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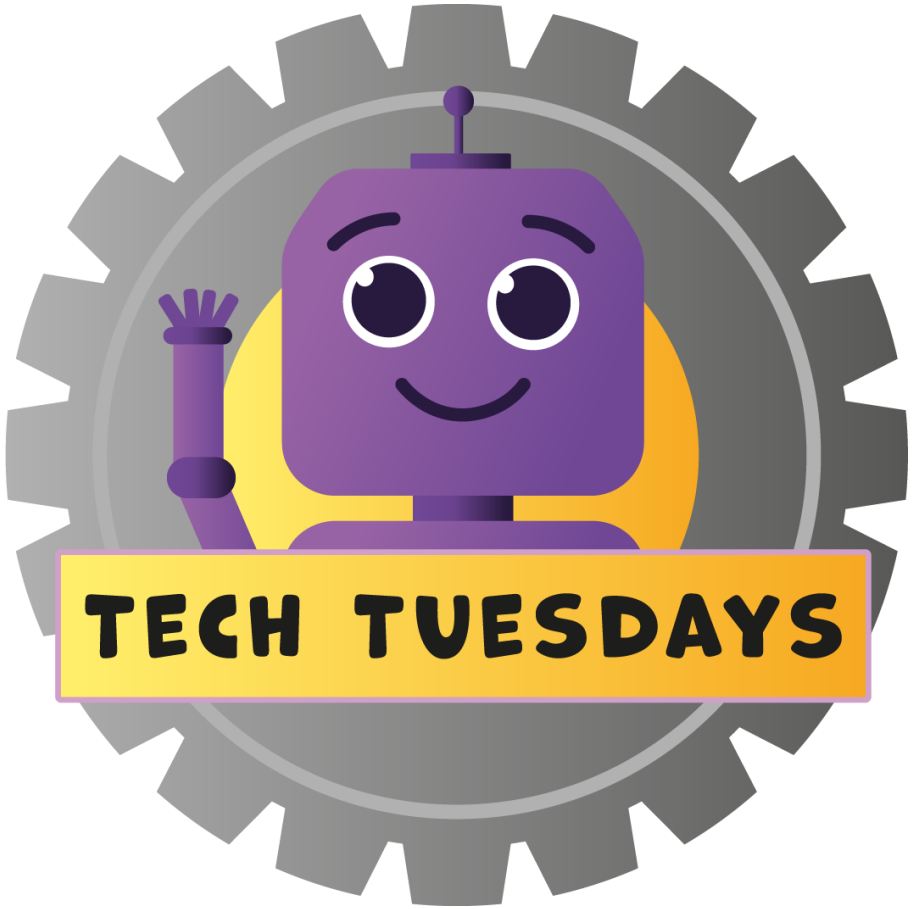
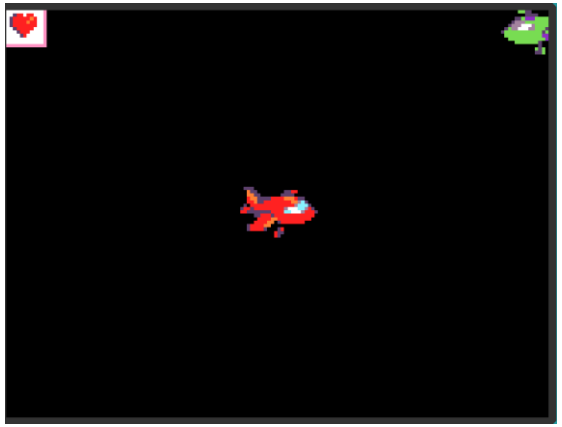
GAME DESIGN



GAME DESIGN

In this Tech Tuesday bite-sized lesson, you will be introduced to Microsoft MakeCode Arcade.

The video will guide you through the process of exploring the visual programming language blocks and create an old school arcade game that includes variables. You will find further suggestions of how this skill can be used across the curriculum within this guide.



TECH TUESDAYS

LEARNING INTENTION

We are learning to **use** a visual programming language to **create** a game.

SUCCESS CRITERIA

- **Discuss** the function of individual blocks or programs
- **Include** variables to keep life points
- **Test** and **debug** the coded programs

DIGITAL LEARN

PRIOR KNOWLEDGE

- What is a variable? Could you give an example?
- How would you describe a visual programming language?
- Have you ever used other versions of MakeCode before?

ACTIVITY

1. Firstly, learners will choose their very own spacecraft and code it to move using a joystick or keys on a keyboard.
2. Next, learners will add in an enemy sprite, projectiles and even use variables to show a health score.
3. Finally, learners can begin to personalise the game they have created by editing the spacecrafts, backdrops and add in more variables.

IMPORTANT INFORMATION

- Suggested for Second Level
- Requires iPads/Laptops and Smart board to display video

TOP TIPS

- Best to work as an individual or with a partner.
- Group learners in varying knowledge pairs to allow for peer support.

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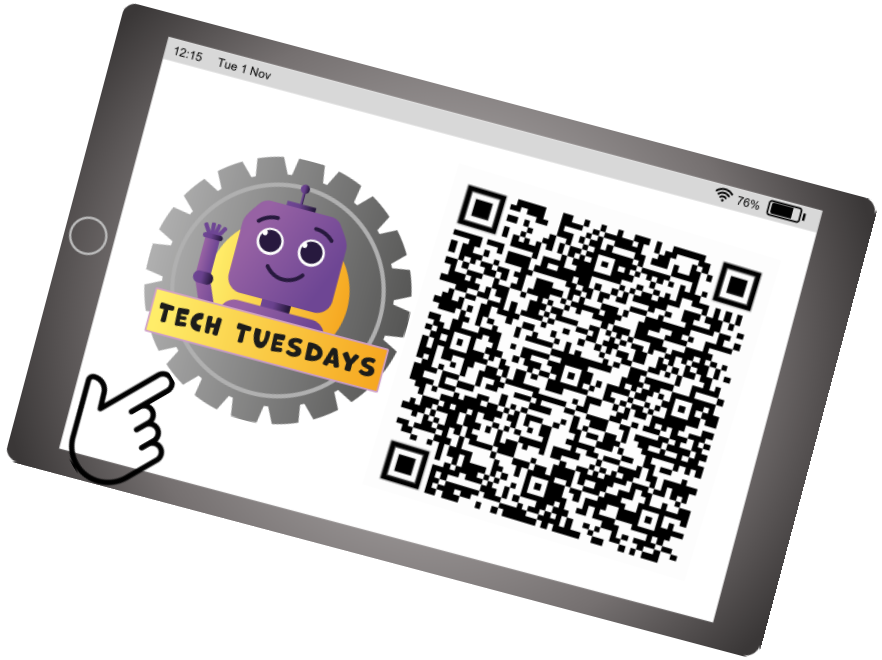
MODELLED EXAMPLE

Click the link to watch a North Lanarkshire Digital Pedagogy Practitioner model this activity.

Remember, you can use this knowledge and understanding in a different context.



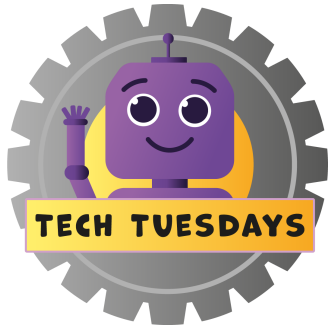
ACTIVITY

FIRST STEPS

Learners could take part in the guided tutorial to create a similar game with extra support and understanding explained.

LOOKING FOR A CHALLENGE?

Learners could begin to personalise the game by designing their own spaceships and projectiles in the sprite editor. Also, begin to create more variables such as a timer or score counter.



REFLECTION

- Looking back at the coded programs, would you be able to explain to a peer what each block/section of code means?
- What did we use variables for in today's program?
- What other games could you create using similar programs?

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SUGGESTED ACTIVITIES

LITERACY

Design and build a game that you can use to help your learning in literacy. It could be a spelling game or a board game focusing on writing or punctuation.

NUMERACY

Design and build a game that you can use to help your learning in maths. It could be a mental maths game or a maths board game focussing on multiplication.

HWB

Create a game that can be taught at playtime to younger children and promote being inclusive through play.

MUSIC

Use a platform such as GarageBand to create a jingle or theme tune. Utilise the blocks of musical notes and beats to support all learners in this task.

CURRICULAR LINKS

I can create, develop and evaluate computing solutions in response to a design challenge. **TCH 2-15a**

LINK TO PATHWAYS

Designing, building and testing computing solutions.

KEY VOCABULARY

MAKECODE

MakeCode is the software created by Microsoft to help learners code.

BLOCKS

Blocks are the coloured pieces that snap together to create a program.

FUNCTION

Describes what the block does in the program. How does it affect the program?

VARIABLES

Holds a value either number or letters such as a score or timer.

DEBUG

Always looking for errors in a program and works out how to fix them.

VISUAL PROGRAMMING LANGUAGE

Visual code that is pieced together to create programs rather than text based coding.

SHARE YOUR LEARNING

We love to see you all taking part in our Tech Tuesdays lessons. Remember to share your learning with us online.

TECH TUESDAYS

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TEACHER FEEDBACK

Feedback helps us to improve our lessons or just lets us know we're doing a good job. Please scan or click the QR code below to access our Tech Tuesdays feedback form, to share your comments and views.

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SPACEPLANE

TECH TUESDAYS

```
on start
    set SpacePlane to sprite of kind Player
    move SpacePlane with buttons vx 200 vy 200
    set SpacePlane stay in screen ON
    set life to 3
```

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ALIEN

TECH TUESDAYS

```
on game update every 1000 ms
    set Alien to sprite of kind Enemy
    set Alien velocity to vx -100 vy 0
    set Alien position to x 160 y pick random 5 to 115
    set Alien auto destroy ON
```

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PROJECTILE

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SENSING PT1

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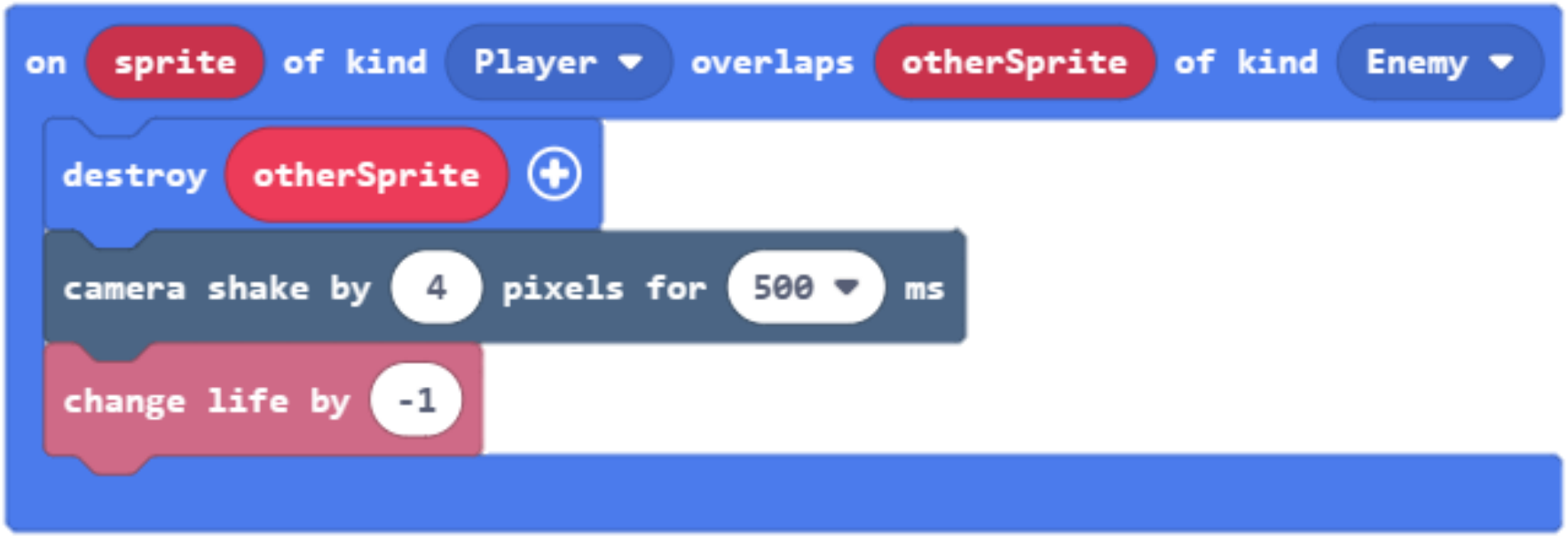
SENSING PT2

TECH TUESDAYS