ICTA
ideas actioned

initCODER
THINK | DESIGN | SOLVE

<HELP TO CODE/>

Volunteers Instructional Manual (VIM)

Content!

Program Overview

Help to Code is a set of modules for school children grade 6 to 9 which contains 3 modules.

Module A (Beginner) - My first Code - Delivers basics programing concepts and students will familiarize themselves with scratch. In this module they will create very first computer program. This module suitable for very first beginners those who have doesn't idea about scratch or programing.

Module B (Comfortable) - Code with Loopy - Delivers intermediate knowledge of programing concepts and students will work with control and structures. This module ideal for intermediate level students those who have comfortable for scratch and programing concepts.

Module C (Advanced) - Create a Story and Games - Delivers advanced knowledge of programing concepts and students will work with modifying and extending games or their stories to create new version. They will also learn about software engineering practices for testing and documenting their programs.

Learning Goals

Day	Module	Lesson Activity	Objectives : Student will learn :	Objectives : Student will able to :	Reference Link /source
DAY 1	Share your thoughts (5-15 min)	- Introduce yourself. - Ask students to introduce them self. - Share an inspirational story relevant to the Coding. - Ask students about their experiences using computers.			
	First step to introduce creative computer. (5 – 20 min)	Introduce students to creative computing with Scratch and the range of projects they will be able to create by showing the Scratch overview video.			+ If you don't have internet access, download the Scratch overview video from Video before class, available at http://vimeo.com/65583694 Projector for showing Scratch overview video (optional) ! Scratch overview video http://vimeo.com/65583694 http://youtu.be/-SjuiawRMU4 ! sample projects studio http://scratch.mit.edu/studios/137903
	Learn new (30 -40 min)	Help students open the Scratch interface. Give students 10 minutes to explore the Scratch interface. First hands on experience	+ engage in an exploratory, hands-on experience with Scratch.		Use Module A resource folder

	with scratch.

Day	Module	Lesson Activity	Objectives : Student will learn :	Objectives : Student will able to :	Reference Link /source
DAY 2	Make it simple in interactive way.	Learn to follow set of simple instructions. Understand that an algorithm is a sequence of instructions for a computer to follow.	The concept of programming • The concept of instructions • The concept of sequencing • The basic features of the Scratch interface	• Give specific instructions • Sequence instructions to achieve simple objectives. Move blocks into the scripting area • Use blocks in scripting area as buttons • Select a block category • Save a project	Use Module A or B resource folder

Day	Module	Lesson Activity	Objectives : Student will learn :	Objectives : Student will able to :	Reference Link /source
DAY 3	More with blocks	review the concepts of instructions and sequences	Number of motion blocks in a programmed sequence corresponds to the number of actions performed by a character • Order of commands in a programmed sequence directly corresponds to the order of actions performed by a character.	Combine different motion blocks into programmed sequences	Use Module B or C resource folder
		Learn to use the start on green flag and end blocks, as well as how to choose new characters.	A green flag goes at the beginning of a sequence of programming blocks • A red end block goes at the end of a sequence of programming blocks • Multiple programs can take place at once	Program a character to start when the green flag is touched • Use the end block to signify the end of a program • Choose a new character • Program multiple characters to start when the green flag is touched	

Day	Module	Lesson Activity	Objectives : Student will learn :	Objectives : Student will able to :	Reference Link /source
DAY 4	**Numbers and Repeating Sequences Summary**	review the concepts of instructions and sequences	Numbers can be used on motion blocks • Numbers can reduce the number of blocks needed • Programs can be repeated for a specified number of times • Programs can be repeated forever	Use numbers on motion blocks to reduce the number of blocks needed • Use the repeat and repeat forever blocks to make a program repeat	Use Module B or C resource folder
		Learn to use the start on green flag and end blocks, as well as how to choose new characters.	A green flag goes at the beginning of a sequence of programming blocks • A red end block goes at the end of a sequence of programming blocks • Multiple programs can take place at once	Program a character to start when the green flag is touched • Use the end block to signify the end of a program • Choose a new character • Program multiple characters to start when the green flag is touched	

Day	Module	Lesson Activity	Objectives : Student will learn :	Objectives : Student will able to :	Reference Link /source
DAY 5 and Day 6	Create a own story	At the final stage students have the freedom to create a story of their own. Student can use visual programing tool to create their interactive story.	Develop their storytelling and remixing abilities through a variety of hands-on and off computer design activities, providing opportunities for students to work collaboratively and build on the creative work of others.	Apply concepts from prior lessons when designing their own games	Use Module C resource folder

Day 01 - Share your thoughts

- **Introduction (5 minutes):**
  - Introduce him/her to the class.
  - Explain why s/he would like to teach the students about programming.
  - S/he should briefly ask students what they know about programming.

- **Simon Says game (10 minutes):** You should play Simon Says with the class. S/he should discuss how this activity is dependent on properly being able to give and follow instructions. S/he should then explain how providing clear instructions is critical to computer programming.

- **Direct you (15 minutes) unplugged:** In this activity, students will be responsible for verbally directing you to special destinations in the classroom (e.g. to a door or a closet). The instructions the students give to you must be specific. For example, students should not simply say, "Move forward." They should instead say, "Move forward _10__ steps.

After the activity is over, discuss how important it is to be specific and how important order is in programming.

- **Getting Started with Scratch (Practical – 55 min)**

You should encourage students to explore the application by placing blocks in the scripting area and seeing where the cat moves.

- **Wrap Up (5 minutes):** You should demonstrate how to save a project. Every student should save his project. The instructor should provide students with a brief explanation of what will occur during the next lesson.

Day 02 - Make it Simple

In this session, students will be introduced to two major concepts: instructions and sequencing which will create a base for understanding algorithm through various interactive activities. The lesson will determine with an introduction to the Scratch interface and programming blocks.

- **As an Unplugged activity – Programmed friend or instructor!**

Students will be responsible for directing their instructor/volunteer to a specific location in the classroom.

However, during this lesson, students will only be able to use a specific set of possible instructions instead of simply using plain English.

Examples of these specific instructions are:

• Step forward
• Step backward
• Turn right
• Turn left
• Turn until you see something

This activity will work the same way as it did in the prior lesson. However, this time students are encouraged to use this exact instruction set.

- **Introduction to New Scratch Blocks (10 minutes):** you should demonstrate to children how to use the following blocks:

• Hop
• Go Home
• Reset Size
• Turn clockwise
• Turn counterclockwise

Day 03 - More with blocks

Students will learn to use the start on green flag and end blocks, as well as how to choose new characters. Through various interactive activities, children will learn how to incorporate the green flag and end blocks into their programs, and will also become familiar with how to program more than one character using the green flag.

Program the instructor (10 minutes): Students should program their instructor to arrive at a particular destination in the classroom. In order for the instructor to begin following directions, students must hold up the green flag card. When the instructor is finished following instructions, students should hold up the red stop sign card.

Materials: Green flag card, red stop sign card

Day 04 - Numbers and Repeating Sequences

Through various interactive activities, students will learn about changing the numbers on motion blocks and how to use the repeat and repeat forever blocks. They will use each of these blocks in Scratch projects that they build along with their instructor and class.

Introduce new programing blocks: repeat, repeat forever, if else, wait until etc.

Why numbers:

The instructor should instruct the student privately to listen to the directions s/he gives, and jump the wrong number of times.

For example, s/he should say to the student, “I want you to jump, jump, jump, jump, jump, jump, jump” The student should then jump the wrong number of times. The instructor/volunteer should repeat the directions, and the student should again jump the wrong number of times.

After doing this, the instructor/volunteer should ask the class how this instruction could be clearer (e.g. by saying, “I want you to jump seven times). The instructor/volunteer should then explain the concept of putting a number under a programming block, instead of putting that same block down multiple times. S/he should show how to do this on the software (scratch).

Day 05 & 06 - Create your Own Story

On the first Story Project Day, students will learn about the elements of a story. They will then spend the remainder of the lesson designing their own stories. On the second Story Project Day, students will spend the entire lesson creating and sharing their stories with the class.

Introduction (10 minutes): What is a story?

The instructor should choose a story that the class has recently read together (s/he should *not* read it to them). S/he should ask students to describe the characters in the story and the setting of the story.

You should explain that a story has a beginning, middle, and end. S/he should then ask students to briefly describe the beginning, middle, and end of the story they are discussing.

Review (5 minutes):

Instructor should briefly review the programming blocks learned in the second module's lessons. S/he should show the blocks on the screen, and ask the students to verbally describe what each block does. These blocks are:

- Speed
- Repeat
- Repeat forever
- Voice recorder
- Wait for

Students should spend about 35 minutes designing and creating their own stories. Students should be encouraged to use at least two or three pages in their stories – one each for the beginning, middle, and end. They should also be

encouraged to choose or create their own backgrounds, program multiple characters, and use the record and speech blocks.

Sharing (10 minutes):

Students should be encouraged to share their stories with the rest of the class. They should explain which blocks they used to create their stories, and what is occurring on the screen.

SAFETY

It is always recommended to check the safety of the place and equipment before carrying out the activities.