



Teaching Computing at KJA

The teaching of Computing at Kensington Junior Academy prepares our pupils to become responsible communicators, collaborators and analysts able to contribute and thrive in the technological 21st century.

The learning at KJA is rooted in the five Learning Behaviours and combines practical skills with greater knowledge, which will prepare pupils for life in a world where understanding, adaptability and transferable skills are critical.

Our core intent is to enable all pupils to:

- Develop an understanding of how technology makes a difference to them in all aspects of their lives. Ensure they become digitally literate and are active participants in a digital world.
- Use their knowledge to decide which technology to use to help them reach the desired outcome. Develop critical skills to help analyse and improve their own work.
- Understand the importance of staying safe online and conducting themselves in a responsible manner.
- Computing is taught explicitly and then applied throughout the rest of the curriculum where appropriate, linking where possible. Staff following a process model to ensure pupils become adept at '*Thinking like a Computer Scientist*'.

A Process Model for Computing

#1 Explore

- Students delve into the fundamental concepts of algorithms, programming, and computational thinking.
- Students get acquainted with diverse IT tools, software, and systems, discovering their role in creating, storing, and managing digital content.
- Exposure to the vast digital landscape, understanding how to navigate online platforms, discern information, and grasp the importance of e-safety.

#2 Master

- Students build fluency in programming languages and comprehend the underlying mechanics of how computers operate.
- Emphasis is on honing skills related to the effective utilization of software applications, ranging from word processors to multimedia editing tools.
- Students become adept at discerning reliable from unreliable digital sources and cultivate habits that emphasize online safety and ethical digital behaviour.

Think like a
**Computer
Scientist**

#3 Analysis

- By dissecting existing code and algorithms, students identify patterns, improve efficiency.
- Students critically evaluate different IT solutions, considering factors like user experience, efficiency, and relevance to the task at hand.
- Armed with digital wisdom, students dissect online scenarios, identifying potential pitfalls like misinformation, and recognize the hallmarks of digital citizenship.

#4 Final

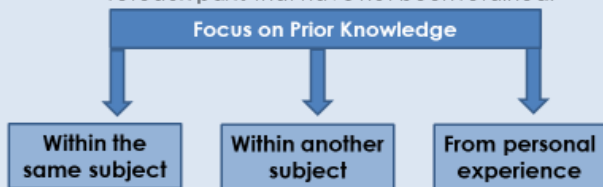
- Students craft their own programs, apps, or digital tools, showcasing their grasp of computational logic and coding proficiency.
- Leveraging their IT prowess, students create and manage varied digital projects
- Students curate and create digital content, from blogs to videos, with a clear understanding of copyright, digital rights, and the ripple effects of their online actions.

In order to **Think like a Computer Scientist'** pupils will work through four distinct areas:

Link It

Focus on Prior Knowledge

- Be proactive in helping pupils to **recall prior learning** from previous units of learning within the subject or from other subjects.
 - Give time to, and respect, any **personal experiences** pupils may bring to the learning.
- Ensure **pupils are secure in their prior knowledge** within the subject before starting new unit of learning.
- Where appropriate, use a diagnostic assessment to check on retention and then reteach parts that have not been retained.



Learn It

- **Present new learning to pupils in small chunks** to prevent cognitive overload.
 - Effectively the **composite and component** examples work for this.
- **Provide effective modelling** and plan time for guided and independent practice.
- Ensure there are opportunities for pupils to **develop their substantive knowledge** alongside **disciplinary knowledge**.
- Start with an activity to focus on **being a scientist, historian or a geographer (artist, technologist)**
 - Ensure you have **rehearsed any new concepts** and checked understanding.
 - **Use talk for learning** to comprehend new concepts and vocabulary.
 - **New Vocabulary**
- Ensure that there are opportunities for pupils to learn new vocabulary (speaking frames, etc).

Check It

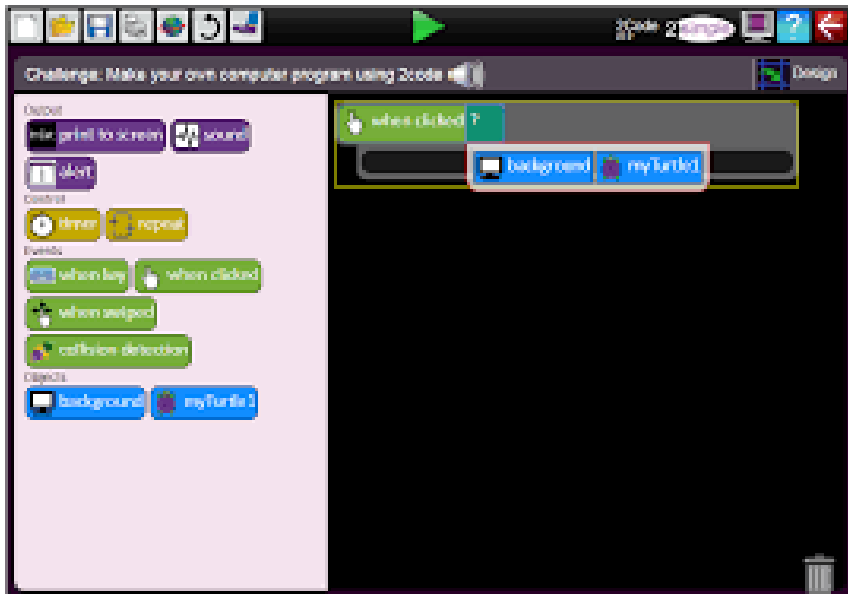
- **Create checkpoints** throughout the lesson to ensure that pupils have understood the current learning.
- **Mark in the moment** and provide instant feedback to pupils. Ensure you **pick up on pupils who are falling behind**.
- When possible, **provide rapid intervention** for those pupils that need it.
- Use retention assessments to help you **gain a picture of any gaps** that may be occurring.

Use the information from above to target intervention through peer support and teacher and TA support.
Identify individuals who need additional challenge.

Show It

- Ensure that there are opportunities for pupils to **showcase** their learning.
- Ensure that this **links the disciplinary with the substantive knowledge**. For example, in history ensure that you link in the impact the period studied had on our lives today. Give pupils time to challenge the quality of the evidence.
- Maximise opportunities to **develop cross curricular activities**, independent writing, knowledge displays, group activities that could be filmed and shared as well as through debate and drama.
- Provide ample opportunity to showcase their new skills and new knowledge in a **variety of ways**.
- In addition, provide **opportunities to use the new vocabulary** they have acquired in other areas of the curriculum.

Outcomes of Learning



S IS FOR SAFE
Never give out personal information to strangers on the internet. Personal information includes things like your home address and your birthday.

M IS FOR NEVER MEET
Never ever meet up with a stranger you have met online unless a parent or guardian has said it is ok and is present. Never, never, never, never, never.

A IS FOR ACCEPTING
Don't open emails from people you don't know, they could contain viruses. If you get a strange email from a friend and you think they might have a virus make sure you let them know!

R IS FOR RELIABLE
Don't believe everything you read online, check your facts! Did you read it on a reliable website like the BBC? Are other websites saying the same thing? Does it tell you where they got the information from?

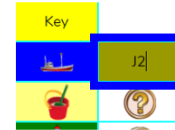
T IS FOR TELL
If you have an online safety problem, make sure you tell someone. Tell a parent, guardian, or teacher as soon you can.

Activity 2: Treasure maps



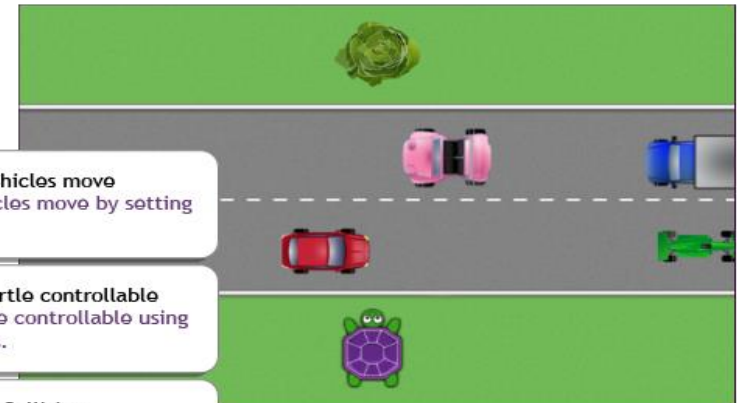
Let's find some treasure.

Enter the correct cell address for each item. If you get it correct, the Quiz Tool will disappear.



*Tip – Use a capital letter for cell address.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1														Key	
2															J2
3															
4															
5															
6															
7															
8															
9															



- 1: Make the vehicles move**
Make the vehicles move by setting their speed
- 2: Make the turtle controllable**
Make the turtle controllable using the arrow keys.
- 3: Add Vehicle Collision**
Add collision detection for when the turtle is hit by a vehicle.

vehicle speed = set to 5

when key ↑

turtle ↑ up

when turtle collides with Any vehicle

restart

collision detection

vehicle speed = set to 5

when key ↑

turtle ↑ up

when turtle collides with Any vehicle

restart

