

Understand the difficulty of translating real problems into programs	Create a program to complete an image, ordering movement as a series of sequential commands in a program.	Identify the benefits of using a loop structure instead of manual repetition. Create a program for a given task which loops a single and sequence of commands.	Predict where a program will fail. Modify an existing program to solve errors.	Compare values using the = operator Identify when a conditional can be used to deal with unknown values	Learn the term event and what it means in the context of a program Match blocks with the appropriate event handler	Understand that being safe when they visit websites is similar to staying safe in real life Learn to recognize websites that are alright for them to visit
Learn that ideas may feel clear and yet still be misinterpreted by a computer	Count the number of times an action should be executed, represent it as instructions in a program and select arguments where necessary.	Break down a long sequence of instructions into the smallest repeatable sequence possible.	Identify an algorithm that is unsuccessful when the steps are out of order.	Execute an algorithm with a conditional statement	Create a game using event handlers	Explore what information is appropriate to be put online
Practice communicating ideas through codes and symbols	Explain, differentiate between & draw triangles, squares, and rectangles to reflect defining attributes.	Employ a combination of sequential and looped commands	Reflect on the debugging process in an age-appropriate way.	Solve puzzles using a combination of looped sequences and conditionals	Share a creative artifact with other students	Identify actions that correlate to input events
Name various activities that make up their day	Compose new shapes from composite shapes.	Count the number of times an action should be repeated and represent it as a loop.		Encode & decode letters into binary		Create an animated, interactive story using sequence, loops, and event-handlers
Decompose large activities into a series of smaller events		Create a program that draws complex shapes by repeating simple sequences.		Relate the idea of storing initials on a bracelet to the idea of storing information in a computer		Share a creative artifact with other students
Arrange sequential events into their logical order						

VOCABULARY

Program
Algorithm

VOCABULARY

Algorithm

VOCABULARY

Loop, URL
HTTP

VOCABULARY

Debugging

VOCABULARY

Conditionals
Binary

VOCABULARY

Digital Footprint

VOCABULARY

Recap of all vocabulary learnt so far

ADDITIONAL INFORMATION

Teacher training (held in the PwC offices Belfast) will be provided for all schools taking part in the programme. Teachers will be provided with a hardcopy and digital of all programme materials (including lesson plans, PowerPoints, Videos and worksheets). Ideally the programme will run concurrently with a number of classes within the targeted age bracket during the designated time. Teachers will deliver the programme with PwC supporting and delivering where necessary. PwC will provide print outs of all resources for students each week.

HIVE HACKERS

3 Days (10am-2.30pm / 3pm)

1 Host School and 4/5 attending schools.

Code.org

TOPIC Coding 102

PROGRAMME LEAD Narelle Allen

TARGET CLASSES P5 – P7 (6-11)

KEY LEARNING(S)			LOGIN			AWARDS CEREMONY		
Sequencing, Loops, Debugging, Conditionals, Binary, Game Making, Digital Footprint, Interactive Story Making			Teachers will be required to create a code.org teacher profile. This profile enables them to easily add their class, track their progress and print unique login cards for their students.			This will be held in the host school and will be attended by senior management at PwC. Students are presented with certificates, medals and a bag of sweets to mark their achievement.		
DAY 1			DAY 2			DAY 3		
Graph Paper Programming, Sequencing, Loops			Debugging, Conditionals & Binary, Making a Flappy Bird Game			Digital Footprint, Interactive Story, Awards Ceremony		
SESSION OVERVIEW			SESSION OVERVIEW			SESSION OVERVIEW		
MORNING SESSION	LATE MORNING SESSION	AFTERNOON SESSION	MORNING SESSION	LATE MORNING SESSION	AFTERNOON SESSION	MORNING SESSION	LATE MORNING SESSION	AFTERNOON SESSION
<p>Students instruct each other to shade squares on graph paper to reproduce an existing picture.</p> <p>Students will develop sequential algorithms to move a bird in a maze</p>	<p>Students will take control of the Artist to complete simple drawings on the screen.</p> <p>Students will practice converting sets of actions into a single loop.</p>	<p>Students will use loops to more efficiently traverse the maze with the angry bird and pig.</p> <p>Students will use loops to repeat simple movements and add looping actions.</p>	<p>Students will encounter puzzles that have been solved incorrectly.</p> <p>Students will step through the existing code to identify errors, including incorrect loops, missing blocks, extra blocks, and misordered blocks.</p>	<p>Students are introduced to the conditional statement.</p> <p>Students will then complete a paper-based card example.</p> <p>Students will complete an online activity where conditionals need to be used in line with loops and sequencing.</p>	<p>Students build their own Flappy game by using event handlers to detect mouse clicks and object collisions.</p> <p>Students are introduced to the concept of binary and how it relates to everyday life.</p>	<p>Students learn how to stay safe in the real world and when visiting websites.</p> <p>Students will also learn that the information they put Online leaves a digital footprint or "trail."</p> <p>Students will use the Artist environment to write nested loops.</p>	<p>Students will have the opportunity to apply all of the coding skills learned in order to create an animated story.</p> <p>Students will choose a theme and plan their story using the worksheets provided.</p>	<p>Summary of student learning throughout the 3 days of the programme.</p> <p>Distribution of awards (certificates, medals and token gift).</p>

SESSION ACTIVITIES SESSION ACTIVITIES SESSION ACTIVITIES
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MORNING SESSION LATE MORNING SESSION AFTERNOON SESSION

- Graph Paper Programming
- Logging In
- Activity 3
- Activity 4
- Activity 5
- Activity 6
- Activity 8
- Paper Airplanes
- Intro to debugging
- Activity 10
- Activity 11
- Intro to conditionals
- Activity 12
- Activity 13
- Binary Bracelets
- The Big Event
- Planning of flappy bird game
- Activity 16
- Make the flappy bird game

(collect URL of games to show at the award ceremony)

- Planning of interactive story
- Make interactive story - Online Activity 17
- Activity 17 - Interactive story
- Activity 19
- Complete activities that are incomplete.
- Plan a group presentation for the awards ceremony
- Introduction from PwC directors
- Group presentations on experience to date

VOCABULARY		VOCABULARY		VOCABULARY	
Program	Algorithm	Conditionals	Debugging	Digital Footprint	Recap of all vocabulary learnt so far
Algorithm	Loop, URL, HTTP	Binary			

ADDITIONAL INFORMATION

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