Techniques for Effective Learning - starting in the first week of Year 10

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Resources Folder: *bit.ly/CnDF2026*

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Session description:

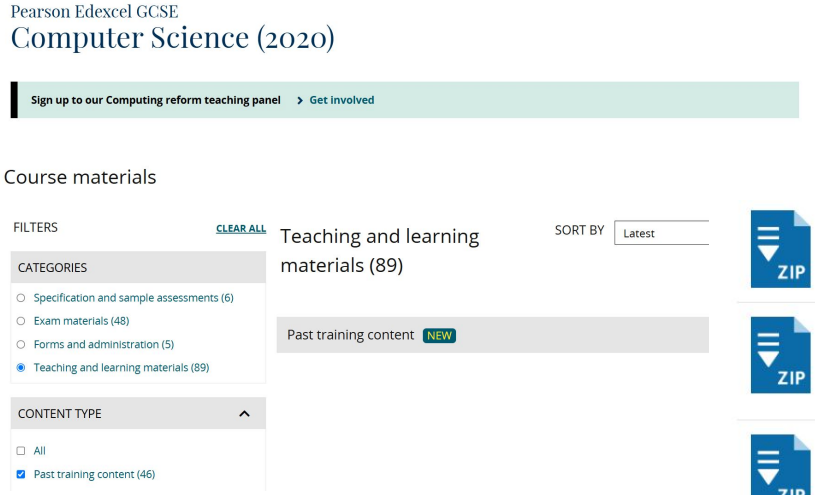
Specifications may change, but g**ood teaching methods and practice stay the same**. Or do they? And often the tools for learning change or go for good... goodbye Repl.it and Trinket!

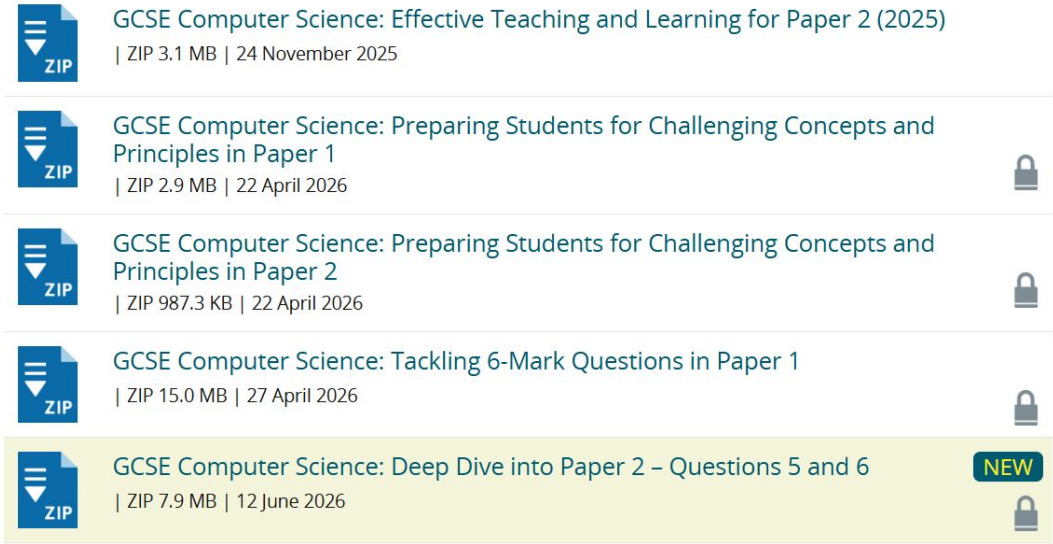
Following on from my "Just One Thing" talk two years ago, I'd like to show you what I have been using to help my **Year 10s learn** well, and how I tweak things for **Year 11s** leading up to the exams.

I'll include some of the **best ideas from the Pearson Webinar series** this year and how I have improved how we use **Smart Revise** - one learning tool that keeps improving.

Please be ready to share your ideas too...

P/E Webinars 2025-26





https://qualifications.pearson.com/en/qualifications/edexcel-gcses/computer-science-2020.coursematerials.html#filterQuery=category:Pearson-UK:Category%2FTeaching-and-learning-materials&filterQuery=category:Pearson-UK:Document-Type%2FPast-training-content

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Share 1 *- go to google doc from start*

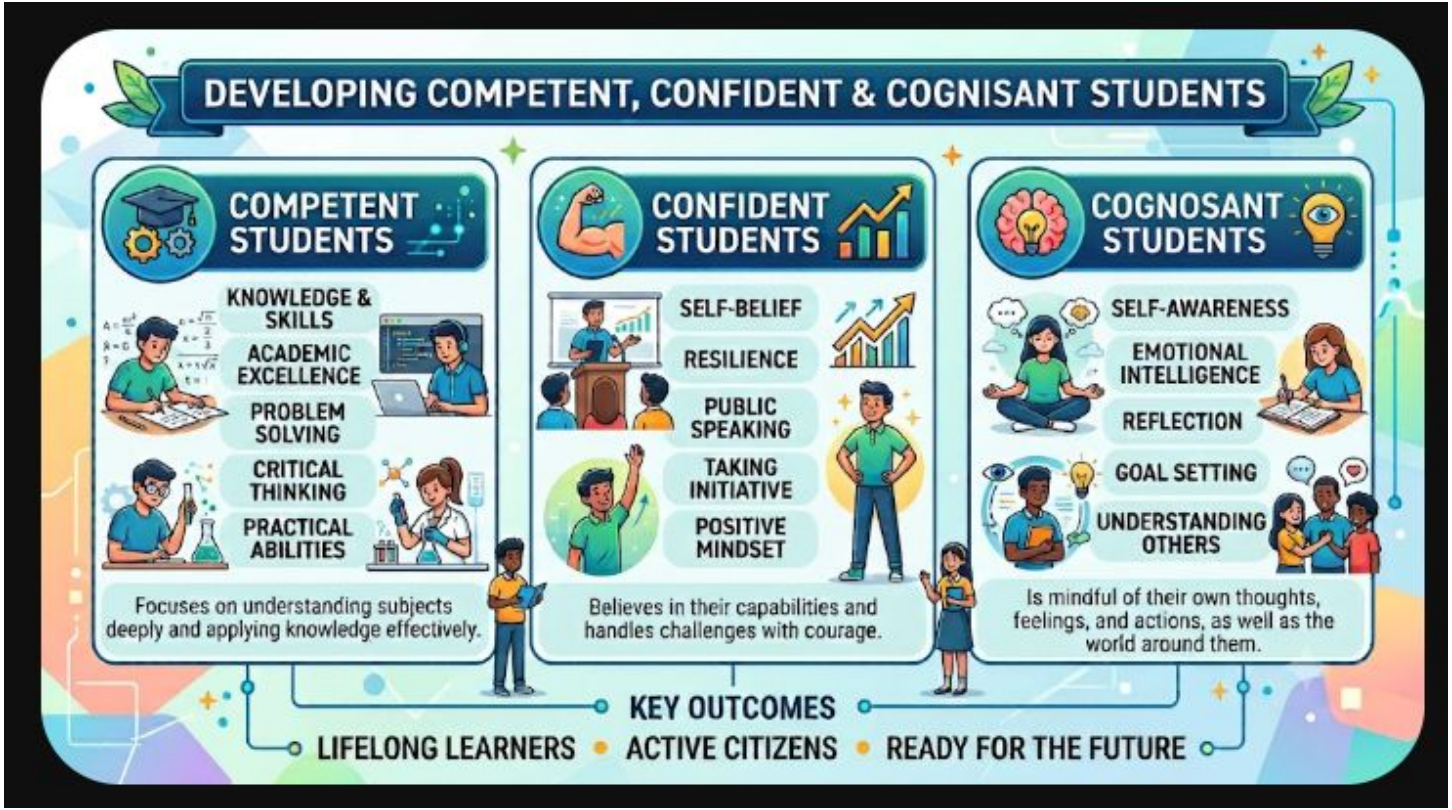
Name and email
Exam board for GCSE CS
Use of Smart Revise?

AND - If you were asked for
THREE characteristics you would want
from your Y11 students,
what would they be?

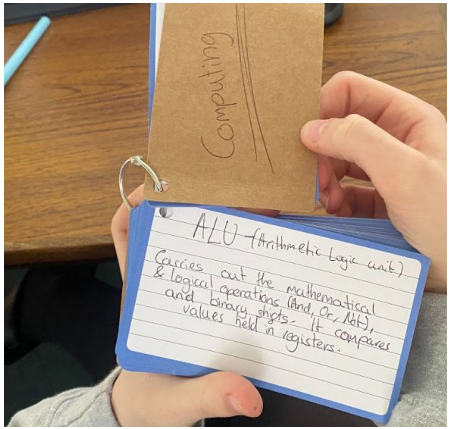
If I was asked for
THREE characteristics I would want
from my Y11 students,
what would they be?

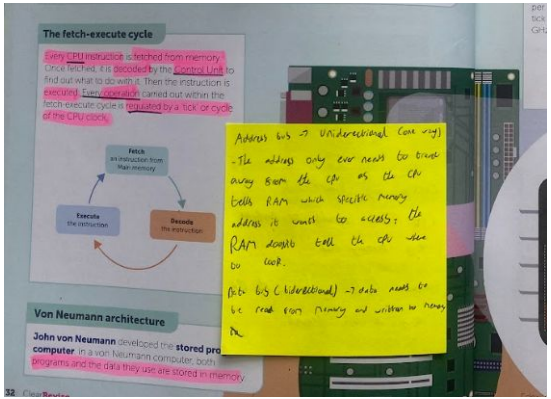
1. **Competent** students
2. **Confident** students
3. **Cognisant** students

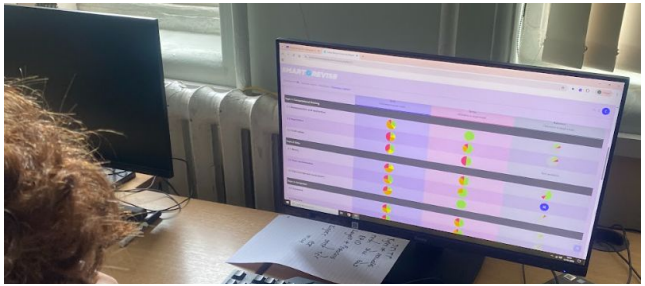
Gemini, please make an infographic showing competent, confident and cognosant students:

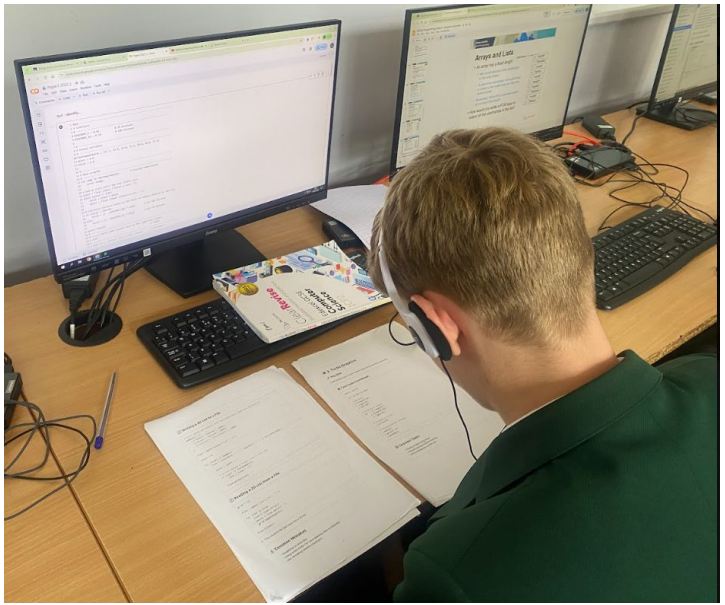


All students are different...









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Year 10 - Structure of the course - Theory

Share 2a - Theory Resources

Narratives 1 - Will it make the boat go faster?

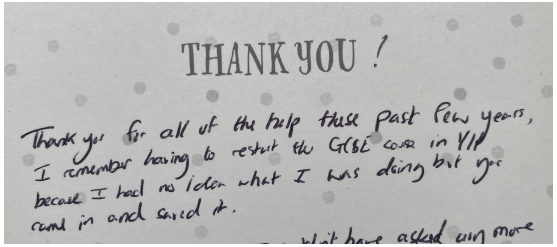
Article – Will it make the Boat Go Faster? Out-learning, not out-working…

The following article is a great example about setting a clear goal, working smarter and having a growth mindset. I wrote it soon after starting in a new school to inform and m
listening to th
for a couple o
and how best
and I was goi
assemblies.

However, I w
framework to
not focus – ar
Davis, broadc
he and his rowing team chose to work smarter and with a very clear and precise goal to get better at what they were doing. In their case rowing to win a gold medal at the Sydney Olympics… hence the question – Will it make the Boat Go Faster?

22.55 "We started doing things differently in October 98. Rowing like most sports is about rhythm and timing. Our first regatta was in Belgium in May, a World Cup regatta and we hadn't done any work on starts, or race sharpness. We just wanted to generate the right rhythm for the middle of the race. Our goal was 1800m at this rhythm. We finished and people were shouting at us and we didn't know what we had done wrong. We had come second! We realised then that concentrating on the performance stuff could work".

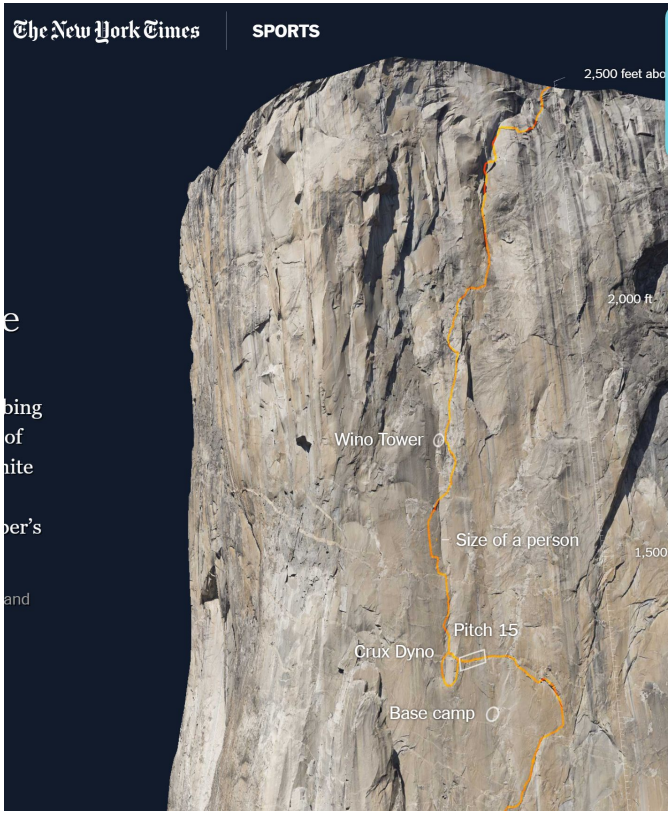
24.40 "We worked incredibly hard on learning. We worked really hard on a learning culture. We were not going to out-work people, but we needed to out-learn people every day".



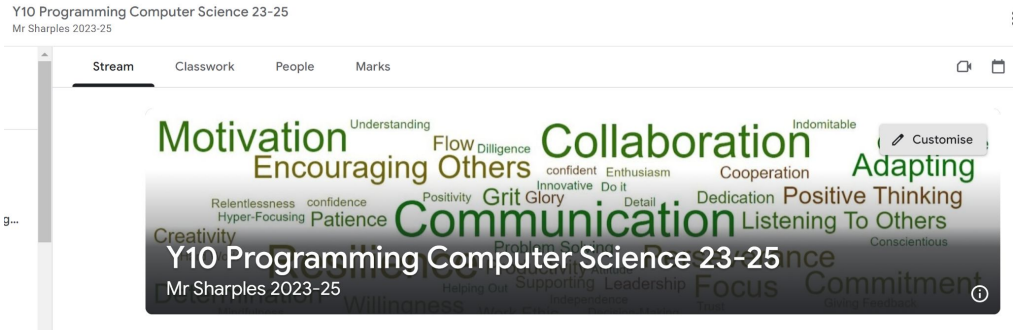
You can listen to the podcast here, with highlighted sections below; the video of the Sydney 2000 Olympics Rowing 8s final here; and buy the book here.

https://gr8computing.wordpress.com/2023/12/01/will-it-make-the-boat-go-faster-out-learning-not-out-working/

Narratives 2 - Dawn Wall



Narratives 2 - Dawn Wall - Word clouds



Share 2 - go to google doc from start

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My summary:

- SWOW - see right
- PGOnline slides, worksheets and revision slides with reflections
- Smart Revise - see later
- Hand mark Topic Tests with formative assessment to develop exam technique
- ***Now issuing getting started guide topics for Y10s***

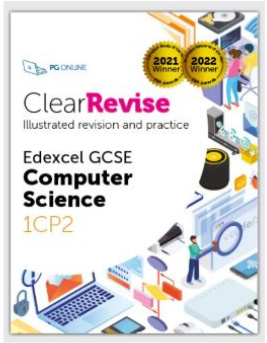
KS4 Computer Science - Standard Ways of Working

Get the best ways of working to be Competent, Confident and Cognisant!

About the Edexcel GCSE in Computer Science

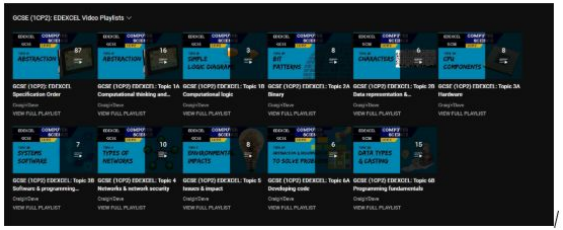
Click in **Google Classroom > Y10 Computer Science 2021-22 > Important Resources** for: Full syllabus / two page at-a-glance syllabus / this Standard Ways of Working.

Theory Book:
We use the Pearson Text Book and I will suggest you get the Pearson workbook at the beginning of Y11.



Slides:
Every **PGOnline Unit** has six topics, each with **slides, worksheets and homework sheets**.
Use slides and worksheets for practising answering questions
Complete revision slides with your own learning journey
Each unit has an **End of Unit Test** supplemented by past exam questions.
**Make sure you have corrected ALL questions so you know what to say if you get them in the real exam*.*

101 videos from Craig and Dave explaining all units of Edexcel



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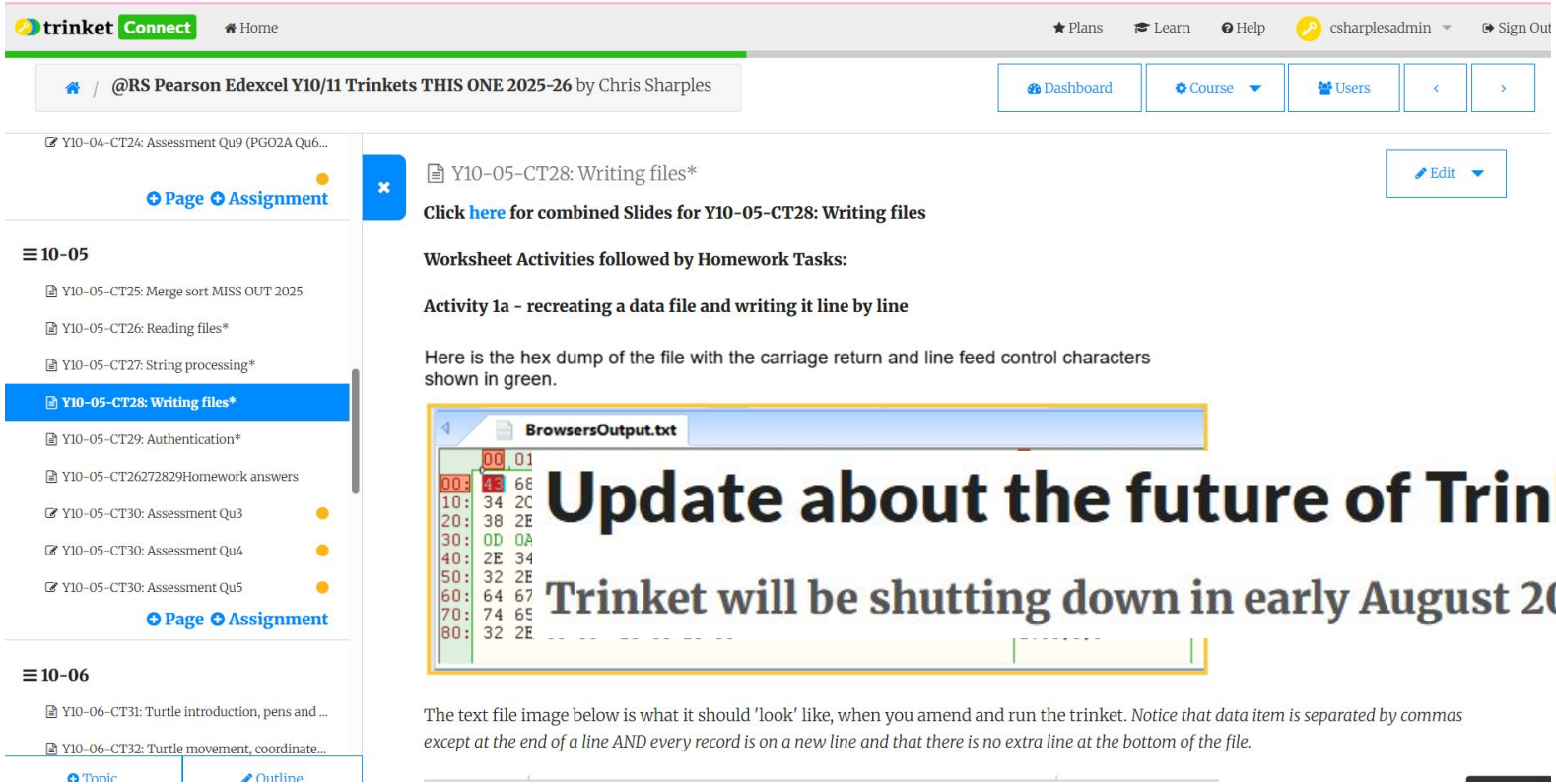
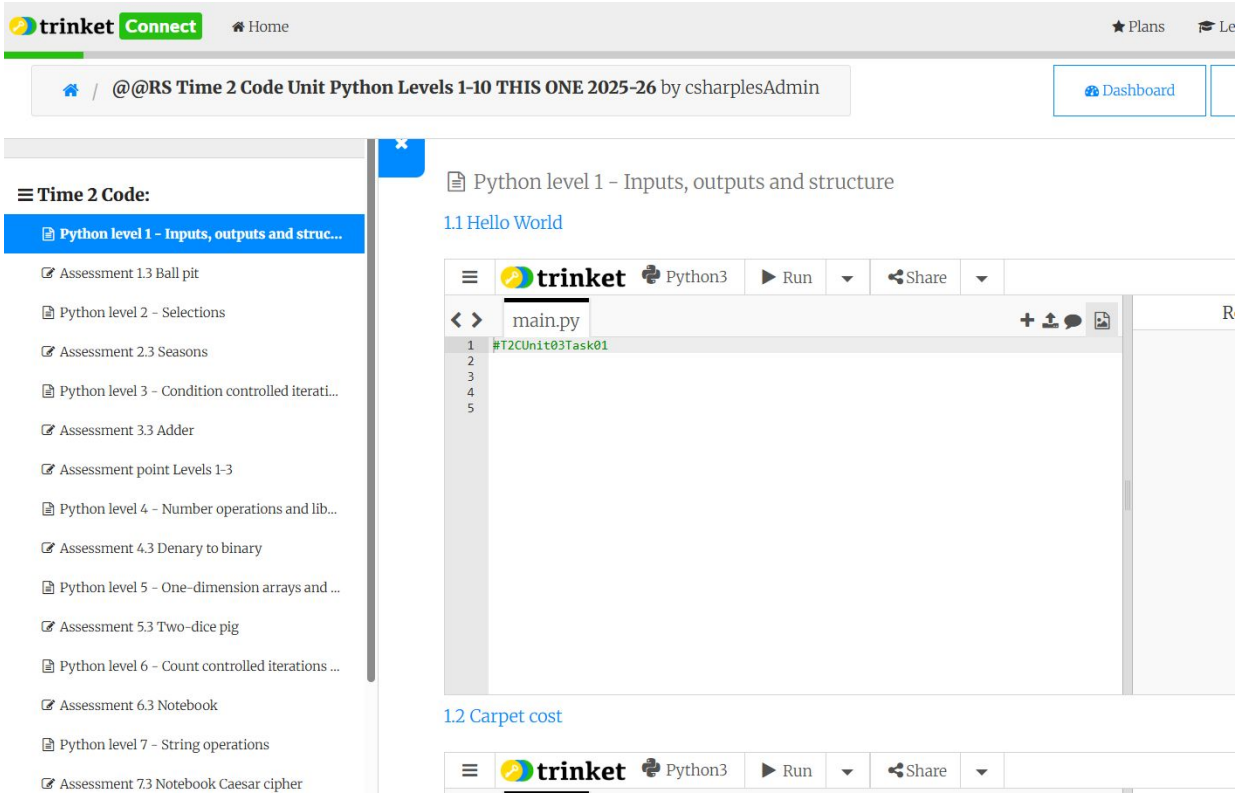
Year 10 - Structure of the course - Programming

Share 2b - Programming Resources

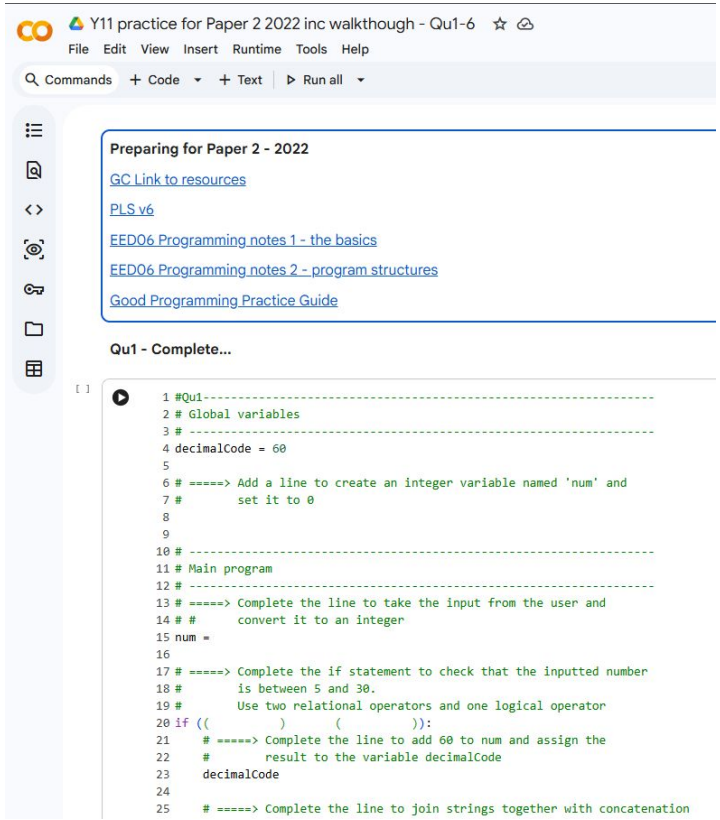
I will miss Trinket...

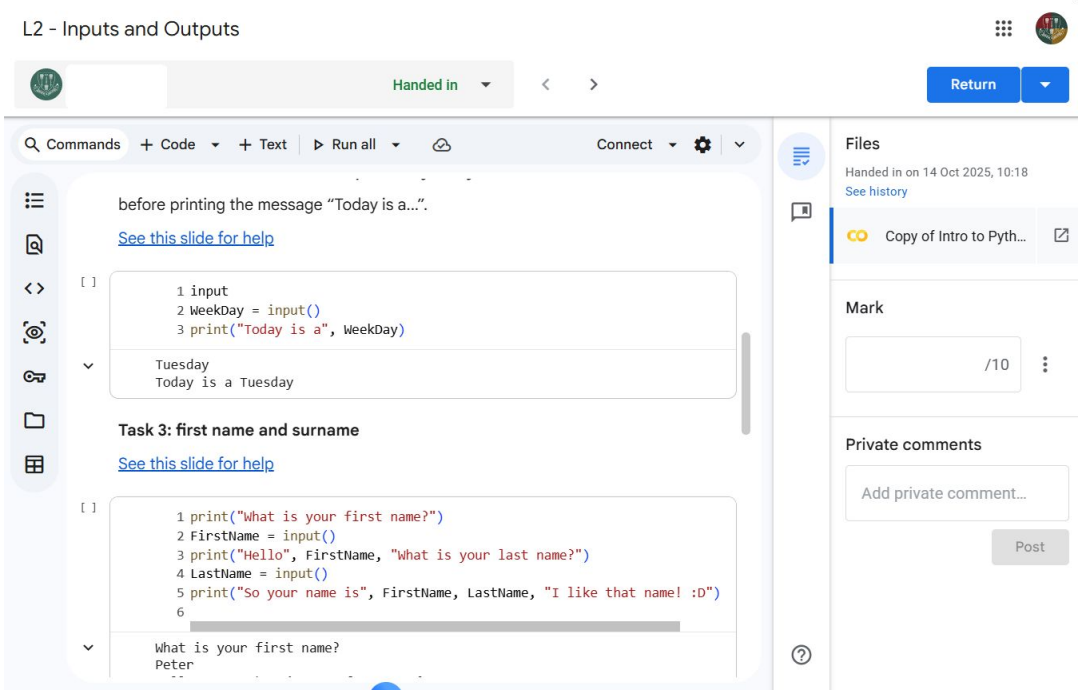


Time 2 Code

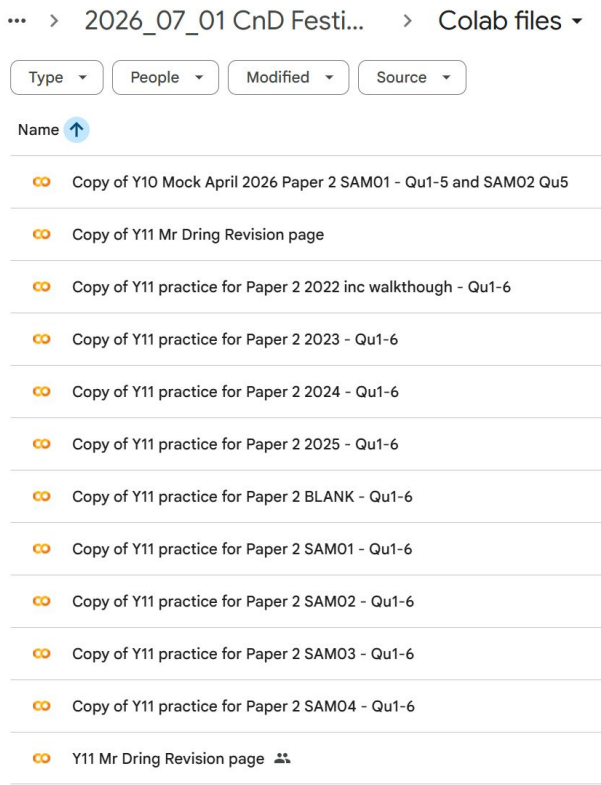

trinket Connect
Home
Plans
@@RS Time 2 Code Unit Python Levels 1-10 THIS ONE 2025-26 by csharplesAdmin
Dashboard
Time 2 Code:
Python level 1 - Inputs, outputs and struc...
Assessment 1.3 Ball pit
Python level 2 - Selections
Assessment 2.3 Seasons
Python level 3 - Condition controlled iterati...
Assessment 3.3 Adder
Assessment point Levels 1-3
Python level 4 - Number operations and lib...
Assessment 4.3 Denary to binary
Python level 5 - One-dimension arrays and ...
Assessment 5.3 Two-dice pig
Python level 6 - Count controlled iterations ...
Assessment 6.3 Notebook
Python level 7 - String operations
Assessment 7.3 Notebook Caesar cipher
Python level 1 - Inputs, outputs and structure
1.1 Hello World
trinket
Python3
Run
Share
main.py
#T2CUnit03Task01
1.2 Carpet cost

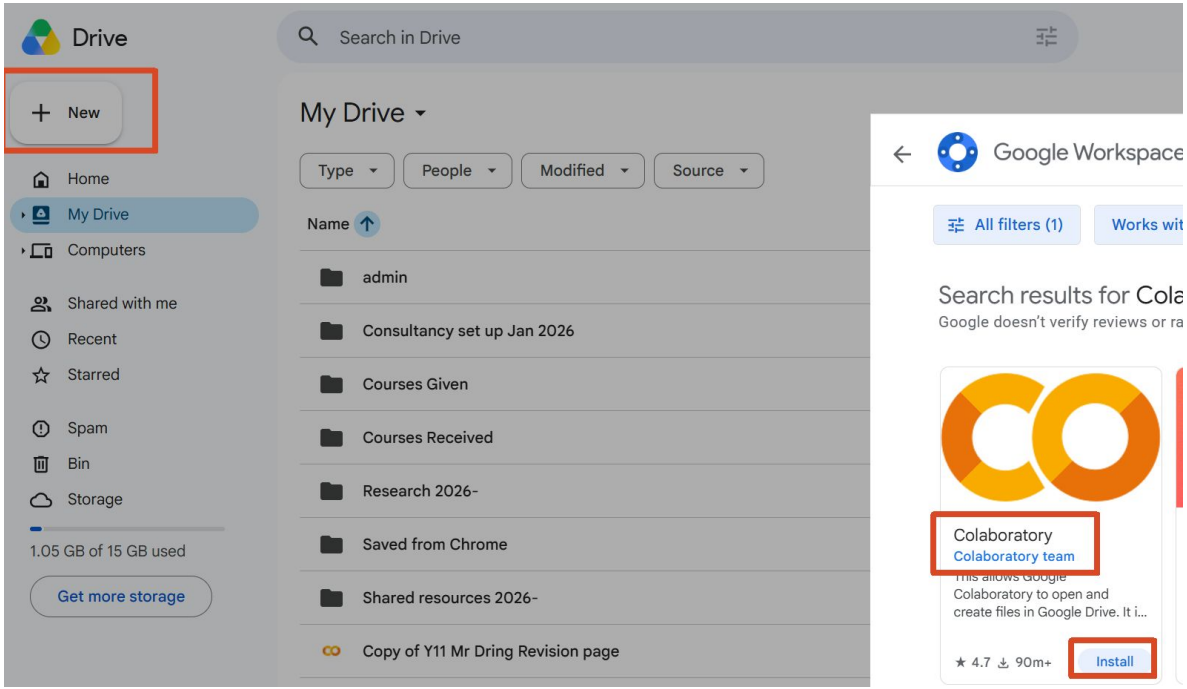
Colab / Jupyter notebooks - sample and handing in



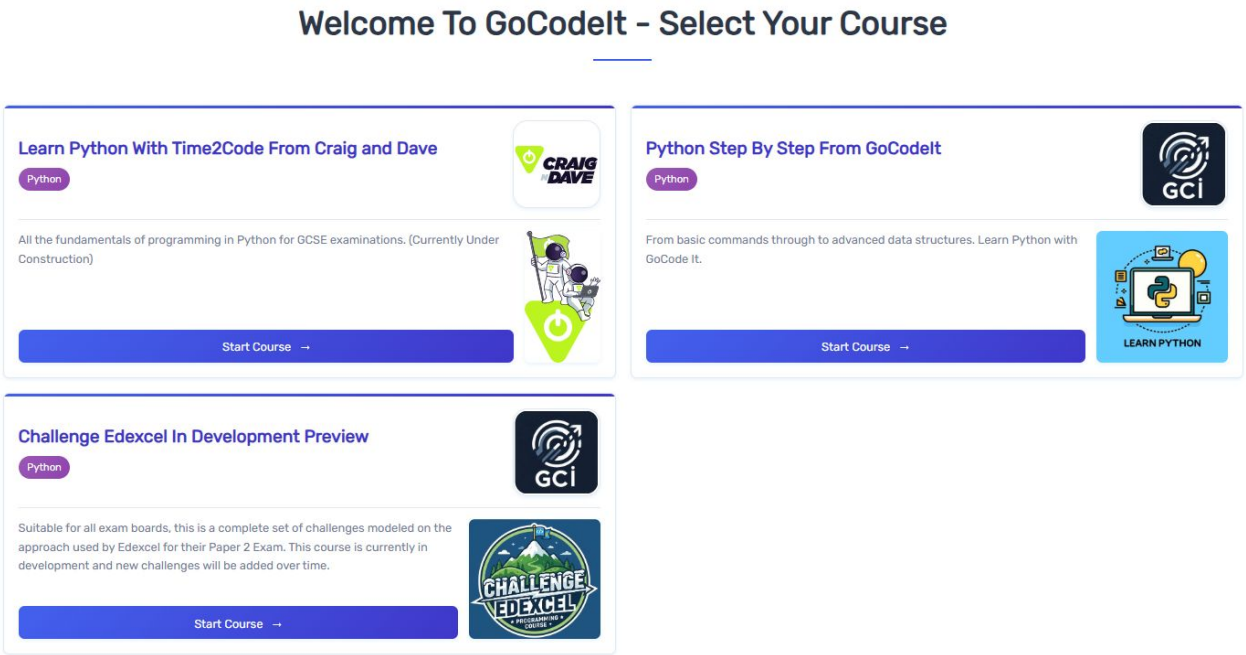


Using Colab notebooks in Chrome





Go CodeIt



https://gocodeit.online/

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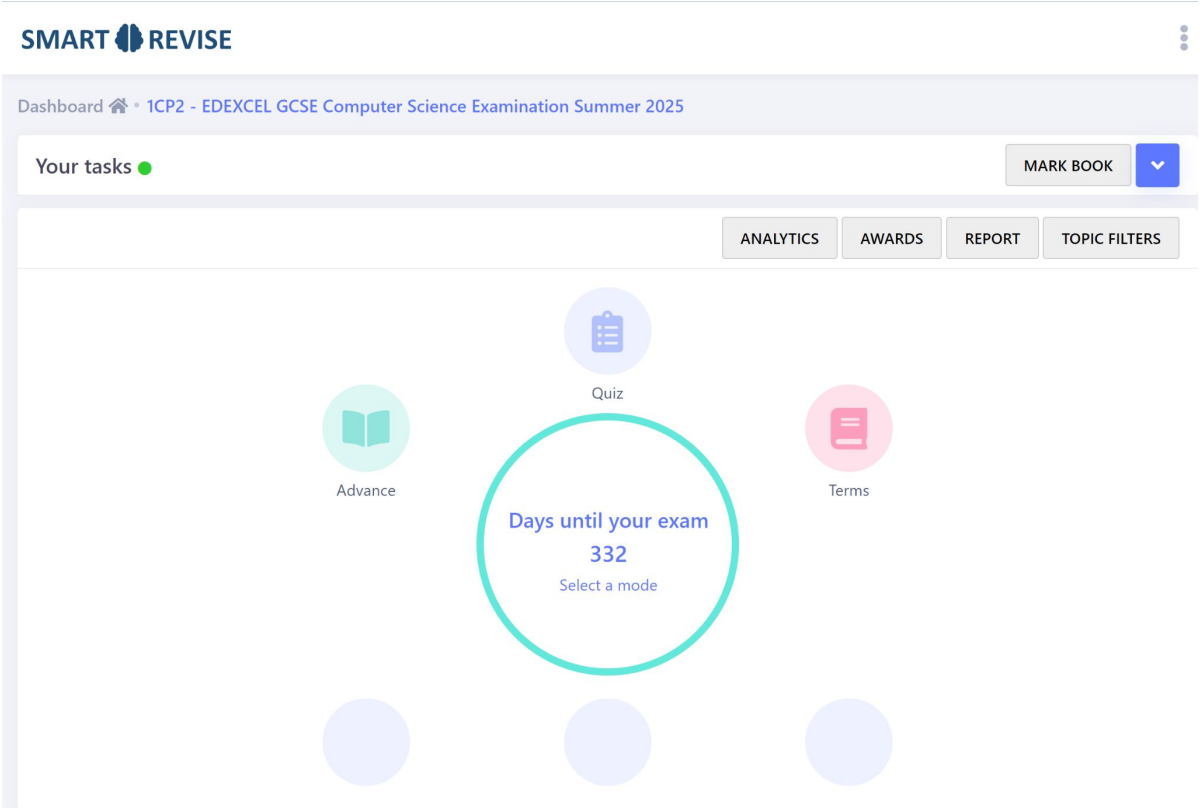
Share 3 - go to google doc from start

Using Smart Revise

Smart Revise then...



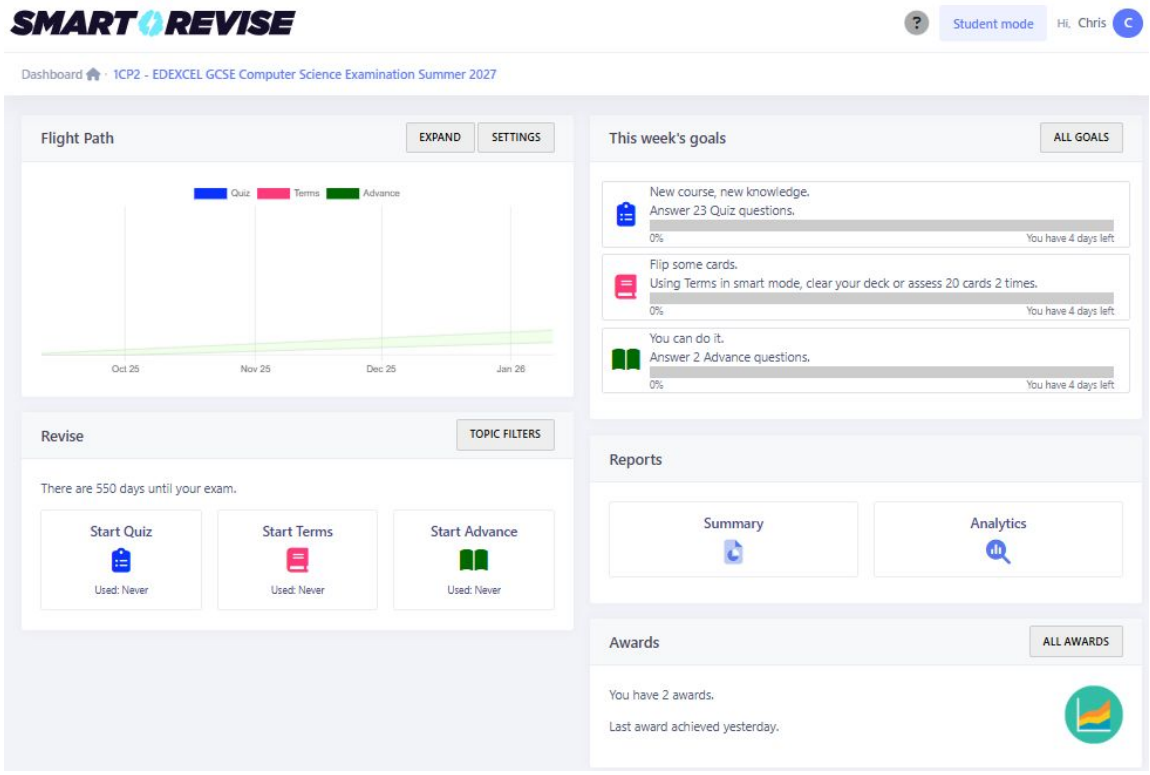
What it looks like now for students:

Quiz - low stakes multiple choice questions exactly matched to the course specification - The aim is to "master" a question by answering it correctly three times in a row.

Terms - flashcards covering every subject specific word in a course specification

Advance - a large bank of short and long answer questions that require written answers

Flight Path / Goals / Resorts / (Class Awards tbf)



Help to set up...

STEP 5

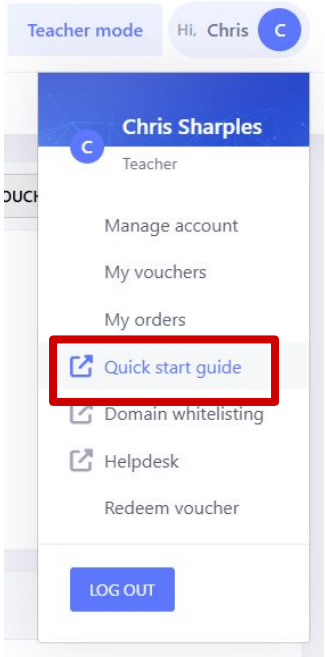
Begin using Smart Revise with your students

Once the students have joined your class you are ready to start using Smart Revise.

We recommend following "The Journey" which is a step-by-step guide to getting the most out of the platform, including:

1. Starter / Do now activity
2. Recap plenaries
3. Retrieval practice homework
4. End of topic tests
5. Monthly reviews
6. Practicing exam technique
7. Identifying priorities for intervention
8. Data driven parents' evenings
9. Giving students an examiner's eye
10. Baseline assessments
11. Online mock exams
12. Catch up planning

Start your journey: https://smartrevise.craigndave.org/teachers

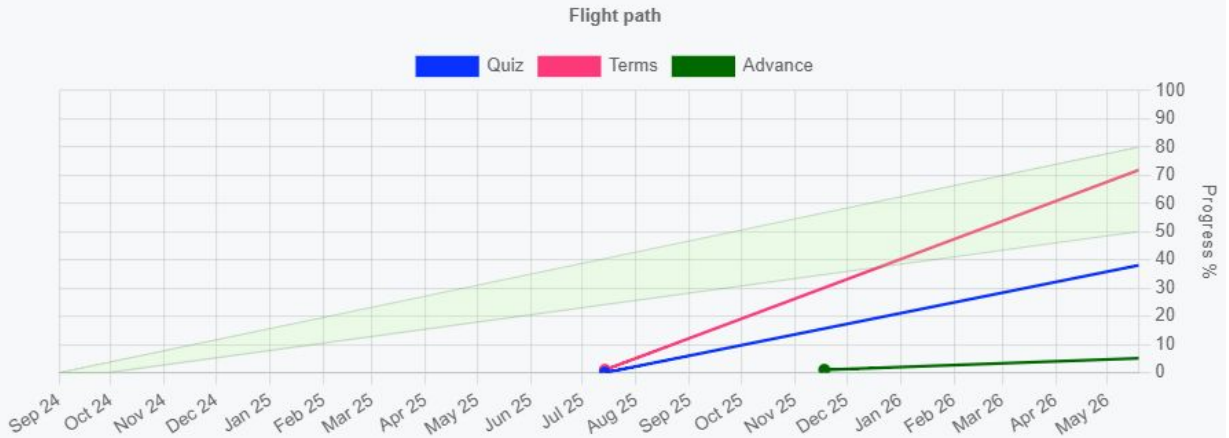


https://smartrevise.craigndave.org/teachers

You have to monitor...

S, C

Load full data



1e. What did you do well on in Computers? How could you have improved your learning?

I did decent but I needed to do some more past papers as the questions weren't like what I expected

Flightpaths being used

O, F

R, D

Share 4 - go to google doc from start

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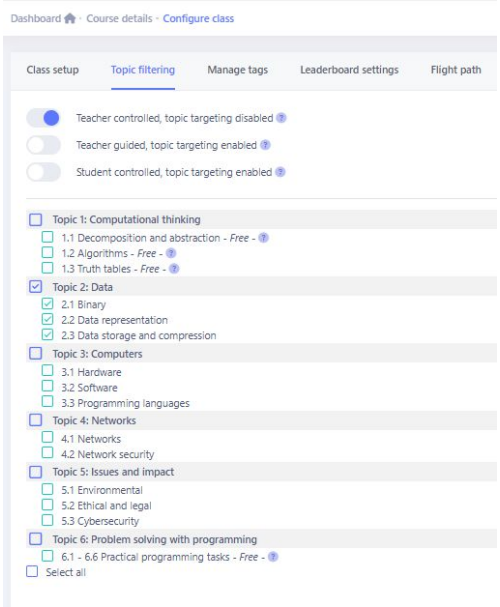
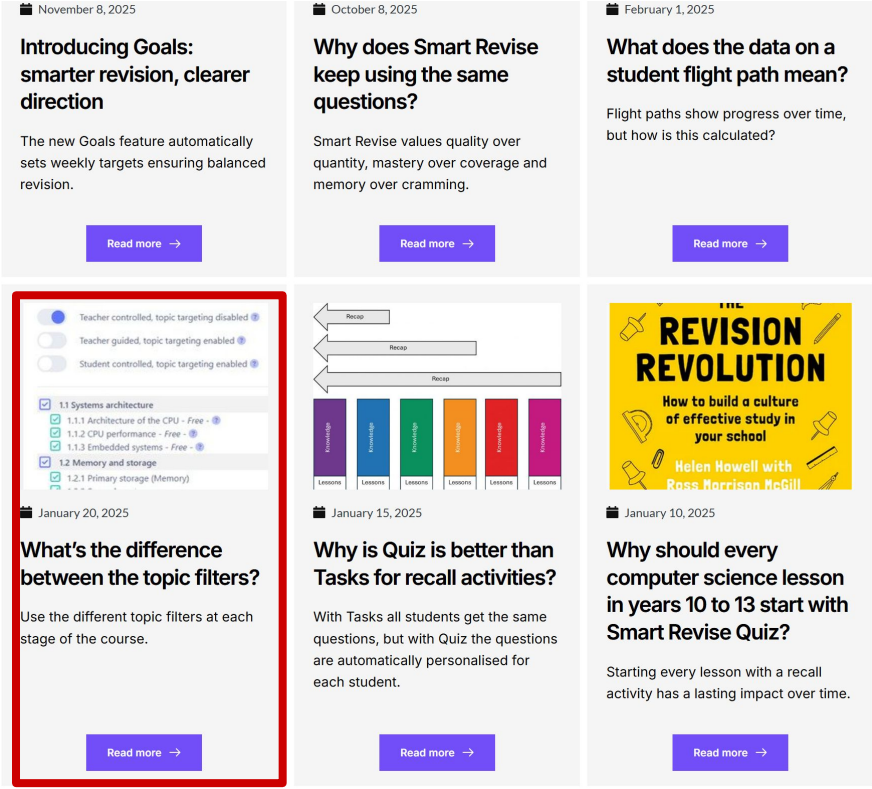
How are you using Smart Revise?

Improve your understanding...

https://smartrevise.craigndave.org/teachers

Especially the filtering explanation.





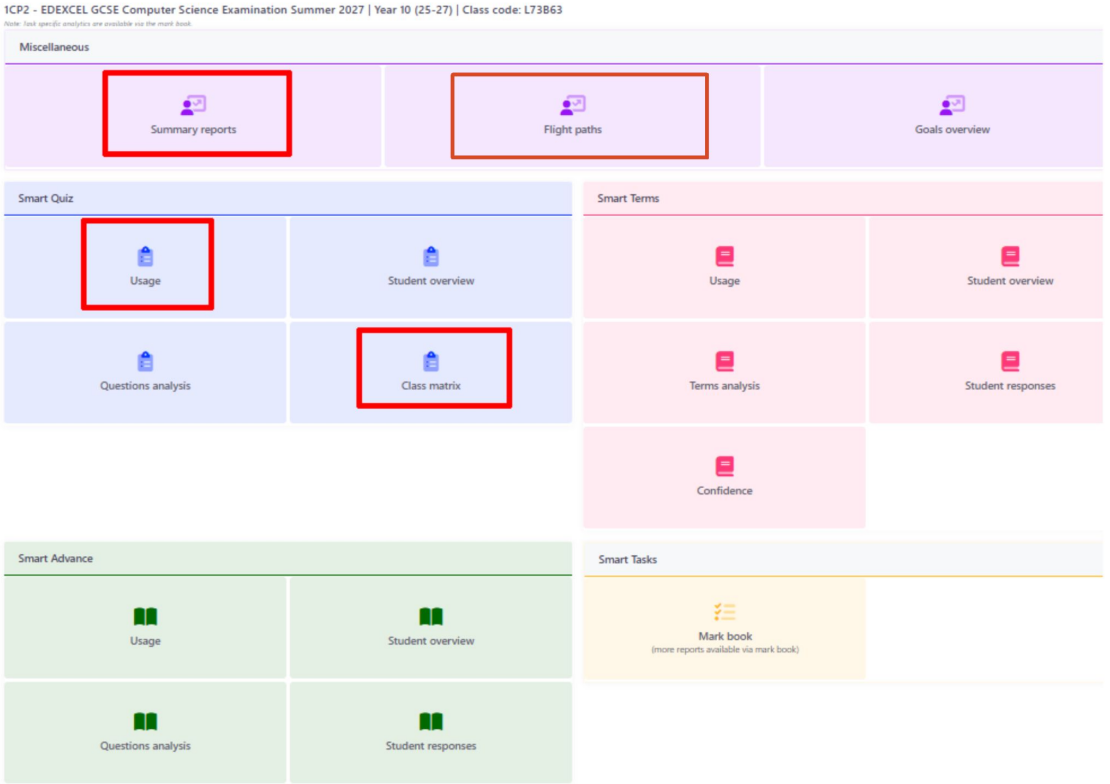
The best analytics…

View Class > Analytics

Summary report per student.

Quiz usage

Class Matrix



How to improve learning for Y11s - with real data

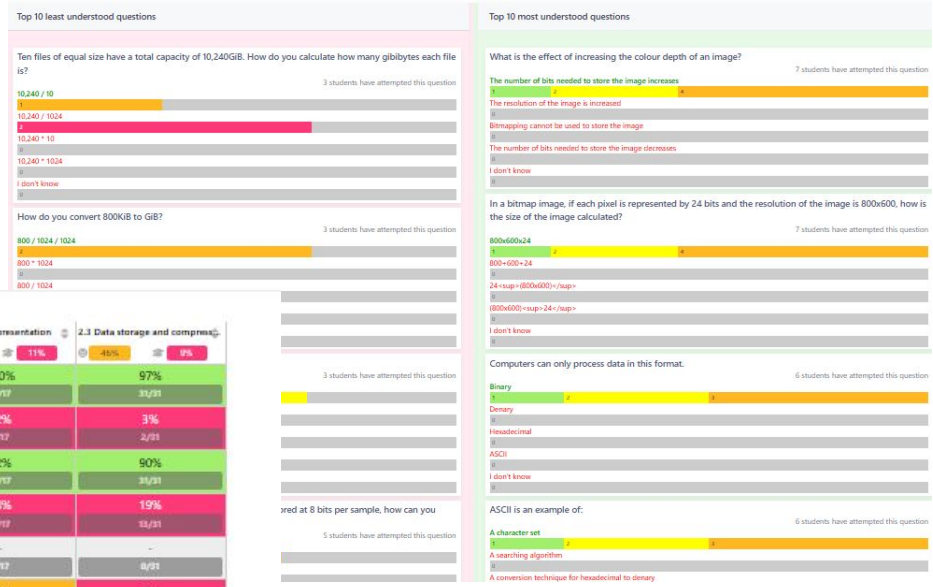
View Class > Analytics

Summary report per student.

Quiz usage

Class Matrix

Attempts	Days revised	Days since last revised
1751	29	174
194	10	195
1822	18	195
485	15	183
330	11	426
601	10	195
1629	30	176
361	18	194



Accuracy	Mastered	2.1 Binary	2.2 Data representation	2.3 Data storage and compress
		53%	7%	52%	11%	45%	9%
99%	76%	100% 29/29	100% 17/17	97% 31/31
5%	0%	0% 4/29	12% 2/17	3% 2/31
85%	0%	83% 29/29	82% 17/17	90% 31/31
21%	0%	21% 10/29	24% 11/17	19% 11/31
0%	0%	- 0/29	- 0/17	- 0/31
34%	0%	45% 22/29	35% 10/17	23% 17/31
99%	0%	100% 29/29	100% 17/17	97% 31/31
62%	0%	76% 22/29	65% 11/17	45% 18/31

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Start of Year 11 tweaks including for exams

Nothing beats exhaustive past questions...

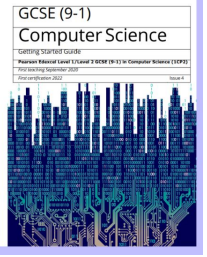
For Pearson Edexcel, it's the Getting Started Guide...

Mentioned in every Webinar:

Getting Started Guide

Students should know that machine code and assembly language **are low-level programming languages** and be able to describe characteristics of low-level languages, such as use of mnemonics and machine-specific.
See Q2(a), Paper 1, 2022 for an example.

Getting Started Guide



Topic 1: Computational thinking

This topic provides the underpinning theory to support the hands-on practical programming that students will undertake during the course and is best taught alongside Topic 6.

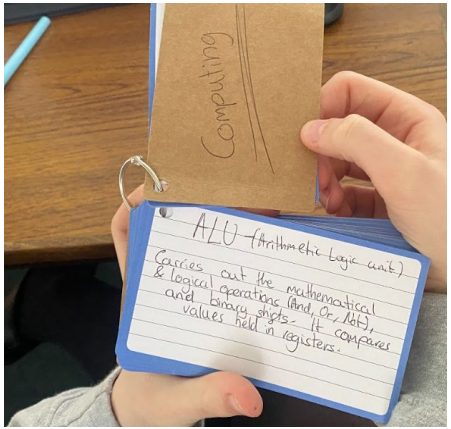
Statement Students should:	Additional information
1.1 Decomposition and abstraction	
1.1.1 understand the benefit of using decomposition and abstraction to model aspects of the real world and analyse, understand and solve problems	Students should know the meaning of the terms **decomposition** and **abstraction,** and understand how using these computational thinking techniques makes problems easier to understand and solve. They should be able to: • recognise where these techniques are being used in a piece of code. See for example *Paper 01 2206, Q5(a)(iii) & (iv)*. • give examples of abstraction, such as the use of subprograms to hide implementation details. • abstract common features of a group of objects so as to create a general model. See for example *Paper 01 Specimen 1, Q3(g)*. • discuss the use of decomposition and abstraction in developing software. See for example *Paper 01 2306, Q4(f)*. Students' understanding of decomposition and abstraction is assessed in Paper 01, and their ability to use these techniques when developing code in Paper 02 (see SP 6.1.1).

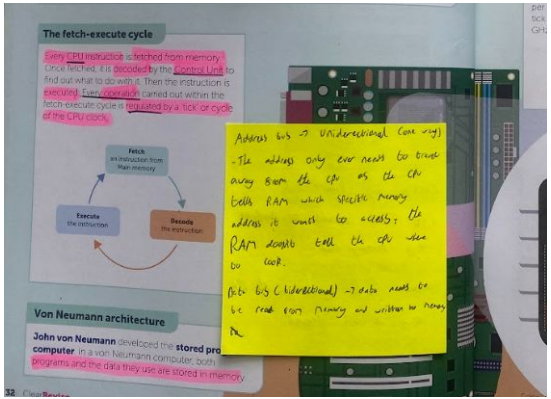
Year 11 Tweaks

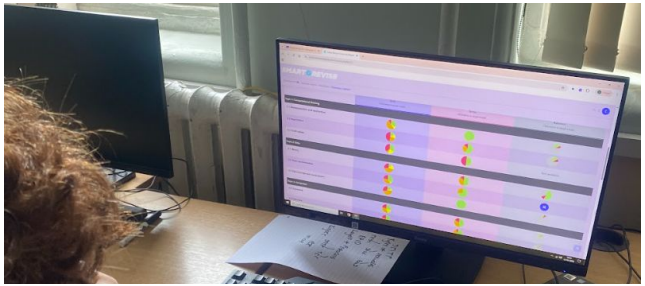
- Deep Dive - Alice's and Adam's
- My Webinar on 6 mark questions
- Getting started guide but ***Now issuing getting started guide topics for Y10s topic test revision***
- Share past questions analysis from the webinars, Paper 1 and Paper 2
- Walk throughs
- Avoid too much stuff - they often have 8 other subjects and teachers overwhelming them

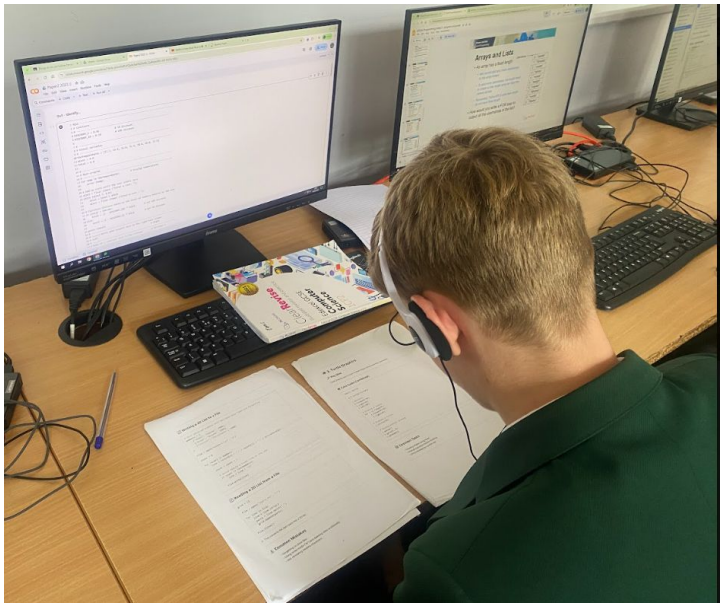
Closing remarks

All students are different...









Cognosant students...

2.3.2 understand the need for data compression and methods of compressing data (lossless, lossy)
Students should know that compression is a technique for reducing file size and understand why reducing the size of a file is sometimes necessary or desirable.
They should understand that using a lossy algorithm to compress a file results in data being permanently lost, whereas using a lossless algorithm allows the original file to be exactly reconstructed from the compressed data.

They should understand that different types of data lend themselves to different compression methods. See for example Paper 01 Specimen 1, Q4(g)

(g) A company is designing promotional products for a band. Products include CDs, toys, greeting cards and digital downloads. All the products use sound.

Discuss the choice of lossless or lossy compression for sound in these products.

Your answer should consider:

- the types of product
- lossless compression
- lossy compression.

(6)

(d) A media production company produces and distributes films, magazines and video games.

The company uses data compression.

Discuss the use of lossy and lossless compression for different types of media.

Your answer should include:

- a definition of both lossy and lossless compression
- a suitable application for **each** type of compression
- the benefits **each** type of compression brings.

(6)

Diagnostic questions?

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MCQ01: For loops and the range function

What is the output from this program?

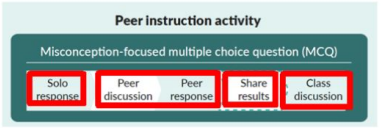
For loops and the range function MCQ01.py

```
1  x = 2
2
3  for i in range (1,4):
4      x = x * i
5
6  print(x)
7
```

A. 5 B. 8 C. 12 D. 48

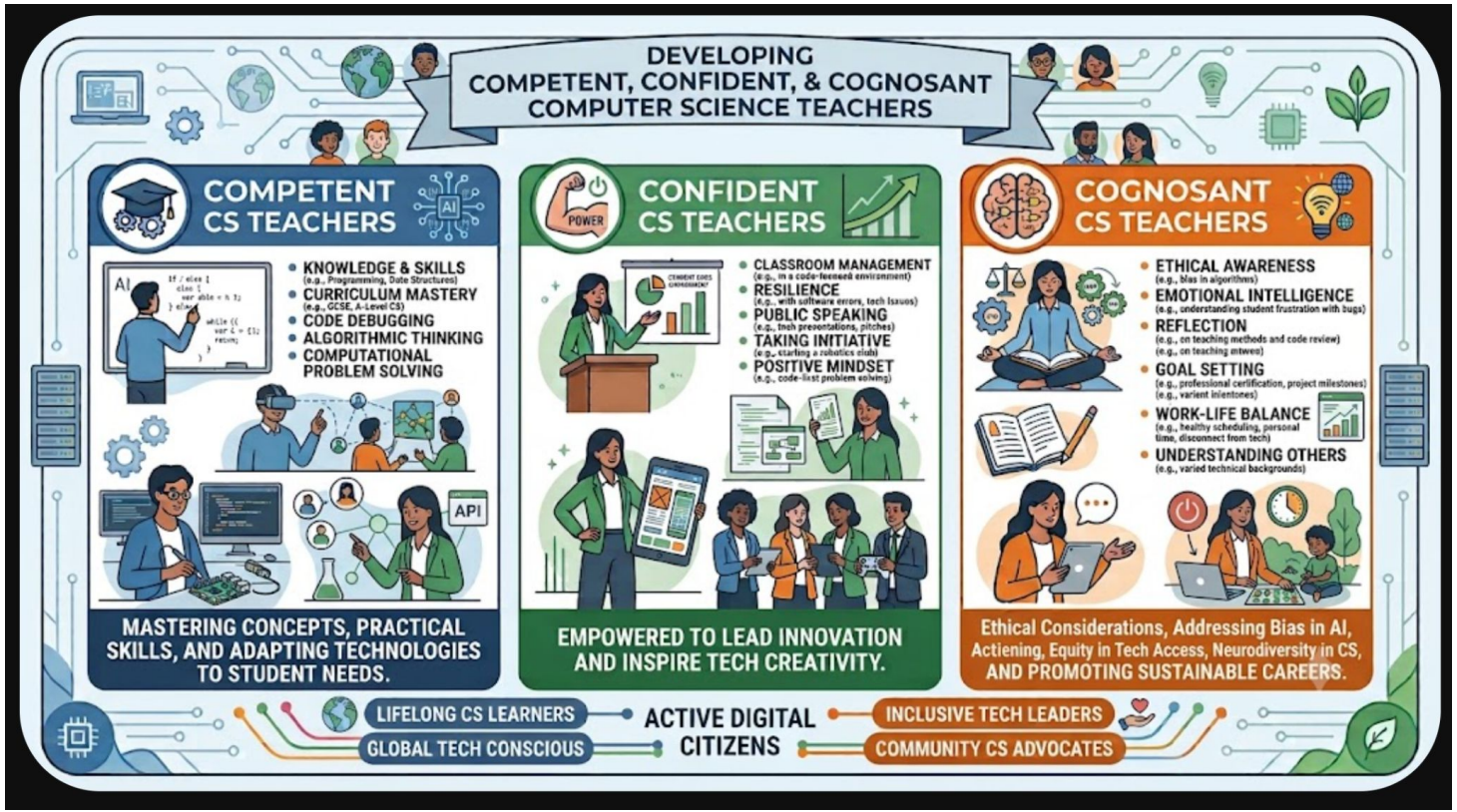
Starter for lesson about For Loops and in Range:

Plan a starter with 3 slides. *For each slide:*



1. Each student writes answer on a Mini WB- A, B, C, D.
2. Fills in a **solo response** on google/MS form
3. Paired **Peer discussion**. Fill in **peer response** .
4. Teacher shows **shared results** to all.
5. **Class discussion** to explore all answers.

Gemini, please make an infographic showing competent, confident and cognosant computer science teachers, making sure cognosant for uk not cognizant...



And finally...

Thank you for being such a kind and caring teacher, supporting us through all the work we have done during our time at school. It has ment a lot to all of us, we will miss having you as a teacher!