

www.causeway.education

Academic Research Competition

STEM Subjects

About us



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Academic Research Activity

We would like you to complete a piece of independent research on a STEM-related topic and then record your research as a voiceover for an information video.

THIS IS A COMPETITION!

Winning students will have their voiceover added to a STEM subject video to be shared with your school!



Instructions on how to record your voiceover will be provided at the end of this presentation.

If you are unable to record yourself, you can send us your research and somebody from the Causeway Team will record the voiceover for you.

Objectives

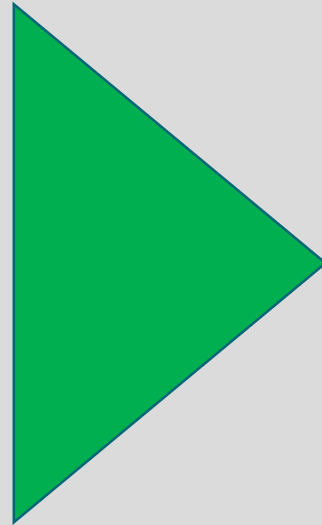
We hope that by taking part in this competition you will:

1. Gain a better understanding of the STEM subjects you could study at A Level and the skills involved in these subjects
2. Get a taste of what it is like to study these subjects at a higher level, including the language you will use

Session Outline

| Activity | Description |
|-------------------------------------|---|
| Section 1: STEM Subjects | Quiz: What do you already know about STEM subjects? |
| Section 2: Independent research | You will be provided with some materials about a particular topic. You will be asked to research this topic in depth to get a taste of what it's like to study a STEM subject at A Level. |
| Section 3: Academic writing | You will learn how to write about your research including the language you should use. |
| Section 4: Recording your voiceover | You will be given instructions on how to record your own video voiceover. |

Here is an example of one of the videos
your voiceover could be added to. Click
below to play the video.



<https://heaccess.sharepoint.com/sites/Programmes/Shared%20Documents/General/Wadham%20College/4.%20Finished%20Videos/Biology%20Video%20-%20Wadham%20College.mp4>

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Section 1: STEM Subjects

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Science

Technology

Engineering

Maths

Chemistry

Computer Science

Physics

Maths

Design & Technology

Biology

Psychology

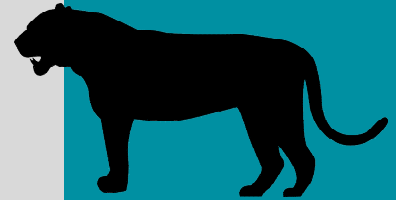
What is it like to study STEM subjects at A Level?

QUIZ
Page 3 in your booklet

1. You might choose to study this subject if:

- You're interested in the world, plants, animals and people around you
- You enjoy finding out how things work
- You enjoy conducting research and carrying out experiments
- You enjoy problem solving
- You have strong mathematical and analytical skills

You might also choose to study this subject if you're considering a career in healthcare, medicine or jobs involving plants or animals.



- a) Physics
- b) Biology
- c) Engineering

2. Which subject is this?

This is the study of matter, its properties, how and why substances combine or separate to form other substances, and how substances interact with energy.

It is sometimes called “the central science” because it bridges physics with other natural sciences, such as geology and biology.

Experts in this field conduct experiments to study how elements work in different conditions, test how they mix, and work out what they are made up of right down to the tiniest particle. They use their experiments and knowledge to develop medicines, foods, fabrics and other materials, from neon lights to shatterproof glass.

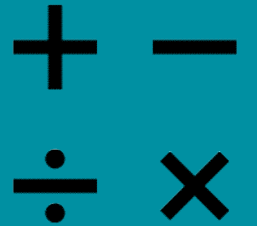
They also use it to understand the world around us, from why leaves change colour to discovering invisible pollutants in the air.



- a) Chemistry
- b) Physics
- c) Biology

3. You might choose to study this subject because:

- You are interested in learning how computers work
- You enjoy problem solving and using logical reasoning
- You have strong mathematical skills
- You enjoy thinking creatively and innovatively



- a) Maths
- b) Physics
- c) Computer Science

4. Which subject is this?

This is the study of numbers, shapes, space and measurement, and numerical systems, symbols and rules.

Studying this subject will help us find patterns and structure in our lives. It helps us put a price on things, create graphics, build websites, build skyscrapers and generally understand how things work or predict how they might change over time and under different conditions.

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- a) Physics
- b) Maths
- c) Design Technology

5. You might choose to study this subject because:

- You enjoy problem-solving
- You have good analytical skills, and you like to question and investigate other people's theories
- You enjoy maths and have good mathematical skills
- You enjoy asking big questions such as:
 - How did the universe begin?
 - How will the universe change in the future?
 - How does the sun keep on shining?
 - What are the basic building blocks of matter?
- You might also choose to study this subject if you are thinking of studying Physics or Engineering at university.



a) Engineering
b) Maths
c) Physics

6. Which subject is this?

- This is the scientific study of the mind and how it dictates and influences our behaviour, from communication and memory to thought and emotion. It's about understanding what makes people tick and how this understanding can help address many of the problems and issues in society today.
- You will gain knowledge and understanding of psychological concepts, theories, research and ethical issues and you will learn to critically analyse evidence.



- a) Sociology
- b) Psychology
- c) Biology

7. If you choose to study this subject at A Level you will:

- Use your creativity and imagination to develop and modify designs.
- Learn to identify market needs and opportunities for new products and develop design solutions
- Experiment, make and test your own products
- Learn how a product can be developed through the stages of prototyping, realisation and commercial manufacture.



You will also develop an in-depth knowledge of materials, components and processes needed to make products and you will learn to work safely and skillfully to design and make your own products that solve real world problems.

- a) Physics
- b) Engineering
- c) Design & Technology

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Section 2: Independent research

1. Choose the STEM subject you are most interested in learning more about.
2. Click on the **links in your booklet on page 5** to download a selection of resources about a specific topic for you to investigate.
3. Use the information in the resources to answer the questions in the pack.
4. You should start by using only the resources in the pack provided.

EXTENSION: you can do your own additional wider research if you wish.

Chemistry
Physics
Biology
Maths
Computer Science
Psychology
Design & Technology

Now **press pause** on
this video while you do
your research.

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Section 3: Academic Writing

Now you need to write a short text (300 words) about the topic you have been researching.

How will you do this?

- Use the answers you have written in your booklet
- Select and summarise the most important points
- Make sure your text gives the reader/listener a clear and accurate summary of your research topic.

Section 3: Academic Writing

1. What is the Academic Word List?

- This is a useful resource to help you to learn the words most needed to study at A Level and university.
- The list contains 570 words that appear most frequently across a range of academic texts.
- The list does not include words that are in the most frequent 2000 words of English.

2. Why and how can you use them in your writing?

- The list of words will help to prepare you for studying at a higher level, after your GCSEs.
- When writing up your research aim to use between 5 and 10 words from the academic words list.

Writing up your research: Editing Checklist

- ✓ Read your text out loud
- ✓ Does it make sense?
- ✓ Does your text give the reader/listener a clear and accurate summary of your research topic?
- ✓ Are there any spelling/grammar mistakes that need correcting?
- ✓ Have you used between 5 and 10 words from the 'Academic Word List'?
- ✓ Is your text no more than 300 words?

Now **press pause** on
this video to write up
your research.

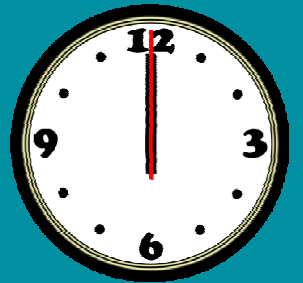
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Section 4: Recording your voiceover

Preparation

1. Practise reading your text out loud again
2. Time yourself – is it long enough to fill 60 seconds if you read it aloud?
3. Record yourself reading your text out loud **(instructions on the next slide)**



Section 4: Recording your voiceover

How do I record myself?

Mobile phone/tablet: If you have access to a mobile phone or tablet you could record your voiceover clip using the “voice memo” tool.

Computer/laptop: If you have access to a desktop computer or laptop you may have a voice recorder app.

Save the audio file and send it to us by attaching to an email.

What if I can't record myself?

Don't worry! You can still enter the competition.

You can send your written research to us and we will record the voiceover for you.



Finally. Send us your work!

Please send your work to the Causeway Team email address: info@causeway.education

If you have recorded a voiceover please send us the audio clip

If you have not been able to record your own voiceover please send us your research text

Let's recap

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Good luck!

If your research paragraph or voiceover is chosen by us, we will add it to our videos, credit you for your work (by including your name and school) and share the final video with your school.