GCHQ

Teacher Guide

An introduction to GCHQ

What is this resource?

This resource highlights links between GCHQ and school subjects such as languages, maths, history and computer science, so that students gain an understanding of how these subjects and the skills within these subjects are used at GCHQ.

This resource also acts as an introduction to GCHQ explaining the basics of the organisation and its mission to keep the country safe. It takes students through key moments in history and the real-world impact of GCHQ, historical figures from its past and some skills that employees of GCHQ use today.

How to use this resource:

This resource includes a starter and plenary as well as activities focussed on languages, history, maths and computer science.

The idea is to complete the starter activity, then select ONE of the four activities to complete, before then doing the plenary.

The plenary is reusable each time. The starter may be difficult for students the first time, but through repetition, the students will gain a better understanding of the job titles and descriptions of GCHQ employees.

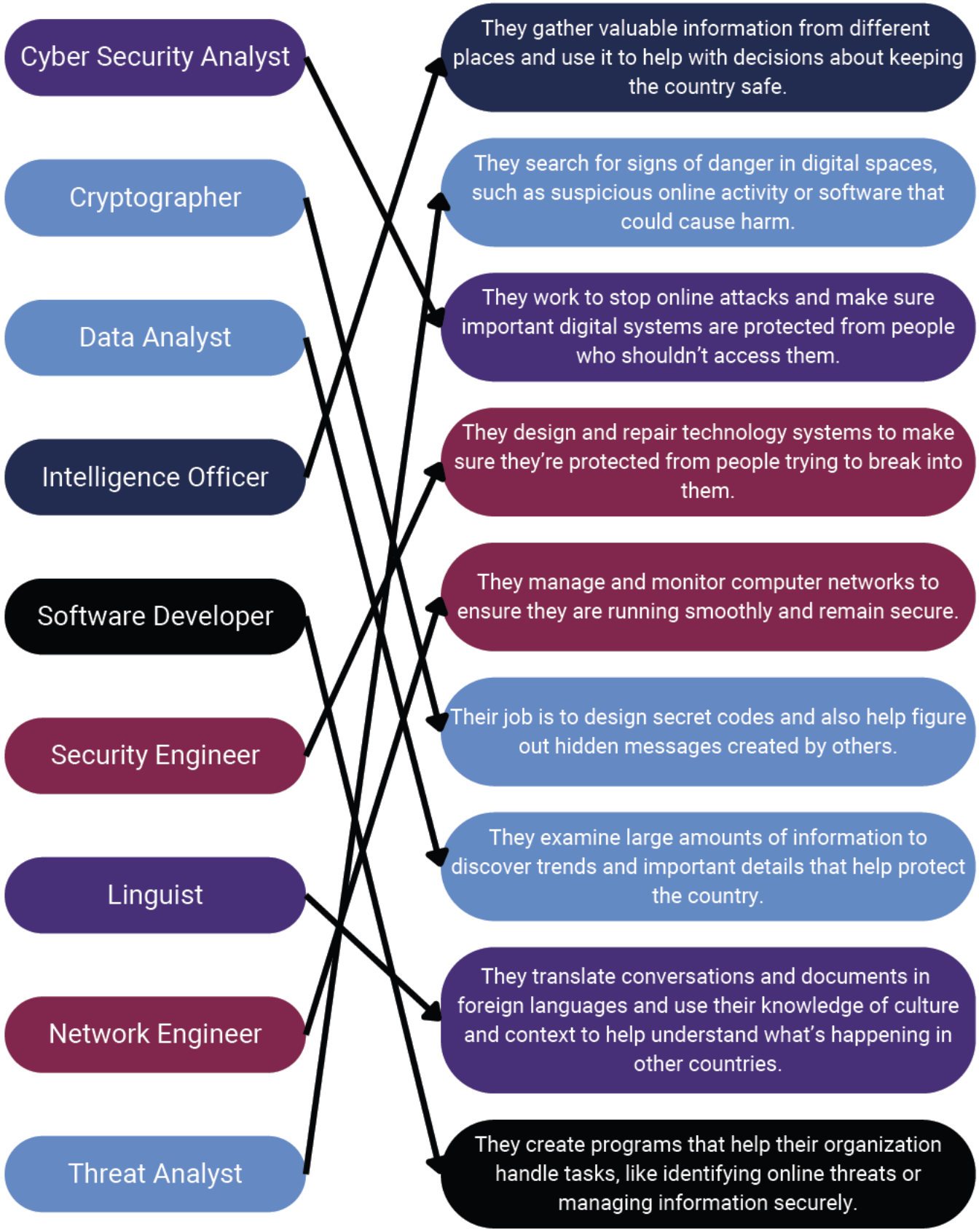
As the activities focus less on subject knowledge and more on subject skills, non-specialists will be able to lead students in each of these activities, so each activity could either be used in subject specific lessons, or across multiple form/tutor periods.

There is an accompanying PowerPoint to use alongside the resources, as well as worksheets for each activity.

Session	Starter and Introduction		
Summary	In this activity students will need to match the GCHQ job title with the job description. There is a worksheet available, but the options are also on a slide on the accompanying PowerPoint.		
Age Range	11-14 Key Stage 3	Room Requirements	None
Expected Duration	10 mins	Number of Participants	Whole class
Resources Required	Starter worksheet for students. Accompanying teacher PowerPoint.		
Learning Objectives	1. Learn about some of the jobs at GCHQ 2. Explore the variety of jobs available within GCHQ		
Links to Curriculum	N/A		
Key Skills	Problem-solving Critical thinking Reading and comprehension		

Job Match-Up Task - Answers

Can you match up the GCHQ job titles with their job descriptions?



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Session	Language Task		
Summary	In this task, students will learn how ciphers and code are similar to language and the skills needed to break a code are very similar to the skills required in language. This task teaches students about ciphers and by decrypting the information on their worksheet, they will learn about 3 key figures in GCHQ's history.		
Age Range	11-14 Key Stage 3	Room Requirements	None
Expected Duration	25 minutes	Number of Participants	Whole class
Resources Required	Pencil Rubber 'Language and GCHQ' Worksheet		
Learning Objectives	To understand the link between ciphers and language. To explore the importance of breaking ciphers in World War 2 To reflect on 3 key figures in GCHQ's history		
Links to Curriculum	Modern Foreign Languages Maths English History		
Key Skills	Language skills Comprehension Logic and reasoning Problem-solving Critical thinking		

Session	Language Task	25 minutes

Take students through the information on the first Language Task slide. This should help students workout what a cipher is and the role of ciphers in WW2. Emphasise that changing a number to a letter or vice versa is a similar process to translating a word in one language to another.

Make sure they understand how the A1Z26 cipher works by asking them to complete the first task on the accompanying worksheet.

If some students grasp the concept quicker than others, they can move on to the second task on the sheet where they create their own numbered cipher.

If some students also complete this while others are still on the first task, you could challenge them to swap with the person next to them and try and decipher each other's ciphers.

When all students have understood how the cipher works, walk them through the information on the third Language Task slide. This will give them more background on how ciphers were used in WW2 and introduces them to GCHQ.

The final task involves students using a new numerical cipher to decipher information about three key figures in GCHQ's history.

Some of the information has been encrypted, so the students will need to decrypt the information before they are able to answer the questions about each key figure.

However, some letters are missing from the cipher key. Students should first fill in all the letters they can in the information. They can do this for all three key figures. When they have done this, they should be able to work out what some of the encrypted words are and therefore what one or two missing letters are. They should then fill in the cipher key accordingly to help them decipher the rest of the information.

You could suggest to students to work out which letters are missing from the cipher key and write them down somewhere so they can then try them in the gaps in the information.

You can find the answers to both the questions and the ciphers on the next page/s.

Cipher with correct letters:

1	2	3	4	5	6	7	8	9	10	11	12	13
J	B	W	**N**	H	V	Z	P	E	K	R	**T**	F

14	15	16	17	18	19	20	21	22	23	24	25	26
M	Y	U	**C**	I	Q	G	**O**	X	L	D	S	**A**

Key Person 1: ALAN TURING

This person was a leading cryptanalyst at the Government **CODE** and **CYPHER** School working at **BLETCHLEY** park during the **SECOND** World War. He is also considered the founding father of theoretical computer science and artificial intelligence. During his time at Bletchley park, alongside others, he designed the **BOMBE**. The Bombe was the first special-purpose British cryptanalytic machine. The combination of the Bombe and the brilliant minds and perseverance of those working at Bletchley Park lead to the breaking of **ENIGMA** - the coding Germany used to send messages.

Questions:
1. What is the name of the first key person? Alan Turing
2. What was GCHQ originally known as? Government Code and Cypher School
3. Where did they work? Bletchley Park
4. During which World War did they work for GCHQ? Second
5. What machine did they help to design? The Bombe
6. What did the machine help to break? Enigma

Key Person 2: ANNE KEAST-BUTLER

This person is the current **DIRECTOR** of GCHQ. She was appointed in May 2023, she is the **SEVENTEENTH** person to hold role and took over from Sir Jeremy Fleming. She is also the first woman to ever hold this position.
She joined GCHQ from MI5, where she was Deputy Director General, responsible for MI5's operational, investigative, and protective security work. This has included MI5's – and allies' - preparation for and response to Russia's illegal invasion of **UKRAINE**.
Before this, she spent two years at GCHQ as Head of Counter **TERRORISM** and Serious Organised **CRIME**.
Anne grew up in Cambridge and holds a degree in **MATHEMATICS** from Merton College, Oxford.

Questions:
1. What is the name of the second key person? Anne Keast-Bulter
2. How many other people have had the same job (not including this key person)? Seventeen
3. While at MI5, this person had to prepare and respond to Russia's invasion of which country? Ukraine
4. Which two areas was this person Head of at GCHQ before moving to MI5? Counter Terrorism and Serious Organised Crime
5. Which subject does this person have a degree in? Mathematics

Key Person 3: HUGH FOSS

This person was born in **OSAKA** in Japan, but went to school in Britain after which he joined the Government Code and Cypher School in 1924. He showed an innate talent for cryptanalysis and his **JAPANESE** language skills came into good use against Japanese machine cipher systems.
In 1927, he wrote a paper to suggest a way of **BREAKING** the Nazi Enigma cipher. He was also the first to succeed with one of Alan Turing's deciphering techniques which helped to crack the Enigma cipher. He also developed the **FOSS SHEET**, which was a way to record common words or phrases which could help break the Enigma cipher. Towards the end of the Second World War, he was sent to the USA where he made a major contribution to tackling a Japanese cryptographic machine known as **CORAL**, which was broken in March 1944.

Questions:
1. What is the name of the third key person? Hugh Foss
2. In which city was this person born? Osaka
3. Which language skills came into use when he started cryptanalysis? Japanese
4. What did he suggest in the paper he wrote in 1927? A way to break the Nazi Enigma cipher
5. What did he develop to help crack the Enigma cipher? the Foss Sheet
6. What was the name of the Japanese cryptographic machine that he helped crack? Coral

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Session	History Task		
Summary	This activity is a metaphorical 'Escape Room' where students have to picture they are trapped in Bletchley Park and need to 'escape' by completing two missions. For Mission 1, they need to read the information about the history of GCHQ and then complete a crossword. Once they have completed the crossword, they need to use each letter highlighted in blue to form a code word related to GCHQ. For Mission 2, the students then need to form a timeline about the history of GCHQ over time that uses every word from the crossword. Once complete, they have then officially 'escaped'.		
Age Range	11 - 14 Key Stage 3	Room Requirements	There are no room requirements for this activity.
Expected Duration	25 minutes	Number of Participants	Whole class
Resources Required	Pencil Rubber Colouring pencils (if students wish to draw their storyboard in colour) 'The History of GCHQ' worksheet		
Learning Objectives	1. To understand the history of GCHQ and how it has changed over time 2. To understand how GCHQ has played an important role in shaping the UK during significant events such as the First World War and the Second World War.		
Links to Curriculum	History English Geography		
Key Skills	Critical thinking and problem-solving Research Comprehension Witten communication, problem-solving Analysis		

Session	History Task	25 minutes

The 'escape room' can consist of both missions, or just the first, depending on your time constraints. The second mission can also be used as an extension task for students who are quicker readers.
If there are a range of reading speeds in the class, the students can pair up or complete the reading and crossword in groups. If the class is lower ability, you might like to demonstrate finding one of the crossword answers.

Mission 1

Students need to complete a crossword. They will need to use all of the information provided on 'The History of GCHQ' in their worksheet to help them. If stuck, there are cheats below as well as answers. Only you have access to these, so students will need to ask you if they need a cheat to assist them. In order to progress, they will need to check with you that their answers are correct.

Across

3. In 1917, the UK intercepted a message from Germany to Mexico. What format was it in? (8) CHEAT: A type of message sent by telegraph and then delivered in written or printed form. ANSWER: Telegram.

6. The name of the machine invented to crack the Enigma code (5) CHEAT: This machine was invented by Alan Turing to crack the most challenging versions of Engima. ANSWER: Bombe.

7. The type of code that GCHQ was responsible for breaking during the Second World War when it moved to Bletchley Park (6) CHEAT: This was a code used by Germans using a cipher machine. ANSWER: Enigma.

9. As well as The Cold War, what other advancement has created new challenges for intelligence and security? (8) CHEAT: A type of network that connects computers. ANSWER: Internet.

10. The surname of GC&CS's first head (9) CHEAT: Their first name is Alastair. ANWER: Denniston.

Down

1. The location where GCHQ was given space in 1919 (14) CHEAT: The initials of this location are WH. ANSWER: Watergate House.

2. When GCHQ moved to Bletchley Park, they looked for men from universities in Oxford and _____ (9) CHEAT: This location is in Cambridgeshire. ANSWER: Cambridge.

4. What country did GCHQ form a partnership with that allowed it to have global reach? (12) CHEAT: _____ and Commonwealth (also referred to as the US). ANSWER: United States.

5. The location where GCHQ eventually moved to during the 1950s (10) CHEAT: This location is in Gloucestershire. ANSWER: Cheltenham.

8. The acronym for GCHQ's original name (5) CHEAT: This acronym contains a symbol. ANSWER: GC&CS.

Crossword code

Once your students have completed the crossword, they will need use all the letters highlighted in blue on the crossword to form a word related to GCHQ:
CHEAT: One of GCHQ's famous figures who invented the Bombe machine to crack the Enigma code.
ANSWER: Turing.

Session	History Task	25 minutes

Mission 2

Students need to complete a timeline about the history of GCHQ over time. They can use the information about the history of GCHQ and their answers to the crossword from the first mission to assist with this. They will need to write a description in the lines provides as well as drawing an image to accompany it. Students will need to use all of the words (or 'codes') from the crossword in their descriptions in order to escape Bletchley Park (if you have decided to use both missions in the 'escape room', otherwise this mission can be an extension for students who completed the first mission quickly). The blue boxes on the timeline worksheet lets the students know which 'codes' need to be used in which box.

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Session	Maths Task		
Summary	In this task, students will need to detect anomalies in a banks security system, after GCHQ received news of a potential cyber threat. Students will need to work out which linear equation does not belong in each row of three equations. Equations will involve anomalies in i.e. y-intercepts. At the end of the task, students will need to work out the 3 digit code, using the numbers they determined as the odd one out. This will unlock a top secret task to completely secure the banks system.		
Age Range	11-14 Key Stage 3	Room Requirements	There are no room requirements for this activity.
Expected Duration	35 minutes	Number of Participants	Whole class (Complete task in pairs or individually)
Resources Required	Pencil Calculator (if required) Graph paper/Ruler (if needed for working out) 'The GCHQ Maths' Worksheet Additional paper for working out (if needed) Website link here for the extension task (click on 'here' or in teacher guide/ link on task sheet to listen to audio/see transcripts)		
Learning Objectives	1. To understand how GCHQ use mathematics to analyse data and detect anomalies in cyber security. 2. To understand the important role GCHQ play in protecting sensitive data for large companies such as Banks, the NHS and other vital sectors in the UK.		
Links to Curriculum	Mathematics Linear equations y-intercepts Gradients		
Key Skills	Data analysis Critical thinking Problem solving Arithmetic		

Session	Maths Task	35 minutes

Introduce students to GCHQ's new mission in cybersecurity. Provide students, either individually or in pairs, with the 'GCHQ Maths Task' sheet.

Students will need to complete the practice equations first and decide which is the odd one out by working out each equation and comparing them to each other. Hints are provided for the practice equations which focus on slopes and gradients. This should take between 5-10 minutes to complete.

Once the practice task has been completed, you can provide students with the mission. They will have 3 sets of equations which will need working out and comparing, to work out which one is the odd one out. On the answer sheet provided to teachers, there will be hints which can be provided if students require them. Each set should take roughly 8-10 minutes to complete.

The equations will include y-intercepts, with knowledge of slopes needed as practiced initially.

Students will then need to work out the code at the end of the task. This will uncover a top secret GCHQ knowledge task to further secure the banks system, which students can complete if they have time. This 3 digit code will be the values of the odd equations. When you provide students with answers, provide the code and if any errors have been made, they will need to check their answers circled. For example:

Equation 1a: 3y-15=0 - y-intercept c=5 or (0,5)
Equation 1b: y-7=2x - y-intercept c=7 or (0,7) (Odd one out)
Equation 1c: 2y=10+0x - y-intercept c=5 or (0,5)

The odd one out here is **Equation 1b**, as it has a y-interact (c) of 7 or (0,7), whilst equations A and C both have y-intercepts of 5, or (0,5).
Therefore, students should have the number '7' written as part of the code, as it was an odd one out.

The extension task, after the code, involves using videos from the GCHQ site. Listen or read the transcript 'Life in the Mathematics & Cryptography team' to complete question 1. Then listen or read the transcript of the 4 speakers from the GCHQ team to answer questions 2-14.

See the answer sheets below and for further working out, see answer sheets 1-13 on the task. For the extension task, see answer sheet 14-15.

Answers for Maths Task.

Practice questions

1). Odd one out is **Equation 1A.** It has a different y-intercept of 2 or (0,2), compared to B and C which both have a y-intercept of 6 or (0,6).

Overall:

Equation 1a: 2y-4=8x - y-intercept: c=2 or (0,2) (Odd one out)

Equation 1b: y=3x+6 - y-intercept: c=6 or (0,6)

Equation 1c: 4y=24-8x - y-intercept: c=6 or (0,6)

2). Odd one out is **Equation 2C.** It has a different y-intercept of 7 or (0,7), compared to A and B which both have a y-intercept of 3 or (0,3).

Overall:

Equation 2a: 2y-6=0 - y-intercept: c=3 or (0,3)

Equation 2b: y-3=2x - y-intercept: c=3 or (0,3)

Equation 2c: y=-x+7 - y-intercept: c=7 or (0,7) (Odd one out)

Task answers

1). Odd one out is **Equation 1B.** It has a different y-intercept of -8 or (0,-8), compared to A and C which both have a y-intercept of 8 or (0,8).

Hint to provide students (if needed) - Pattern involves the y intercept. Be mindful of the negative and positive values.

Overall:

Equation 1a: 4y-32=0 - y-intercept: c=8 or (0,8)

Equation 1b: y+8=3x - y-intercept: c=-8 or (0,-8) (Odd one out)

Equation 1c: 2y=16+8x - y-intercept: c=8 or (0,8)

Answers for Maths Task.

2). Odd one out is **Equation 2A.** It has a different y-intercept of 3 or (0,3), compared to B and C which both have a y-intercept of -3 or (0,-3).

Hint to provide students (if needed) - Pattern involves the y intercept. Be mindful of the negative and positive values.

Overall:

Equation 2a: y-3=0 - y-intercept: c=3 or (0,3) (Odd one out)

Equation 2b: 2y+6=0 - y-intercept: c=-3 or (0,-3)

Equation 2c: y+3=-x - y-intercept: c=-3 or (0,-3)

3). Odd one out is **Equation 3B.** It has a different y-intercept of 7 or (0,7), compared to A and C which both have a y-intercept of 5 or (0,5).

Hint to provide students- Pattern involves the y intercept. Are all equations in the y=mx+c format?

Overall:

Equation 3a: 3y-15=0 - y-intercept: c=5 or (0,5)

Equation 3b: y-7=2x - y-intercept: c=7 or (0,7) (Odd one out)

Equation 3c: 2y=10+0x - y-intercept: c=5 or (0,5)

If the code is correct, your students will have correctly circled all of the odd equations.
Code ->> -8,3,7

Answers for Maths Extension Task.

1). Finish the sentence - 'This is real maths, **to solve real problems'.**

2). Name 2 jobs at GCHQ that uses Math skills mentioned on the webpage:
a). Mathematician b). Cryptographer OR Cryptomaths Researcher

Audio 1

3). What 3 steps does the speaker mention being part of the application process?
Online form, interview, vetting process (to make sure you're not a security threat).

4). What surprised the speaker most when they first started?
Everyone, regardless of how high they are in the organisation, is so approachable and happy to help you out.

Audio 2

5). What attracted the speaker to the role at GCHQ?
They were attracted by the prospect of doing maths, and not having to go into accounting or teaching.

6). What does the speaker say was more important than them answering every question correctly in the application test?
It was more about seeing how they worked than whether or not they answered the questions correctly.

7). What does the speaker say is the basis of how others view (judge) each other at GCHQ?
You're not judged on who you are, how old you are or where you went to university, but by the quality of the work that you do.

Audio 3

8). What does the speaker say their job includes?
Their job includes using mathematics like linear algebra, group theory and statistics.

Answers for Maths Extension Task.

9). What training programme did they do as soon as they started at GCHQ?
The moment you join you do a Maths Development Programme, where all the new mathematicians take part in a four week long course covering areas like algorithms and statistics.

10). When is it okay to discuss your job at GCHQ and what you are doing?
Once you're inside the building everyone's happy to talk to you about what they're doing and sometimes they even ask for your input.

11). What attracted the speaker to the job?
They were looking for a place where they could use the maths they'd learnt, but outside of a university environment. And they really liked the idea of being part of a place that does vitally important work.

12). What do they enjoy most at GCHQ?
Being part of a community and working with like-minded people. On one hand, you've got graduates who have come straight into the organisation and then on the other, you've got some of the best mathematicians giving really inspiring talks.

Audio 4

13). What new skills did the speaker acquire when they joined GCHQ?
They are now a competent programmer because they went through lot of training and programming practice.

14). What does the speaker say is another quality that is important along with being willing to learn?
Be very persistent.

GCHQ

Session	Computer Science Task		
Summary	In this task, students will learn about programs and algorithms through a competition of noughts and crosses. Students will learn that everything computers do involves following instructions written by (creative) computer programmers. We suggest the teacher read through the guide below a few times in preparation for the activity. The activity works best when some 'showmanship' is added to the presentation of the activity. 15 minutes or so should be sufficient to read the instructions a few times and to become familiar with the flow.		
Age Range	11 - 14 Key Stage 3	Room Requirements	None
Expected Duration	25 minutes	Number of Participants	Whole Class
Resources Required	Whiteboard/smartboard/flip chart - something to write on for all to see. One or two pens to work on the above resource. A copy of 'The Intelligent Piece of Paper'.		
Learning Objectives	1. Learn what a program is. 2. Explore what intelligence is and how computers work. 3. Reflect on whether something that blindly follows instructions can be intelligent.		
Links to Curriculum	Computer science Maths ICT		
Key Skills	Listening Critical thinking Observation		

Session	Computer Science Task	25 minutes

Introduce students to the 'Intelligent Piece of Paper'. Claim it is very intelligent, perhaps more intelligent than some of the teachers in the school! Build up how intelligent it is without saying why. Wave it around while keeping the written side hidden from the class.

Ask the class if they believe you. Do a quick hands up poll: those who believe you vs those who think you are talking absolute rubbish.
Most should go for the 'rubbish' option. Congratulate those who do - no decent scientist would believe such an outrageous claim simply because they are told, especially without any evidence.

Ask students to suspend their scepticism and suggest how the paper might be intelligent. What about it could make it intelligent?
You might get answers like the ink being special or it being laminated. Praise these ideas but challenge them asking why such things would make the paper *intelligent?*
Another suggestion might be that it's what is written on the paper than makes it intelligent. If this is suggested, ask what could be written on the paper to make it intelligent - equations? Poetry? Facts?
Again, challenge the students asking them 'would these things written on the paper make it intelligent?
Talk about how knowledge and intelligence aren't the same. Afterall, we wouldn't call a book intelligent just because it has knowledge in it. To convince us that something is intelligent, it needs to be able to *do* something to show it is intelligent.

What can the paper do?
Well, it has never lost a game of noughts and crosses. Remind students that if two players play perfectly, the game ends in a draw. You cannot force a win.
However, the paper has won about half the games it has played and has drawn the rest. It is a perfect intelligence. Humans aren't!

Ask if the students believe you. Would they rather see some evidence?
To show the evidence select two volunteers.

Draw a noughts and crosses board on the whiteboard/smartboard/flipchart.
Explain that we will need to play a game of noughts and crosses to see how intelligent the paper is. It will not be a game between humans, but between 'paper-kind' and human kind. Seeing as the paper doesn't have a camera system to see or a robotic arm to use the pen, it will need a servant to do its bidding.

One person will play for the piece of paper. They just need to do what the paper tells them to do. They should read out the paper's instructions, one at a time, so everyone knows it's the paper playing and not the person, and do as it says.

The other student will represent humanity. You may not want to pick someone who seems super keen to play to reduce the chance of the match being a draw. This student's job is to play their best. As the paper is so intelligent, you can suggest the rest of the class helps this student and offer moves they think are best.

Now get the student representing the piece of paper to read out the instructions, one at a time, followed by the action. The first instruction is that it wants to go first - note this is quite clever. If students complain about it being unfair, point out that the game should just end in a draw whoever goes first. Going second isn't necessarily a reason to lose.

Next let the student read out the first instruction of where to go (in a corner). Then allow the student representing humanity go. Continue this making sure the reader reads out the instructions on the paper, before entering their move - you may need to help them understand where the instruction is telling them to go. For example, 'opposite corner' means the diagonally opposite corner.

If the instructions are followed correctly, either the paper will win, or it will draw with humanity.
Sometimes students might resort to cheating in order to win, or give up when they realise they are about to lose. In both cases, remind the students it is only a piece of paper and it might have just been lucky so far, or it might still go wrong and mess up in order to take the game to the end.

You can repeat the game as many times as you like. Once you feel the point has set in, announce the paper's unbeaten streak continues. Ask for applause for both the volunteers and the paper for a good game.

Now that you have given the class the evidence, ask them again to vote on whether the paper is intelligent, or if you are still talking rubbish.
The students are likely to still vote that the paper is not intelligent, despite the evidence of it's abilities. However, you can point out that it did show intelligent behaviour, so there must be intelligence somewhere.

Ask the class where they think the intelligence is.
Most will say in the person who wrote the instructions. Ask for a show of hands for who agrees with this.

Explain to the class that what is on the paper is essentially a computer program: instructions which are blindly followed. Everything a computer does, it does by blindly following instructions. It might be worth making the point that if the class think that the paper is not intelligent because it is just following rules, then they are also saying no computer could ever be intelligent either.

The instructions on the paper are written in English so we can understand and follow it. If we were to write them for a computer, we would write it in a computer language, or 'programming language'. A programming language is a language a computer can understand precisely and follow.

If the writer of the paper is the intelligent one, rather than the paper itself, then it is computer programmers, not computers who are intelligent.

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Session	Plenary		
Summary	A chance for students to reflect on what they have learnt in each of the activities.		
Age Range	11 - 14 Key Stage 3	Room Requirements	None
Expected Duration	5 minutes	Number of Participants	Whole Class
Resources Required	Paper and pen for students GCHQ PowerPoint		
Instuctions	Students will write down 3 things from the lesson: • Something I already knew... • Something I learnt... • One question I still have... You can ask for feedback on each question to assess where individual students are.		

This resource and associated resources were created by Inspiring the Future, in partnership with GCHQ

Inspiring the Future, run by charity Education and Employers, is a free, online, self-service platform for teachers to find volunteers from the world of work to give careers talks at their schools.

Inspiring the Future aims to:

1. Broaden young people's horizons and raise their aspirations
2. Excite children about subjects, increasing motivation, confidence and attitude to learning
3. Challenge gender and social stereotypes
4. Improve academic attainment at GCSE
5. Increase young people's earning potential
6. Reduce the likelihood of young people becoming NEET(not in education, employment or training)

To explore Inspiring the Future's work, visit inspiringthefuture.org, where you can also sign up to our platform to access careers speakers from every sector, including science and technology.

On the platform, you also have access to pre-recorded resources where students will hear from a number of volunteers from a variety of sectors. There is also a GCHQ focussed pre-recorded resource where students will hear from a lawyer, scrum master and an intrusion analyst from GCHQ!