KUBO

Quick start guide

KUBO CODING+

KUBO is the world's first puzzle-based educational robot, designed to turn students from passive consumers of technology to empowered creators. By simplifying complex concepts through hands-on experiences, KUBO teaches children to code even before they can read and write.

KUBO and the unique TagTile® programming language lay the foundations for computational literacy for children aged four to 10+.

Getting Started

This Quick Start Guide explains what is inclu in your KUBO Coding+ set and provides examples of how to expand your students' programming skills.

To use this set, you will need a KUBO Coding Starter Set.

WHAT'S IN THE BOX

Your KUBO Coding+ set includes 36 TagTiles stored in a convenient sorting tray. The tiles provide a wide variety of additional control options, including varying distance, direction, speed and time.

KUBO Coding+ TagTiles®

The KUBO Coding+ set allows you to take your students from very simple to increasingly complex programming techniques. By introducing concepts in a simple step-by-step way, your students will gain the confidence they need to experiment and explore the endless possibilities that coding with KUBO provides.

In your KUBO Coding+ set you will see two separate sections:

Section 1 TagTiles®

WAIT 2, WAIT 5 OR WAIT 10 SECONDS

These TagTiles will delay KUBO for the specified time and then KUBO will go forward x1. These tiles can be used in a Route or a Function. There is one of each tile.

GO LOW, GO MEDIUM OR GO HIGH SPEED

These TagTiles will control the speed that KUBO travels. They can be used in a Route or a Function. KUBO will move forward x1 at the given speed. There is one of each tile. The Medium Speed TagTile is KUBO's normal speed.

The speed setting remains until KUBO either starts to record a new function, has executed functions, or is restarted.

GO BACK

With this TagTile KUBO will Go Backward x1. There are four of these tiles. This tile can be used in a Route or a Function.

MAKE A U-TURN

With this TagTile KUBO will make a full U-turn and then Go Forward x1. There are two of these tiles. This tile can be used in a Route or a Function.

Section 2 TagTiles

GO FORWARD x2, x3 OR x4

These TagTiles will determine how far KUBO moves forward; twice, three times or four times a single movement. There are two of each tile. These tiles can be used in a Route or a Function.

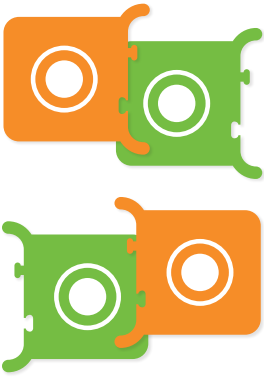
TURN 90 OR 180 DEGRESS, LEFT OR RIGHT

With these tiles KUBO will simply turn the specified number of degrees to the left or the right. These tiles can only be used within a Function, as they must be followed by a movement TagTile (forward, right, left, u-turn etc). There are two of each 90-degree tiles and one of each 180-degree tile.

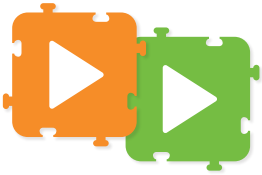
GREEN / ORANGE RECORD AND PLAY FUNCTION

These TagTiles® work in the same way as the blue and red Record and Play Function tiles in the KUBO Coding set. Providing additional Function tiles in new colours, helps students distinguish and recall a variety of routines and subroutines.

There are two green and two orange of each Play and Record Function tiles in KUBO Coding+.



Record Function TagTiles



Play Function TagTiles

Note: Unlike the red and blue Play Function tiles, the green and orange Play Function tiles have connectors on all four sides, which means that they can also be used as a subroutine in a Route

Sample Programs using KUBO Coding+

The following examples demonstrate how to use KUBO Coding+ TagTiles when programming Routes, Functions, Subroutines and Loops.

Programming Routes with KUBO Coding+

Remember: Routes are the simplest level of programming, controlling basic movements.

With the new TagTiles®, KUBO can navigate in more sophisticated ways. For example, use the Wait and Speed TagTiles to work with concepts of time. The Go Back and the U-turn TagTiles allow KUBO to retrace its route. These are also helpful in exercises where KUBO might be tasked to move objects around.

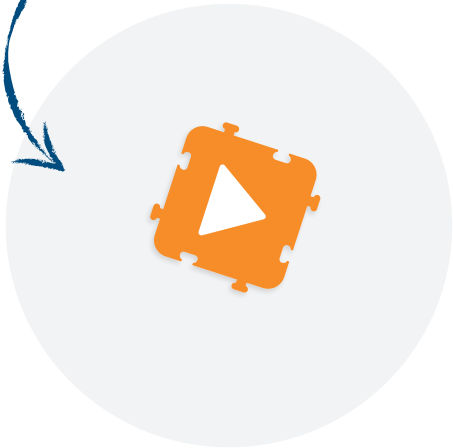
Access The Coding License at www.kubo.education for a series of lesson plans and activities that challenge students to improve their programming skills using KUBO Coding+ TagTiles. You can also watch the short video tutorials on the website.

Programming Functions with KUBO Coding+

KUBO Coding+ comes with two Function sets. This means that it is possible for KUBO to memorize and execute up to four recorded functions when using KUBO Coding and KUBO Coding+ TagTiles.

Use the 90 and 180 degree turn TagTiles to program KUBO to turn without moving forward. Remember, these tiles can only be used within a Function. For example, create a Function for KUBO to look from side to side before crossing the road.

Execute the sequence by placing KUBO on the orange Play Function TagTile



Remember: Functions combine single elements of code into a memorized sequence. The Function tiles allow students to save sequences so they can be used as many times as needed.

Programming Subroutines with KUBO Coding+

The KUBO Coding+ Function set comes with four Play Function TagTiles. This means that it is possible to execute functions multiple times within a function or a sequence. This will allow students even greater optimization of code, and will result in a deeper understanding of coding.

SUBROUTINE 1

SUBROUTINE 2

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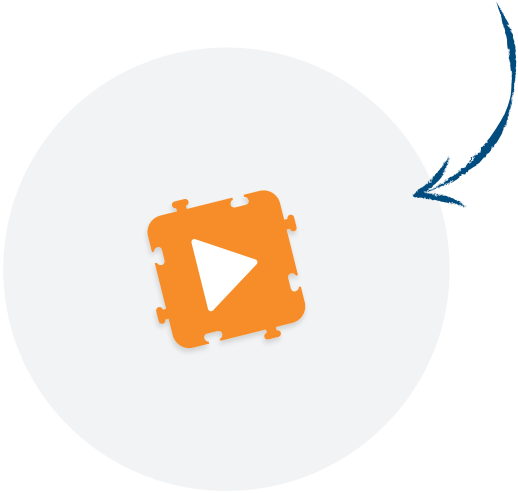
SUBROUTINE 3

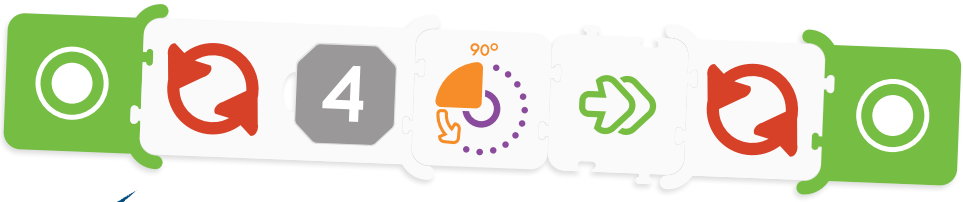
Have KUBO memorize all three subroutines within the orange Record Function tiles, and use the orange Play Function tile to execute.



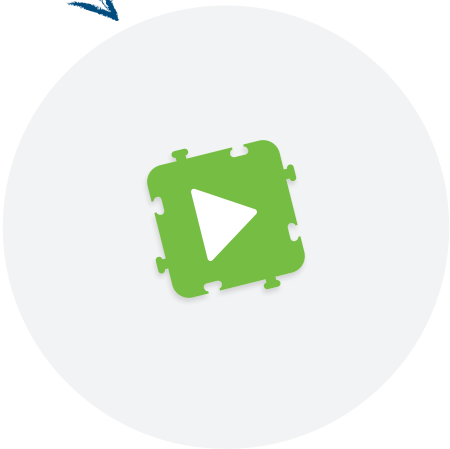
Remember: A Subroutine is a sequence of code within a sequence of code.

Programming Loops with KUBO Coding+

By using loops with the KUBO Coding+ TagTiles you can extend a program in multiple ways. For example, have KUBO execute a square route, using the following loop:



Execute the sequence using the green Play Function TagTile



Remember: Loops are used to create more efficient programs, because sequences of commands can be repeated. This is an important element of developing students understanding of how to optimize code.

Access The Coding License at www.kubo.education for a series of lesson plans and activities that challenge students to improve their programming skills using KUBO Coding+ TagTiles. You can also watch the short video tutorials on the website.

The Coding License lesson plans

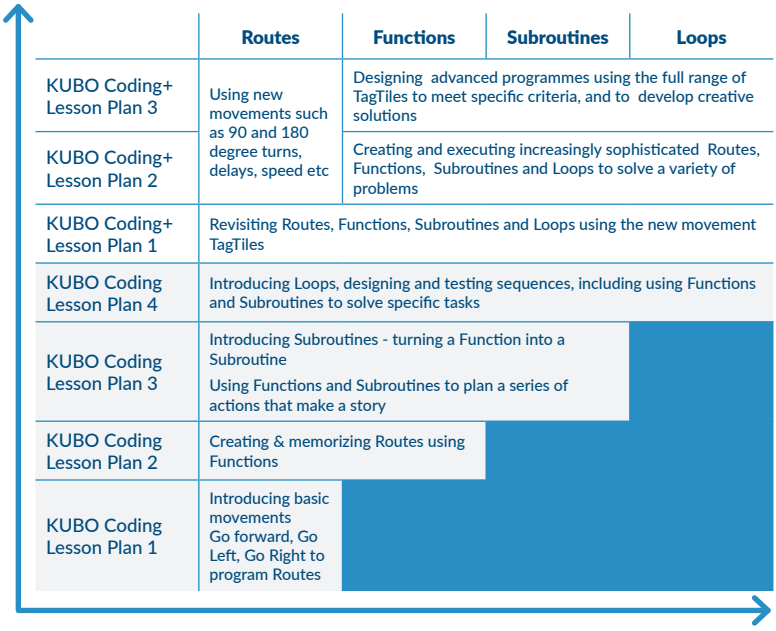
The Coding License, available to view or download at www.kubo.education, includes:

- Four lesson plans made up of 16 activities, that introduce students to Routes, Functions, Subroutines and Loops using the KUBO Coding sets,
- And a further three lesson plans made up of 12 activities that expand students programming skills using KUBO Coding and KUBO Coding+ sets.

EACH LESSON PLAN INCLUDES:

- Appealing and playful 3D illustrations that students will love
- Story-starters to stimulate their motivation and engagement
- Worksheets to download
- Task cards to encourage self-directed learning
- A Coding License certificate that also tracks progress
- Assessment and extension ideas
- A printable Teacher's Guide

Coding+ progression



	Routes	Functions	Subroutines	Loops
KUBO Coding+ Lesson Plan 3	Using new movements such as 90 and 180 degree turns, delays, speed etc	Designing advanced programmes using the full range of TagTiles to meet specific criteria, and to develop creative solutions		
KUBO Coding+ Lesson Plan 2		Creating and executing increasingly sophisticated Routes, Functions, Subroutines and Loops to solve a variety of problems		
KUBO Coding+ Lesson Plan 1	Revisiting Routes, Functions, Subroutines and Loops using the new movement TagTiles			
KUBO Coding Lesson Plan 4	Introducing Loops, designing and testing sequences, including using Functions and Subroutines to solve specific tasks			
KUBO Coding Lesson Plan 3	Introducing Subroutines - turning a Function into a Subroutine Using Functions and Subroutines to plan a series of actions that make a story			
KUBO Coding Lesson Plan 2	Creating & memorizing Routes using Functions			
KUBO Coding Lesson Plan 1	Introducing basic movements Go forward, Go Left, Go Right to program Routes			

Students can start KUBO at any grade from K-5, and will continuously develop their coding skills at a pace determined by the teacher.

If you already have experience using KUBO Coding, and have now added KUBO Coding+ to your resources, you can start at KUBO Coding+ Lesson Plan 2.

If you are a newcomer and have purchased the full bundle (KUBO Coding and KUBO Coding+ sets) you can either:

A Start with KUBO Coding Lesson Plan 1 and work through to Lesson Plan 4, then miss KUBO Coding+ Lesson Plan 1 and go straight on to lessons 2 and 3

B Or start at KUBO Coding+ Lesson Plan 1 and work through 1, 2 and 3

We recommend option A for younger or less confident students (grades K-2) and option B for older or more experienced students (grades 3-5).

We recommend 1x KUBO Coding Starter Set and 1x KUBO Coding+ TagTile Set for two students. Replacement parts and chargers are also available, contact your nearest supplier.

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www.kubo.education