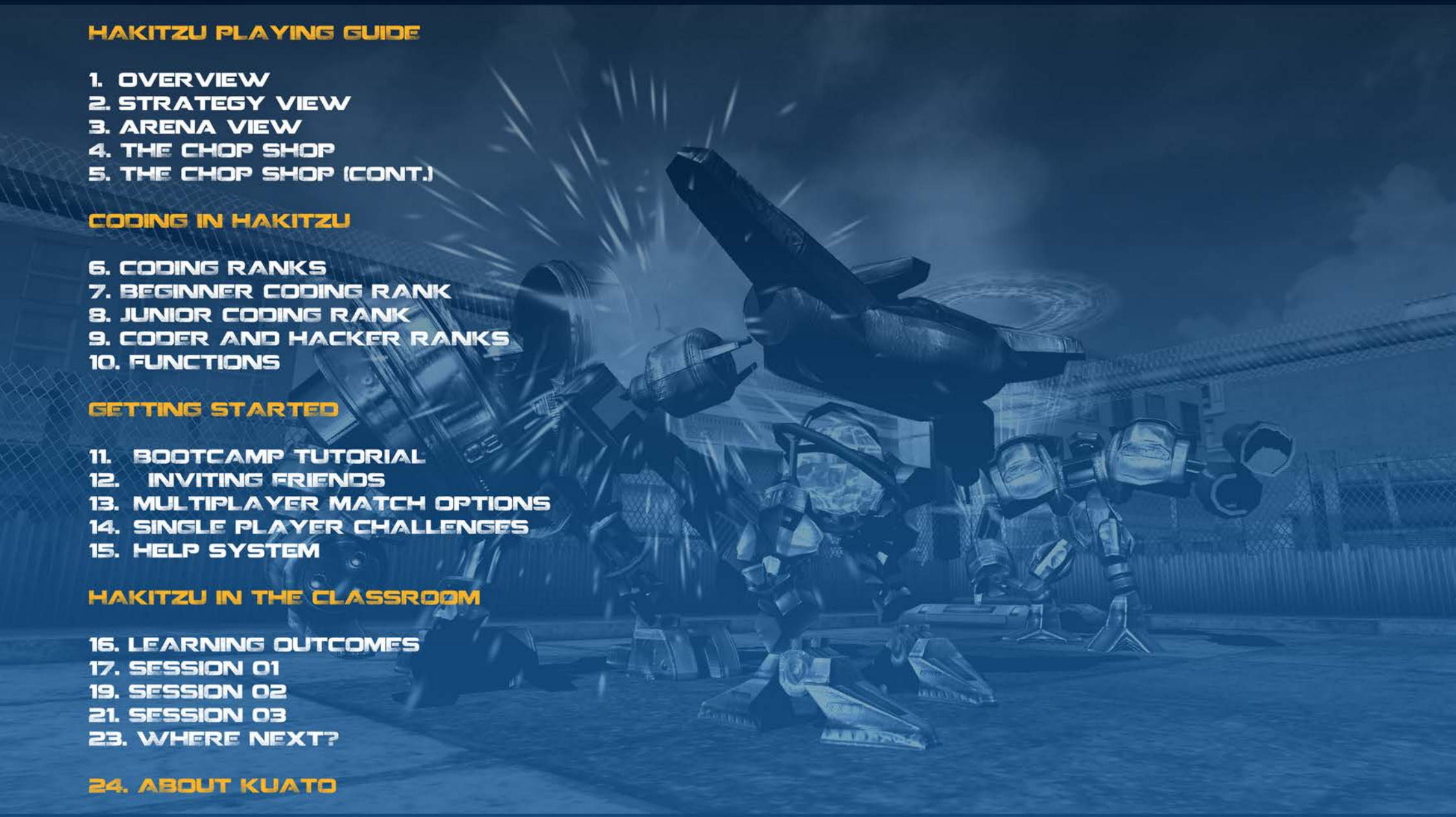
TEACHER'S GUIDE

HAKITZU ELITE

robot hackers

CONTENTS



OVERVIEW

WHAT IS HAKITZU?

Hakitzu is a game designed to introduce children and young people to programming JavaScript, one of the world's most commonly used programming languages. The aim of Hakitzu is to provide an exciting introduction to the world of coding and help players understand some simple concepts.

GAMEPLAY:

Hakitzu is a turn-based strategy game for two players, similar to chess. Players start at opposing ends of the board with two programmable battle robots, known as 'CodeWalkers' and a Power Core to defend. The aim for each player is to reach their opponent's Power Core and destroy it, whilst protecting their own. The first player to destroy their opponent's Power Core wins the match. CodeWalkers carry various weapons and can be programmed to battle each other as they move around the board. Players can also choose Single Player Challenges to hone their programming skills between matches.

KEY PIECES:

CODEWALKERS

Mighty battle robots. Choose between the slow and powerful Tank class or the lighter, more agile Scouts. CodeWalkers can be customised in their appearance and weapons.

BATTLE ARENA

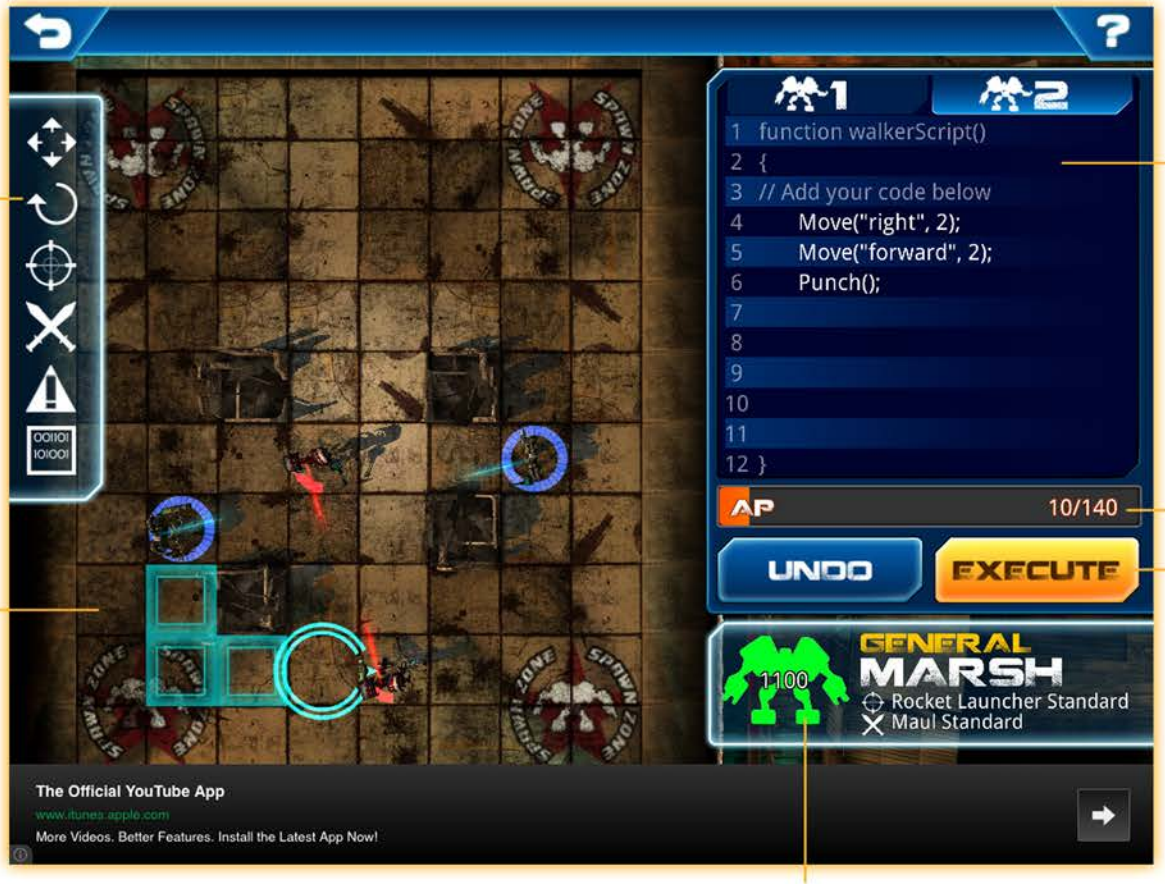
The 8x10 board where Hakitzu matches take place. There are four different battle arenas to choose each with different obstacles.

POWER CORE

Situated at each end of the board, Players must defend their own Power Core whilst attempting to destroy their opponents.

STRATEGY VIEW

There are two main viewpoints in Hakitzu: the strategy view and the arena view. This is the strategy view, where players plan their moves and write their code.



FUNCTION LIBRARY

This area shows available moves and the code required to perform them.

BATTLE ARENA

The overhead view can be zoomed by pinching and dragging on the screen to help plan strategy.

CODE EDITOR

The player writes their code in this window.

ACTION POINTS

Each function costs Action Points. The player must decide best to spend their Action Points each turn.

EXECUTE

The player presses execute to finish their turn. This will take them to the arena view where they will watch their programme play out.

CODEWALKER STATUS

Displays health of currently selected CodeWalker. CodeWalkers destroyed in battle sit out three game turns before returning to the field.

ARENA VIEW

The Arena View is the other main viewpoint in Hakitzu. This is where players watch their programmes as they execute, and their opponent's turns play out.

CODE WINDOW

The code for your move is shown in this window, projected from your CodeWalker.

CODEWALKER

The player's CodeWalkers will act out the moves as programmed

THE CHOP SHOP

The Chop Shop is a garage area where players can customise their CodeWalkers before battle. Players can spend Coding Credits earned through in-game achievements on a wide variety of body parts, weapons and colour schemes.

CODEWALKERS

The player can store up to four CodeWalker configurations in these slots.

CLASS

Choose between the powerful Tank class or the more agile Scout CodeWalkers.

CODING CREDITS

Coding Credits are earned by winning matches and other in-game achievments. Playing at harder Coding Ranks earns more Coding Credits.

PARTS AND WEAPONS

Coding Credits can be spent on a wide range of body parts, weapons and paint styles.

THE CHOP SHOP (CONT.)

CodeWalkers can be equipped with a wide variety of weapons that do different amounts of damage. Each CodeWalker can carry one Melee (hand-to-hand combat) and one Ranged (firing) weapon at a time. Part of the strategic gameplay of Hakitzu is in choosing your weapons wisely.

WEAPON STATS:

Weapons inflict different amounts of damage and cost different amounts of Action Points to use. Ranged weapons fire over certain distances. Some weapons, such as the Rocker Launcher, also have Splash Damage, meaning they will affect nearby squares when they explode.

Players can unlock more powerful weapons by completing in-game achievements, such as winning matches or solving challenges.

CODING IN HAKITZU

CODING RANKS

Hakitzu is designed to progress the player through four coding levels or ranks. All players start at the simple ‘tap and play’ Beginner rank and progress through to writing code with auto-complete help, to the final Hacker rank where all code is typed by hand. Each coding rank awards a different amount of Coding Credits for victories, which can then be spent in the Chop Shop. Each rank is explained in detail over the next few pages.

1. BEGINNER

The player is not required to write any code.The player presses the icon for the type of move they want and then taps on the board.

2. JUNIOR CODER

In this level, the player begins to type the code themselves. However auto-complete makes for faster input.

3. CODER

This rank is similar to Junior Coder but has less auto-complete assistance.

4. HACKER

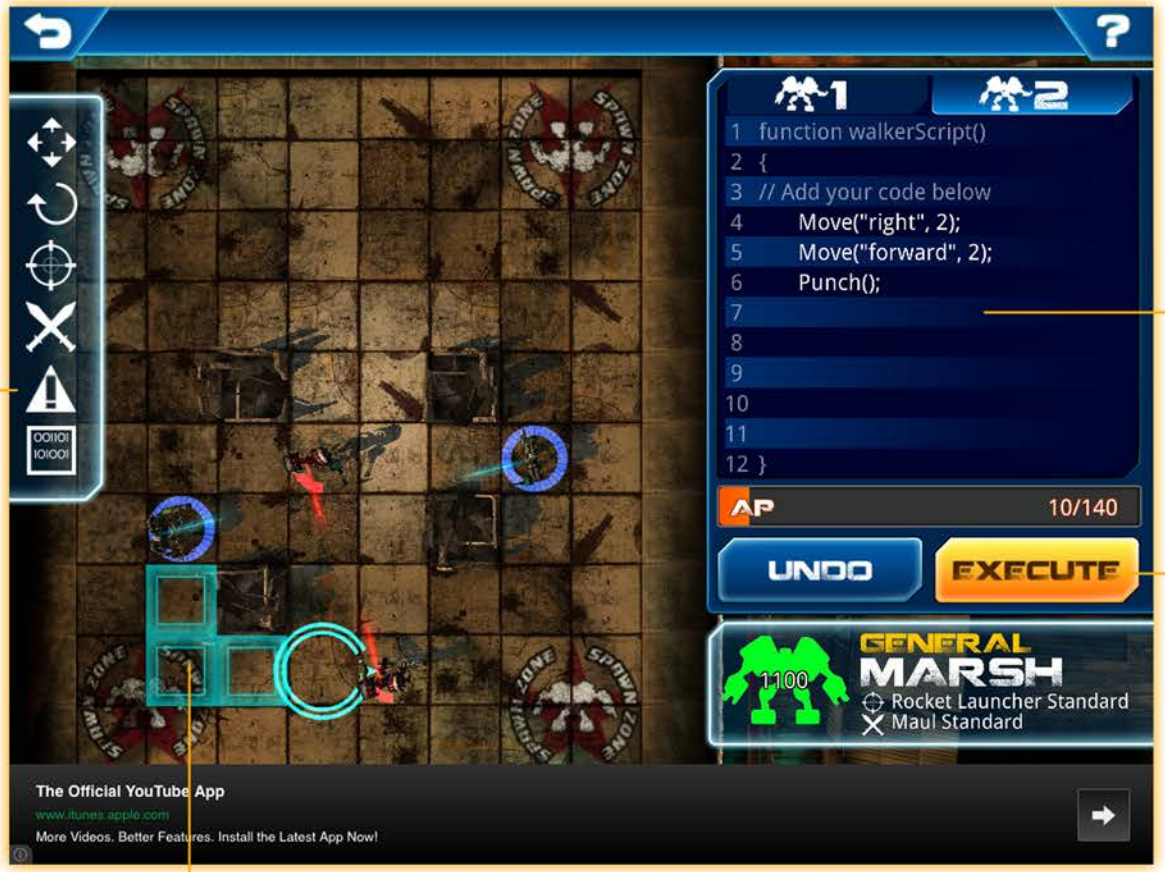
At this level the player has no auto-complete support. This is equivalent to coding using a basic text editor.

CODING RANK: BEGINNER

In the Beginner coding rank, the player is not required to write any code.The player simply presses the icon for the type of move they want and then taps on the board. The code will then automatically be generated as follows:

1. FUNCTION LIBRARY

The player taps the icon for the desired move.



3. CODE EDITOR

The player observes the JavaScript code that is generated.

4. EXECUTE

The player presses execute to finish their turn.

2. MOVE PREVIEW

Available moves are highlighted on the board. The player taps the board to select where they want to move or attack.

CODING RANK:

JUNIOR CODER

When playing in Junior Coder rank, the player begins to type the code themselves but is assisted by the Auto-Complete system. For example, if the player wishes to move, the player needs to type "m" which will bring up the suggested input of "Move". The player can then tap the word that appears in the Code Editor window or the spacebar, to accept the auto-complete suggestion.

1. FUNCTION LIBRARY

In all coding ranks except Beginner. the function library acts as a reminder list of available code.

3. CODE EDITOR

The player can alter basic parameters such as how many squares forwards or backwards.

4. CODE KEYBOARD

The special Hakitzu keyboard has commonly used coding symbols on the surface layer, to enable faster coding

AUTO-COMPLETE

In Junior Coder rank, the auto-complete system will fill in the majority of the code for the player.

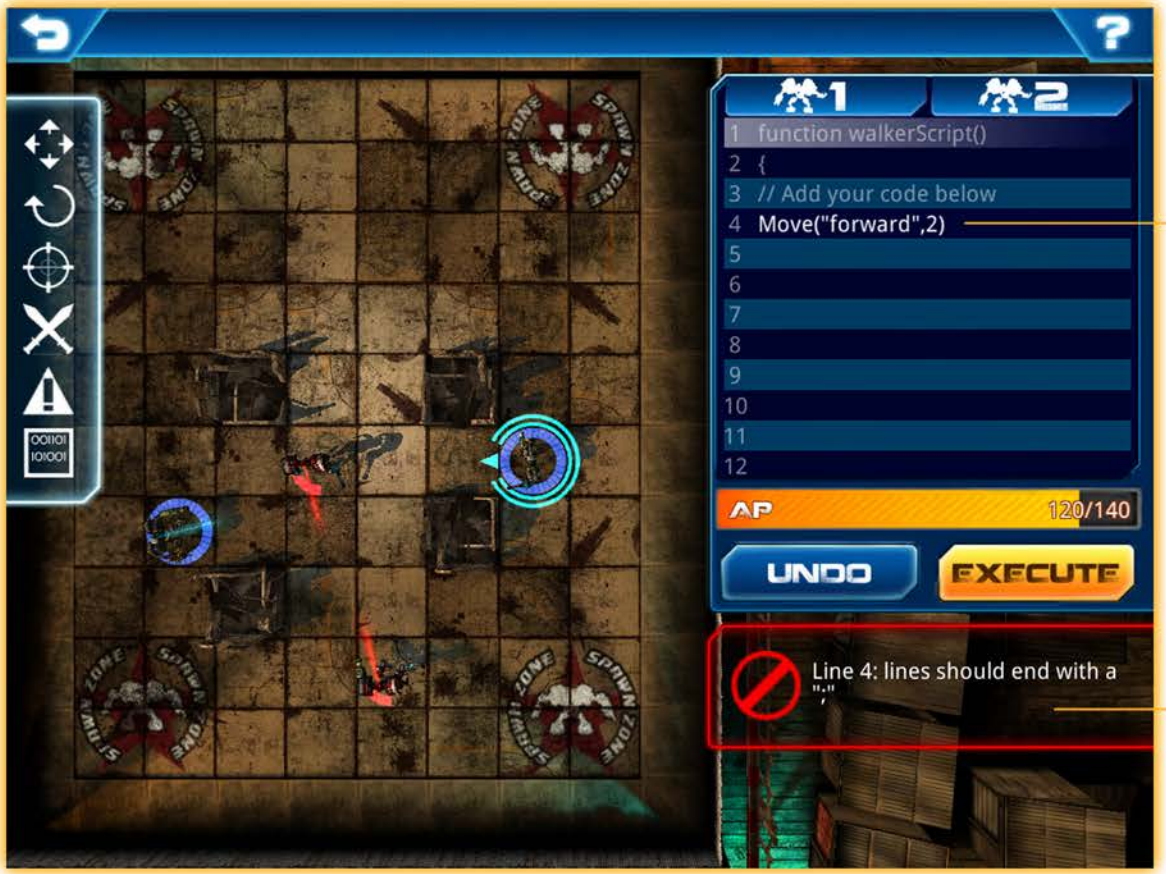
CODING RANK:

CODER AND HACKER

Coder rank is similar to Junior Coder, but with a reduced amount of Auto-Complete help. Hacker is the hardest rank of all with no Auto-Complete available. At all coding ranks the Code Editor window will highlight any errors in the code and help the player correct them.

CODING CREDITS

Each coding rank awards a different amount of Coding Credits for winning matches or completing Single Player Challenges. Coding Credits can be spent in the Chop Shop on new parts and weapons.



ERROR HIGHLIGHT

At all Coding Ranks, errors in the code are highlighted with guidance on how to correct.

FUNCTIONS

The following is a summary of all the available functions in Hakitzu. Players may refer to the Function Library at any time whilst in the strategy view to remind themselves of the functions available and the code required for each type of move.

MOVE

CodeWalker moves to a selected square in the arena.
Example code: Move(”forward”,2);

TURN

Rotates a CodeWalker 90 degree per turn.
Example code: Turn(”left”,1);

ATTACK (RANGED WEAPON)

CodeWalker attacks using whichever ranged weapon it is carrying. Ranged weapons, such as the Rocket Launcher fire across the board. Example code: FireRocket();

ATTACK (MELEE WEAPON)

CodeWalker attacks using whichever melee weapon it is carrying. Melee weapons, such as the Laser Axe, are for close combat.
Example code: Slash();

SENTRY

In this defensive mode, the CodeWalker will fire automatically only if an enemy CodeWalker crosses its line of sight.
Example code: Sentry();

HACK

This special function is used to destroy an opponent’s core and can only be played when adjacent and facing the core.
Example code: Hack();

ACTION POINTS:

Each command issued to a CodeWalker costs Action Points. Players have a set number of Action Points available per turn to spend between their two CodeWalkers. Part of the strategic gameplay of Hakitzu is deciding how best to spend Action Points on each turn.

GETTING STARTED

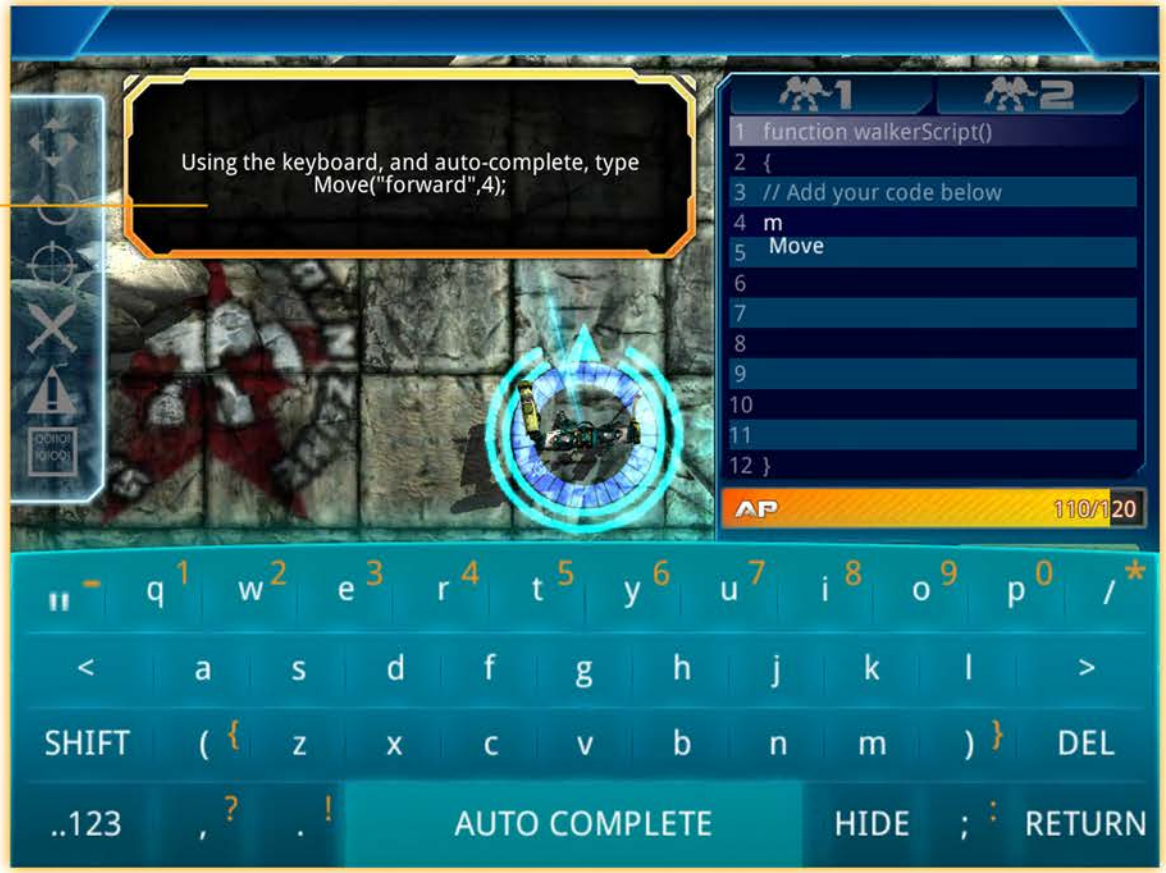
BOOTCAMP TUTORIAL

On launching Hakitzu, the player is taken through an initial guided tutorial using the Beginner ‘tap and play’ approach. Completing this tutorial unlocks both Multiplayer mode as well as the Junior Coder guided tutorial. Completing the Junior Coder tutorial unlocks the Combat and Stealth Single Player Challenges.

GUIDED TUTORIAL

Players simply follow the on-screen instructions to complete the tutorial.

All the key parts of the game, from moving, attacking and hacking a Power Core are covered in the tutorial.



INVITING FRIENDS

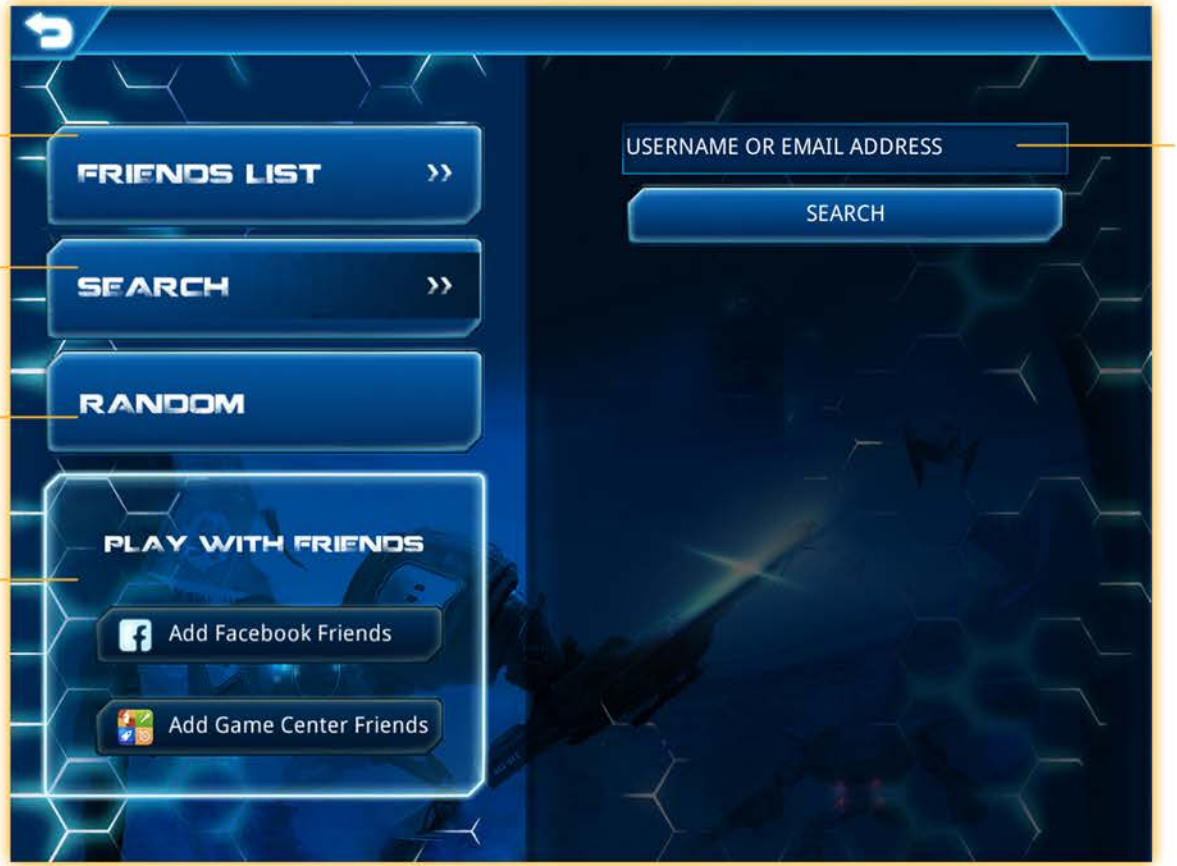
After selecting 'Multiplayer' from the main menu, players can choose to challenge their friends to a game of Hakitzu via email, Game Center or Facebook. Players can also choose to be matched against a random opponent.

FRIENDS LIST
Displays existing friends.

SEARCH
Searches for friends by username or email address.

RANDOM
Matches user against a random opponent.

PLAY WITH FRIENDS
Add existing Facebook or Game Center friends.



SEARCH
Enter username or email address to search for friends.

MULTIPLAYER OPTIONS

The Match Options screen allows you to choose your CodeWalkers, arena and coding rank when setting up a new multiplayer game.

CODEWALKERS

The player is able to save up to four CodeWalker configurations in the Chop Shop. The player selects their chosen CodeWalkers in this window.

CODING RANK

The player selects the coding rank they wish to use for this match.

ARENA SELECT

The player can choose from four different battle arenas.

CHALLENGES

Single Player Challenges allow the player to test their coding skills against a range of puzzles. Coding Credits are awarded for finding the best solution to each challenge. Single Player Challenges are reached by selecing ‘Single Player’ from the main menu.

CHALLENGES

Each challenge must be successfully completed in order to unlock the next.

CHALLENGE TYPES

Players can choose from the Combat Challenges or Stealth Challenges, or if needed they can replay the Bootcamp tutorials for a refresher.

HELP SYSTEM

At any time during the game, the player can access the in-game help by pressing the “?” icon in the upper right hand corner of the screen. This will display further small ‘?’ symbols over any important buttons or areas of the game. Pressing these will bring up detailed information about the chosen item.

1. ACTIVATE HELP

Press here to activate the help system. Any important areas will be highlighted with a smaller “?” icon.

2. SELECT HELP AREA

Press on any icon to view its help information.

IN THE CLASSROOM

LEARNING OUTCOMES

The following three session plans have been designed to help educators use Hakitzu in the classroom. They are intended as a general guide only and may be adapted or altered as you wish.

By the end of the sessions students should have a basic understanding of the structure of functions.

SESSION 1

Discussion and recording of students' current awareness of coding, what it is used for and their interest levels regarding it
Introduction to Hakitzu and learning basic gameplay

SESSION 2

Completion of Single Player Challenges in small groups to learn the basics of JavaScript
Students present and discuss their coding solutions to the challenges

SESSION 3

Students engage in multiplayer tournament to determine the class coding champion(s)
Celebration of the winners
Recap of original coding discussion
Signposting to further coding resources

SESSION 01

For students new to programming, the following represents a simple three session course during which the player will be introduced to some rudimentary principles of JavaScript. The sessions culminate in a group Hakitzu tournament. The game sessions should also provide ample opportunities for class discussions around programming and where to learn more.

Activity	Resources	Length
INTRODUCTION: As a group, have a short discussion about code, e.g What is code? Who uses code and why? Why might it be useful to learn how to code? (See additional prompt sheet) Students' responses may be recorded for future discussion.	Whiteboard	5mins
DISCUSSION: Explain that over the next three sessions we will be learning more about code by playing Hakitzu. You may wish to show the Hakitzu trailer at this point, which can be found at www.youtube.com/kuatostudios	Hakitzu trailer video	5mins

SESSION 01 (CONT.)

Activity	Resources	Length
BOOTCAMP Hakitzu Bootcamp challenges are designed to take players through the basic rules of the game. At this stage, the game writes the code; students should observe and notice particular features. Classes may be divided into groups or pairs to work through the Bootcamp challenges.	Devices with Hakitzu Elite installed	5mins
PLENARY: Class discussion about their first experience of the game. Students should be encouraged to record their observations, both about the game, and about their exposure to JavaScript. Explain that in the next session they will start coding themselves!	Whiteboard	5mins

DIFFERENTIATION:

Students who complete the Bootcamp challenges quickly can either move on to the next set of 'Combat Challenges' and 'Stealth Challenges' at Beginner rank. Alternatively, they can retry the 'Bootcamp' section using the Junior Coding rank.

SESSION 02

In this session, students work in pairs or small groups to undertake Hakitzu the single player level in Junior Coding rank. At this level, the game will provide auto-complete help. However, players must type the code themselves, using the Function Library as reference. By the end of this session students should have a basic understanding of the structure of functions and how to alter string and numerical data.

Activity	Resources	Length
INTRODUCTION: Recap of previous session 'Welcome to Hakitzu'. Explain to the students that in this session, students will play in Junior Coder rank, i.e., they will start to type code for themselves. Auto-Complete will provide support.	N/a	5mins
COMBAT CHALLENGES: Divide the students into pairs or small groups. Students should work through the Combat Challenges by first planning their moves, writing code, debugging and then executing. Hakitzu will award up to 3 stars for successfully completed challenges based on how efficient the solution was in its use of Action Points.	Devices with Hakitzu Elite installed	30mins

SESSION 02 (CONT.)

Activity	Resources	Length
EVIDENCING: Once students have found their best solution for a challenge they should take a screenshot of their code and store it as a record of their work.	N/a	10mins
PLENARY: Bring the students back together as a class. Ask each group to present a solution to a challenge. Discuss the structure of the code they have been writing. What observations have they made? Draw out from this discussion the difference between numerical and string data.	Devices with Hakitzu Elite installed	5mins

DIFFERENTIATION:

Students who find the challenges difficult can try planning their moves first using the 'Beginner' mode. In this mode, the code is written for the player as they tap on the board. Students should observe the code that is generated in this mode and try to replicate it in Junior Coder rank.
Students who complete all the challenges quickly can attempt to optimise solutions to the challenges by using fewer Action Points.
Alternatively, students can try the challenge again in a more advanced coding mode, such as 'Coder' or Hacker'.

SESSION 03

In this final session, classes will use the Multiplayer feature of Hakitzu to hold a group tournament. Awards may be given for winning the game and for the coding style used.

Activity	Resources	Length
INTRODUCTION: Explain that in this session we will be putting our coding knowledge to the test with a multi player Hakitzu tournament.	N/a	5mins
EXPLORE THE CHOP SHOP: Students may be given time to customise their CodeWalkers ready for battle. **TOURNAMENT:** Students should then play each other in groups to determine an overall champion. The structure of the tournament will depend on class size and length of session.	Devices with Hakitzu Elite installed	30mins

SESSION 03 (CONT.)

Activity	Resources	Length
CELEBRATION: Bring the class together as a group and award small prizes (e.g. Hakitzu stickers). Recognition may be given to match winners and to the team who played in the hardest coding style.	Stickers or other small prizes	10mins
RECAP: The class may like to review their responses from Session 1. What have they learned through the three sessions?	Discussion notes from Session 1	15mins
SIGNPOSTING: Depending on your class, talk through suitable sources for further exploration of coding. See the 'Further Coding' factsheet for suggestions.	'Where Next' factsheet (page X)	10mins

DIFFERENTIATION:

Students should be encouraged to play the tournament in Junior Coder style or above, but students working at a slower pace can use Beginner if needed. Advanced students can attempt to play in one of the harder styles such as Coder or Hacker.

WHERE NEXT?

To join the growing Hakitzu community and to stay informed of other support materials, updates and other Kuato Studios products, visit us at:

Facebook - Kuato Studios - www.facebook.com/kuatostudios
Facebook - Hakitzu Elite - www.facebook.com/Hakitzu
Twitter - www.twitter.com/kuatostudios
YouTube - www.youtube.com/kuatostudios

For students who have developed an interest in coding through playing Hakitzu, the following resources can help you take things further:

CODE CLUBS

Code Club is a nationwide network of free volunteer-led after-school coding clubs for children aged 9-11.
https://www.codeclub.org.uk/
http://codeclubworld.org/
CodeDojo:http://coderdojo.com/

SCRATCH

http://scratch.mit.edu/

CODE ACADEMY

http://www.codecademy.com/

RASPBERRY PI

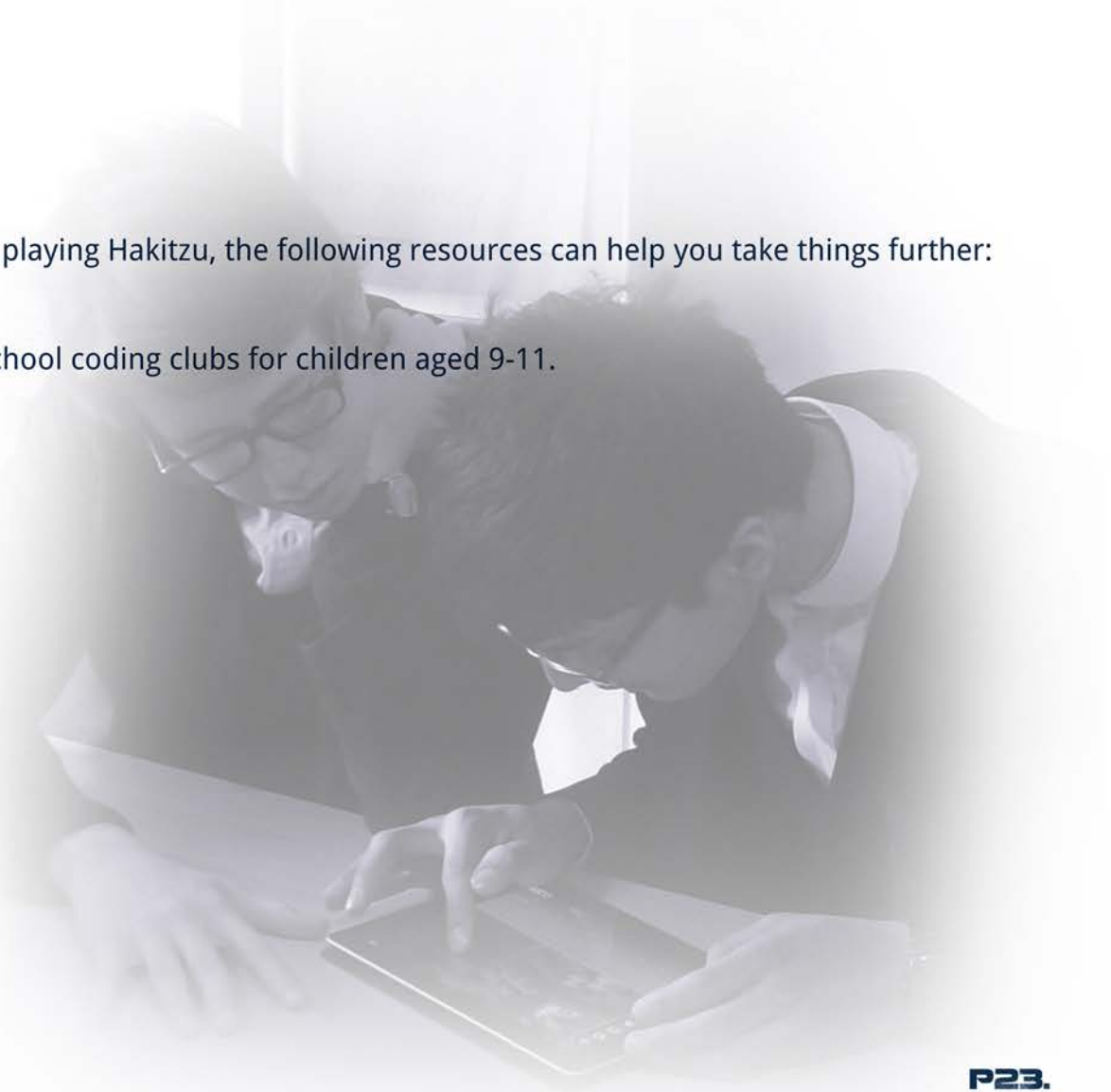
http://www.raspberrypi.org/

YRS - YOUNG REWIRED STATE:

https://youngrewiredstate.org/

STEMETTES:

http://stemettes.org/



ABOUT US

Kuato Studios is a development studio focused on creating games with a purpose. Our London based team consists of award-winning experts from the educational field, AI specialists and talent from world-renowned games studios such as EA, Konami and Sony. Hakitzu Elite introduces young people to the fundamentals of JavaScript and we're developing more games that will encourage deeper, more engaged learning in other STEM subjects.

PARTNERS:

We are supported by Horizons Ventures, premier VC investors in Facebook, Spotify, Waze, Summly and Fixmo with SRI International, the creators of Siri.

SOCIAL CHANNELS:

Facebook - Kuato Studios - www.facebook.com/kuatostudios

Facebook - Hakitzu Elite - www.facebook.com/Hakitzu

Twitter - www.twitter.com/kuatostudios

YouTube - www.youtube.com/kuatostudios