GROW GHANA | SUSTAINABLE DEVELOPMENT GOALS | 4 QUALITY EDUCATION

Coding Program 4 Kids
Curriculum 2022

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GROW GHANA CODING PROGRAM

The coding program is a one-year training in Scratch Programming, Basic Electronics and Soft skills development in 3 module phase (Beginner, Intermediate and Advanced) for primary & secondary students.

Target group: Age 8 - 14

OVERVIEW OF CODING PROGRAM MODULE

BEGINNER	INTERMEDIATE	ADVANCED
Communication skills	Team work	Critical Thinking
Getting started Car project 1	Animate a Name Card	Online scratch Remix cat project
Car project 2	Memory game	Flower generator
Lost in space	Dodge ball	Guess the flag
Ghostbusters	Brain game	Robot construction (eitech)
Paint Box	Catch the dots	Flappy parrot
Boat race 1	Basic electronics (Traffic light)	Binary hero
Boat race 2	Create your own world	Snow fight
Basic electronics (Blinking LEDs)	Clone wars 1	Archery
Chat bot	Clone wars 2	Table football
Analysis of project	Analysis of project	Analysis of project
Project presentation	Project presentation	Project presentation

Beginner Program (12 weeks)

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The beginner program...
Over 12 weeks, students learn how to setup the Raspberry Pi, create simple scratch games and build on their communication skills.

Module Phase 1 (Beginner)

Week	Topic		Hours	Remarks
01	**Communication skills** • Means of communication • Precise communication and active listening • Games		2.5	Engage students in interactive activities (eg. Couple games) to build their communication skills
02	**Getting started** • Intro Raspberry Pi & setup • Scratch interface walkthrough • Car project 1 • Saving scratch projects		2.5	Students are assisted to setup raspberry pi and introduced to the scratch environment. Create their first scratch project and save it.
03	**Car project 2** • Motion and control blocks		2.5	Introduction to block palettes like event, motion and control. Add more features to the car project
04	**Lost in space** • Motion, control and looks block		2.5	Students are introduced to looks blocks. Learn to navigate sprites at any position on the stage.
05	**Ghostbusters** • Motion, control, looks and variable blocks		2.5	Students are introduced to variable blocks. Adding score and timer to games.
06	**Paint Box** • Pen extension		2.5	Students make use of the pen extension to create colourful design
07	**Boat race 1** • Motion, control, looks, operators and sensing blocks		2.5	Students learn how to design a game background. Students are introduced to sensing blocks
08	**Boat race 2**		2.5	Add timer, score and levels to the boat race
09	**Basic Electronics** • Components of circuit • Blinking LEDs		2.5	Introduction to basic electronics with scratch programming and Raspberry Pi extensions
10	**Chat bot** • Control, looks, operators and sensing		2.5	Students are introduced to making an interactive chat bot
11	**Analysis of project**		2.5	Final preparation of individual project work
12	**Project and certificate presentation**		2.5	Presentation day

Intermediate Program (12 weeks)

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The intermediate program...
Over 12 weeks, students learn to create complex scratch games and animations, build electronic projects and improve on collaborating in a team.

Module Phase 2 (Intermediate)

Week	Topic	Hours	Remarks
01	**Team work** • Importance of teamwork • Good team play • The human knot game	2.5	Engage students in group activity games that involves team work and collaboration
02	**Animate a Name Card** • Music extension	2.5	Students animate their names with sounds and other cool features
03	**Memory game** • list variable	2.5	Students make use of a list variable to store data for interactive game
04	**Dodge ball** • Variables and sensing blocks	2.5	A guide in creating a jumping game
05	**Brain game** • Operator blocks	2.5	Students are introduced to a maths game using basic operators like multiplication
06	**Catch the dots** • Paint a sprite (controller)	2.5	Students create interactive game with colour sensitivity. Create a score, timer and live variables
07	**Basic Electronics** • Design a traffic light	2.5	Students design a traffic light with LEDs on a breadboard.
08	**Create your own world**	2.5	Students create an open world adventure game
09	**Clone wars 1**	2.5	Students are introduced to creating shooting games.. Making an introductory page
10	**Clone wars 2**	2.5	Add more levels clone war and Game over page.
11	**Analysis of project**	2.5	Students are assisted to finalise their projects
12	**Project & certificate presentation**	2.5	Presentation day

Advanced Program (12 weeks)

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The advanced program…
Over 12 weeks, students learn to create and upload games on the online Scratch community, assembly robot parts and build more challenging scratch projects.

Module Phase 3 (Advanced)

Week	Topic		Hours	Remarks
01	**Critical Thinking** • Research from newspaper or internet		2.5	Engage students in group work to research and present their findings
02	**Getting started with Online Scratch** • Creating account • Scratch environment and interface • Remix the cat game		2.5	Assist students to create scratch account and introduce them to the features. Make a remix of the cat game online.
03	**Flower generator** • Myblock		2.5	Students create a "draw flower" block which create flowers of different sizes, shapes and number of petals.
04	**Guess the flag**		2.5	Students create a quiz to test their knowledge on countries and their flags.
05	**Robot construction (eitech)**		2.5	Students are introduce to the EITECH kits and learn how to assemble and construct a robot.
06	**Flappy parrot**		2.5	Students create a game to guide a parrot through scrolling pipes to score points.
07	**Binary hero**		2.5	Students make a game in which they play the notes of a song as they scroll down the stage
08	**Snow fight**		2.5	Students create a game with involves using the mouse pointer to throw snowballs at a target.
09	**Archery**		2.5	Students learn how to create an archery game.
10	**Table football**		2.5	Making a world cup football game in Scratch.
11	**Analysis of project**		2.5	Final preparation of individual project work
12	**Project and certificate presentation**		2.5	Presentation day