

Educator guide

Al safety



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Contents

Introduction	3
Curriculum design	4
The approach	4
Core principles	4
Inclusive and ambitious	4
Research-informed	5
Time-saving for teachers	5
Session outlines	7
Session 1: Your data and Al	7
Session 2: Media literacy in the age of Al	10
Session 3: Using AI tools responsibly	13
Discussion guidance	16
Debates	16
Group discussions	17
Background reading	19
Pedagogy	20
Safeguarding	21
Establishing a safe learning environment	21
Implementing ground rules	22
Finding starting points	23
Using distancing techniques	24
Handling tricky questions	24
Seeking support	25

Introduction

As new AI technologies continue to emerge and reshape our lives, it is important that younger generations are educated on current issues related to AI safety, including how to use AI tools responsibly, understanding the ethical challenges of AI, and recognising the potential for misuse with these technologies.

Developed in collaboration with Google DeepMind, 'Al safety' is a comprehensive set of free resources aimed at equipping 11- to 14-year-olds with knowledge and understanding on how to navigate and mitigate the challenges associated with Al technologies. Each topic — focusing on privacy, misinformation, trust and responsibility — includes a video delivering a key message, supported by unplugged activities and discussions to deepen their understanding. The resources are designed to be delivered by non-specialist educators and are suitable for classrooms, assemblies, youth clubs, and homes.

We have intentionally selected the 11- to 14-year-old age group as these topics align with their cognitive, social, and educational development. At this age, they also start to engage more independently and actively with the online world, especially with generative AI technologies, making it an excellent time to broaden their understanding of AI and related safety issues. However, with careful adaptation, these resources could also be made suitable for other age groups.

This guide for educators provides the background information you need to confidently run the activities and discussions. The resources are thoughtfully developed with guidance provided by the PSHE Association, ensuring sensitive discussions are handled with care, particularly where disclosures may arise. These materials help ensure learners remain safe and are well-prepared for life in an Al-driven world.

Please give us your feedback!

We'd love to hear how you have used the Experience AI resources and what you thought about them. Please take a few minutes to:

- Share your feedback in our user survey: rpf.io/exai-2mf
- If you are an educator, ask your students to complete a short survey: rpf.io/exai-st

Your feedback supports us to make our AI resources accessible to everyone, and we really appreciate you giving your time to share what you think.

Curriculum design

The approach

The AI safety resources cover AI safety, responsibility, and privacy and are a component of the <u>Experience AI</u> programme, which offers cutting-edge resources on artificial intelligence (AI) and machine learning for non-specialist educators and learners aged 11–14. The AI safety resource is a collection of three sessions:

- Your data and Al
- · Media literacy in the age of AI
- Using AI tools responsibly

The sessions include detailed lesson plans, slide decks, worksheets, and more. As they are independent of each other and have no order to them, the sessions can be taught in any order. Each session includes a mandatory video delivering a key message. Following the video, there are two pathways that can be taken depending on your setting and preferences:

- 1. Discussion: A set of topics for learners to engage with through discussion
- 2. Unplugged activities: A set of unplugged activities to pick from and for the learners to complete

In keeping with the current Experience AI offering, the resources are designed to be accessible to non-specialist educators. We have ensured that the resources are suitable for use in other settings such as assemblies, youth clubs, and at home.

Core principles

Inclusive and ambitious

The resources have been designed to be both **inclusive** and **ambitious**. The content has been created for an international audience, ensuring that young learners from diverse backgrounds find the materials engaging, relatable, and accessible. The resources are aimed to empower all learners, regardless of their social or cultural context, to engage meaningfully with the topics and be inspired to become critical and effective users of AI technologies. By providing learners with the knowledge and understanding to navigate and

mitigate the challenges associated with AI, they will not only be prepared to make a positive impact in the field but also gain the critical skills necessary to thrive in an increasingly AI-driven future.

The resources are also designed for non-specialist educators, with all the necessary materials provided, including videos, lesson plans, unplugged activities, and discussion points, ensuring that no technical background is required. This comprehensive support allows educators to feel confident in delivering the sessions.

Research-informed

The AI safety resources have been created with very deliberate and important design choices in mind, which are a result of the ongoing collaboration between researchers at the Raspberry Pi Foundation and industry experts at Google DeepMind. In addition, the resources were created as a response to the growing need for educational materials on AI safety — according to the UK AI Safety Institute, understanding and mitigating risks that come with AI technologies is crucial to safeguarding individuals, organisations, and nations. The UK Government Education Hub also recognises the importance of protecting young people against the risks associated with AI, such as exposure to harmful content and the misuse of personal data. Through the AI safety resources, we aim to equip young people with the knowledge and skills to navigate these challenges, and be prepared to use AI technologies responsibly.

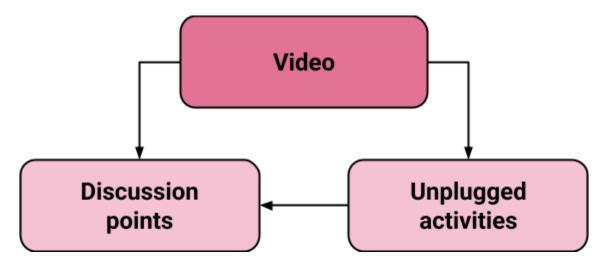
Time-saving for teachers

Our AI safety resources are designed to save educators time by providing detailed lesson plans, slide decks, worksheets, and more, all of which you could easily adapt to suit the needs of your learners. In line with the current Experience AI offering, these resources are accessible to non-specialist educators and are versatile enough to be used in various settings, including assemblies, youth clubs, and even at home.

Structure of the resources

The AI safety resource consists of three standalone sessions, allowing educators the flexibility to choose the order in which they deliver the activities. Each session is built around a video that introduces a key concept, followed by a set of unplugged activities and guided discussions. Both are supported with guidance on how to deliver the activities and lead discussions.

These sessions are designed to empower learners with critical thinking skills around AI, data privacy, misinformation, and ethical AI use, while providing you with the freedom to tailor the content and delivery of the sessions to your needs.



Session outlines

All sessions start with a generic "What is AI?" explanation to help frame the subject for learners. This will address misconceptions that AI is just a futuristic tool that has nothing to do with their lives, or robots that will replace humans.

Session 1: Your data and Al

The aim of this session is to help learners explore and reflect on the personal data they are already providing to AI applications in their everyday lives, and how the prevalence of AI tools might change the way they protect their data.

Objectives

At the end of the session, learners will be able to:

- Explain the differences between rule-based and data-driven systems
- Evaluate the ways they are sharing data that could be used in a data-driven system
- Build a set of expectations of fairness, transparency, and accountability in how an Al application uses their data

Competencies

- · Identify data-driven systems in the world around them
- Reflect on the data they already provide to AI systems
- Consider how the media they put on the internet could be used in an AI system
- Advocate for their privacy and security when using AI systems

Key vocabulary

Data driven, rule-based systems, personal data, media, large language models (LLMs), deep fakes, recommendation systems, generative AI, data sharing, privacy, transparency

Video

The video frames the broad themes of this session by:

- Introducing the concept of data-driven systems, as compared to previous rule-based systems
- Explaining the process of creating data-based systems with examples
- Using the relatable example of recommendation algorithms to expand this concept
- · Prompting the young people to think about the ways they protect themselves and their data

After the video, you can mix and match any of the activities below:

Discussion

The discussion points include:

- Why is your data valuable to companies that use AI models?
- What do you want content recommendations systems to do for you? What data are you willing to provide about yourself for them to do a good enough job?
- Identify an Al/data-driven system that you interact with. What data did you provide it with? What data do you continue to provide it with?
- What is your responsibility, individually and collectively, regarding personal data when engaging with or interacting with an Al model?
- When signing up to an app that collects personal information and data about your interactions with the app, how often do you read the terms and conditions (never, sometimes, always)? Why is that?

Unplugged activities

- **Data detective**: Learners will explore the scale and impact of personal data sharing on social media by investigating how a fictional platform uses and shares personal data, helping them understand the importance of data privacy.
- Al Business Boss: In this game, learners will create and pitch Al product ideas to a fictional investor, focusing on ethical data practices, while exploring key concepts of privacy, transparency, and responsible Al development.

Resources provided

- Video Al & data privacy
- Unplugged activities:
 - Data detective:
 - Activity plan
 - Slides
 - Learner worksheet
 - Fictional Terms & Conditions sheet
 - o Al Business Boss:
 - Activity plan
 - Slides
 - Game card slides
- Discussions:
 - Suggested discussion points
 - o Points to draw out
 - Key takeaways

Session 2: Media literacy in the age of Al

In this session, learners will explore how AI tools can both spread and combat misinformation. It emphasises the importance of media literacy in the age of AI, encouraging learners to reflect on the role and responsibilities of different stakeholders when AI tools are involved in misinformation. This session also helps learners develop strategies for verifying information they come across online, ensuring that they are better equipped to navigate this.

Objectives

At the end of the session, learners will be able to:

- Describe different types of media that generative AI tools can produce
- Determine how generative AI will affect the need to check information before sharing it
- Build a set of expectations of fairness, accountability, and transparency around AI content on a social platform

Competencies

- Distinguish between the different types of media they see online and the likelihood they have been generated using an AI tool
- Critically evaluate the sources they use for information online
- Identify strategies for investigating and reporting misinformation
- Have expectations of platforms in terms of fairness, accountability, and transparency

Key vocabulary

Generative AI, misinformation, disinformation, fact-checking, prompt, bias, deep fakes

Video

The video frames the broad themes of this session by:

- Introducing how generative AI applications use a prompt to generate media
- Describing generative AI as just another type of software, which still requires an input and provides an output the same as all
 other software AI models do not think or have motives of their own
- Exploring how bias might impact a generative AI system
- Explaining that misinformation is not a new problem specific to AI and that media literacy still applies
- Balancing the discussion by highlighting ways AI is helping combat misinformation

After the video, you can mix and match any of the activities below:

Discussion

The discussion points include:

- Who creates misinformation, and why might someone want to sway your opinion?
- Who is responsible for fact checking information in various types of media?
- What advice would you give someone who wants to use an AI tool to help them draft an outline for an essay?
- What advice would you give someone who wants to use an AI tool to create a poster?

Unplugged activities

- **Action plan**: Learners will reflect on how Al influences their interactions and consumption of information they come across online, and will decide whether they want to share, double-check, or ignore pieces of fictional information.
- **Trusted sources**: Learners will examine how they search for information online, identify their sources, and evaluate the likelihood of generative AI being used by those sources.

Resources provided

- Video Media literacy in the age of Al
- Unplugged activities:
 - Action plan:
 - Activity guide
 - Slides
 - o Trusted sources
 - Activity guide
 - Slides
- Discussions:
 - Suggested discussion points
 - o Points to draw out
 - Key takeaways

Session 3: Using AI tools responsibly

In this session, young people will reflect on their responsibilities when using generative AI tools, and the expectations they should have for developers of AI tools, focusing on the importance of fairness, accountability, and transparency.

Objectives

At the end of the session, learners will be able to:

- Choose AI tools they might want to use to help them complete tasks
- Compose a list of their responsibilities when using AI tools
- · Build a set of expectations of fairness, accountability, and transparency around AI tools available to them

Competencies

- Use AI as a tool to help them and not as a replacement for their critical thinking
- Discuss their responsibilities when using AI tools
- Explain the risks of seeing AI as a thinking, feeling entity and not software
- List their expectations of a developer releasing a tool that young people use

Key vocabulary

Anthropomorphisation, Al application, responsibility, e-safety

Video

The video frames the broad themes of this session by:

- Explaining that AI is often anthropomorphised in marketing and media.
- Describing AI as a tool for people to use, and use responsibly.
- Exploring the importance of online reputation management.
- Reflecting on how the world they are growing into will be shaped by AI tools.
- Explaining that each stakeholder in an AI application has responsibilities. Including them.

After the video, you can mix and match any of the activities below:

Discussion

The discussion points include:

- How would someone feel if they saw an image of themselves in Al-generated content? How could that have happened?
- How would someone feel if they saw an image of themselves with some of their features changed?
- What safeguards should organisations that provide AI tools put in place?
- What advice would you give someone who wants to use an AI tool to create an essay? Why?

Unplugged activities

- **CheckAl challenge**: In this escape room style activity, learners compete in teams to join the fictional Al transparency company 'CheckAl' by completing challenges themed around transparency, accountability, and fairness.
- Al principles: In this poster-creation session, learners will look into Al guidelines and create their own set of Al principles to outline their responsibilities and ethical guidelines for using Al tools, followed by a group discussion on the importance of responsible Al usage.

Resources provided:

- <u>Using AI tools responsibly Video</u>
- Unplugged activities:
 - o CheckAl challenge
 - Activity guide
 - Slides
 - Educator activity sheet
 - Learner worksheet
 - o My Al principles
 - Activity guide
 - Slides
 - Learner worksheet
- Discussions:
 - Suggested discussion points
 - Points to draw out
 - Key takeaways

Discussion guidance

There are a number of different ways that you can organise and manage discussions in your classroom. These include:

Debates

Traditional

Two opposing factions take turns to present a point to the class and offer rebuttals to the other side's points.

"Stand where I stand" debate

Have learners pick a stance from the following list in relation to a particular question or topic: agree, partially agree, partially disagree, or disagree. Get them to move into different areas of the classroom according to their stance. Ask for explanations from a few, then allow learners to move if their viewpoints have changed.

Hot-air balloon debate

Pick a topic that has more than two components. Have groups research and provide evidence in support of their component; vote to eliminate one of the groups at the end of each round.

Advantages and disadvantages

Debate-style discussions share many of the same advantages and disadvantages:

Pros: They encourage deep thinking and evidence-based arguing; they can teach rhetorical and logical skills.

Cons: They require high levels of preparation from both the learners and the educator, and can require a lot of educator guidance to keep them on track.

Group discussions

Group dialogues

Place question stations around the room. Have small groups of learners visit each station and discuss the question. They write their thoughts on sticky notes, or on the reverse of the question paper, and move on to the next one. At the end, each group will have looked at each question.

Pros: This discussion method provides a structure that involves the whole class.

Cons: It requires careful management to ensure that groups think of their own answers and don't lean on the previous ones too much.

Jigsaw activities

Have each group discuss a topic and then pair up to another group to explain their thoughts. Jigsaw activities like this are a good way of encouraging peer instruction.

Pros: This method creates a dynamic learning environment and allows for a thorough exploration of a topic.

Cons: How well the original groups work together will have a huge effect on how well the second part functions. Managing the initial discovery activity is also important.

Informal collaborative tasks

Have each group examine a news article or another piece of evidence around an Al tool, with the goal of explaining the piece of evidence to the class. Assign roles within the group: an explainer, a questioner, and a scribe.

Pros: This gives important roles to all learners and makes them feel included; it encourages different personalities to excel.

Cons: The roles must be clearly defined and explained. The effectiveness of each member of the team is vital to the success of this discussion.

Think, pair, share

Pose a question to the class, and have each individual think about their opinions and thoughts on the question. Have learners pair up and discuss before sharing their combined ideas to the class.

Pros: This allows even the most introverted of pupils a chance to participate.

Cons: The depth of the question must allow for a variety of opinions. If all the groups have the same thoughts, this format can stagnate.

You have the flexibility to organise and run the discussion in a way that best suits your learners and how they engage with one another. The aim of the discussion questions is to spark meaningful discussions and debates around AI safety, encouraging learners to reflect on their roles as critical consumers and responsible creators of technology, as well as on their individual and collective responsibilities. Please be aware that in those discussions, a learner may disclose personal information that could raise a safeguarding concern. Ensure that you are aware of how to handle such disclosures within your educational setting and who to report to if necessary.

Background reading

As an educator, you may find the following background resources helpful if you require a deeper understanding of AI safety, responsibility, and privacy topics:

- Raspberry Pi Foundation (2024). *Teach Teens Computing: Understanding AI for Educators*. Online course. Available at: <a href="https://www.edx.org/learn/education-teacher-training/raspberry-pi-foundation-teach-teens-computing-understanding-ai-for-teacher-squtm_source=rpf-website-ai-page&utm_medium=partner-marketing&utm_campaign=raspberrypifoundation
- Raspberry Pi Foundation (2023). Hello World: Issue 22 Teaching and Al. Available at: https://www.raspberrypi.org/hello-world/issues/22
- UNESCO (2023). Guidance for generative AI in education and research. Available at: https://www.unesco.org/en/articles/guidance-generative-ai-education-and-research
- World Education Forum (2024). 7 principles on responsible AI use in education. Available at: https://www.weforum.org/agenda/2024/01/ai-guidance-school-responsible-use-in-education/
- Raspberry Pi Computing Education Research Centre (2024). *Using generative AI in the classroom: A guide for computing teachers*. Available at: https://computingeducationresearch.org/wp-content/uploads/2024/07/AICT-Guidance.pdf

Pedagogy

Lead with concepts

Support learners in the exploration of the subject area by delivering a single key AI concept through the videos. This concept allows learners to approach the following activities from a level playing field based on solid conceptual knowledge.

Work together

Encourage collaboration, specifically structured group tasks. Working together stimulates classroom dialogue, articulation of concepts, and development of shared understanding.

Unpack, unplug, repack

Teach new concepts by first unpacking complex terms and ideas, exploring these ideas in unplugged and familiar contexts, then repacking this new understanding into the original concept. This approach, called 'semantic waves' (the-cc.io/qr06), can help learners develop a secure understanding of complex concepts.

Challenge misconceptions

Use formative questioning to uncover misconceptions and adapt teaching to address them as they occur.

Make concrete

Bring abstract concepts to life with real-world, contextual examples, and a focus on interdependencies with other curriculum subjects. This can be achieved through the use of unplugged activities, proposing analogies, storytelling around concepts, and using carefully crafted real-world examples that are conscious of safeguarding concerns.

Safeguarding

As topics discussed in these 'Al safety' sessions may be either complex, sensitive, or potentially lead to disclosures by learners, it may be helpful to familiarise yourself with the guidance and suggestions provided by the PSHE Association (https://pshe-association.org.uk/). Their resources on managing complex issues and ensuring a safe learning environment can be found in this document (https://pshe-association.org.uk/guidance/ks1-5/handling-complex-issues-safely-classroom) and are summarised below.

Establishing a safe learning environment

A safe learning environment fosters an atmosphere where individuals can freely share their feelings, explore values and attitudes, express opinions and consider those of others, without attracting negative feedback. This not only encourages more open discussions, but also ensures that educators are not anxious about unexpected disclosures or comments, while ensuring learners do not feel pressured, upset, or traumatised.

THe PSHE Association recommend the following as good practice for those leading and supporting these sessions:

- Work with pupils to establish ground rules about how they will behave towards each other in discussion
- Provide opportunities for learners to discuss issues in small groups as well as sharing views with the whole class
- Make boxes available in which learners can place anonymous questions or concerns
- Provide access to balanced information and differing views to help learners clarify their own opinions (whilst making clear that behaviours such as racism, homophobia, bi-phobia, transphobia, discrimination, and bullying are never acceptable in any form)
- Be cautious about expressing your own views, bearing in mind that you are in an influential position and must work within the
 organisation's values, policies, and the law
- Be sensitive to the needs and experiences of individuals, as some learners may have direct experience of some of the issues
- Always work within the organisation's policies on safeguarding and confidentiality (and ensure that learners understand organisation's policies on disclosure of confidential information and following up concerns in a more appropriate setting outside lessons)
- Link AI safety education into the whole-school approach to supporting pupil wellbeing

Make learners aware of reliable sources of support both inside and outside the school

The Raspberry Pi Foundation also recommends following these principles in establishing a safe learning environment to have discussions about AI safety with learners.

Implementing ground rules

Ground rules help to minimise inappropriate and unintended disclosures and comments of a negative nature made towards other pupils; whether intentional or not. They are also paramount to effectively managing discussions that might elicit strong opinions from pupils. To be effective, pupils and teachers need to develop ground rules together and then test them in discussion and group activities, amending them as necessary.

THe PSHE Association recommend the following as good practice for establishing ground rules for those leading these sessions:

- **Openness**: We will be open and honest, but not discuss directly our own or others' personal or private lives. We will discuss examples but will not use names or descriptions that could identify anyone.
- **Keep the conversation in the room**: We feel safe discussing issues and we know that our educator will not repeat what is said in the classroom unless they are concerned we are at risk, in which case they will follow the organisation's safeguarding policy.
- **Non-judgmental approac**h: It is okay for us to disagree with another person's point of view but we will not judge, make fun of, or put anybody down. We will 'challenge the opinion, not the person'.
- **Right to pass**: Taking part is important. However, we have the right to pass on answering a question or participating in an activity and we will not put anyone 'on the spot'.
- **Make no assumptions**: We will not make assumptions about people's values, attitudes, behaviours, identity, life experiences, or feelings. We will listen to the other person's point of view respectfully and expect to be listened to ourselves.
- **Using appropriate languag**e: We will use correct terms rather than slang terms, as they can be offensive. If we are not sure what the correct term is, we will ask our educator.
- **Asking questions**: We are encouraged to ask questions and they are valued by our educator. However, we do not ask personal questions or anything intended to deliberately try to embarrass someone.

Seeking help and advice: If we need further help or advice, we know how and where to seek it — both in the organisation I
belong to and in the community. We will encourage friends to seek help if we think they need it.

The Raspberry Pi Foundation recommends that the above approaches be adopted by educators in implementing ground rules to discuss AI safety with learners. In addition, session leaders teaching in both formal and informal education settings should follow their organisation's guidance for establishing ground rules.

Finding starting points

Even young children will have some existing knowledge, skills, understanding, beliefs, and misconceptions relating to many aspects of AI safety. They will have been exposed to parental, family, peer, school, media, and community views on different issues, and they will be aware of a range of related attitudes and values. Finding out learners' starting points is crucial to ensuring that learning about the issue is pitched appropriately, particularly to tackle any misconceptions held among the group.

The PSHE Association suggest these can be explored by using activities such as:

- Individual, small group, or whole class mind-mapping
- 'Graffiti' sheets
- 'Draw and write'
- Using photographs or pictures as a stimulus for a brain-storm
- A 'round', where each pupil in turn contributes something they know about a topic
- Ouizzes
- Attitude continuums
- Storyboards to illustrate current strategies for managing a given situation

The Raspberry PI Foundation has provided a set of animations, activities, and discussion questions that can be used as starting points for these sessions.

Using distancing techniques

Using distancing techniques such as stories, scenarios, clips from TV programmes, or case studies can provide fictional characters and storylines that stimulate discussion whilst 'de-personalising' discussions. This allows pupils to engage more objectively with the lesson content.

The PSHE Association recommend that the following or similar questions be used to support distanced discussion:

- What is happening to them?
- Why might this be happening?
- How are they feeling? What are they thinking?
- What do other people think of them?
- Who could help them?
- What would you tell them to do if they asked for help?
- What could you say or do to persuade them to act differently?

The Raspberry Pi Foundation has adopted animations and unplugged activities as a distancing technique in order to stimulate learners' discussion.

Handling tricky questions

It is important to encourage learners to ask questions, but this requires the educator to feel confident to handle the questions raised. The following guidelines will help you manage this aspect of teaching AI Safety:

- Have an 'Ask it basket' or anonymous question box available before, during, and after all lessons, so learners can ask questions anonymously at any time. If you are concerned about a question, ask for anyone whose question has not been answered to come and see you privately.
- Be conscious of the message you give the rest of the group when responding to a question. You may be certain that a
 question has been put to you to attempt to embarrass you or put you on the spot, but a dismissive answer could dissuade
 others from asking genuine questions.

When you are faced with a tricky question, the PSHE Association recommends adopting the following:

- Thank them for the question and check you have understood what they are asking and what they think the answer is.
- Give a factual, age-appropriate answer when you can.
- Buy time if necessary: Explain you do not know the answer or are not sure how best to answer and that you will find out more and respond later. Be prepared with a response such as 'That's a really interesting question and it deserves a good answer let me have a think about it (for a minute) / (and get back to you later)'. Consider whether you need to consult senior colleagues. What is the school policy? Is there a potential safeguarding issue?

The Raspberry Pi Foundation recommends that the previous mentioned approaches be adopted by educators in handling tricky questions.

Seeking support

In addition, if you are either a member of an organisation or a member of staff within an education setting then you may wish to refamiliarise yourself with your organisation's safeguarding policies and procedures and how to report a disclosure, if one occurs, to the organisation's Safeguard Lead or Safeguarding Coordinator.

Please give us your feedback!

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- Share your feedback in our user survey: rpf.io/exai-2mf
- If you are an educator, ask your students to complete a short survey: rpf.io/exai-st

Your feedback supports us to make our AI resources accessible to everyone, and we really appreciate you giving your time to share what you think.

Raspberry Pi Foundation

The Raspberry Pi Foundation is a UK-based charity with the mission to enable young people to realise their full potential through the power of computing and digital technologies.

Our vision is that every young person develops:

- The knowledge, skills, and confidence to use computers and digital technologies effectively in their work, community, and personal life; to solve problems and to express themselves creatively
- Sufficient understanding of societal and ethical issues to be able to critically evaluate digital technologies and their application, and to design and use technology for good
- The mindsets that enable them to confidently engage with technological change and to continue learning about new and emerging technologies

Our long-term goals are:

- Education: To enable any school to teach learners about computing and how to create with digital technologies, through providing the best possible curriculum, resources, and training for teachers
- Non-formal learning: To engage millions of young people in learning about computing and how to create with digital technologies outside of school, through online resources and apps, clubs, competitions, and partnerships with youth organisations
- Research: To deepen our understanding of how young people learn about computing and how to create with digital technologies, and to use that knowledge to increase the impact of our work and advance the field of computing education

For more free support for teachers, including online courses to enhance your understanding of computing content and pedagogy, visit: raspberrypi.org/teach.