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Raspberry Pi Foundation

# EPICS: Exploring Physical Computing in Schools

## Information Webinar

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# Outline of the webinar

1. General information about the EPICS project
2. Two ways to get involved
   - become a partner school (long-term commitment)
   - help us by contributing to our data collection (three data points)
3. Q&A

This webinar is being recorded and will be shared by email with those who have signed either of our expression of interest forms, and on http://computingeducationresearch.org

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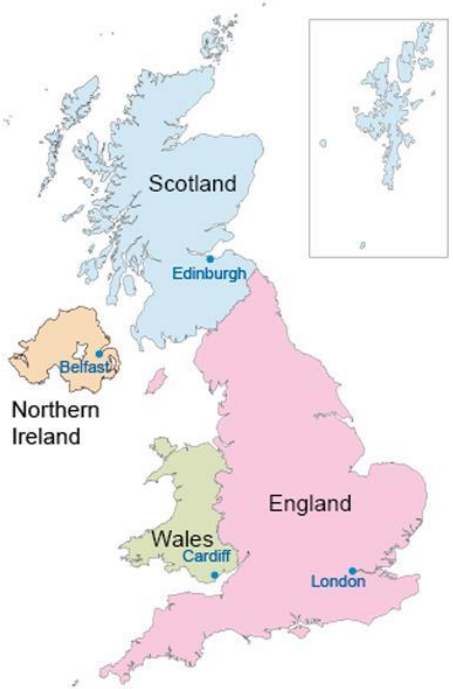
# Exploring Physical Computing in School (EPICS)

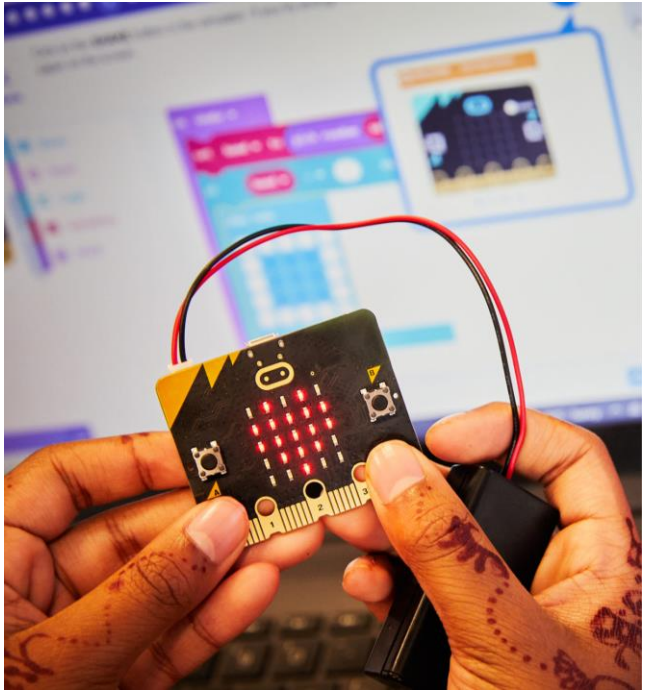


# What is physical computing?

- Educational activities involving interactive physical systems that sense and respond to the real world
- Combining hardware + software in development of computing skills
- Use of programmable devices

The BBC micro:bit

- Range of physical computing devices of which the BBC micro:bit has proved popular in schools
- Through the BBC micro:bit - the next gen campaign, over 500,000 BBC micro:bits have been distributed to UK schools.



This article gives a general introduction to physical computing and the range of devices available

# What exactly are we researching?

How does engagement with physical computing support the long-term development of young people's *creativity*, *technological self-efficacy* and *socio-technological agency?*

2.

What role do parents and teachers have? Do they influence students' *digital capital?*

What role does the transition to secondary school play?

3.

Are there gender differences in how students engage with physical computing?

# Why are we carrying out this research?

Previous research shows young people find the BBC micro:bit

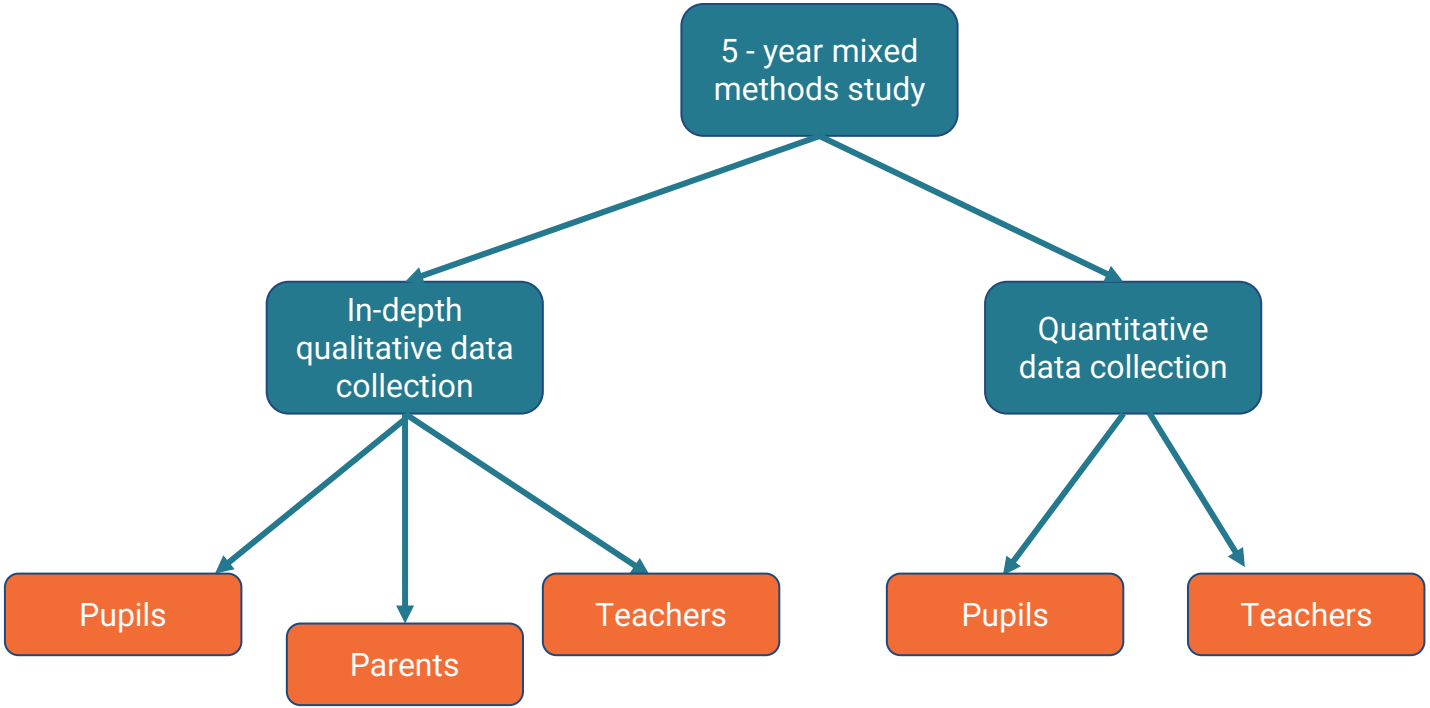
- easy to use
- tangible and ‘real’

and it may benefit their

- creativity
- programming skills

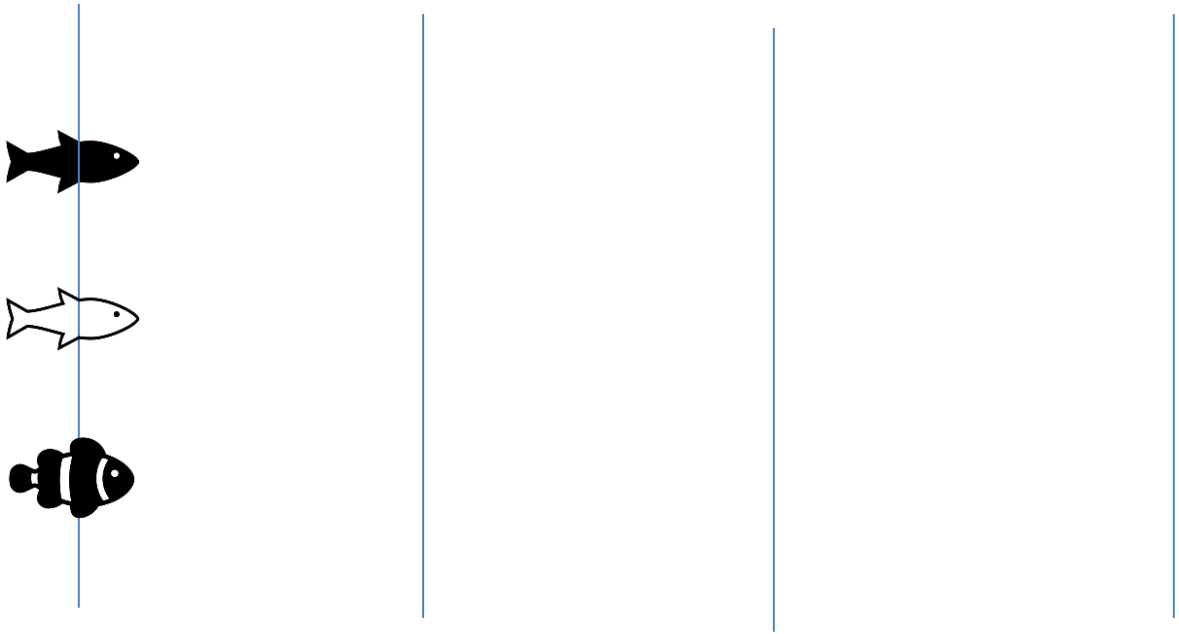
But do these early experiences translate into long-term impacts on confidence and creativity?

# Outline of the research project



Longitudinal study

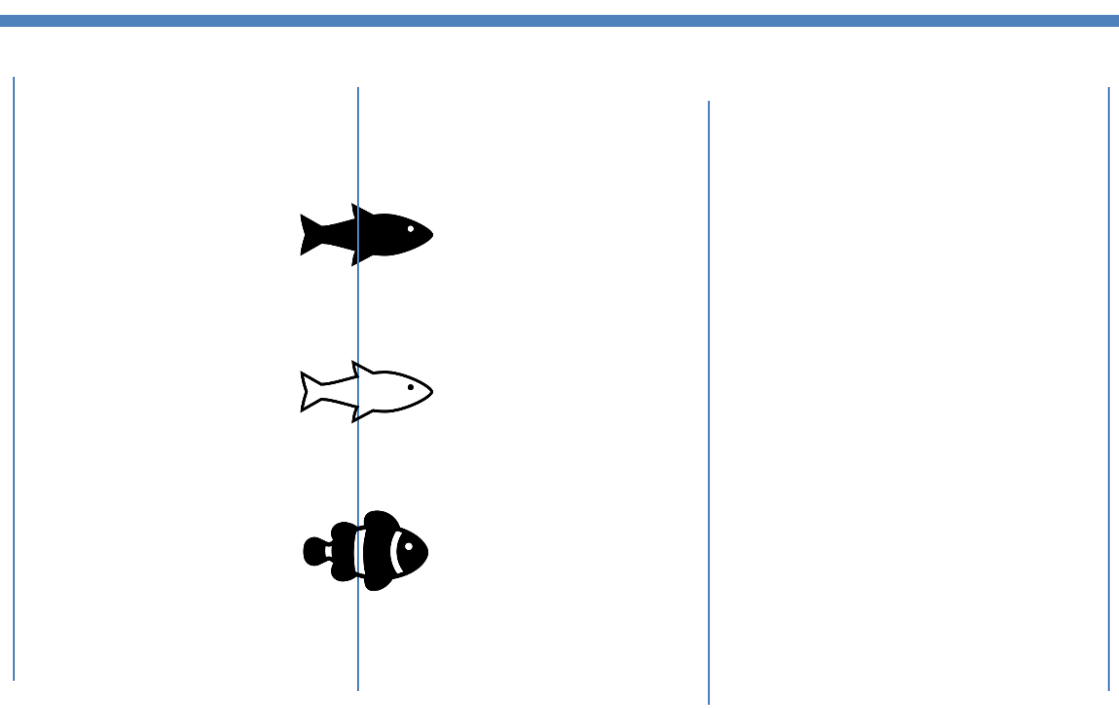
Time



Follow individual students, parents and teachers
to investigate their experiences over time

Longitudinal study

Time



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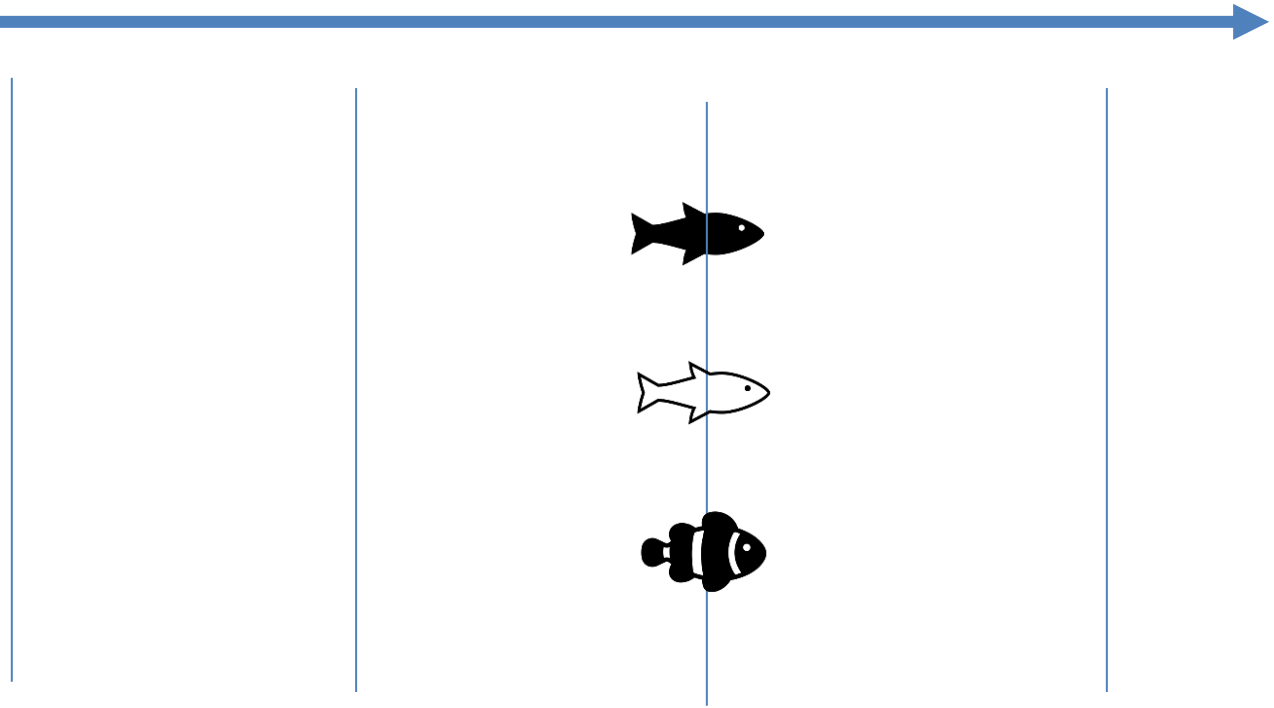

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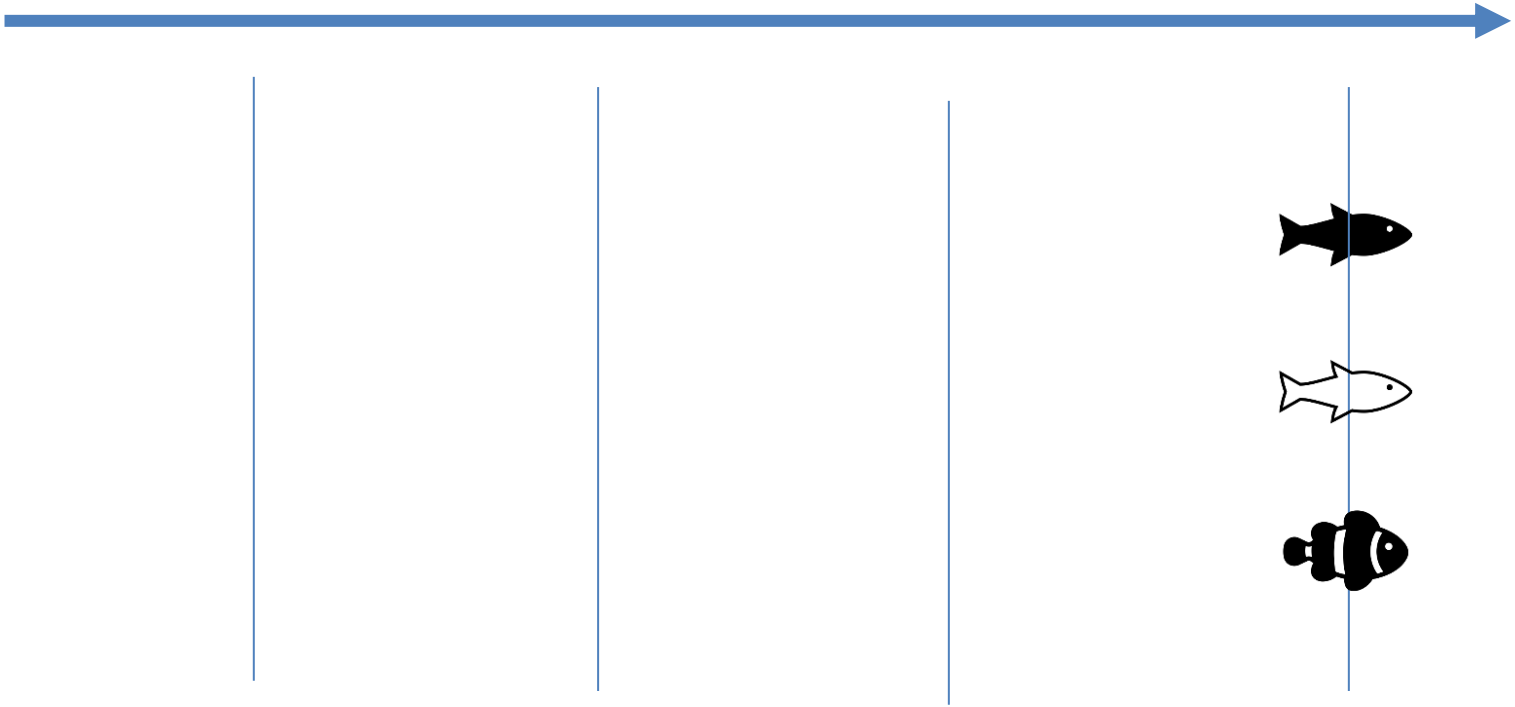

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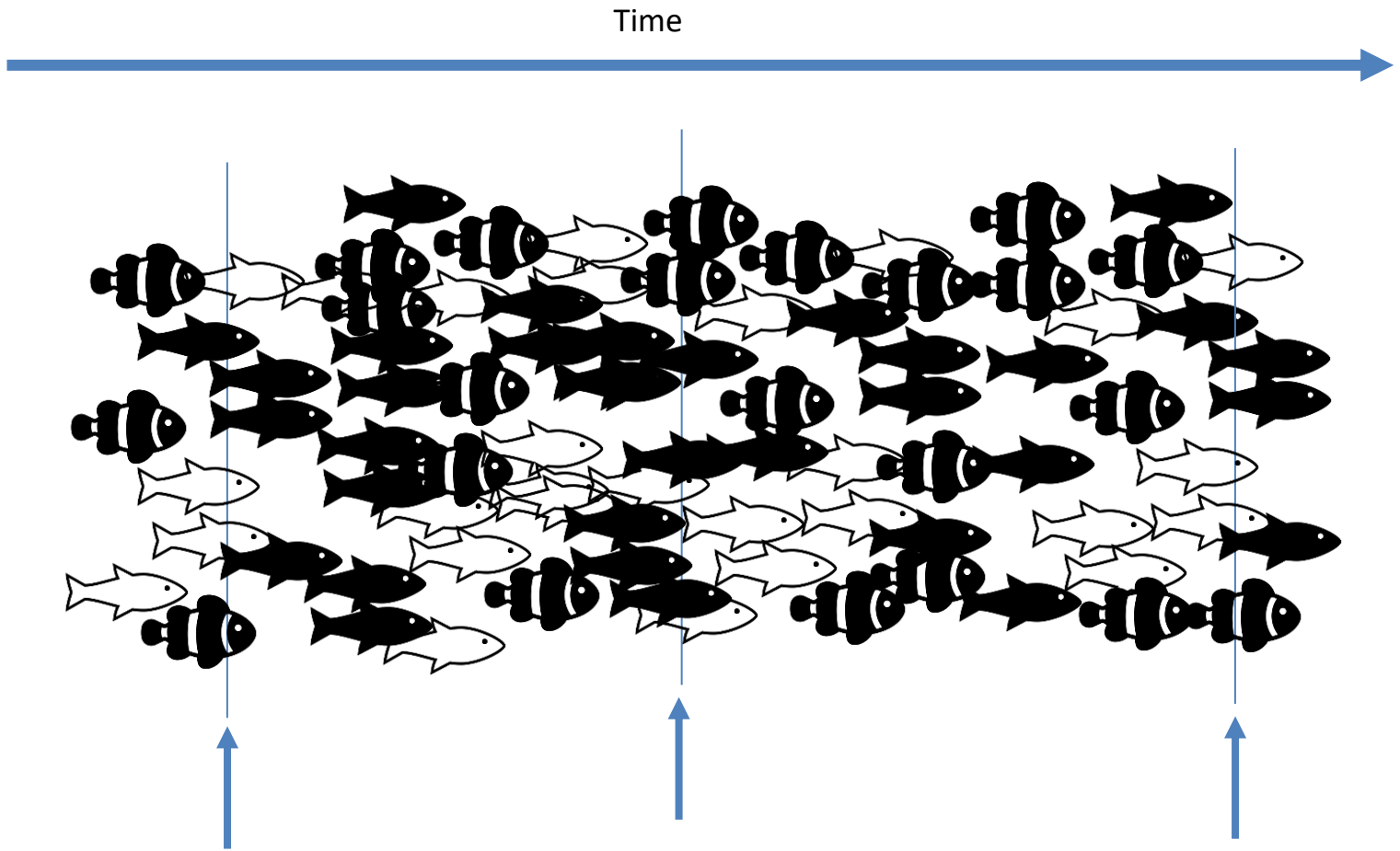
Time
Investigate a larger number of schools at different time periods

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# How to get involved

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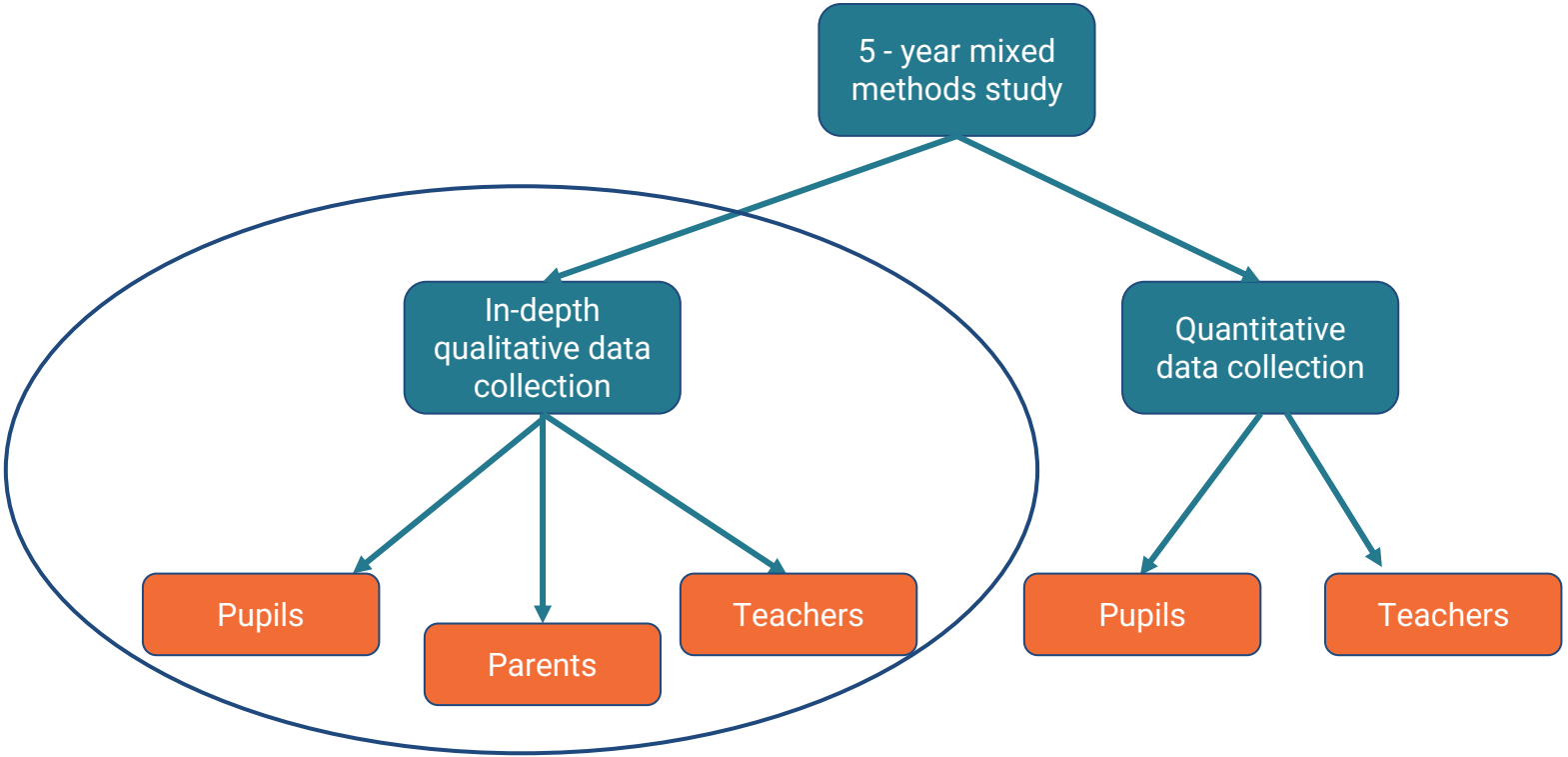
# EPICS partner schools

# Outline of the research project



# Five-year study: 2024-2028

## Qualitative data collection

Who?

Year 1: Pupils and teachers
Year 2: Pupils, parents and teachers
Year 3: Pupils, parents and teachers
Year 4: [optional engagement]
Year 5: Pupils, parents and teachers

When?

Year 1: June/July 2024
Year 2: April - July 2025
Year 3: April - July 2026
Year 4: April - July 2027
Year 5: April - July 2028

# Year groupings across the UK

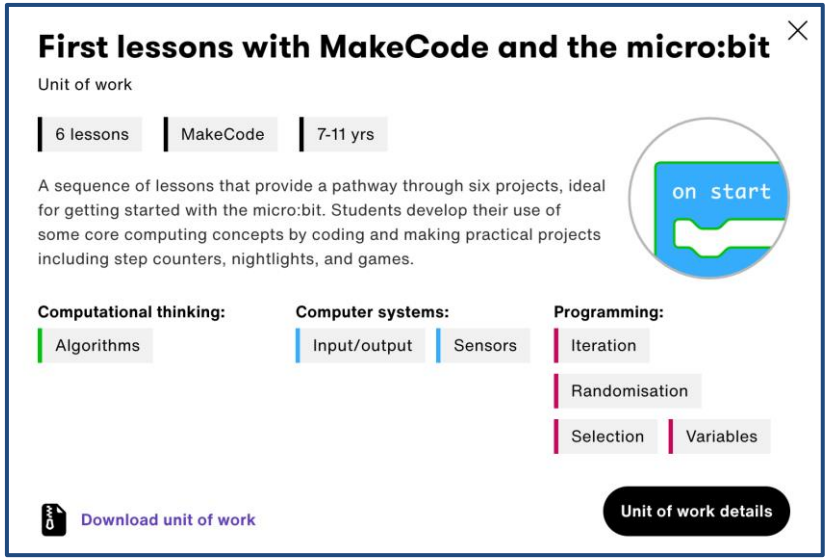
| EPICS project year | Academic year | Age | England | Wales | Scotland | N Ireland |
|---|---|---|---|---|---|---|
| **1** | **2023-2024** | **Age 8-9** | Year 4 | Year 4 | P5 | P5 |
| **2** | **2024-2025** | **Age 9-10** | Year 5 | Year 5 | P6 | P6 |
| **3** | **2025-2026** | **Age 10-11** | Year 6 | Year 6 | P7 | P7 |
| **4** | **2026-2027** | **Age 11-12** | Year 7 | Year 7 | S1 | Year 8 |
| **5** | **2027-2028** | **Age 12-13** | Year 8 | Year 8 | S2 | Year 9 |
| **Writing up - EPICS complete in Feb 2029** | | | | | | |

# Project year 1

## Data collection activity for EPICS Partner Schools

- ➔ After Easter: You deliver 6-week unit to Year 4 (or P5 in Scotland and Northern Ireland)
- ➔ Preferred unit is ‘First lessons’ from microbit.org
- ➔ We visit your school in June/July
- ➔ Data collection:
  - ◆ 2 pupil focus groups in year (size 4/5)
  - ◆ 1+ teacher interview (Y4 teacher)
  - ◆ (optional) lesson observation
- ➔ Take part in all-class online activity in July

You don’t need to have completed the entire unit by the time we arrive.

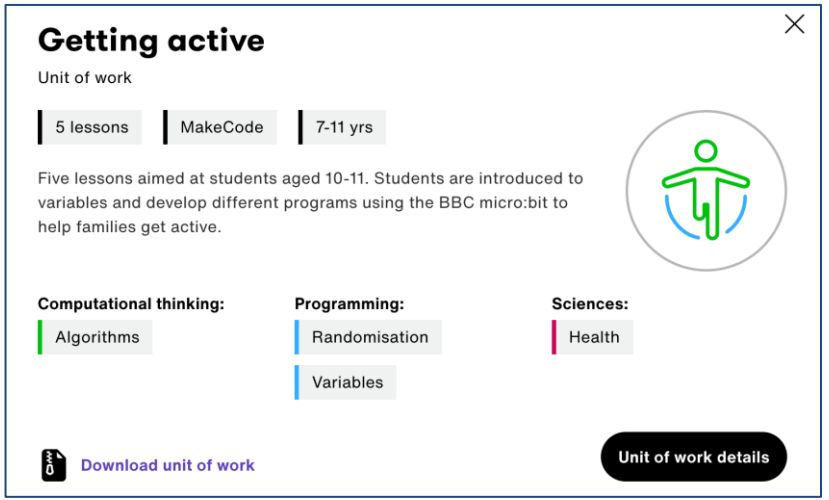



https://microbit.org/teach/featured/?selected=first-lessons-with-makecode-and-the-microbit

# Project years 2 & 3 (2025 & 2026)

## Data collection activity for EPICS Partner Schools

- ➔ From January: You deliver 6-week unit to Year 5/ Year 6 (P6/P7) using micro:bits (to be decided)
- ➔ We visit your school between April and July
- ➔ Data collection:
  - preferably 2 teacher interviews
  - 4-6 pupil / parent interviews
  - (optional) lesson observation
  - some activities can be optionally online
- ➔ Take part in all-class online activity in summer of year 6 only




Potential Year 5 unit for 2025

# Project years 4 & 5 (2027 & 2028)

## Data collection activity for EPICS Partner Schools

**2027** : optional activity tbd (pupils in year 7/S1/Y8)

**2028**

- ➔ Visit schools between April and July
- ➔ Data collection: 2+ teacher interviews

During 2028 we will also engage with pupils and parents that we've been following - pupils will by then be in Year 8/S2/Y9

# Incentives for engagement with project

## Schools engaging with us

Year 1: £500
Year 2: £500
Year 3: £500
Year 4: £250 (optional)
Year 5: £250

## Parents engaging with us

Each of years 1-3 and Year 5:

Voucher for interview (£ tbd)

# Selection process for EPICS project partners

- **Now:** if you are still interested please complete this follow up form: bit.ly/epics-sign-up by Tue 26th March
- **Next:** we will create a longlist using criteria given
- **During April:** Jessie will arrange a call with you after 15th April if we are considering your school
- **End April:** we will let all schools know and proceed to next stage.

**Necessary for selection**

- Able to deliver programme as described
- School leadership in agreement

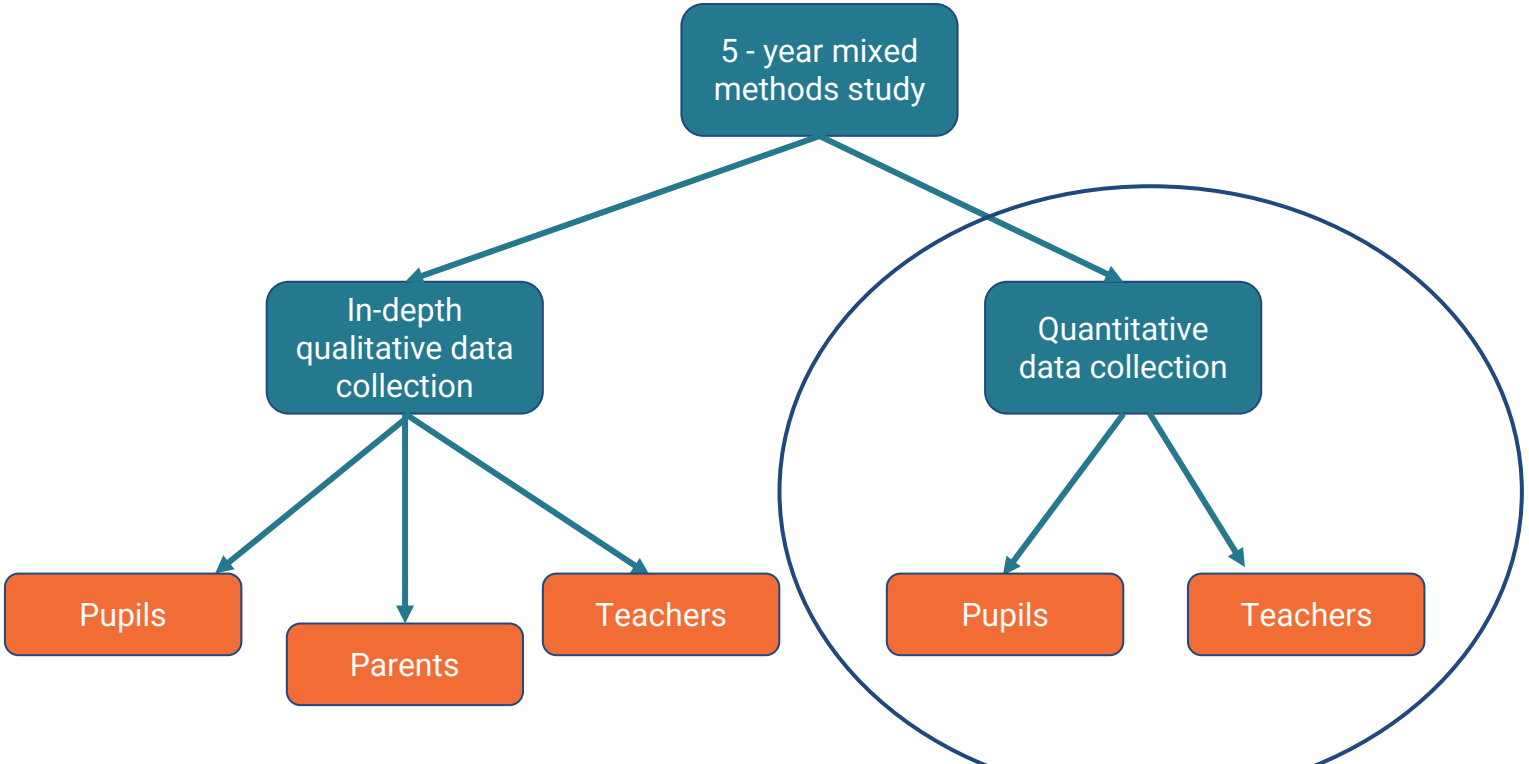
**Criteria if oversubscribed**

- Geography
- Urban/rural balance
- Diversity of schools
- Diversity of teacher experience

If not selected, please participate in our online all-class activities

# The EPICS wider network

# Outline of the research project



# Five-year study: 2024-2028

## Quantitative data collection

**Who?**

Year 1: Y4/P5 Pupils and teachers
Year 2:
Year 3: Y6/P7 Pupils and teachers
Year 4:
Year 5: Y8/S2/Y9 Pupils and teachers

**When?**

Year 1: June/July 2024
Year 2:
Year 3: April - July 2026
Year 4:
Year 5: April - July 2028

**What?**

All-class activity with follow-up questionnaire / online activity to complete

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# Recap

**Still interested in being an EPICS partner?** Fill in this follow-up form: bit.ly/epics-sign-up

**Want to stay updated / take part in wider data collection?** Nothing else to do right now, and we will contact you with more information.

**For anything else:** contact us at rpcerc-enquiries@cst.cam.ac.uk

**For other research projects and news:** sign up to the RPCERC newsletter: https://computingeducationresearch.org/stayintouch/

**Thanks to our funders:**
Microbit Educational Foundation
BBC
Nominet

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# Thank you for listening

Sue Sentance and Jessie Durk
University of Cambridge

Contact us: rpcerc-enquiries@cst.cam.ac.uk

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# Q&A

Please type your questions into the Q&A