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{
 CLWB.org;
 Invent. Learn;
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Dear Parent,

PAID AFTER SCHOOL ACTIVITY FOR PREP 1 UP TO FORM 3

The world your children will enter after full-time education is radically different from the world that our generation knew, and advances in technology and science are accelerating the pace of change. Unemployment amongst young people is at a record high whilst employers increasingly complain about skills shortages – particularly in Science, Technology, Engineering and Mathematic (STEM).

Some of you will be aware that we recently started a **Paid After School Activity for Prep 1 up to Form 3** pupils called **CLWB** (Computer Learning with Bits). Out first session covered a module called **Computing**, where they successfully built and programmed their own Raspberry Pi computer[1]. It was a tremendous success and so for this reason we will be carrying on with CLWB into the new academic year.

There will be two points of entry. One for those who have already completed Computing (they will be either Group 1 or Group 2) and one for brand new pupils to CLWB (Group 3 or Group 4). The course lasts a whole year and we will start as soon as we return back in the new year. For the new year we are limiting the groups to only children in Prep 3 up to Form 4.

Pupils who have already completed Computing will continue with their classes on a Monday 3.20 to 5.20. The new pupils will have their classes on a Wednesday from 3.20 to 5.20.

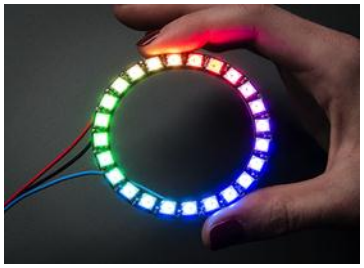
The modules taught are:

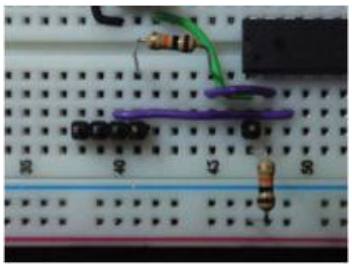
Computing.
In this module Students will learn the fundamentals of computing – hardware, programming and control technology - through building a computer. They will learn to set up and use a Raspberry Pi and control a range of devices such as sensors, motors and displays, and then apply that learning in a range of real-life scenarios. Their pathway to programming starts with Scratch, and then moves onto Python.

Robotics.
Robotics is a world where IT, Science, Engineering and Mathematics come together and offer a rich space for learning. In this project children will learn how to build and program robots. They learn to program in Arduino C and how to build a mechanical-electrical sub-assembly and combine it with sensing and computing system. A combination of structured and open-ended tasks and challenges ensure that Robotics will be of great value to children of all ages.

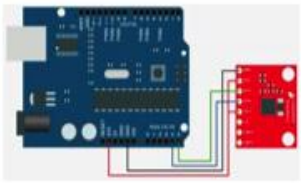
E-Fashion
From garments that display Twitter feeds, to biker jackets that show direction, to interactive jewellery, Fashion Houses around the world are scrambling to find ways to integrate technology in to the clothes we wear.
The CLWB E-Fashion module is about enabling students to experience the thrill of designing and making fashion items that incorporate technology, and to gain a practical understanding of what it would take to turn their creations into a business.

Electronics
In "Electronics", students will learn the fundamentals of digital technologies through building a range of circuits.
Using the CLWB Electronics kit they will progress from simple 'beat box' sound amplification to programming chips. The module covers areas such as circuit design, motors, logic gates, transistors, switching, capacitance, amplification, programming and microprocessors.





FLIGHT
Aeronautics incorporates a fascinating range of technologies and this project will explore these. From navigation to wings and propulsion, this theme is a vehicle for learning how digital, control, electrical and mechanical technologies converge. They will learn basic elements of physics through setting up test rigs to experience the four forces of flight, making a plane launcher and learn practical rocketry. They will learn about gyroscopes and accelerometers, and come to understand the key principles of navigation - ancient and new.



We are restricting class sizes to 12 students each, and modules will last 9 or 8 weeks.

1st Half of Year		August			Sept					October			November				December			
		11	18	25	1	8	15	22	29	13	20	27	3	10	17	24	1	8	15	
Monday	Groups 1 and 2	Robotics									Flight									
Wednesday	Groups 3 and 4	Computing									Robotics									

2nd Half of Year		Jan	February			March			April			May				June			
		26	2	9	23	2	16	23	6	13	27	4	11	18	25	1	8	15		
Monday	Groups 1 and 2	E-fashion									Electronics									
Wednesday	Groups 3 and 4	Flight									E-fashion									

At this point, we would like to take this opportunity to invite you to apply for the CLWB modules that you would like your children to attend.

Each of these modules is based on a "Young Entrepreneurs' CLWB" kit, which the students will own and keep. Students will also have access to a learning platform based on Microsoft Office 365.

Pricing, per module -

- Computing – R$ 1,795
- Robotics – R$ 1,553
- Electronics - R$ 1,553
- Flight - R$ 1,795
- E-Fashion – R$ 1,553

Please register here if you would like your child to a member of CLWB next term:
https://eduassociates-public.sharepoint.com/sign-up

If you have any questions before registering then please send an email to enquiries@clwb.org.

CLWB Summer School

CLWB's Lead-tutor, Rafael Martins, is offering CLWB Summer Schools in July in his school – Escola Bakhita - in Perdizes. Each Summer School will last 5 days, and will start at 10.00AM and finish at 4.00AM. We have spaces for up to 20 children in each session. Content includes:

- Morning sports activities including basketball, volleyball, netball, rounders and soccer
- Collaborative and competitive games and challenges that aim to engage children's Auditory, Visual and Kinaesthetic thinking.
- Afternoon technology activities including: making and recording electronic music; drone challenges; "early explorers" challenge; electronic media.

On the Friday afternoon we will hold a "Festival of Learning" where parents will be invited to see what their children have accomplished.

Food and drinks and a "CLWB starter-kit" with basic digital making components are included in the package.

Options:

Schools run for weeks beginning the following dates:

- 7th July
- 14th July
- 21st July

Price – R$1,500

Please send an email to enquiries@clwb.org to book a place for your child.

About CLWB

CLWB is working in 6 countries including the UK and Australia and is run by Mike Lloyd, an education technologists from the UK and former Microsoft World-Wide Schooling Solutions Lead. Metamaquina, a local 3d printing company with deep skills in Science, programming and Maths, will deliver the sessions. For more information, visit http://clwb.org

[1] **Learning Outcomes at St Paul's**

- Clear progress towards the overall goal of CLWB which is to prepare children for STEM careers and the acquisition of technical creativity skills.
    - **+ 11.25%** improvement in baseline STEM knowledge and skills
- Key learning gains included:
    - **100%** of students programmed in Scratch, and **73%** programmed in Python.
    - **90%** made an electrical circuit, and all of those children understand the principles of Ohm's Law
    - **84%** acquired hardware skills through using the Raspberry Pi