

## USE OF DEVICES AT ST PETER'S SCHOOL AND PROJECTS INVOLVED

	Digital competencies	Computational thinking		Mechatronic devices	AI	Design		Devices needed
N1- F3								None
F3-F4		<input checked="" type="checkbox"/> Beebots						Beebots provided by the school
F4-F5		<input checked="" type="checkbox"/> Mtiny						Mtiny provided by the school
Y1		<input checked="" type="checkbox"/> Scratch Jr	<input checked="" type="checkbox"/> Scratch Jr					Ipad provided by the school
Y2	<input checked="" type="checkbox"/> Ted Talk		<input checked="" type="checkbox"/> MiniCoders			<input checked="" type="checkbox"/> Tinkercad		Laptop
Y3		<input checked="" type="checkbox"/> STEAM olympiad  <input checked="" type="checkbox"/> Microbits	<input checked="" type="checkbox"/> STEAM olympiad  <input checked="" type="checkbox"/> Microbits	<input checked="" type="checkbox"/> LegoWeDo				Laptop  Microbits provided by the school  LegoWeDo provided by the school
Y4		<input checked="" type="checkbox"/> Microbits	<input checked="" type="checkbox"/> Scratch	<input checked="" type="checkbox"/> Microbits		<input checked="" type="checkbox"/> Thinkercat Design Sprites Design circuits		Laptop  Microbits provided by the school
Y5	<input checked="" type="checkbox"/> Exhibition		<input checked="" type="checkbox"/> MiniCoders <input checked="" type="checkbox"/> Arduino	<input checked="" type="checkbox"/> Rover creation	<input checked="" type="checkbox"/> Mission to Mars simulations	<input checked="" type="checkbox"/> Tinkercad		Laptop  Arduino board

	Digital competencies	Computational thinking		Mechatronic devices	AI	Design	Devices needed
Y6	✓ Slides-google classroom				✓ Interdisciplinary Unit	✓ Tinkercad	Laptop
Y7	✓ Smart Cities	✓ Minecraft	✓ Minecraft	✓ Multidisciplinary project			Laptop
Y8	✓ technical project research		✓ technical project research	✓ technical project		✓ technical project research	Laptop Materials depending upon the choices of projects
Y9	✓ Ted Talk	✓ Cansat	✓ Cansat	✓ Cansat		✓ Cansat	Laptop Arduino Board Raspberry Pi Board
Y10	✓ HAB presentation	✓ HAB	✓ HAB	✓ HAB		✓ HAB	Laptop Arduino Board Raspberry Pi Board
Y11	✓ Philosophy olympiad				✓ YFC	✓ YPC	Laptop Photonics lab materials provided by the school
Y12	✓ Research skills				✓ Use of AI as a source of info		Laptop

## PROJECT DESCRIPTION PER YEAR

Year	Project Description	Ipad	Computer	Other devices
F3-F4	<p><b>1. Beebots:</b> Introduction to sequencing language and problem solving. <a href="https://wovscience.co.uk/resource/bee-bot/">https://wovscience.co.uk/resource/bee-bot/</a></p>			✓
F4-F5	<p><b>1. Mtiny</b> Introduction to programming thinking skills and the use of mathematics to solve computation problems <a href="https://cdnlab.makeblock.com/mTiny%20Discover%20Getting%20Started%20Activities.pdf">https://cdnlab.makeblock.com/mTiny%20Discover%20Getting%20Started%20Activities.pdf</a></p>			✓
Y1	<p><b>1. Scratch Jr</b> Introduction to algorithms and the idea of variables. Programming sequences using trial and error. Create stories <a href="https://www.scratchjr.org/">https://www.scratchjr.org/</a></p>	✓		
Y2	<p><b>1. Minicoders pilot project</b> Pilot project, in collaboration with Minicoders. Students solve programming challenges on Roblox in a gamified environment to increase Coding abilities. Magic School setting <a href="https://www.minicoders.com/?fbclid=IwAR1Ijxa0YezlO4Nmlv2xPix6HrQqMF9Y0GWuE_5qcd_SWCMMS25DB97Pv-w">https://www.minicoders.com/?fbclid=IwAR1Ijxa0YezlO4Nmlv2xPix6HrQqMF9Y0GWuE_5qcd_SWCMMS25DB97Pv-w</a></p> <p><b>2. TED Talks</b> The TED-Ed Student Talks program provides a free curriculum that supports students in identifying, developing and sharing their ideas in the form of short, TED-style talks. This curriculum is used in over 130 countries by educators in classrooms, schools, extra-curricular settings, and educational organizations. <a href="https://ed.ted.com/student_talks">https://ed.ted.com/student_talks</a></p> <p><b>3. Tinkercad</b> Introduction to a 3D digital design program. Work on product design and prototypes by using 3D printers. Introduction to circuits and code blocks as well <a href="https://www.tinkercad.com/">https://www.tinkercad.com/</a></p>	✓	✓	

Y3	<p><b>1. STEAM Olympiad</b>          Students compete with their peers and students in the same class from different countries and take the time to prepare for the category in which they will participate. Students learn about various educational curricula and discover new information in addition to traditional question models. Students will gain an understanding of how Science, Technology, Engineering, and Mathematics are interconnected with one another under the name STEM and it will change their perspective on lessons.</p> <p>Particularly St Peter's students participates in the coding competition  <a href="https://stemolympiad.org/">https://stemolympiad.org/</a></p> <p><b>2. Lego WEDO</b>          Advanced usage of WEDO to create a complete design project using programming and building a device using sensors and testing for improvement. Introduction to the idea of forces and pull</p> <p><b>3. Microbits</b>          Use Microbits to create an environmental friendly device to solve an existing problem  <a href="https://microbit.org/projects/make-it-code-it/light-up-fishing-nets/">https://microbit.org/projects/make-it-code-it/light-up-fishing-nets/</a></p>		<p>✓</p> <p>✓</p> <p>✓</p>	
Y4	<p><b>STEAM Olympiad</b>          Students compete with their peers and students in the same class from different countries and take the time to prepare for the category in which they will participate. Students learn about various educational curricula and discover new information in addition to traditional question models. Students will gain an understanding of how Science, Technology, Engineering, and Mathematics are interconnected with one another under the name STEM and it will change their perspective on lessons.          Particularly St Peter's students participates in the coding competition  <a href="https://stemolympiad.org/">https://stemolympiad.org/</a></p> <p><b>Scratch programming:</b>          Advanced use of blocks programming to create projects. Use of algorithms, variables, loops and routines. Debugging and optimizing the programs  <a href="https://sip.scratch.mit.edu/">https://sip.scratch.mit.edu/</a></p>		<p>✓</p> <p>✓</p>	

	<p><b>Microbits</b> Create a safety device for a safe-vest that detects water and lights on <a href="https://microbit.org/projects/make-it-code-it/light-up-fishing-nets/">https://microbit.org/projects/make-it-code-it/light-up-fishing-nets/</a></p> <p><b>Tinkercad</b> Use the circuit's setting and design a circuit before building it in real live. Use of light sensors and code blocks as well <a href="https://www.tinkercad.com/">https://www.tinkercad.com/</a></p>		<p>✓</p> <p>✓</p>	
Y5	<p><b>1. Minicoders pilot project</b> Pilot project, in collaboration with Minicoders. Students solve programming challenges on Roblox in a gamified environment to increase coding abilities..Mission to Mars setting <a href="https://www.minicoders.com/?fbclid=IwAR1Uxa0YezlO4Nmlv2xPix6HrQqMF9YOGWuE_5qcd_SWCMMS25DB97Pv-w">https://www.minicoders.com/?fbclid=IwAR1Uxa0YezlO4Nmlv2xPix6HrQqMF9YOGWuE_5qcd_SWCMMS25DB97Pv-w</a></p> <p><b>2. Mission to Mars:</b> Design a Mars base and a rover to navigate Mars surface. Introduction to the use of arduino, sensors and actuators, integrating coding and electronics <a href="https://www.arduino.cc/">https://www.arduino.cc/</a></p>		<p>✓</p> <p>✓</p>	
Y6	<p><b>1. AI Interdisciplinary Unit</b> Artificial intelligence (AI) is changing the world as we know it. AI implies a revolution in science, culture, the arts, communication, sports, or geopolitics. AI is conditioning the life systems of human beings and probably is changing their own nature as well as access to knowledge of the world. Further info on our <a href="#">blog</a>. Unit <a href="#">Plan</a>.</p>	<p>✓</p>	<p>✓</p>	
Y7	<p><b>1. Minecraft and Smart Cities</b> Co-design workshops focused on storytelling and the construction of environments in the Minecraft video game. Barcelona as a smart city and creating sustainable solutions for the school's neighbourhood. Further info <a href="#">here</a></p> <p><b>2. Multidisciplinary project</b> Involving the study of rules of 3d design, 3d printing, arduino. Use of technology and thinking skills, Scrum cycle, engineering process. Study of design viability study about financial resources and functionality</p>		<p>✓</p> <p>✓</p>	

Y8	<p><b>1. Scientific and technical innovation devices</b></p> <p>Introduction to design research and the mechatronics field. Creation of a technical solution to a situation. Efficiency, purpose and impact on the environment are important. Introduction to python programming</p>		✓	
Y9	<p><b>1. CANSAT project</b></p> <p>The European CanSat Competition is an ESA Education project that promotes STEM skills amongst young European students through project-based learning. A CanSat is a simulation of a real satellite, integrated within the volume and shape of a soft drink can. The team's challenge is to fit all the major subsystems of a satellite inside this minimal volume, launched by a small rocket up to an altitude of 1 km. Further info <a href="#">here</a>.</p>		✓	Raspberry Pi Arduino
Y10	<p><b>1. HAB</b></p> <p>Hot Altitude Balloon project. Students will work to find a solution that travels to the stratosphere and collects crucial data for the exploration of the conditions, climate, and radiation of earth. Students will develop a <b>HAB</b> (High Altitude Balloon) able to reach at least 27km from earth considering just the needed resources and the space / weight variables.</p>		✓	Raspberry Pi Arduino
Y11	<p><b>1. Young Photonics Congress</b></p> <p>The students will participate in the Young Photonics Congress 2023 with a scientific poster presenting their research in the field of photonics and its applications. The topics selected by our students are changes in the angle of refraction due to changes in substance concentration, and the study of light absorción using a spectrophotometer. <a href="https://outreach.icfo.eu/events/ypc23/">https://outreach.icfo.eu/events/ypc23/</a></p> <p><b>3. Philosophy Olympiad</b></p> <p>The aim of the Philosophy Olympiad is to promote the development of skills inherent to philosophy:        Questioning and using argumentation to overcome prejudices and consolidate one's own thinking.        Identify the ethical aspects of each situation and give appropriate and preferably innovative responses.        Ability to conceptualize, argue, problematize and critically analyze. <a href="https://redfilosofia.es/olimpiada/">https://redfilosofia.es/olimpiada/</a></p>	✓	✓	Spectrophotometer  Cellphones
Y12				