Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

Programming for the Little Ones Course. Module 1

Learning goalsare to teach the programming basicsusing **ScrachJr**, develop students' interest in coding and desire for further study in the IT sphere, develop analytical thinking, and provide the knowledge and skills necessary for school study.

Course Syllabus:

Day one

Introduction to programming

− Introduction to computer equipment used in the course;
− Basic concepts of programming and computer technology;
− Getting to know the code blocks in the ScratchJr program;
− Study the motion blocks in ScratchJr.

Learning outcome: got used to the classes equipment, successfully mastered the first blocks of code in ScratchJr.
Practical task: discussed the role of the computer and information technology, created the first animation "North".

Day two

Exploring editor and looks blocks

− Consolidating computer skills;
− Getting to know the looks blocks in ScratchJr;
− Create characters and backgrounds in the ScratchJr editor;
− Creative work in the editor with backgrounds and game sprites.

Learning outcome: studied the looks blocks commands, created personal background and sprites using ScratchJr editor.
Practical task: create a personal project with your idea using the studied commands.

Day three

Interacting with start blocks

− Consolidating the skills of printing and working with the editor;
− Getting to know the new start blocks - Start on Tap;
− Getting to know the new start blocks - Start on Bump.

Learning outcome: learned how to work with two new start blocks (Start on Tap and Start on Bump) in ScratchJr.
Practical task: create project with different start blocks: Start on Green Flag, Start on Tap, Start on Bump.

Day four

Working with Sound and Control blocks

− Introduction to the sound blocks in ScratchJr;
- Preparing dialogues for creating game;
- Learning control blocks: speed, stop, timer in ScratchJr;
- Programming practice. Creating a project with studied blocks.

Learning outcome: learned how sound blocks work in ScratchJr, learned how to use control blocks in ScratchJr.
Practical task: create the project "Evil Wizard's Enchantment" using studied blocks.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

Programming for the Little Ones Course. Module 2

Learning goalsare to teach the programming basicsusing **ScrachJr**, develop students' interest in coding and desire for further study in the IT sphere, develop analytical thinking, and provide the knowledge and skills necessary for school study.

Course Syllabus:

Day one

Introduction to the loop concept

– The study of the Loop concept;
– Introduction to Loop and Infinite loop commands in ScratchJr;
– Programming practice. Creating a project using loops.

Learning outcome: learned how the loop works, learned how to use a finite and infinite loop in our projects in ScratchJr.
Practical task: create a Live Landscape animation using new commands.

Day two

Algorithms and executors

– Introduction to new concepts: algorithm, executor;
– Programming practice. Creating a project with mazes;
– Creation of algorithms for executors in the Bee-bot application.

Learning outcome: learned how to draw mazes and use them in our projects, we learned how to make the right algorithms for executors.
Practical task: create Labyrinth project.

Day three

Multiple scenes in ScratchJr project

– Learning new Go to page command;
– Creation of victory and defeat pages in projects;
– Programming practice. Creating a project with multiple scenes.

Learning outcome: learned how to use new Go to page command, create victory and defeat pages in our projects.
Practical task: create a project with two switchable ScratchJr pages.

Day four

Creating personal project

– Repetition of the studied blocks in ScratchJr;
– Getting to know different types of mini-games;
– Creating a layout of your own game;
– Programming practice. Creating a project according to personal scenario.

Learning outcome: learned about different types of mini-games, thought through and created a layout for the game, and in practice consolidated the material and programming skills we've learned.
Practical task: create a multiple page project according to your idea.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

Programming for the Little Ones Course. Module 3

Learning goalsare to teach the programming basicsusing **ScrachJr**, develop students' interest in coding and desire for further study in the IT sphere, develop analytical thinking, and provide the knowledge and skills necessary for school study.

Course Syllabus:

Day one

Numbers and messages in programming

– Using numbers in the world and programming;
– Functional of Messages commands in ScratchJr;
– Learning new control commands in ScratchJr.

Learning outcome: improved counting skills, learned how and for what numbers are used in programming, and how Messages work in ScratchJr.
Practical task: create a "Reader" project using Messages commands

Day two

Encryption in programming

– Introduction to the concept of cipher, encryption;
– Rules for the safe use of the Internet and applications;
– Practice word encryption.

Learning outcome: learned how to use various ciphers, learned new concepts: privacy, profile, remembered the rules for safe use of the Internet.
Practical task: create a game using a cipher.

Day three

Programming Commands

– Learning the most common commands for executor in programming;
– Consolidating direction choice skills working with graphic dictations;
– Introduction to direction commands.

Learning outcome: learned to accurately determine the directions: top, bottom, right, left; learned the designations of the main commands for ling executor control.
Practical task: create a project "Spy Chicken" using direction commands.

Day four

Conditions in programming

– Introduction to Conditions concept in programming;
– Checking the possibility of fulfilling the conditions;
– Working with conditions: truthfulness or falsity of judgments
– Practical work with online drawing service.

Learning outcome: learned how to determine the truthfulness of conditions, prepared for the use of if/ true/ false commands, and consolidated the skill of using online drawing service.
Practical task: create a project using conditions.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

Programming for the Little Ones Course. Module 4

Learning goalsare to teach the programming basicsusing **ScrachJr**, develop students' interest in coding and desire for further study in the IT sphere, develop analytical thinking, and provide the knowledge and skills necessary for school study.

Course Syllabus:

Day one

Pictomir Commands

– Introduction to interface of the Piktomir application;
– Study of the concept of "pictogram";
– Repetition of basic commands for executor;
– Writing scripts for executor in Piktomir.

Learning outcome: learned how to write scripts for executor using pictograms in the Pictomir program, remembered the designations of the main commands, passed the “Learning commands” levels in Pictomir.
Practical task: complete the initial levels in the Pictomir, create My Family project in ScratchJr.

Day two

Pictomir Repeaters

– The study and consolidation of the Repeater concept;
– Comparison of Loops and Repeaters;
– Writing scripts with Repeater in Piktomir.

Learning outcome: passed Learning repeaters levels in Pictomir.
Practical task: complete levels with repeaters in Pictomir, create a project “When I grow up” in ScratchJr.

Day three

The letters in programming

– Consolidating knowledge about the alphabet;
– Analysis of the use of letters in programming;
– Writing scripts to create letters in the Piktomir program;
– Programming practice. Creating a project in ScratchJr using letters.

Learning outcome: passed the Letters levels in the Pictomir program.
Practical task: create a project “My name” in ScratchJr.

Day four

Geometric Shapes Projects

– The study of geometric shapes;
– Analysis of the use of shapes in programming;
– Introduction to the game “Tangram”;
– Writing scripts to create shapes in the Piktomir program.

Learning outcome: got an idea of geometric shapes, passed the Squares levels in the Pictomir program,
Practical task: create “Shapes” project in ScratchJr.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

Programming for the Little Ones Course. Module 5

Learning goalsare to teach the programming basicsusing **ScrachJr**, develop students' interest in coding and desire for further study in the IT sphere, develop analytical thinking, and provide the knowledge and skills necessary for school study.

Course Syllabus:

Day one

Logic and Ingenuity

− Solving problems for the development of logical skills, non-standard thinking;
− Search for solutions to complex problems;
− Writing scripts to solve puzzles in the Piktomir program.

Learning outcome: passed Puzzles and Difficult tasks levels in the Pictomir.
Practical task: create a project using logical elements according to your own idea.

Day two

Efficient and Inefficient Sequences in Lightbot

− Introduction to the interface of the Lightbot application;
− Learning the basic commands of the Lightbot application;
− The study of the concept of “sequence”;
− Comparison of effective and ineffective sequences;
− Creation of algorithms for executor in Lightbot.

Learning outcome: got acquainted with a new application for the development of logical thinking, passed level 1 “Effective sequences” in the Lightbot application.
Practical task: create the game “Fun racing” in ScratchJr.

Day three

Procedures in Lightbot

− Introduction to the concept of procedures and their application in programming;
− Learning the functionality of procedures in the Lightbot program;
− Creation of algorithms with nested procedures for executor in the Lightbot.
− Programming practice. Creating your own project in ScratchJr.

Learning outcome: passed level 2 “Procedures" in the Lightbot application.
Practical task: create project according to your idea in ScratchJr.

Day four

Loops in Lightbot

− Consolidation of the Loop concept;
− Learning loops in the Lightbot program;
− Compilation of algorithms with loops for executor in Lightbot.

Learning outcome: passed level 3 “Cycles" in the Lightbot application.
Practical task: create a project based on your own idea in ScratchJr.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

Programming for the Little Ones Course. Module 6

Learning goalsare to teach the programming basicsusing **ScrachJr**, develop students' interest in coding and desire for further study in the IT sphere, develop analytical thinking, and provide the knowledge and skills necessary for school study.

Course Syllabus:

Day one

Personal Computer Basics

− What is a computer?
− Learning to control a computer;
− Introduction to the website interface Code.org;
− Training of computer mouse control using an online simulator.

Learning outcome: learned how to control the cursor, learned how to work on the site Code.org, have memorized the computer safety rules.
Practical task: complete exercises on the website Code.org.

Day two

Creation of sequences based on main directions. Part 1

− Study directions: North, South, West, East;
− Introduction to Compass concept;
− Compilation of sequences on the site Code.org .

Learning outcome: learned the cardinal directions and their names, learned how to navigate in space along the cardinal directions, learned how to use directions when building sequences.
Practical task: create a sequence on the website Code.org .

Day three

Debugging programs

- Studying the Debugging concept;
- Searching for errors in sequences;
- Practice. Correcting errors in already written algorithms.

Learning outcome: learned how to search for and correct errors in sequences.
Practical task: debug sequences on the site Code.org.

Day four

Practicing with computer keyboard. Scripts with loops. Part 1

- Working with a computer keyboard, the main keys for working with text;
- Rules for editing text;
- Development of typing skills using keyboard simulators;
- Studying the features of looping on the site Code.org.

Learning outcome: learned the features of working with a computer keyboard, learned how to type and erase letters, put a space and a line break, created algorithms using cycles.

Practical task: write scripts with loops on the site Code.org.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

Programming for the Little Ones Course. Module 7

Learning goalsare to teach the programming basicsusing **ScrachJr**, develop students' interest in coding and desire for further study in the IT sphere, develop analytical thinking, and provide the knowledge and skills necessary for school study.

Course Syllabus:

Day one

Creation of sequences based on main directions. Part 2

- Repetition of knowledge about geometric shapes;
- Acquaintance with the Artist on website Code.org;
- Learning new commands to build sequences.

Learning outcome: fixed the names and features of geometric shapes, wrote algorithms for drawing shapes in exercises.
Practical task: write algorithms for executor on the site Code.org.

Day two

Scripts with loops. Part 2

– Consolidating the skills of building algorithms using loops;
– Building complex algorithms with multiple loops;
– Programming practice. Writing scripts using loops.

Learning outcome: created complex sequences using loops.
Practical task: write scripts with loops on the site Code.org.

Day three

Events in programming

– Studying the Events concept in programming;
– Events in ScratchJr and events at site levels of Code.org;
– Writing scripts using different events on the site Code.org.

Learning outcome: learned to distinguish between different events and build several parallel sequences.
Practical task: write scripts with different types of events on the site Code.org.

Day four

Creating personal project with Code.org

– Creating a project layout;
– Analysis of your project. Compare your ideas with the program's functionality;
– Public speaking training: project presentation.

Learning outcome: worked out the plot and layout of our project.
Practical task: create your own project on the website Code.org.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

Programming for the Little Ones Course. Module 8

Learning goalsare to teach the programming basicsusing **ScrachJr**, develop students' interest in coding and desire for further study in the IT sphere, develop analytical thinking, and provide the knowledge and skills necessary for school study.

Course Syllabus:

Day one

Algorithms for completing game tasks

− Repetition and consolidation of the Algorithm and Executor concepts;
− Creation of algorithms for executor to perform various tasks.

Learning outcome: gained the ability to fluently control the performer in any tasks using algorithms.
Practical task: complete tasks to work with the executor on the website Code.org.

Day two

Algorithms with conditions: Creating a game world

− Repetition and consolidation of the Conditions concept in programming;
− Principles of the command with condition in programming;
− Using conditions to manage executors for various purposes.

Learning outcome: learned how to correctly use conditions in programming for various purposes.
Practical task: draw up algorithms for completing levels on the site Code.org .

Day three

Multitasking. Managing different executors

− Repetition and consolidation of the Sequence concept;
− Practice. Making effective sequences and correcting ineffective ones;
− Compilation of sequences for the main executor and simultaneous programming of additional executors.

Learning outcome: learned how to program several executors at the same time, learned how to turn ineffective sequences into effective ones, made sequences for the main performer in levels similar to the game Minecraft.
Practical task: create sequences for managing the executor on the site Code.org.

Day four

Creating game world algorithms using loops

− Consolidating skills of working with loops;
− Solving complex problems using loops;
− Simulation of the Minecraft world on the site Code.org by creating algorithms.

Learning outcome: practiced creating a world based on the Minecraft game using algorithms written using cycles.
Practical task: write algorithms for creating a world based on the Minecraft game on the website Code.org .

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

Programming for the Little Ones Course. Module 9

Learning goalsare to teach the programming basicsusing **ScrachJr**, develop students' interest in coding and desire for further study in the IT sphere, develop analytical thinking, and provide the knowledge and skills necessary for school study.

Course Syllabus:

Day one

Visual block coding with CodeMonkey

− Introduction to CodeMonkey program interface;
− Learning block-based coding on the CodeMonkey website;
− Writing scripts for executor using new commands;
− Fixing the names of simple commands;
− Getting to know the new command "repeat till".

Learning outcome: studied the program interface, new commands, and compiled block-based programs for executor.
Practical task: te scripts for managing executor on the CodeMonkey website.

Day two

Movement control commands. Part 1. Start, stop

− Fixing the names of simple commands;
− Introduction of new control commands;
− Learning text programming;
− Explore the topics "Degrees" and "Coordinates".

Learning outcome: studied the names of new commands, honed the skill of managing executor, tried ourselves in text programming.
Practical task: use new control commands in your programs.

Day three

Movement control commands. Part 2. Turn on

− Fixing the names of simple commands;
− Introduction of new commands - the Turn to command;
− Study of the Object concept;
− Expanding text programming skills - writing lines of code using new commands.

Learning outcome: consolidated the studied commands, studied the new Object concept and expanded our text programming capabilities.
Practical task: complete exercises on the CodeMonkey website.

Day four

Movement control commands. Part 3. Times

− Consolidating text programming skills to perform complex tasks;
− Fixing the commands names;
− New "times" command to control the number of repetitions;
− Using the "times" command in loops.

Learning outcome: learned the names of commands to control executor, improved our text programming skills.
Practical task: create algorithms for managing the performer on the CodeMonkey website.

Your Course Syllabus

CODDY - International Coding and Design School for Teens and Kids

Programming for the Little Ones Course. Module 10

Learning goalsare to teach the programming basicsusing **ScrachJr**, develop students' interest in coding and desire for further study in the IT sphere, develop analytical thinking, and provide the knowledge and skills necessary for school study.

Course Syllabus:

Day one

Creating a multi-level game

− Types of mini-games: Multi-level games;
− Discussion of the “level”, “menu” concepts in various games;
− Development of the plot and layout for your own game;
− Repetition of the functionality of ScratchJr;
− Programming practice. The beginning of the creation of a personal final project.

Learning outcome: created a menu and the first level for our game.
Practical task: create a part of personal final project in ScratchJr.

Day two

Creating levels 1 and 2 of your game

− Game details: elaboration of sounds, transitions between pages, drawing characters;
− The practice of programming. Create the next levels of your multiple level ScratchJr game.

Learning outcome: created the second and third levels in personal final project.
Practical task: create new levels for personal final project in ScratchJr.

Day three

Creating levels 4 and 5 of your game

− Game details: animation drawing;
− Programming practice. Create next levels of your multiple level ScratchJr game;
− Preparation for the projects presentation;
− Rules for the projects presentation, constructive criticism.

Learning outcome: created the fourth and fifth levels in our graduation project, and prepared for the final projects presentation.
Practical task: create the next part of your personal final project in ScratchJr.

Day four

Projects presentation

− Preparation for a speech, development of public speaking skills;
− Practicing public speaking skills;
− Projects presentation;
− Course summary, recommendations for further learning and development in the field of information technology.

Learning outcome: presented final projects, summed up the course results.
Practical task: present your personal final project in ScratchJr.