TECH WILL SAVE US

ARCADE CODER

WORKSHOP GUIDE

EASY

01: DISCOVERY - THE TECHNOLOGY
02: DISCOVERY - DRAWING WITH LIGHT
03: DISCOVERY - ANIMATION WITH SPRITES

INTERMEDIATE

04: DICE GAME - SKILL VS CHANCE
05: DICE GAME - RULES
06: DICE GAME - PLAY AND EVALUATION

ADVANCED

07: MAZE - THE WORLD AND OBJECTS
08: MAZE - DESIGN/CODE/TEST
09: MAZE - EVALUATION
10: WHACK'A'MOLE 2 - THE PLAYER
11: WHACK'A'MOLE 4 - DESIGN/CODE/TEST
12: WHACK'A'MOLE - PLAY AND EVALUATION

MEETS ELEMENTS OF UK STATUTORY CURRICULUM :

KS2 DESIGN & TECHNOLOGY
KS2 COMPUTING

6+


TECH WILL SAVE US
6+
EASY BLOCK CODING
CREATE & ANIMATE GAMES
HOURS OF FAMILY FUN
LEARN TO CODE IN THE GAME STUDIO APP
ARCADE CODER
WELCOME!
Ready to become a games designer?
Download the Games Studio to start playing

WELCOME

The Arcade Coder is a programmable game console that teaches children how to design and code their own games for up to 4 players. Through an iPad app, children will experiment with illuminated LED animations , customise pre-coded games by adding code blocks to existing frameworks. Once confident, they can even invent brand new ones, totally from scratch!

The sessions are graded from easy through to advanced. Most 6 - 7 year olds should be able to complete the easy sessions. The intermediate sessions are a further stretch but within reach for this range. The advanced sessions are the trickiest and provide enough challenge for even the most compentent mini coder but might require support.

Design, Make, Evaluate
These STEAM sessions (Science,Technology, Engineering, Art, & Maths) look at the way computer games are constructed. Through a cycle of exploration, design, and evaluation, participants will go though the steps of programming different games on the Arcade Coder. We provide bug testing sheets for your group to use. This is an important part of any coding/making process that we are never too young to learn.

21st Century skills
Coding is not the only skill predicted to be essential in the future. Creativity, collaboration, resilience and problem solving are all set to be highly valued too. Through tasks that can be carried out in pairs and give enough scope for creativity and collaboration, participants will get the opportunity to flex these skills. We have even included group feedback sessions so they can bolster their soft emotional skills by practising the art of giving and receiving useful constructive critisism and praise. We celebrate risk taking and failure as much as success.

Resources
Every session requires that Makers have access to:

- an Arcade Coder
- a shared ipad tablet to follow the App tutorials

Any additional resources needed are listed at the bottom of each session.

We have also made a selection of printable resources to help master some of the trickier skills, such as the X Y coordinates and designing a maze. These are designed to not only make some of the abstract concepts of coding more concrete, but also can act as a gentle assessment tool. Oh, and don't forget the all important Awards Certificates. Who doesn't thrive on a little celebration of success, no matter how small!

When things go wrong...
We embrace the fact that Making and coding can be as frustrating as it is rewarding, and we hope this is something you can communicate to your Makers too. Mistakes are a critical part of the learning process, and often allow that 'Ureka' moment to happen. Allow the physical and emotional space for these mistakes to happen happily!

Enjoy
Making is fun!

SESSION OVERVIEW

EASY

01: DISCOVERY - THE TECHNOLOGY
Introduction to the Arcade Coder
History of games and computer games

02: DISCOVERY - DRAWING WITH LIGHT
Graphics and Painting in computer games
Use the Painter to create your first images

03: DISCOVERY - ANIMATION WITH SPRITES
How does animation work?
Using the code editor for the first time to make an animation
Certificate Ceremony

INTERMEDIATE

04: DICE GAME - SKILL V CHANCE
Randomisers - dice, spinners, coins tosses, cards etc
Build a dice, agree some rules and play a first game

05: DICE GAME - RULES
The role of rules in computer games.
Create a new board game, design the board and write the rules
Make it!

06: DICE GAME - PLAY AND EVALUATE
Group Play session and Evaluation
Certificate Ceremony

ADVANCED

07: MAZE - THE WORLD
The use of a World and Objects in computer games
Explore more advanced names and features of code
(variable, sprites, costumes, x y coordinates)

08: MAZE - DESIGN/CODE/TEST
Plan a maze on paper labelling x y coordinates
Create maze on Arcade Coder and bug test

09: MAZE - EVALUATE
Time to make any last minute tweeks
Play and evaluate each others games

10: WHACK'A'MOLE 2 - THE PLAYERS
The role of the Player in computer games
Make Whack a Mole 2 player game, Bug fixing and testings

11: WHACK'A'MOLE 4 - DESIGN/CODE/TEST
Make Whack a Mole 4 player game
Bug fixing and testings

12: WHACK'A'MOLE - PLAY AND EVALUATE
Groups Play session and evaluation - Whack a Mole Olympics
Certificate Ceremony

UK CURRICULUM MAPPING
STATUTORY GUIDANCE 15/6/2015

D&T KS2

Pupils should be taught to:

Design

✓ use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups

✓ generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Make

✓ select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately.

select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities

Evaluate

✓ investigate and analyse a range of existing products

✓ evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

✓ understand how key events and individuals in design and technology have helped shape the world

Technical knowledge

apply their understanding of how to strengthen, stiffen and reinforce more complex structures
understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]

understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]

apply their understanding of computing to program, monitor and control their products.

*These areas are not covered within this scheme of work

Computing KS2

Pupils should be taught to:

✓ **• design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts**

✓ **• use sequence, selection, and repetition in programs; work with variables and various forms of input and output**

✓ **• use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs**

• understand computer networks including the internet; how they can provide multiple services, such as the world wide web; and the opportunities they offer for communication and collaboration

• use search technologies effectively, appreciate how results are selected and ranked, and be discerning in evaluating digital content

• select, use and combine a variety of software (including internet services) on a range of digital devices to design and create a range of programs, systems and content that accomplish given goals, including collecting, analysing, evaluating and presenting data and information

• use technology safely, respectfully and responsibly; recognise acceptable/unacceptable behaviour; identify a range of ways to report concerns about content and contact.

*These areas are not covered within this scheme of work


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US