natural curiosity will lead you to develop and continually improve the world in which we live. The question is: What are you interested in discovering?

Understanding Society

A society is simply a series of interrelationships that exist between individuals, groups, and institutions. Think about the city you live in. What makes up the city? What makes up schools, hospitals, shops, government, family? All of these are social institutions that together make up what we call society.

The subject of social studies is a social science, which is a study of society and its institutions. We are all stakeholders in our society, so it is in our interest to understand how it works (a stakeholder is anyone connected with a phenomenon, in this case society). As discussed, research is concerned with people carrying out methodical investigations or studies to establish facts and draw conclusions. Therefore, with the use of research, social science enables us to explore, analyse and understand these social institutions and society as a whole.

When we study society and its many institutions, we might want to understand their performance or effect on people. For example, schools carry out research regularly on the effectiveness of their courses and their impact on



student performance. Government regularly conducts research to see if their services are serving the needs of the people as intended. Although reasons for carrying out these types of research and their use might be different, all of them are a part of social science.

Research can be used to review and better understand existing knowledge to provide solutions to problems. This can be for a specific situation, for example, how we provide the best learning environment in the library. Alternatively, it can be for more complex and vague issues, for example, what jobs are people most likely to have in the future. This book will help you to research an area of importance for the UAE society. You will be looking at a problem to understand it and to develop some possible solutions.

✓ Activity 2: Checkpoint

Use the text above to answer the questions.

1. What is the definition of research given in the text?

2. According to the text, what is the purpose of research? (Choose all the correct answers)
 - A. Add to the overall understanding of an area
 - B. Raise your status as a researcher
 - C. Develop new ways of doing things
 - D. Prove that we are doing work
3. Why do we analyse information from our research?
 - A. To get more information
 - B. To write our research questions
 - C. To answer the research questions
 - D. To show it was useful information
4. According to the definition of society and social studies in the text, which of the below is a social science?
 - A. Physics
 - B. Politics
 - C. Arabic
 - D. Engineering

Activity 3: Thinking Task

The reading text above describes how developments in many areas have been possible because of research.

1. One example can be the telephone. How have telephones developed over time?

2. What research do you think was needed to help with the development of the telephone? Use the pictures below to help you, then complete the boxes below.



**Main
Developments**

**Research Needed
to Make the
Development
Possible**

✓ Activity 4: Checkpoint

As we read in the introductory text, research is a systematic activity.

Systematic: it follows a clear and structured process with different stages.

During this term you will look at and practice all of the stages of conducting research. As an introduction, the diagram below outlines the different stages involved in a research project.

Look at the stages below numbered 1 to 8. These are in the commonly accepted order. However, the descriptions A-H are not in the correct order.

Match the descriptions a to h with the correct stage 1 to 8.

Stage	1	2	3	4	5	6	7	8
Description								

1. Selection of topic	A. You need to outline specific questions that will help you find answers and solve the problem you have identified earlier.
2. Reviewing the literature	B. This is a lengthy process where you have to read and find sources that develop your understanding of the topic, what has been done, what worked and what did not. Then use these sources in your bibliography.
3. Problem statement	C. Once you have collected your data you need to look carefully at it. We will look at the different tools and techniques available for analysing both qualitative and quantitative data.

4. Research question	D. You will start with some direction from your teacher, but this will be the area of your research. This might continue to evolve and change as the project develops.
5. Research design	E. Lastly, you draw findings based on your analysis and present them in the paper and/or presentation. These findings must be supported by the data and contrasted with your literature review.
6. Data collection	F. Specify the issue you are trying to understand or research. Why is it a problem in the first place?
7. Data analysis	G. This is the how and when. How will you get your data (for example, a questionnaire or interview) and when will you do it?
8. Conclusions	H. At this stage, you need to identify the methods that are best suited to answer the questions you have asked. You will also need to identify the types of data (quantitative or qualitative) and where this data will come from.

What are some important issues in current UAE society that we need to research to find more information and solutions?

[illegible]

Sustainability

Sustainability is the new buzzword, but it means different things to different people. For our purposes, a good definition would be:

Sustainability is the way to meet the needs of today's society without causing environmental changes that will make later generations suffer. It is the maintenance of an ecological balance, so that the quality of life does not decline for us, our children or our children's children.

In order to achieve this, we have to make sure that we do not deplete, or use up, the world's natural resources. This means we protect what we have and look for alternative solutions where we might be using something that is irreplaceable.



How do we achieve this? We ensure we use renewable resources. This means we stop using fossil fuels like oil, gas and coal, which once used are gone forever. Instead, we

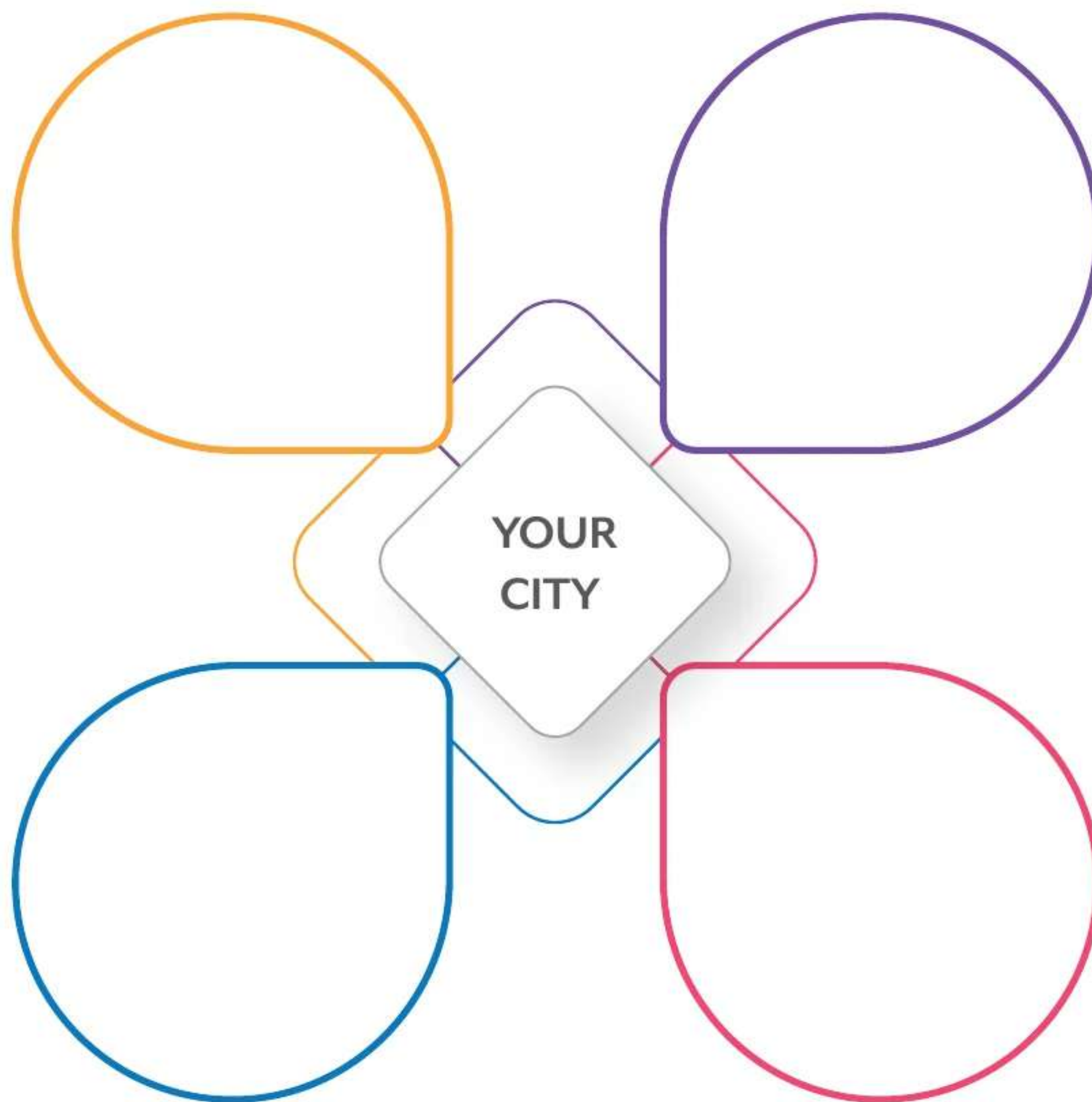
switch to solar power, wind turbines, electric cars, paper straws, and so on. We avoid using materials like plastic, which once made is difficult to re-use. Instead, we look to use materials that are easily recyclable. We stop polluting our seas and cutting down our forests which will take years to recover. We work together to stop damaging our planet with harmful chemicals to stop global warming.

So, we look at how to stop waste, to conserve what we have, to recycle rather than throw away.



Activity 6: Thinking Task

Think of where you live in the UAE. In groups, brainstorm what can be done to make your city/area sustainable.



Activity 7: Discussion Point

Think again! Look at the questions below. Did you think of these things as well?

1. Did you consider water as non-renewable? Is it? Is it recycled?
2. Did you consider cutting down on electricity or water use? How do you do this?
3. Did you consider making your homes more energy efficient? How can you do this?
4. Did you consider everyone switching to electric cars? Where will that electricity come from?
5. Did you consider developing public transport? What areas would it cover?
6. Did you consider the use of plastic bags? What would you use instead?
7. Did you consider where your food comes from and how it gets to your table? How can a country increase its food security?
8. Did you consider short-term fashion (clothes that are fashionable for a short time and then discarded)? What happens to the clothes that are thrown away?
9. Did you consider our reliance on the IT and Internet and the waste created: hardware discarded every 5 years because it's out of date, the built-in obsolescence of devices like iPhones, Bitcoin mining and the energy involved, etc?
10. Did you consider the garbage we create and what happens to it? If we bury everything underground, does it just disappear?

Activity 8: Action Task

Choose 3 of the questions in Activity 7 and in your groups, think deeply about what effects these things have, and see if you can come up with any solutions. Be prepared to present your answers to the class and answer any questions that they may have for you.

Question: _____

Effects

Solutions

Question: _____

Effects

Solutions

Question: _____

Effects

Solutions

Activity 9: Action Task

You have now looked at a variety of areas where sustainability can be investigated. This term, you will be learning how to conduct research for a report or give a knowledgeable, informed presentation on the topic of sustainability.

You will be working in a small group for this. Your teacher will tell you which group you are in.

In your group, select one area of sustainability that you will be working on for the next 8 weeks. It could be an area in one of the



questions above, or it could be a different area of sustainability. Your teacher will check the area you have chosen.

Next lesson you will start work on the research process. To help you prepare for next week, use your ideas above and brainstorm anything related to the topic area your group have chosen. Try to think widely – the more widely and creatively you brainstorm, the more it will help you start to focus your research next lesson.

Lesson 2: The Research Proposal

- What is the difference between a problem statement and research proposal?
- What is the purpose of the reflective research journal?



Key Vocabulary

focus

research questions

specific

research proposal

problem statement

complex

variables

Activity 1: Thinking Task

In the previous lesson you were introduced to the research topic of sustainability. In this lesson we will focus on the research questions you want to answer in your research project.

Before we do this, let's get some general questions about sustainability. In a small group brainstorm different questions the issue of sustainability raises. Try to focus on the three areas of sustainability you looked at in the previous lesson.



Preparing for Research

Once you have identified a general research topic, you need to fine tune these ideas and give your research a narrow focus. This means making your research specific. A narrow focus will make it easier for you to plan and carry out your research. This lesson further develops your understanding to prepare you for research. When planning a research project we need to think about four specific questions. One is what exactly it is we want to research. Secondly, we need to give good reasons for doing the research. Thirdly, we need to say what research methods we will use in our research. Lastly, we need to plan the time and order of doing things.

What Is a Research Proposal?

A research proposal is a summary of your proposed research. It sets out the central issues or questions that you intend to investigate. It outlines the relevant general area of knowledge referring to the current studies and any recent debates on the topic. It should also show that your research project is original and new.

The proposal is the most important document in your research project. It gives you an opportunity to demonstrate that you have the skills for carrying out the research, for example, by demonstrating that you have the ability to plan your time, decide on the best way to collect data, and critically analyse what you have discovered. The proposal also helps your teacher to identify areas of weaknesses and to redirect your project if necessary.

✓ Activity 2: Checkpoint

The text above says we need to consider four questions before starting our research. Match the question to the correct explanation.

Question	Explanation
What are you going to do?	This is like an action plan, which outlines different stages of your research plan.
Why are you going to do it?	You need to think about the different research methods you will use to conduct the research. Who will be involved in your research (research sample)?
How are you going to do it?	This means you must identify a specific thing you want to research. Identifying a specific topic enables you to narrow your research focus.
When are you going to do it?	This is where you try and justify your research. Here you might outline the benefits of researching the topic you have chosen, which people or institutions might it help and why.

Activity 3: Action Task

Use the questions to help you focus on your research project. In your group think about the answers for your project. You can change these later but doing it now will help give you a focus.

Questions	Your Research Project
What are you going to do?	
Why are you going to do it?	
How are you going to do it?	
When are you going to do it?	

Problem Statements

A problem statement is a clear description of what you are looking at. Often this is a problem that needs to be investigated or understood. The problem statement also includes what you hope to achieve by researching this problem and the method used to solve the problem. This is written as a statement which will also keep focus on the main issue or problem you are researching. A problem statement should have three main parts as described in the table below.

Table 2: Problem Statement

Statement Parts	Description
Vision	This is the big picture. What do you hope to achieve by doing this? How would things be different? How would this benefit the world?
Issue statement	This is the main body of the statement. You need to use one or two sentences to describe the problem. This needs to be very specific to allow you to focus your research. You can mention what we do not know, why we do not know it and why this is a problem.
Method	This is simply the method you will use to find answers to the problem you have mentioned. This is not a step-by-step commentary, instead a general overview of the approach you will adopt.

Importance of a Good Research Question

This is the question you are going to make your research about.

It needs to be prepared early on, but it may be revised and rewritten as you learn and understand more about any existing research. In this lesson, we will look at how to write questions that will help you with your research.

There are some ingredients all research questions should have. First, you need to be sure that your research question is



as clear as possible, so it can direct you, the researcher, with your research. Someone reading the question should easily be able to understand what you are going to do. It is also important for your research question to specify the time and resources required. In research, we call this having a narrow focus, which also means the research topic is realistic.

Finally, think about whether your research question is complex enough. Research questions often begin with the words 'how' or 'why' to encourage deep thought, honesty, and encourage analysis and synthesis. This is because some questions do not really need to be researched or have obvious answers available. For example, there no point asking whether people like pizza. Instead, it might be better to ask how many people like pizza for lunch in my school. You can increase the level of complexity by adding different variables, such as different types of pizzas or times of the day when people eat it. You can also increase focus by specifying the sample or reducing variables; perhaps focusing only on Grade 11 students. In this way you should try to find a balance, but always ensure your research questions include these basic ingredients.

✓ Activity 4: Checkpoint

The reading text says that a problem statement should have three main parts. In your own words describe what these three parts are.

Statement Parts	Description in Your Own Words (1 Sentence)
Vision	
Issue statement	
Method	

✎ Activity 5: Writing Task

Use what you learnt in the previous activity to write a problem statement. Keep the problem statement short by explaining it clearly in 2 or 3 sentences.

Activity 6: Thinking Task

What three important things mentioned in the reading should you consider when writing a good research question? Why do you think they are important?

1.	2.	3.
Why is it important?	Why is it important?	Why is it important?

Activity 7: Writing Task

Work with your research group. Use the three points in Activity 6 to help you write the research question(s).

Activity 8: Action Task

Now you have some initial ideas for your research project, you are going to develop a short research proposal. You will share this with your class in a short presentation. The purpose is to get some feedback on your research before you start.

In your group use the poster template below to put together the ideas for the research proposal. (Note: an academic research proposal is much more detailed than this, but for this project we will use the shortened format outlined below.)

- Research Title: This should be clear and use key words that describe your research focus.
- Research Problem: Use the one you wrote in the earlier activity. Check it to make sure it is clear.
- Research Question(s): use the question you developed earlier and check that it is:
 1. Clear
 2. Focused
 3. Complex
- Research Importance: Here you need to describe why you want to do this research. Why do you think it is important? What benefits might it have?



Research Title:

Research Problem:

Research Question(s):

Research Project members:

Why is your research important?

Activity 9: Action Task

Each group will briefly present their research proposal for up to 2 minutes.

As you listen to the other groups, use this as an opportunity to develop your knowledge about the research topic. Some of the other groups may have identified problems that could help you understand your own specific research project better.

Complete notes in the tables below as you listen.

Group 1	
Problem	Research Question

Group 2	
Problem	Research Question

Group 3	
Problem	Research Question

Group 4	
Problem	Research Question

Group 5	
Problem	Research Question

Group 6	
Problem	Research Question

Group 7	
Problem	Research Question

Group 8	
Problem	Research Question

Activity 10: Self-Assessment Task

When you work on a research project, you will encounter various difficulties or face unexpected situations. This is normal and learning from these events is important to:

- help you become aware of your own strengths and weaknesses
- use your experiences from these events to help others who may encounter the same situation.



At the end of this term, once the research project is completed, you will be asked to reflect on the project as a whole. Therefore, make sure to take 5 or 10 minutes to write down some points at the end of each lesson. This could be on anything such as things you have to do, skills you have had to use, people you had to work with or the time you had to do things.

Our reflective research journal will have three areas:

- Situation (What has happened?)
- Impact (How did it affect you and what you were doing?)
- Result (What did you learn from this situation? Did you change something in your or other people's behavior?)

Look at the example descriptions below from a student's reflective journal. Choose the correct area each description best relates to.

1. *I learnt that even if things are busy, it is important to have a quick check to make sure things are still clear. Also, I went to the teacher for help and he explained the notes to me, so learnt that we can approach others for help and support.*
 - A. Situation
 - B. Impact
 - C. Result
2. *I felt frustrated because I had the notes but couldn't understand them. I realised that I should have looked at them quickly in the class, so I was annoyed with myself.*
 - A. Situation
 - B. Impact
 - C. Result
3. *I was very busy at the end of a lesson and one of the group members on my project gave me some research notes to write up. I quickly put them in my bag to do at home. When I looked at them at home, I could not understand what had been written. I tried to contact the other group member, but he was traveling with his family and could not be contacted for a week. I needed to write up the notes before the next class to submit to the teacher.*
 - A. Situation
 - B. Impact
 - C. Result

Activity 11: Self-Assessment Task

Now, we can try writing our first entries in the reflective journal. Describe everything from what you did this week on research problems, questions and a research proposal to what you found difficult or unexpected. Was there anything valuable you think you learnt?

Spend 5 to 10 minutes and write one or two entries.

Reflective Journal	
Situation	
Impact	
Result	

Lesson 3: Literature Review

- What is the difference between primary and secondary research?
- What is plagiarism, and why are research ethics important?
- How to use an annotated bibliography?



Key Vocabulary

sources
literature review
secondary
primary
annotated bibliography

relevant
referencing
research ethics
plagiarism
citation

Activity 1: Thinking Task

If you want to find information about a topic, where would you get it from? There are many different sources of information. Try to think of at least 6 different sources. What types of information would they give you?



The Literature Review

The literature review is also called background research or secondary research. It shows that the researcher has a good knowledge of the research area and the proposed research topic.



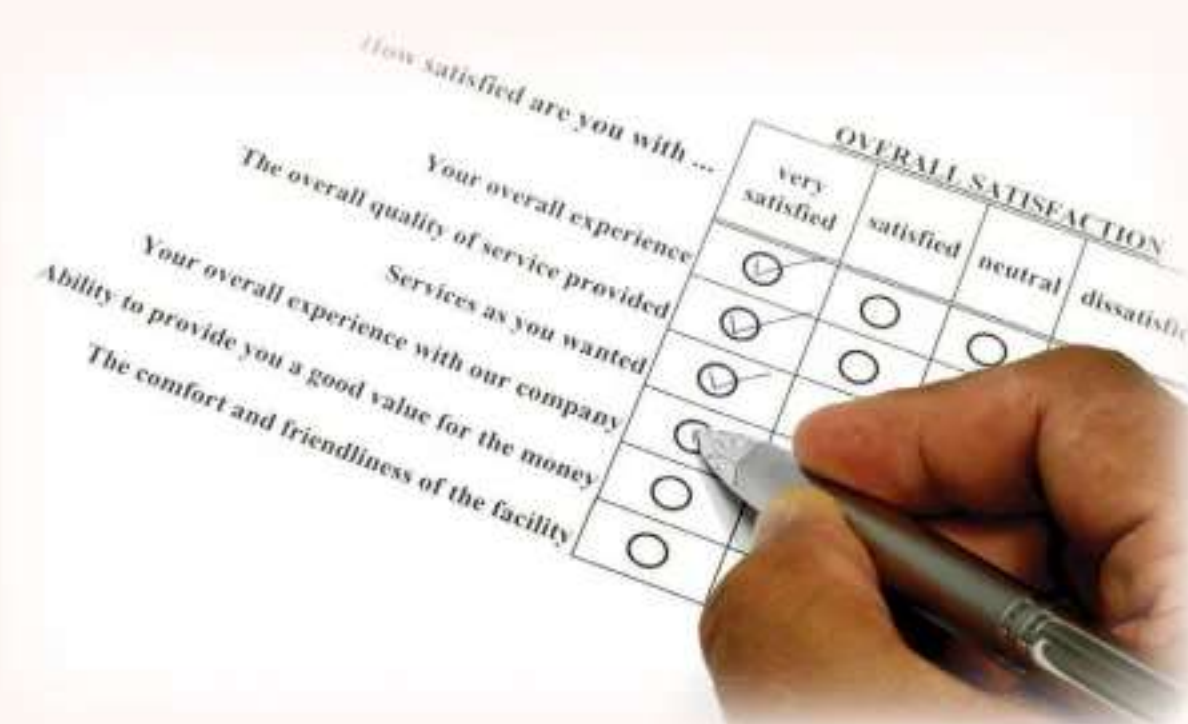
The famous scientist Ibn al-Haytham once said, "If learning the truth is the scientists' goal, then they must make themselves the enemy of all that they read." This basically means that we must search for ourselves. Not all written information can be trusted. We must read critically. You must have a good understanding of what other people have found in relation to your research problem.

Carrying out an effective literature review enables students to talk knowledgeably about their chosen topic. Students will know about the past, present developments and future direction in their area of research. Equally importantly, they can find out about whether similar research projects were carried out in their country, region or around the world. This can be a valuable resource when comparing findings or even when trying to decide on your own research methods.

Earlier we said the literature review is also called secondary research. What is primary and secondary research?

Primary research is first-hand information collected to answer a specific question. Primary sources represent first-hand evidence that researchers collect for themselves, for example, observations, interviews and even official speeches, among many. It is important

for researchers to use primary sources wherever possible as having a first-hand experience of the topic encourages deeper engagement, active analysis and thoughtful responses. In addition, analysing primary sources fosters critical thinking through examining meaning, analysing results, measuring bias and understanding different points of view.



In contrast, secondary research means the sources where the information has already passed through someone else. Examples of such second-hand information are newspaper articles, journals and market reports, among others. A case in point is the Federal Competitiveness and Statistics Authority in the UAE, which is an excellent source of information on the economy, social indicators and the environment. Secondary research can be a quick and an easy way to find answers and even provide guidance for your research project. However, because this is information gathered by someone else for his or her own purpose, you cannot always be sure about the accuracy of the information. This also means you have to try to fit the information within your own research, which is not always easy.

In reality researchers tend to use a mix of both primary and secondary sources. For example, if you wanted to find out about what grade 12 students thought of the new timetable you might look at the schools records for how many grade 12 students there are (secondary research) before conducting interviews to find out student views (primary research).

✓ Activity 2: Checkpoint

Using the reading text above, answer the questions.

1. What is the purpose of a literature review? Choose all answers that are correct according to the text.
 - A. To summarise previous research
 - B. To evaluate previous research
 - C. To help with creating research questions
 - D. To help you to do the same research
2. In your own words, define primary and secondary research.
 - A. Primary: _____
 - B. Secondary: _____
3. Which research can help us to find possible answers in a quick way?
 - A. Primary
 - B. Secondary
4. Which research can give deeper understanding of an issue?
 - A. Primary
 - B. Secondary

Activity 3: Thinking Task

Look at the descriptions below. Does the information come from a primary or secondary source? Explain why.

Description	Primary or Secondary?	Why?
You interview a director of a college about innovation programs.		
An article in a journal describes the results of research on innovation courses.		
You get some information on numbers of students in the UAE from the UAE government official website.		
You do a survey with some students to see what they know about innovation.		

Activity 4: Research Task

To start a literature review, we need some key words to help us find sources that may be useful. For example, if our research question was 'How have online shopping habits changed for Emirati households since the Covid-19 pandemic?', we might use these key words to get started:

- Online shopping 2019
- Online shopping 2020
- Covid-19 shopping
- Emirati shopping habits

Based on the research problem and research question(s), brainstorm some key words that connect to these for your research project.

Getting Started: An Annotated Bibliography

Having decided on your research topic, you will need to begin your research by looking for useful sources of information. In the early stages of your research, you will often be asked to provide an annotated bibliography so that your teacher can check that you are on the right track. They need to see that you are finding sources that are accurate, current, relevant, and have proper authority (ARCA).

What is an annotated bibliography?

An annotated bibliography is a list of your sources with a brief summary of each source and comments on the ARCA criteria. This is an important step before you start on your research as you may decide to change the topic if you cannot find the sources you need, and your teacher can advise you on the usefulness or otherwise of the sources you have found. Compiling an annotated bibliography helps you focus, especially if working in a team and is an important step to ensure correct referencing in your work.

Contents of an annotated bibliography

An annotated bibliography starts with reference details and is followed by a brief summary of the work. The works should be arranged in alphabetical order. You can compile your list in Word and insert it from there as it will automatically sort the order for you.

Your annotated bibliography should contain some, but perhaps not all, of the following elements:

- The full bibliographic reference (ESSENTIAL)
- The background of the author(s)
- The main point of your research project
- The relevance or usefulness of the text for your research
- The reliability of the text



- The date the material was published
- Any special features of the text that were unique or helpful (charts, graphs etc.)
- The strengths and limitations of the text
- Your view or reaction to the text

ARCA

Not all sources of information are equal. For example, we cannot necessarily be sure we trust information from all websites. Before we use a source, we should decide if it is a reliable source we can trust and want to use. To help us do this we can use ARCA.

ARCA stands for Accuracy, Relevancy, Currency, Authority and the details are shown in the table below:

Table 3: ARCA Criteria

ARCA Criteria	
Accuracy: reliability, truthfulness, and correctness	• Where does the information come from? • Is the information supported by evidence? • Has the information been reviewed or refereed? • Can you verify any of the information in another source or from personal knowledge? • Does the author write this to inform or persuade? • Are there spelling, grammar, or other typographical errors?
Relevancy: importance of the information for your topic	• Does the information relate to your topic or answers your question? • Is the information at an appropriate level (i.e., not too elementary or advanced for your needs)? • Have you looked at a variety of sources before choosing this one?
Currency: timeliness of the information	• When was the information published or posted? • Has the information been revised or updated? • Is the information current or out of date for your topic? • Are the links functional?

ARCA Criteria											
Authority: source of the information	• Who is the author/publisher/source/ sponsor? • Is information given about the author that establishes them as knowledgeable on the subject? • Is there contact information, such as a publisher or e-mail address? • Does the URL reveal anything about the author or source? Examples: <table> <tr> <td>.com</td><td>(commercial)</td></tr> <tr> <td>.ac</td><td>(educational)</td></tr> <tr> <td>.gov</td><td>(government),</td></tr> <tr> <td>.org</td><td>(non-profit organisation)</td></tr> <tr> <td>.net</td><td>(network)</td></tr> </table>	.com	(commercial)	.ac	(educational)	.gov	(government),	.org	(non-profit organisation)	.net	(network)
.com	(commercial)										
.ac	(educational)										
.gov	(government),										
.org	(non-profit organisation)										
.net	(network)										



Activity 5: Action Task

Look at the example source your teacher gives you and carry out an ARCA evaluation for the essay title:

The UAE Has a Significant Stray Cat Problem and a Solution Needs to Be Found.

Before you start looking, think about what kind of information you will need.

Essay title	The UAE Has a Significant Stray Cat Problem and a Solution Needs to Be Found
Title of article	
A	
R	
C	
A	
Summary	

✓ Activity 6: Checkpoint

Based on the texts above, answer the following questions.

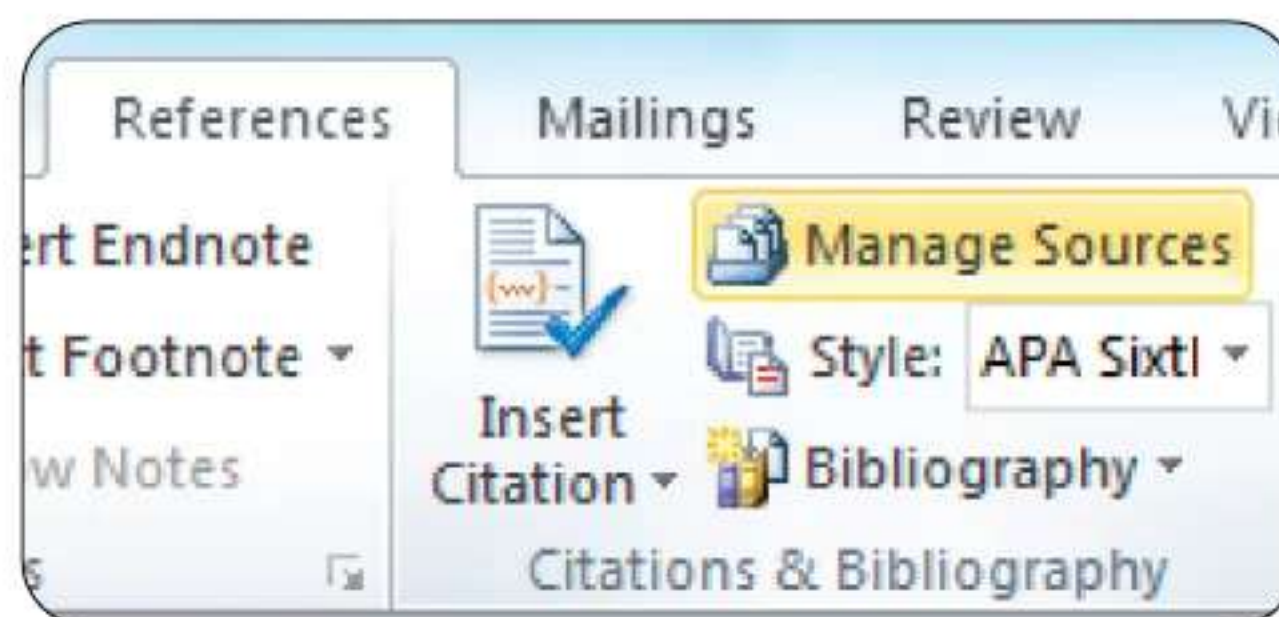
1. What does ARCA stand for?
2. What is an annotated bibliography?
3. How should you arrange your sources in the references list?
4. Which of the following are needed in an annotated bibliography?

	Yes	No
The author's name		
Information on the website or book		
The full reference		
The date you viewed the website or book		
The date		
A summary of how the source helps with your topic		

Activity 7: Action Task

When we have used some information from a source, we need to put the information about this source on a separate page at the end of our writing which makes up the section titled *References*.

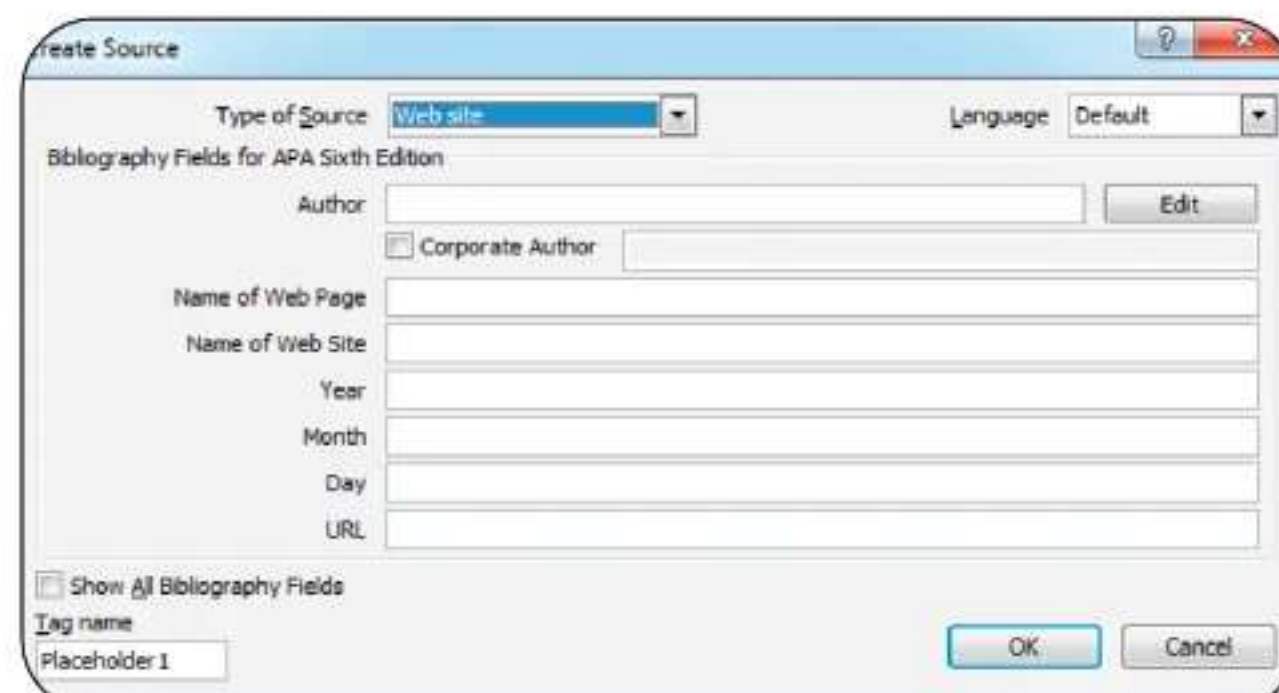
We can use Word to do this. To create a list in Microsoft Word, you need to click on the References tab. Make sure the style selected is APA as that is very commonly used at colleges in the UAE, and then choose Manage Sources:



Then click on 'New'



Then you have to put in the source information. Make sure you choose the correct type of source

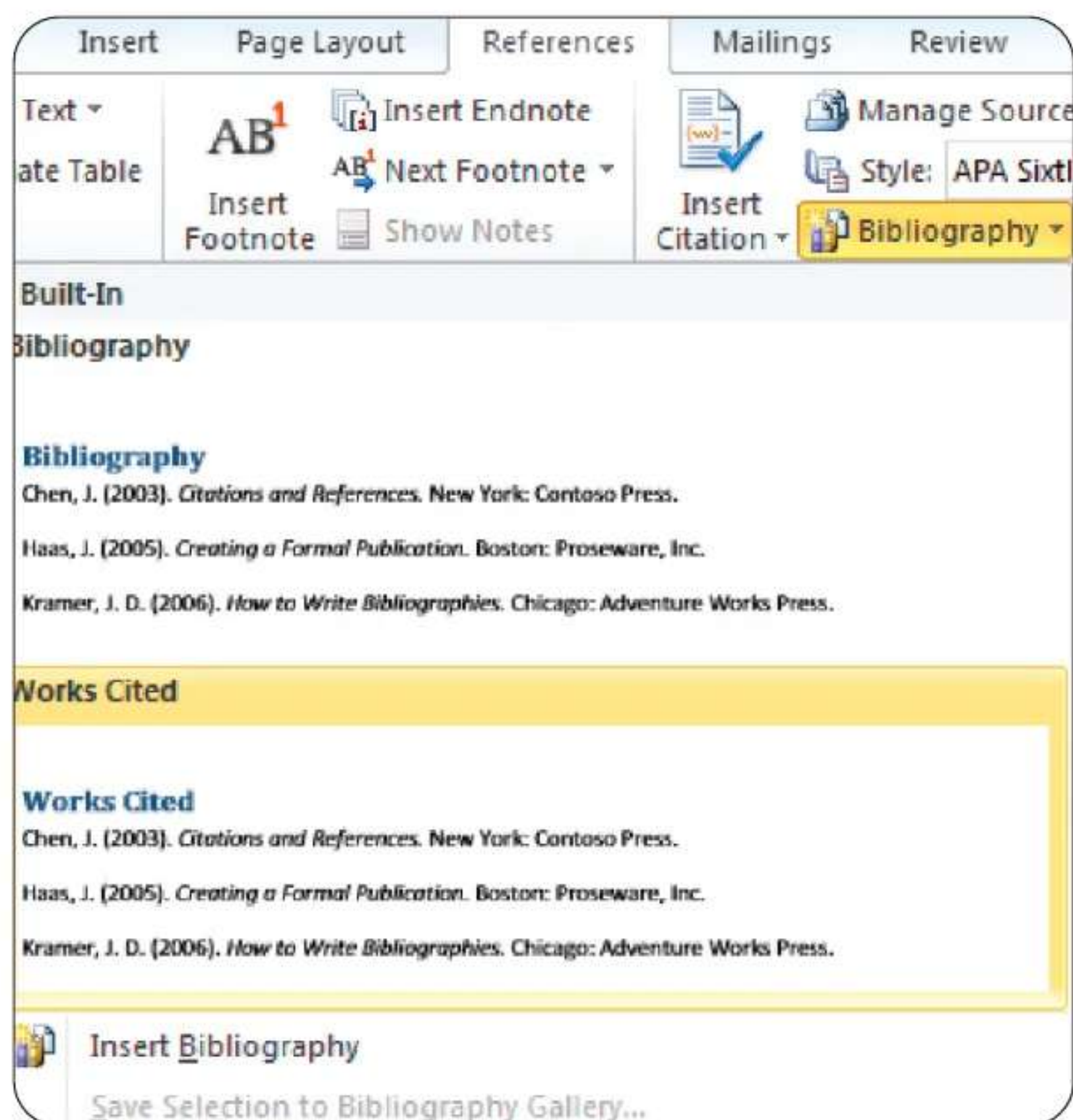


For a website, you should try to fill in the following fields: Author; Name of Web Page; Name of Web Site; Year Month and Day; and URL.

Then click OK and then you have saved this source.

IMPORTANT! This information must be accurate. There should be NO spelling mistakes or capitalisation errors.

Finally, to add an extra page that will go at the end of your research, and type References in the middle at the top, hit Enter and then Align left (Ctrl+L). Then, add your references to the References Page: put the cursor on the go to the References tab and click on Bibliography. Then choose Insert Bibliography at the bottom of the dropdown menu.



When you have finished, your teacher will check your list for this practice.

Activity 8: Research Task

Your teacher will give your group a list of sites.

Use the key words you brainstormed in the activity earlier in the lesson to help you find suitable sources.

Produce an annotated bibliography for the group. Include notes even on those that you will NOT use, explaining why. Do this for TWO sources.

THIS time, however, you will put the reference for your article instead of just the title of the article.

Research Topic	
Reference	
A	
R	
C	
A	
Summary	

Research Topic	
Reference	
A	
R	
C	
A	
Summary	

Over the run of the course, you will need to add more sources to help you with the information. DO NOT forget to keep the details of any sources you find so that you will have the references for your final project.

Research Ethics and Plagiarism

Before we start to research a topic, we need to understand research ethics, or the boundaries and rules that apply to researchers all across the world.

These guidelines state the correct way for researchers to collect and use the information they have collected.

Plagiarism is the practice of taking someone else's work or ideas and passing them off as your own. Plagiarism is a serious offence and violates copyright laws. Sometimes people accidentally forget to cite someone else's idea, but it is still seen as breaking the ethical guidelines. In order not to 'accidentally' plagiarise someone else's work, we should give credit for that work to the author. We do this by making sure we accurately quote the author and then creating a citation and a reference that shows where this work came from. That way, you are showing others who is the rightful owner of the idea, and you are not breaking the ethical guidelines.

There are four main types of plagiarism.

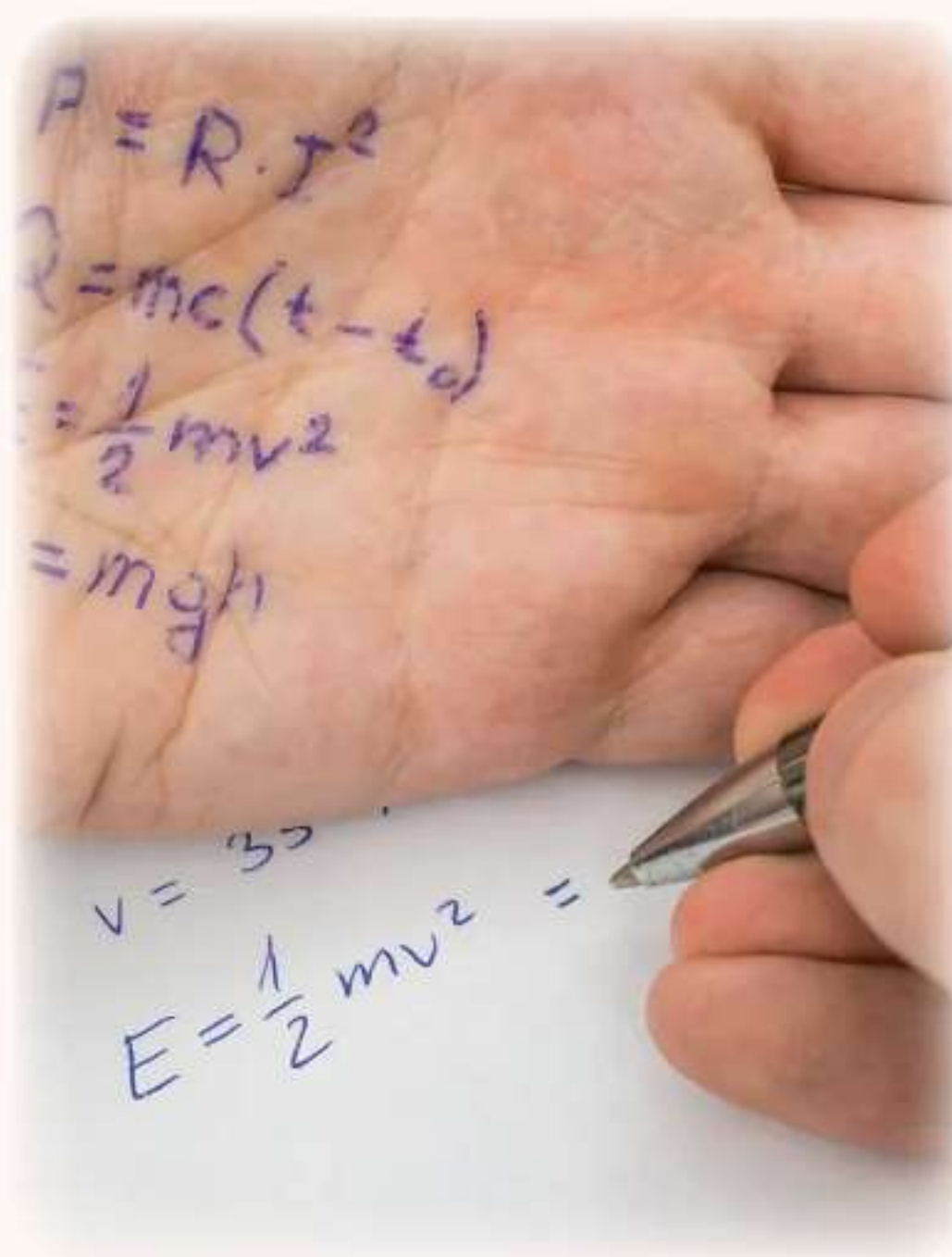


Table 4: Types of Plagiarism

Plagiarism Type	Description
Direct plagiarism	When you copy someone else's work word for word, copy and paste
Self-plagiarism	When you copy your own work from a previous project
Mosaic plagiarism	When you copy someone else's idea or work but change some of the words or find synonyms
Accidental plagiarism	When you use someone else's idea or work but forget to reference it

✓ Activity 9: Checkpoint

Look at the examples below. Are they examples of plagiarism or not? Give reasons for your answers.

Example	Plagiarism? Give a Reason
I found some ideas in a website, but I wrote them up in my own words, so did not reference them.	
I wrote a report last term on this topic, so I copied a couple of paragraphs into my new report. It was my own work, so I did not reference it.	
I found a great definition on a government website. I copied it down exactly, but I used citation marks and said where I got it from.	

Activity 10: Thinking Task

Suggest some ways of avoiding plagiarism in your work. Give at least three suggestions.

One example is given to get you started. Add a reason, then add two more examples.

Suggestion	How Does It Help to Avoid Plagiarism?
Make brief notes as you read sources.	

Activity 11: Discussion Point

Plagiarism is an ethical issue researchers must be careful to avoid. However, it can be a difficult issue for teachers and students to deal with.

Look at the case study below. What are the teacher's and student's perspectives on this? What do you think should be done?



Case Study

Fatima is a new student in the college and is keen to work hard and get good grades. Her teacher gives her an assignment on ways to improve sustainability at home. Fatima does a lot of reading to help her with ideas. She knows she shouldn't copy the things she reads, so she is careful to write the ideas in her own words. However, she is shocked when she gets her assignment back from the teacher. The teacher has given her a zero and said she has copied a lot of other people's ideas and not referenced them. Fatima explains to the teacher that she wrote all the assignment herself and did not copy anything. The teacher says all students had the handbook on plagiarism.

Teacher's Perspective	Student's Perspective
What do you think should happen now in this case?	

Activity 12: Self-Assessment Task

Before the end of the lesson, reflect on the literature review and referencing. What was challenging, unexpected or a useful skill you learnt while doing this part of the research project?

Spend 5 to 10 minutes and write one or two entries.

Reflective Journal	
Situation	
Impact	
Result	

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Unit 6: Data Collection and Analysis

Lesson 1: Data Collection 80

Lesson 2: Mid Term Review 98

Lesson 3: Data Analysis 114



- **How to collect data for my research?**
- **How do I interpret the data collected?**
- **In what ways should my data be analysed?**

Lesson 1: Data Collection

- What is the difference between qualitative and quantitative data?
- What data collection techniques can I use and when to use them?



Key Vocabulary

data collection
qualitative
quantitative
questionnaire
mixed methods

triangulation
focus group
survey
respondents
Likert scale

Activity 1: Thinking Task

You may have done some research before. There are several ways for researchers to collect information or data. Below are some different ways of collecting information. What are they? Work in a small group and write a short description for each one.



Data collection is simply gathering information. It can be defined as a process that enables researcher to gather information systematically in order to find answers to research questions.

Research Method	Description
Experiments	
Interviews	
Questionnaires and surveys	
Observations	
Documents and records	
Focus groups	

Quantitative and Qualitative Data

Researchers select **data collection** techniques according to the nature and purpose of their research. These data collection methods can be categorised further by the type of data research, for example, primary or secondary. They can also be classified by the type of data collected, for example, **qualitative** or **quantitative**. We looked at primary and secondary methods in an earlier lesson.



Quantitative research determines the relationship between two things. Quantitative data is usually gathered using structured research instruments such as **questionnaires** or computer software programmes, and the manner of collection can be replicated and repeated, as it is a highly reliable method of collecting information. The data from this method of collection is usually in the form of numbers and statistics and organised in tables, charts and figures. The main aim of a quantitative study is to classify features, count them and construct statistical models in an attempt to describe the observations.

Qualitative research, on the other hand, involves a researcher describing characteristics of people and events. Qualitative researchers study things in their natural settings and try to understand why things happen and what the topic means

to individuals. Qualitative data collection methods include face to face interviews, focus discussion groups, and case studies, to name a few. The advantage of this method is that the researcher gets a more realistic and authentic view of a world that cannot be justified or explained with numbers or statistics only. The researcher can gain better insight and first-hand perspective into the topic through interaction with the subjects.



Sometimes the topic allows you to use both methods to collect data. When researchers combine qualitative and quantitative research methods then they are referred to as a mixed method. This often happens when combining the two methods provides a better understanding of the research topic. Such an approach allows the researcher to take advantage of the strengths of each method whilst offsetting their weaknesses. **Mixed methods** also provide researchers with the possibility of **triangulation**, which means that the findings can be verified using a range of methods and results. This can also lead to more accuracy; but remember that each research project is different and a mixed research method should only be used when it would benefit the research.

✓ **Activity 2: Checkpoint**

Use the text to answer the questions below.

1. Write definitions in your own words:

- Quantitative methods:

- Qualitative methods:

- Mixed methods:

2. Which research method would best allow us to get in-depth explanations?
 - A. Quantitative
 - B. Qualitative
3. Which research method would best allow us to count things?
 - A. Quantitative
 - B. Qualitative
4. What is triangulation?
 - A. Numbers and statistics used in our research
 - B. A method of collecting qualitative data
 - C. A way of checking research results
 - D. All the data collected during research

☒ **Activity 3: Checkpoint**

Complete each sentence with *qualitative*, *quantitative* or *mixed*.

A _____ research method is used to carry out precise, testing and experimentation to support or reject hypotheses.

A _____ research method is used to carry out social and behavioural studies, often on human interactions.

A _____ research method is used to adopt the strengths of the other two methods as it overcomes their weaknesses.

Activity 4: Thinking Task

In the research project for this term, we are going to focus on quantitative data collection. Look at the research topic you have chosen and the research questions you wrote. What sort of quantitative data do you think you could be looking for that might help answer your research questions?

Research Project Topic:	
Research Question(s)	Possible Quantitative Data

Data Collection Techniques

Any instrument, tool or method used in research to collect information (data) is referred to as a data collection technique. Before starting the process of data collection, researchers need to think about some important questions:

- What information do I want to collect?
- What are my deadlines and the timeline for data collection?
- What technique/s will I use?
- How will I analyse the data?
- How will the findings be communicated or actioned?

After considering the information that needs to be collected and the timeframe available, researchers can start thinking about the data collection techniques they will use. Some of the common data collection techniques are briefly described below.

Interviews

In qualitative research, interviews are informal and take the form of conversation where the researcher (interviewer) together with the research participant (interviewee also called informant) tries to build a picture of the research topic from the participants' point of view. These interviews can be more structured where researchers ask the same questions to all participants, or more unstructured with questions formed as the conversation develops.

Focus Groups

These are like group interviews and used when the researcher wants to gather the view of a small group of people and not just individuals.



Focus groups can be effective when a discussion is required to understand collective views and opinions, for example, finding out what college students think of the new cafeteria food.

Observations



Observations are used in qualitative research when the researcher wants to study something in its natural setting. For example, in customer research, researchers often observe how shoppers shop, what they buy and how they act. The researcher may use written descriptions, video diaries and photographs to document what was observed.

Experiments

These are not just done in labs. Social studies experiments can be conducted in the natural environment. The main purpose of experiments in social studies is to observe what happens after an intervention or action and how human behaviour or actions change. Imagine, for example, a teacher who wants to study the effects of lunch on student work. The teacher may give students a task before they have lunch and a similar task after they have had lunch. The teacher then records the students' performance before and after lunch and then analyses the effects. The analysis may focus on the quality or quantity of the students' output.

Questionnaires and Surveys

You have heard of questionnaires and surveys by now. A questionnaire is simply a set of written questions, whereas a survey is a questionnaire accompanied by other information that might explain the research, how the research is to be conducted and how the results are to be analysed. A survey is the broad term used to describe the whole process. Questionnaires are a popular means of data collection. They allow researchers to target a large number of participants quickly. Questionnaires can be completed face-to face, over the phone, by mail or online.

Activity 5: Thinking Task

Using the descriptions in the text, match the data collection technique to each description below and say if it collects quantitative or qualitative data.

Description	Data Collection Technique	Quantitative or Qualitative Data
Sitting in class and marking how many students arrive to class on time and how many are late.		
Speaking to a small group of students to get them to explain why they are late to class.		
Asking a student to select the reason they were late from a list of possible choices.		

✓ Activity 6: Checkpoint

In the examples below, which data collection technique(s) would be the best and why?

Example	Recommended Technique	Reason
You want to ask a large number of people for their views on public transport.		
You want to understand the reasons why some people don't use public transport.		
You want to find out how people behave while using public transport.		

Activity 7: Writing Task

In this term, you are going to use a questionnaire to collect data. Why do you think a questionnaire has been chosen as the data collection technique for this research? Look back at the reading text on data collection techniques.

Writing a Questionnaire

In your research project in this term, you will be using a questionnaire to collect your data. Below are some key points to help guide you in writing a questionnaire.

Types of Questions:

- Yes / No
- True / False
- Multiple Choice (options A,B,C,D etc)
- Scaled (Strongly Agree, Agree, Don't Know, Disagree, Strongly Disagree)
- Open-ended Question (but only when there are limited responses possible, otherwise it will give you qualitative data)

Closed-ended questions only allow **respondents** pre-defined answer options. So, the respondents can only pick from a set of options. These types of questions are quick and easy to answer. They should lead to factual responses and enable the researcher to lead the conversation in the desired direction. In open-ended questions the respondents write whatever they think or want to write. This means the responses can be long and not to the point. The researcher also loses some control, as they are not able to keep the responses focused. However, open-ended questionnaires are an excellent tool when the researcher wants the respondents to think and reflect. Therefore, open-ended questions are mostly used to collect qualitative data.

Close-ended questions can be further broken down into two categories, Categorical questions and Interval questions. Categorical questions give respondents simple choices like Yes / No, True / False and Multiple Choice questions. Interval questions can be seen in scaled questionnaire where the question asks you to rate a response.

One popular example of interval questioning is a **Likert scale**. This is a rating scale used to measure attitudes and opinions. Participants are presented with a question and then a series of options on a scale that are used to measure the information. Using a Likert scale, we can measure the extent of qualities such as agreement, frequency, likelihood, importance, etc. Look at the example of a Likert scale below:



Other things to consider when writing a questionnaire are related to the actual language and design. Remember, you want respondents to understand easily so they can answer correctly. For this reason, questionnaires should be short and simple to complete. You should include some instructions about how to fill in the questionnaire if you are not going to be there with the respondent. Keep your language simple so the questions are easier to understand. Also, make answer choices easy to understand and different from each other. For example, if you ask how often someone visits the cinema and you have 'a lot' and 'often' as two choices, this will be confusing, as these answers are similar. Finally, provide enough time and space for the respondents to complete the questionnaire.

✓ Activity 8: Checkpoint

Look at the questions below. Using the guidelines given in the text, what is wrong with each question? How could you rewrite them so they are good questions for a questionnaire?

1. Question: How often do you visit the library?

A. A lot

C. Three times a week

B. Every week

D. Every day

What's wrong with the question?

Rewrite the question.

2. Question: Do you find the library to be an informative and up-to-date area with a lot of good resources and, is it a good place to meet other students to socialise?

A. Yes

B. No

What's wrong with the question?

Rewrite the question.

3. Question: On the line below, describe the three best things you like about your library and why?

What's wrong with the question?

Rewrite the question.

Activity 9: Writing Task

You are now going to start writing the questions for your questionnaire. (In the next lesson, you will have a chance to show this to your teacher for feedback before you give it to other people.) You are going to write 10 closed-ended questions using a Likert Scale.

In your group, look at your research topic and questions. How can you further break the topic and questions down into sub-areas that will give you the information you need to answer the research question. Try to find at least 4 or 5 sub-areas.

A sub-area is a smaller, more specific area of that topic. For example, if we were looking at how often people used different types of public transport, one sub-area could be the types of transport (bus, metro, taxi, etc). Another sub-area could be the reasons they are used (for work, at weekends, on holidays, etc).

Research question(s):

Possible sub-areas:

 Activity 10: Writing Task

Now, that you have the sub-areas to help guide you, start to write some questions for your research project questionnaire. For each sub-area you may have more than one question.

Research Question(s):	
Sub-areas	Questions

Review the questions.

When you have finished writing the questions, you need to review them. Do this in two ways.

A – Check the questions for two things:

1. Do the questions help you to answer the overall research question(s)?
2. Do the questions follow the rules for 'good' questions? Are they:
 - Clear to understand?
 - Clear to answer?
 - Organised logically?

B – Pilot the questions in the questionnaire. Give the questions to a student in a different group. Get them to answer. When they finish, ask them if the questions were clear to read and answer, and what other issues were, if any.

After this, edit your questions if you need to, then make sure you save them (your teacher will tell you where you should save them).

You will need these questions for the next lesson.

Activity 11: Self-Assessment Task

Before the end of the lesson, reflect on the lesson. What was challenging, unexpected or a useful skill you learnt while doing this part of the research project?

Spend 5 to 10 minutes and write one or two entries.

Reflective Journal	
Situation	
Impact	
Result	

Lesson 2: Mid Term Review

- What is sampling and how do I use it in my project?
- What are the different types of bias?
- What do I remember and understand from previous lessons in this term?



Key Vocabulary

target population

sample

demographics

sampling

consent

anonymity

confidential

bias

Activity 1: Thinking Task

In this lesson, you are going to finish and distribute your research project questionnaires. Ethical considerations are important when asking for information from people.

To help prepare for the lesson, find the definitions of the below key terms. Write the definitions in your own words.

plagiarism

anonymity

consent

confidentiality

research ethics

Sampling and Bias

You now have your questionnaire ready. When conducting social research, it would be ideal if a researcher could get to every single person or entity relevant to the research (**target population**), however, this is not always possible. Imagine you had to collect the opinions of students in your school relating to school services. It would be time consuming to collect the views of every single student in the school. In this case you would select a group of students (the **sample**) to represent the overall student population in your school (the target population).



What Is a Research Proposal?

Choosing the right target population and sample is critical to good research. If the sample is too small, you might not collect all the views. Too large and you might get overwhelmed with the amount of information and the research project may not finish at all. You also have to ensure the sample is relevant to the research and representative of the overall research subject you are trying to study.

As with other aspects of your research design, the way you pick a sample will largely depend on your research topic. The first step is to identify the target population. You can define your target population according to **demographics** such as age, gender, income, location, or other characteristics.

- After identifying the target population, you have to think about how to select a smaller group that would be its close representation (the sample). Broadly speaking there are two ways to select your sample.
- If you randomly select the participants from the target population then this is called probability **sampling**. This means everyone in the target population has an equal chance of selection. This is the best way to ensure your sample is representative.

Non-probability sampling is when we use a sample but cannot be sure the sample is representative of the target population. An example may be when for convenience we do a questionnaire with only students in your class. We cannot be sure they represent equally all students in all colleges.



When conducting your data collection with the sample there are some important ethical points to consider. The first and most important principle is do no harm. According to this principle of morality, the potential participants should be protected from any harm caused by participating in a research study. Using an informed **consent** to inform participants of the research project and the voluntary participation in the study is one way of ensuring this. Another way to protect participants from harm is by ensuring the participants' anonymity by keeping their identities **confidential**. Participants should also have the right to withdraw from the study at any time without penalty.

Another ethical consideration is for the researcher to avoid bias. Bias occurs when a person has an unfair view or preference for one thing or person over another. This personal preference means they may not be impartial (neutral) and that their views may not be a fair or realistic representation. In research there are many types of bias,

and some examples are given below.

Interviewer & Interviewee Bias

The interviewer can consciously or subconsciously give away clues with body language which may include facial expressions, language and the tone of voice, that influence the interviewee to provide answers that are in line with the interviewer's own opinions. This can lead to response bias where the interviewee responds in a way, they think the interviewer wants to hear.

Sample Bias

For example, when exploring possible ways to reduce lesson time, if you only collected the responses of your fellow students, then some might question the conclusions derived from your research. This is an omission bias because the researcher did not include all (or at least more) relevant groups in the sample. Another example of sample bias could be a situation when the research participants are chosen simply because it was convenient. For example, when researching customer preference for cereal brands you just ask your classmates because it would save you time. This type of bias often occurs in research without harming the overall quality of research, as long as the researcher shows they are aware of it and have taken steps to minimise its impact.

Reporting Bias

Whether consciously or subconsciously researchers can easily let their own bias in, when interpreting or reporting on results. Their own views, opinions and personality traits can influence their understanding and analysis of the finding.

✓ Activity 2: Checkpoint

Answer the questions below using the reading text above.

1. If you examine UAE students' opinions on homework, all the students in the UAE are _____.
 - A. a sample
 - B. respondents
 - C. researchers
 - D. the target population

2. What are demographics?
 - A. The type of research we are doing
 - B. The different characteristics of the population
 - C. The smaller group of people we select as the sample
 - D. The way of randomly deciding who will be our sample

3. If we only chose students in our own class, what can we call this type of sampling?
 - A. Probability
 - B. Convenience
 - C. Representative
 - D. Random

4. In your own words, explain what is meant by the following types of bias.

A. Interviewer bias:

B. Sample bias:

C. Reporting bias:

Activity 3: Discussion Point

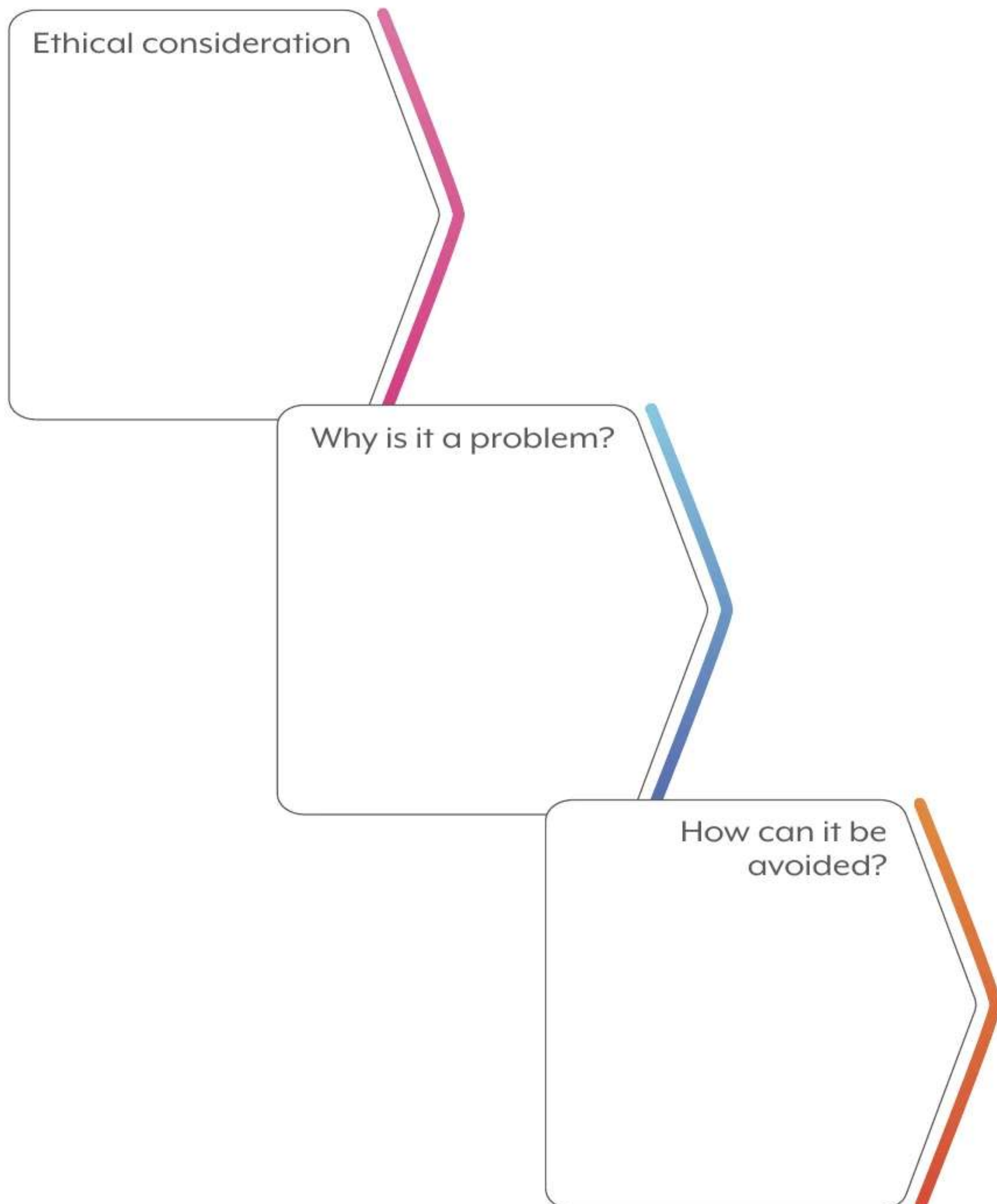
In the scenarios below, who would be your target population?

Research Scenario	Target Population
A school wants to collect the experiences of parents in grade 11.	
The RTA wants to know if its employees are providing good customer service to its customers.	
A conservation organisation wants to know how many birds live on Burj Khalifa.	

Activity 4: Thinking Task

The reading text mentions two main ethical considerations a researcher should be aware of when collecting data.

What are they? What sort of ethical problem can they create? How can the problem be avoided?



Activity 5: Thinking Task

We have seen the importance of understanding bias in research. However, many other areas of everyday life can be affected by bias, as well.

Think of three examples of how bias can appear in everyday life. Why is bias a problem here?



Example of Bias	Why Is It a Problem in Everyday Life?

Activity 6: Action Task

Questionnaire review activity.

Each research group will meet with the teacher to show them their questionnaire.

Once you have met with the teacher and have applied any changes needed, you will distribute the questionnaire. Your teacher will tell you how they want you to do this.

Once your questions are ready, you will need to format your questionnaire.

At the start of the questionnaire, you need to make sure you include:

- Background – Tell the participants what the questionnaire is about and why you are doing it.
- Instructions – Tell them how you want them to complete the questionnaire.
- Ethics and consent – Tell them that their identity will remain anonymous. Also ask for their consent to use their answers and inform them that they can change their mind and withdraw from the research at any time they want.
- Ask some simple demographic questions (this will help you analyse the data later). Example questions could relate to:
 1. Gender
 2. Age
 3. Nationality

Then include the questions, checking that they are:

- Clear
- Relevant
- Easy to answer

At the end, remember to thank the participants for taking part.

✓ Activity 7: Checkpoint

At the start of the project, we looked at the main stages to a research process. Some of them are below. What happens at each of the stages?

Stage	What Happens at This Stage
Research questions	
Problem statement	
Literature review	
Data collection	
Analysis	

✓ Activity 8: Checkpoint

Below are some different ways of collecting data. Match the method with its description.

Method	Description
1. Questionnaire	The process of watching something or someone closely
2. Survey	A small group of people giving in depth answers about a topic
3. Interview	A way of collecting information from a group of people using a list of written questions
4. Focus group	A list of written questions around a topic
5. Experiment	A meeting of people face to face
6. Observation	A procedure carried out to make a discovery or to test an idea, often done in science

✓ **Activity 9: Checkpoint**

Choose the best word for the questions below.

1. Which word best describes information reported by someone else?
 - A. Primary
 - B. Secondary
 - C. Quantitative
 - D. Qualitative
2. In a questionnaire, when you want to measure people's attitudes on something, what is the best thing to use?
 - A. Literature
 - B. Citation
 - C. Mixed methods
 - D. Likert scale
3. Your data involves a lot of numbers and statistics. Which word best describes it?
 - A. Triangulation
 - B. Quantitative
 - C. Plagiarism
 - D. Citation
4. What is the name given to all the people relevant to a research project?
 - A. Primary sources
 - B. Literature
 - C. Sample
 - D. Target population

- 
5. Which is an example of plagiarism?
 - A. He copied his report from the internet.
 - B. He looked for articles on the internet.
 - C. He made a list of sources he had used.
 - D. He planned the sections of the report.
 6. Which type of data can better give us people's experiences and in-depth opinions?
 - A. Quantitative
 - B. Qualitative
 - C. Systematic
 - D. Specific
 7. What is the main reason to write a research proposal?
 - A. To make a list of the research sources we have used
 - B. To take quotations we want to use from articles
 - C. To give reasons for and suggest an area for research
 - D. To look at the literature around the research area
 8. Which word best describes having many different connected parts?
 - A. Complex
 - B. Focus
 - C. Data
 - D. Specific

✓ Activity 10: Checkpoint

Use the words in the box below to complete the gaps in the paragraph.

conserve

sustainability

renewable

depleted

irreplaceable

A lot of the world's energy sources are being _____, as we are using them up quickly. These resources like oil and gas are _____ so once we have used them up, they will be gone. This is why we are looking at ways to maintain our energy sources and why the issue of _____ is so important. One way to do this is to try to _____ them so they are protected for future generations. Another way is to look at alternatives like solar energy and water power, which are _____ resources we can use again and again.

✓ Activity 11: Checkpoint

Match each keyword with the correct meaning.

Keyword	Meaning
research	Guides to conducting research in an ethical way
data	A system for recording acknowledgement of other people's work we have used
systematic	Anything that has a quantity or quality connected to it
variables	A way of using both quantitative and qualitative data collection methods
specific	Doing something by following an organised process
manageable	A systematic study into a subject area in order to establish facts or find new knowledge
research ethics	The process of choosing a group to be research subjects
referencing	Something that is possible to be controlled
mixed methods	Clearly defined and detailed
sampling	Facts or statistics collected together

Activity 12: Self-Assessment Task

You are now mid-way through the research project. Before the end of the lesson, reflect on some of the main activities you have done in this lesson. What was challenging, unexpected or a useful skill you learnt while doing this part of the research project?

Spend 5 to 10 minutes and write one or two entries.

Reflective Journal	
Situation	
Impact	
Result	

Lesson 3: Data Analysis

- What are the ways of analysing qualitative and quantitative data?
- How do I write the results section of a research report?



Key Vocabulary

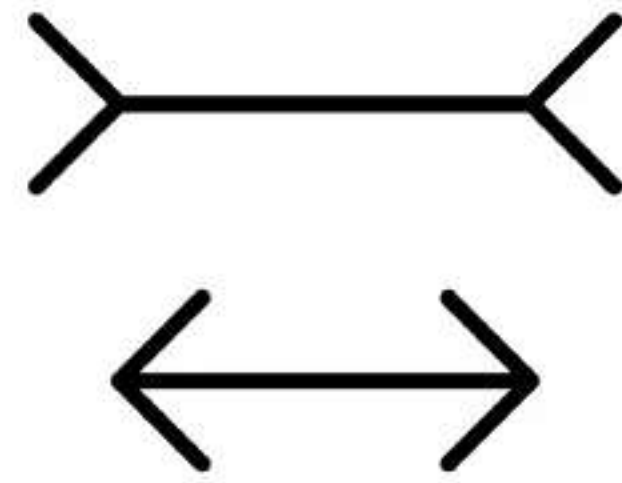
interpretation
data analysis
pattern
numerical
variable

mode
mean
median
frequency
disaggregating

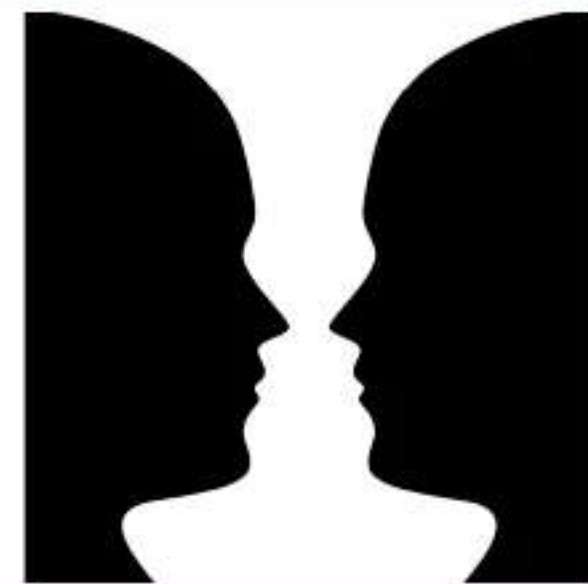
Activity 1: Thinking Task

Interpretation: the action of explaining the meaning of something. In this lesson, we will be looking at data interpretation of your research results. To start with, the below images show different ways we can interpret things.

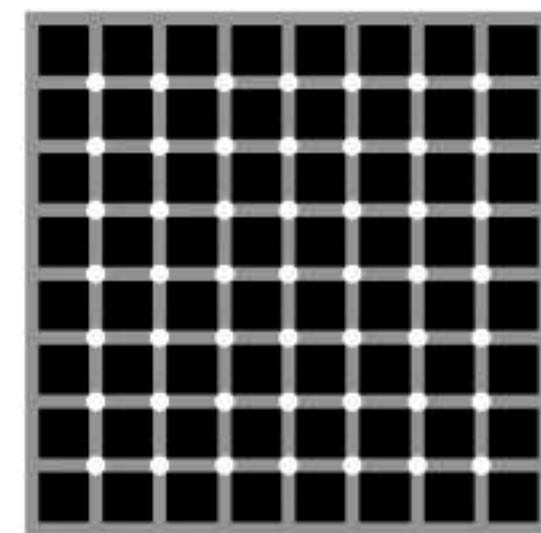
Which line is longer?



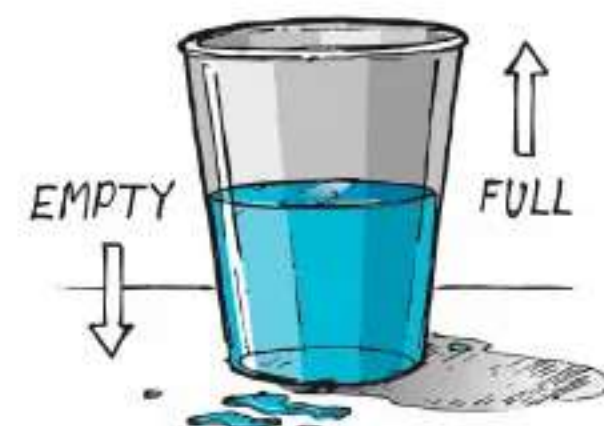
What do you see in the picture?



What colours are the circles?



Is the glass half full or half empty?



What Is Data Analysis?

All types of data are information and therefore **data analysis** is trying to understand what the information is telling us. Researchers try to find relationships or **patterns** that will lead them to claims or conclusions. In qualitative data analysis, researchers deal with data based on text, images and other types of non-numerical information, and the amount of data depends on the source. For instance, detailed unstructured interviews may produce thousands of words of data, whereas observations may only produce a few pages, as the researcher is only noting certain behaviours. The latter could be the case with the researcher noting the levels of traffic outside the school at different times of day, for example.



In qualitative data analysis, the researcher tries to find meanings and get a deeper understanding of what the data tells us about the phenomenon studied. This is unlike quantitative data analysis where the researcher confirms something, predicts or tries to explain a phenomenon. However, the differences between qualitative and quantitative data analysis go further than that.

The key difference between qualitative and quantitative data analysis is the way the researcher approaches the data. In quantitative

research, the data (numbers) do all the talking. In other words, numbers are used to understand the phenomenon. This is why quantitative research is called objective. In qualitative research, on the other hand, the researcher is the main person who determines the meaning according to his or her interpretation of the data. This is why qualitative research is called subjective. This heavy involvement of the researcher and subjectivity is also one of the criticisms of qualitative research.

The strength of qualitative data analysis is dependent upon the researcher's integrity, knowledge of the phenomenon, their ability to stay neutral (unbiased), and, of course, their ability to analyse information.

This lesson will focus on analysing and interpreting quantitative data, as this is what you are required to do in your project. Interpretation is the process of describing the findings (results) of the research. Interpretation is focused on the research question and hypotheses. Are numbers enough? Numbers do not speak for themselves. Interpretation is a process of attaching meaning to the data. For example, what does it mean that 25% of participants rated the program 5, and 75% rated it 4? Interpretation requires fair and careful judgement. Often, the same data can be interpreted in different ways.

The purpose of analysing data is to obtain usable and useful information. The analysis, whether the data is qualitative or quantitative, may:

- Describe and summarise the data
- Identify relationships or differences between **variables** (an example would be the relation between course grades and different genders)

✓ Activity 2: Checkpoint

Use the reading text to answer the questions below.

1. In your own words, give a definition of data analysis.
Data analysis is _____
2. According to the reading text, what is the difference between objective and subjective research?
 - A. Objective: _____
 - B. Subjective: _____
3. Why do we need to interpret numbers in our research study?
 - A. To be able to copy them
 - B. To change them to fit our research
 - C. To give meaning to the data
 - D. To help people who are not good at numbers

Guide to Conducting Quantitative Data Analysis

The quantitative data collected needs to be analysed to be presented in a meaningful way. There are different ways of doing this, depending on the data collected and the aims of the research. We will look at some basic steps that you need to follow for this research project. There are 6 steps to follow for your research project as shown in the following diagram.

Step 1

Step 1 Transfer

Transfer your data into a readable format. If you have access to Excel, then this should be your starting point. Organise the data in a way that clearly differentiates between questions, and different categories.

Step 2

Step 2 Format

Format your data by adding codes to further simplify your data. With closed questions on a questionnaire, these could be the same as the scale used, for example a scale of 1 to 5 showing levels of happiness, with 1 being the lowest and 5 the highest.

Step 3

Step 3 Prepare Data

Data can be prepared in two ways. The first one is adding measurement scales to the variables. Measurement scales include nominal, ordinal, interval and ratio. Doing this arranges the data into an order that can be entered onto an Excel sheet in a specific type of formatting. The second way is connecting descriptive statistics with the data. This helps us start to describe the data. Some common descriptive statistics are **mode**, **mean**, **median**, **frequency**, minimum and maximum.

Step 4

Step 4 Analyse

After data preparation, and identifying an appropriate level of measurement, you are ready to apply data analysis techniques. At this level, things we can look at are:

- Cross-tabulation – where we compare two variables together, such as if we asked students how much time they spent on homework a week, we might want to correlate this with the gender of the respondent. This will help identify patterns from data.
- Descriptive analysis – using basic measures, such as proportions or averages.
- **Disaggregating** – breaking the information down into smaller subsets. For example, if we have information on all school students, we might break that information down into the different grade levels.

Steps 5

Step 5 Visuals

Finally, we are ready to select appropriate tables or charts to represent the data, so it is ready for further analysis.

Steps 6

Step 6 Write up

The final step is to write-up your results.

Activity 3: Research Task

Step 3 in the reading gives 4 examples of measurement scales. Use the internet to find out definitions of the four scales and match each scale to the best description.

1. Nominal	A. Classifying things by rank, for example, on a scale of ranking 1st, 2nd, etc; or a scale of agreement, such as: strongly agree, agree, disagree, strongly disagree (Likert Scale)
2. Ordinal	B. Having intervals, but zero here means that something does not exist, for example, height – if a person is zero height it means they do not exist (it is not possible to have no height)
3. Interval	C. Giving names to things and putting things in categories, for example, separating respondents according to gender or type of car driven
4. Ratio	D. Having equal intervals that mean something, an example would be a temperature reading on a thermometer

Now look at the examples below. Which measurement scale best matches them?

1. Poor, Comfortable, Wealthy: _____
2. Time of day: _____
3. Travel to work by: Bus, Car, Train, Taxi: _____
4. Car speedometer (see image below): _____



Activity 4: Thinking Task

The below are some descriptive statistics we can use with data. Look at the data below and answer the questions.

- Mean: An average of values for a specific variable
- Median: A midpoint of the value scale for a variable
- Mode: For a variable, the most commonly occurring value
- Frequency: Number of times a particular value is observed in the scale
- Minimum and Maximum Values: Lowest and highest values for a scale

1. What is the median of these?

3, 3, 4, 4, 4, 4, 5, 6, 6, 8, 8, 10, 12, 16, 20

Median: _____

2. What are the minimum and maximum values?

3, 3, 4, 4, 4, 4, 5, 6, 6, 8, 8, 10, 12, 16, 20

Minimum value: _____

Maximum value: _____

3. What is the mode value?

3, 3, 4, 4, 4, 4, 5, 6, 6, 8, 8, 10, 12, 16, 20

Mode: _____

4. What is the average value?

3, 3, 4, 4, 4, 4, 5, 6, 6, 8, 8, 10, 12, 16, 20

Average: _____

5. What is the frequency of 8?

3, 3, 4, 4, 4, 4, 5, 6, 6, 8, 8, 10, 12, 16, 20

Frequency: _____

Activity 5: Action Task

Have a look at the data you collected in your research and apply the first 3 steps of our data analysis to your data.

- Steps 1 and 2 – If you have access to Excel, enter your data in there and add in appropriate codes.
- Step 3 – Look at this data and answer the questions below.

1. What measurement scales can you apply to the different variables?

2. What descriptive statistics can best be used with your data?

Activity 6: Thinking Task

Now we have done some initial work with our data, we can start doing some analysis to help us understand the information. Start by making a list of the variables in your research and see in what ways they could be compared. Can they be broken down into smaller areas?

Variables	How Can They Be Compared?

With your group decide how you are going to analyse your research data.

- What variables are you going to compare? (For example, male and female responses)
- How will you describe the data? (Using averages, proportions, etc.)

Activity 7: Action Task

We now need to make decisions on what is the best way to represent our data. If you use Excel, then it contains easy tools that help to make different types of charts. You need to make the decision of which types of charts are best for your data following your earlier analysis. For example:

- Pie charts – these are useful to compare proportions, such as the % of people answering a question in different ways.
- Line charts – these can be helpful to show how data has changed over a certain time period.

Which charts will work best for your data?

Create the charts for your data, using Excel if you have access to it.



Activity 8 Thinking Task

The results section describes our data, and we use the charts to represent it visually. However, we also need to write a description summarising what the visual shows. We don't need to describe everything, but we do need to describe the general picture that the chart shows us, and the main points represented.

Look at Table 5 and read the example description below.

In the description:

- Circle the phrase that describes the general picture.
- What are the main points the table indicates?

Table 5: Student grade average in subjects in 2019

Student Grade Average 2019	Men	Women
English	67%	74%
Physics	71%	71%
Chemistry	78%	77%
Math	76%	73%
Arabic	82%	81%
History	61%	67%

Example description:

The table shows a variable pattern with male students doing better in some subjects, while female students do better in others. The men had a greater grade average in Chemistry, Math, and Arabic. However, the women showed a higher grade average in English and History, while both genders performed at the same level in Physics.

Activity 9: Writing Task

Now apply the skills to the data in your project. Use the charts and tables you created earlier. Write a description of the data.

Save your work, as it will be used for the Results section of your report.



Activity 10: Thinking Task

In this lesson, we have been doing data analysis on your research data. Data analysis is not just something that students or researchers do, but it can be a career.



Many companies benefit from being able to collect, interpret and use data about their business or work area. For this reason, more and more companies are hiring data analysts and data analysis is an increasingly desirable career.

What data do you think these types of organisations want to collect and how might they use it?

Organisation	Type of Data	How Would They Use the Data?
Healthcare providers		
Fast food chains		
Government organisations, e.g., the Ministry of Education		
Recruitment companies (e.g., Bayt.com)		

Activity 11: Self – assessment Task

What does a data analyst do in their day-to-day job?

It will depend on the organisation they work for, but some examples could include:

- Working with other data analysts and other departments on a research activity
- Collecting data from customers, companies or other types of research
- Producing reports and presentations for managers
- Spotting patterns in the market that relate to the organisation
- Recommending actions to the management to improve the future actions and directions of the organisation

Do you think you have the skills that might make you a good data analyst? Think of some of your strong skills and match them to the data analysts' tasks above. (For example, I am a very confident speaker, so this would help me delivering presentations to my managers to persuade them about my ideas.)



Skill 1:

Skill 2:

Skill 3:

Activity 12: Self-Assessment Task

Before the end of the lesson, reflect on data collection. What was challenging, unexpected or a useful skill you learnt while doing this part of the research project?

Spend 5 to 10 minutes and write one or two entries.

Reflective Journal	
Situation	
Impact	
Result	

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Unit 7: Research Project

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- **What is a research report and what should it include?**
- **How to compile all elements of the project into the final product?**
- **What were the main difficulties I faced when working on the project?**
- **How do I review the finished project to draw lessons for the future?**

Lesson 1: Writing a Research Report

- What are the major sections of research report and how should they be organised?
- What are the implications of the research project completed this term?



Key Vocabulary

headings

record

body of knowledge

methodology

results

discussion

limitations

Activity 1: Thinking Task

The next two lessons focus on you writing up the sections of your report.

Before we do this, we need to know what the sections are. Below are the headings for the research report you will be writing. Put them into the order in which they should appear in the report. What type of information do you think you will write in each section?

Methodology

Discussion

Conclusion

Abstract

References

Literature
Review

Results

Introduction

Heading	What Information Should It Contain?

Writing up Your Research Project

In this lesson you will start writing up your research project. Why do we need to write up the research? The written or orally presented research report provides a **record** of your research. This record will contribute to the developing **body of knowledge** and information about the topic. Other researchers will be able to read the research you did and replicate your research study or use your research to inform their own work.



Elements in the Introduction

Your introduction comes after the abstract (but you will only write the abstract once you have written all the other sections – we will look at the abstract in the next lesson).

Your research introduction should include the following:

- Background: In this section, you lead the reader into your research topic and what it covers.
- Problem Statement: Describe the theoretical or practical research problem that you want to address in your research proposal. Describe what is already known about the problem and what is missing from current knowledge.
- Research Questions: State the narrow research questions that you aim to answer in your proposed project.

- **Relevance and Importance of the Research:** Make clear who will care about the findings of your proposed research, who will benefit from this project, and why this research is worth doing.

The Methodology Section

The **methodology** section comes after the literature review section. In this section, the researcher provides a clear description of how the research was conducted and the reasons behind the choice of specific research design and methods. The researcher explains the activities completed in the research project.

The methodology section should be detailed enough so that the readers can repeat the same procedure and reproduce the **results**. Explain the procedures you carried out to collect data in detail, including a step-by-step description. Use past tense to describe what you did while completing the research.

Results Section

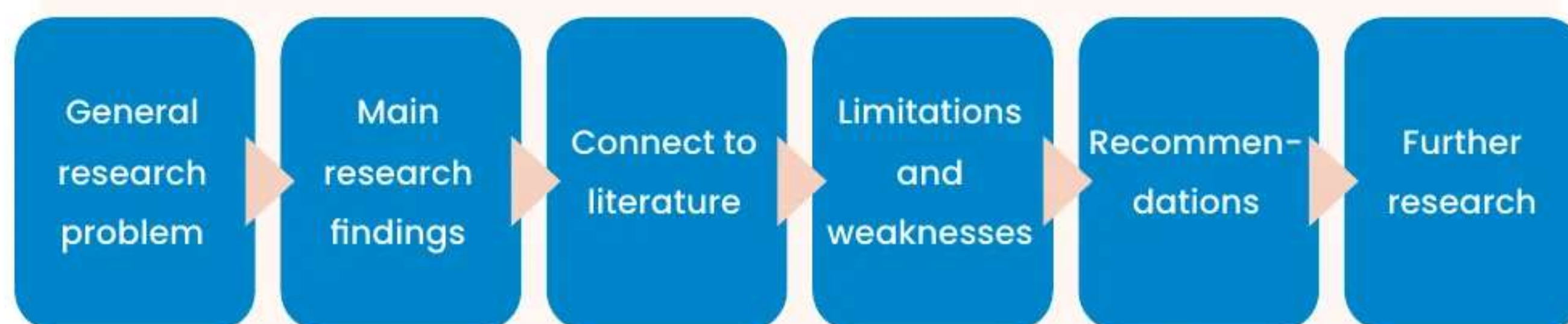
The results section includes the findings of your research study. It only presents the findings of the research without a **discussion** of what these findings mean. The results will be interpreted in the discussion section. A findings or results section should include the following:

- Report on data collection instruments
- Description of your target population and sample size
- Report on response rate
- Data presented in tables, charts, and graphs

Discussion Section

As we saw, it is important not to mix the results section with the discussion of main findings. Even though in some research reports you could find the results and discussions as one section, it is better to separate them into two different sections. A common mistake is to repeat the results as the discussion instead of explaining what

the results mean in relation to your research question. Think of the discussion section as moving from the general to the more specific just like the process diagram below.



✓ **Activity 2: Checkpoint**

Use the reading text to answer the questions below.

1. Why do we need to present our research in a written record or oral presentation? (Choose all that are correct).
 - A. To give a record of the research and results
 - B. To get credit for the work done, e.g., a grade
 - C. To help add to and develop knowledge
 - D. To make sure we don't forget the research completed
2. In which section do you describe how the data for the research was collected?
 - A. Methodology
 - B. Results
 - C. Literature Review
 - D. Discussion
3. In which section do you interpret your data?
 - A. Methodology
 - B. Results
 - C. Literature Review
 - D. Discussion
4. Which section can also be called Findings?
 - A. Methodology
 - B. Results
 - C. Literature Review
 - D. Discussion

Activity 3: Writing Task

In the reading text we saw that there are four main areas we can include in the introduction. First, make some notes under each area to describe your research project. Then, write them up together into a coherent introduction.

Notes

Background: _____

Problem Statement: _____

Research Questions: _____

Relevance and Importance of the Research: _____

Introduction

Activity 4: Writing Task

Look back at Lesson 3 in Unit 5, where you started your first literature review. Reflect if you have found enough resources such as journal articles, reliable websites, etc. for the important topics. If there are any gaps where you did not add any resources in your literature review, then you need to add at least 1 or 2 additional sources.



Source One: _____

Summary: _____

Source Two: _____

Summary: _____

Activity 5: Writing Task

To start writing your methodology section, answer the following questions:

- What was your study design and why did you choose it?
- Was the study qualitative, quantitative, or mixed methods?
- What data collection methods were used?
- Who were the participants of your study?
- What procedures/activities did the study involve?
- How long did the study take?

Write these notes up into your methodology section.

[illegible]

Activity 6: Writing Task

We are going to use the process diagram from the reading text to prepare for writing the Discussion section.

Look at the areas in the table below and in your group, think of how the areas can relate to your research project. Make some notes for each area. Descriptions of some of the areas are listed below to help guide you.

- **Limitations** and Weaknesses: This describes the limits of your research. It does not mean that your research is not good, just that it is limited in some ways. For example, if your research was just with classmates, then that would be a limitation and other studies could see if they got the same results with different groups of students.
- Recommendations: This can be things that your group suggest should happen because of the results of your research. For example, if your research results say most students don't study well early in the morning, then a recommendation could be that schools should try changing the start time of schools to later in the day.
- Further research: Suggest what more research can be done in this area. For example, if your research results showed that all the respondents strongly dislike public transport, then a suggestion for further research could be to have a focus group to explore the reasons why students answered in this way.

General research problem	
Main research findings	
Connect to literature	
Limitations and weaknesses	
Recommendations	
Further research	

Activity 7: Writing Task

Use the notes you made in Activity 6 to help you write the Discussion section of the report. Use sub-headings if you need to organise the information.



This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page. There are no margins, text, or other markings on the paper.

Activity 8: Peer Assessment Task

Now you have written a number of sections of your research report, you are going to review them with a classmate.

Swap your work with a classmate and use the below checklist to provide feedback.

1. Does the introduction include the following?
 - A. Background
 - B. Problem Statement
 - C. Research Questions
 - D. Relevance and Importance of the Research

2. Does the literature review section:
 - A. have a clear structure
 - B. use reliable sources (government sources, journal articles, etc)
 - C. critique the sources, rather than just summarise them
 - D. use citations?

3. Is the methodology clear enough so you could repeat the same research? How could the methodology be improved?

4. Are the results clearly described and relate to the visual charts?
How could that be improved?

5. Do the charts all have labels? **Yes / No**

6. Does the results section just describe, not evaluate the results?
Yes / No

7. Does the discussions section provide discussion on the areas
listed in the process diagram? **Yes / No**

8. Are there any areas that need improvement? What are they if any?

Activity 9: Self-Assessment Task

Before the end of the lesson, reflect on writing up the results and discussion sections and the peer review feedback you had. What was challenging, unexpected or a useful skill you learnt while doing this part of the research project?

Spend 5 to 10 minutes and write one or two entries.

Reflective Journal	
Situation	
Impact	
Result	

Lesson 2: Project Completion

- What should be in the conclusion and the abstract of my report?
- How should a report be formatted?



Key Vocabulary

formatting
abstract
strategy
theme
synthesise

implications
edit
trend
table of contents

Activity 1: Thinking Task

In this lesson, we will be putting together all the parts of your research project into a written report. In formal writing, such as a research report, formatting is important. To prepare for the lesson, answer the questions below.

What is formatting?

In a written report, what are some important aspects of formatting? Think of at least six.

1.

2.

3.

4.

5.

6.



Convincing Conclusions and the Abstract

Now you have written the main body of your research report, what remains is the conclusion and the **abstract**.

Conclusions should not add anything new to the text. Their purpose is to give a final wrap up to your topic. You can use different **strategies** to write your conclusion. Examples of some strategies you can use for your research topic are given below.

Strategy #1: “So what” discussion. Why should anyone care about your research?

Strategy #2: Return to the **theme** or themes in the introduction. Summarise these points in a different way.

Strategy #3: **Synthesise**, don’t summarise. To synthesise, you show how your findings are connected, or you can show a link between different perspectives. Critical evaluation is key. Remember not to add anything new in the conclusion.

Strategy #4: Include a challenging insight or quotation from the research or reading you did for your paper.

Strategy #5: Propose a course of action, a solution to an issue, or questions for further study.

Strategy #6: Point to broader **implications** that your research shows.

Strategy #7: Look to the future.

Strategy #8: Pose questions.

Abstract

An abstract is like a movie trailer. Research reports can be long and there are thousands of them. People will read the rest of your research paper only if your abstract seems interesting. Here are some important tips:

- Write your abstract after completing your research paper.
- Choose only key points from each of the sections you have in your research paper.
- Summarise the general conclusions or **trends** revealed by your research.
- **Edit** your abstract carefully.

✓ Activity 2: Checkpoint

Use the reading text to answer the questions below.

1. What should the conclusion do?
 - A. Evaluate
 - B. Summarise
 - C. Add
 - D. Critique
2. What is synthesising?
 - A. Summarising something
 - B. Connecting parts together
 - C. Giving a quotation or reference
 - D. Looking to the future implications
3. Why do we write the abstract last?
 - A. Because it comes last in the report
 - B. Because it is the most difficult part
 - C. Because it is not very important
 - D. Because it is a summary of the whole report

Activity 3: Writing Task

In your groups look at the possible strategies to help write a conclusion. Look at your Results and Discussion sections written in the previous lesson. Make some notes that connect these strategies to your research report. Write notes for at least 4 of the strategies.

Strategy #1: “So what” discussion.

Answer the question about your research project: So what? Why should anyone care about your research?

My Notes:

Strategy #2: Return to the theme or themes in the introduction.

What were the main points/themes in your introduction? How can you summarize these points differently?

My Notes:



Strategy #3: Synthesise, don't summarise.

What were the main points or themes of your report? How can you summarise these points using different words?

My Notes:

Strategy #4: Include a challenging insight or quotation from the research or reading you did for your paper.

What idea or sentence in your report stands out?

My Notes:

Strategy #5: Propose a course of action, a solution to an issue, or questions for further study.

What suggestions could you make based on your report?

My Notes:

Strategy #6: Point to broader implications.

What conclusions can be taken from your report?

My Notes:

Strategy #7: Look to the future.

How may the content of your report influence future developments?

My Notes:

Strategy #8: Pose questions.

What questions does your report bring up?

My Notes:

Activity 4: Writing Task

In your group, decide which of the strategies above will be most effective to include in your report conclusion. Choose at least two, then write your conclusion below.

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Activity 5: Writing Task

Answer the below questions to complete your abstract. Your answers should be no more than 1 or 2 sentences each.

Reason for writing:

What is the importance of the research? Why would a reader be interested in the work?

Problem:

What problem does this work attempt to solve? What are the main research questions and hypotheses?



Methodology:

Describe the types of evidence used in the research.

Results:

What are the general findings?

Implications:

What changes should be implemented as a result of the findings of the work?

Use the notes you have made above to write the abstract. Remember the abstract is a summary of all the research report. Write the abstract in a clear and simple way, including only main points, not details.

[illegible]

Table of Contents

Table of Contents is often abbreviated as TOC. It comes between the abstract and the introduction. TOC is usually no longer than 2 pages but that depends on how long your research paper is.

Key features of a TOC are as follows:

- The title of the page: Table of Contents
- Clear headings and subheadings, e.g. Introduction, Literature Review, Methodology, etc.
- Correct page numbers corresponding to headings and subheadings.

Activity 7: Writing Task

Different organisations and schools have different requirements for the formatting of work.

Formatting – the style of presentation and layout of your report or presentation

Refer back to the warmer in this lesson, when you looked at some examples of formatting.

- Why do you think formatting is important? (Try to think of three answers.)

1. _____

2. _____

3. _____

For your report, you will need to follow the following formatting guidelines:

Cover page

This is the first page of your report. It should include at least the following information:

- Title of research project
- Authors (the students writing the report)
- Date

Contents page

Follow the advice given earlier in this lesson.

Section headings

Use the section headings given in the warmer activity at the start of lesson 1 in this unit. Each heading should have title capitalisation, size 14 font, with a line space between it and the text.

References page

This is the list of all the sources you used and should be the last page of your report.

Page numbering

Numbering of each page should be in the bottom right of each page and should be in the style of: Page 1 of 16.

Text font style and size

The font should be Calibri, size 12 and with double line spacing.

Activity 8: Action Task

You have now completed all the parts of writing up the research report and have put these all together.

Before you submit your work, do a final check.

- Have you included all the sections listed in this lesson?
- Have you followed the formatting guidelines in Activity 7?
- Have you read through your report, and is it:
 - clear
 - using correct language and grammar
 - using references for any information that is not your own?

Now you are ready to publish your report by submitting it to your teacher. Your teacher will let you know how you should do this.

Activity 9: Self-Assessment Task

Before the end of the lesson, reflect on the final writing and formatting of the report. What was challenging, unexpected or a useful skill you learnt while doing this part of the research project?

Spend 5 to 10 minutes and write one or two entries.

Reflective Journal	
Situation	
Impact	
Result	

Lesson 3: Term Project

- What were the main difficulties in creating my research project?
- What have I learned by creating this project?



Key Vocabulary

obstacle

challenge

overcome

reflection

Project Description

You have worked on and completed your research project. Your research report should have been written and completed. In this lesson you are going to reflect on what you have achieved over the term while completing the project.



Activity 1: Self- Assessment Task

In your groups look back over the research logs/ reflective journals you did for each lesson. These are at the end of each lesson, so will be easy to find.

From the research logs, summarise some of the main tasks you completed during this term with a brief description.

Task	Description

Activity 2: Thinking Task

There were many stages to completing your research and writing the report.

However, completing a project never goes completely smoothly. There are always things that happen that can make things difficult.

It is important to understand those difficulties and learn from them.



Use your research logs to help you. Think back over the project. What were two things that were problematic for your group during the research project? It could be:

- An **obstacle** – something that got in your way of doing something
- A **challenge** – something that you found difficult to do

Describe two problems that occurred and what your group did (or would do if the problem happened again) to **overcome** it.

A Problem	How to Overcome It

Activity 3: Self-Assessment Task

When you are reflecting on something, it is often helpful to get someone else's perspective.

Each research group will briefly have a short discussion with their teacher. The purpose of this is to:

- Give the students a chance to explain the main achievements of your group in the research and to get feedback from the teacher (for example, how they could have avoided some of the problems they had).
- Give the teacher a chance to question the students about parts of the submitted report (for example, to explain sections that may not seem clear).

Feedback from the teacher:

Activity 4: Writing Task

Now you have looked back over your research and had a discussion with the teacher, use these ideas to write a **reflection** of the research project.

Cover these points in your reflection:

- How did you feel at the start in lesson 1, when you knew you would be doing a research project?
- What three main things do you think you have learnt from doing this research project?
- What were the two main challenges you faced during the research project, and how did you overcome them?
- How do you feel now you have completed the research project?

Use the table to write your end of project reflection

Feelings at Start of Project	
Three Achievements of Your Group	
1. _____	
2. _____	
3. _____	
Two Challenges and How They Were Overcome	
Feelings at End of Project	

Lesson 4: Final Review

- How well do I remember the key terms used in the project work?
- What do I understand from previous lessons in the unit?



✓ Activity 1: Checkpoint

A number of lessons have focused on writing the sections in the research report. What should the sections below contain?

Sections	What Do They Contain?
Table of contents	
Abstract	
Methodology	
Results	
Discussion	

✓ Activity 2: Checkpoint

Use the number set below and answer the following questions.

1, 1, 1, 2, 2, 4, 4, 5, 9

1. What is the number 2 in the number set?
 - A. Mode
 - B. Median
 - C. Mean
 - D. Frequency
2. What is the number 3 in the number set?
 - A. Mode
 - B. Median
 - C. Mean
 - D. Frequency
3. What is the number 1 in the number set?
 - A. Mode
 - B. Median
 - C. Mean
 - D. Frequency
4. What is the frequency of 4?
 - A. 1
 - B. 2
 - C. 8
 - D. 9

✓ Activity 3: Checkpoint

Read the description of the process of giving a questionnaire to people. Complete the gaps using the words in the box.

record

anonymity

consent

respondents

demographics

When giving a questionnaire to people we need to be careful what _____ we want to select, for example, in terms of gender or age group. Before we give these people the interview, we ask them for their _____ so we know they agree to take part. The people that take part are called the _____ and it is important we keep their identity secret so they have _____. The questionnaires are collected back as this will be the written _____ of replies that we will use for our primary data collection.

✓ **Activity 4: Checkpoint**

Choose the best answer to the questions below.

1. What do we call it when we break something down into smaller areas?
 - A. Interpretation
 - B. Disaggregating
 - C. Reflection
 - D. Limitation
2. Synthesising something means:
 - A. Trying to edit it down into something smaller
 - B. Trying to represent something with numbers
 - C. Trying to put things together to come up with a new idea
 - D. Trying to look at a solution for a challenge we face
3. What can we use to separate the different sections in a report?
 - A. Headings
 - B. Implications
 - C. Limitations
 - D. Respondents
4. Which word best describes thinking that only men are good drivers?
 - A. Theme
 - B. Pattern
 - C. Trend
 - D. Bias

- 
5. What is something that restricts what we can do called?
 - A. Strategy
 - B. Limitation
 - C. Pattern
 - D. Theme
 6. Before we submit a report, we add page numbers and check font size and style. What are we checking by doing that?
 - A. Theme
 - B. Calculation
 - C. Formatting
 - D. Trend
 7. Which word describes personal opinions and feelings?
 - A. Objective
 - B. Numerical
 - C. Limitation
 - D. Subjective
 8. Which word best describes a plan that is developed to achieve a goal?
 - A. Strategy
 - B. Objective
 - C. Record
 - D. Theme Unit

✓ Activity 5: Checkpoint

Match each keyword (1-10) with the correct definition (A-J).

Keyword	Definition
interpretation	Representing something by numbers
numerical	Something that is in the way and prevents you from achieving a goal
implications	To find a solution to a problem
trend	Looking back and thinking about something or someone
pattern	A conclusion that can be made from something
edit	The process of attaching meaning to something
theme	A repeated way in which something happens
obstacle	A general direction in which something develops
reflection	A general topic or area
overcome	To correct something

