# How to use the lesson plans:

Each session (except the introductory presentation), has:
- A facilitator plan for you to follow,
- A powerpoint presentation to show the group,
- A list of materials needed for the session.

Some activities recommend handing out materials during the session, so it is advised to spend roughly 5-10 minutes prior to prepare. All materials can be downloaded for free on the prize website: https://longitudeexplorer.challenges.org/

While the sessions are outlined below in order, this is an example schedule. You can pick and choose lesson plans/activities to create your own schedule to meet the needs of your group and your own timeframes. We estimate that the sessions last 30-40 minutes each if delivered as they are, but you can adapt the time spent on activities to make them shorter.

> **Example lesson plan schedule:**
> Week 1 - Discovering a problem
> Week 2 - Defining the problem
> Week 3 - Idea generation
> Week 4 - Turning an idea into a reality
> Week 5 -  Part 1: Security & ethics & Part 2: Application writing time.

# Lesson plan 5: Part 1 - Security & ethics

**Learning objectives:**
- Working as a group, and as an individual, to develop an understanding of the potential ethical and security risks of their ideas.

**Time:**
- 30-40 mins

**Materials needed:**
- Post-it notes/paper or word document/notes
- Pen/pencil
- Technology & Ethics worksheet - available online
- Application form (word document version) - available online

**Slide 1:**
(title slide)

**Slide 2:**
Explain that to start they will do a quick recap of the last session, ask the group if anyone can remember some of the key stages in the journey of taking an idea and making it into a solution?

**Answer:** testing. Iteration, research, ideation, analysis. Prototyping, marketing, business case.

Explain that this first part of the session will focus on exploring both the ethics and security of your ideas, then the second part of the session can be used to start to fill in the application form - reassure the groups that the activities they have completed already means that they will be well prepared to do this.

**Curriculum links:**
- Undertake a creative project which will involve electing, using, and combining multiple applications, preferably across a range of devices, to achieve challenging goals.
- Demonstrate an understanding of the implications for individuals and groups of the ethical issues arising from technology.

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**Slide 3:**

Using a whiteboard (virtual or physical) ask the group what they think of when they hear the term 'ethics' and record their ideas as they answer.

Explain that ethics are defined as a set of moral principles which govern how people (an individual or a group) behave. Essentially a guide or set of rules that help determine what is the way they should act.

Now ask the group what they think some of the ethical issues could be around technology. If the group gets stuck ask them the following questions:
- What are people's right to privacy when using technology?
- How should online spaces be regulated and who is responsible?

Explain that there are a number of potential ethical challenges when using technology which are important to consider when thinking of their own ideas, some examples could include:
- Bias  (bias can affect the data we collect and use when developing or designing systems or programs)
- Privacy (the collection and accessibility of personal data)
- Automation (tasks now being completed by technology with minimal human intervention)
- Liability (who is responsible if anything goes wrong?)

Ask participants why they think security and ethics are linked, writing down answers on the whiteboard as you go.

Explain that the two are closely linked because often the business and organisations which created the technology product or service are then responsible if anything goes wrong. Therefore they are responsible for maintaining a high level of security and protection of that technology and any data from their users.

Hand out the Technology & Ethics Worksheet (if able) and explain that they will cover a few examples of security and ethics issues today but that the Worksheet can be used by their team to explore the topic further further.

**Note to the facilitator:** If there is no access to a printer then explain to the group the worksheet is available to download for free from longitudeexplorer.challenges.org

**Slide 4:**

Example 1 -  Pose an example to the group, say you were trying to build a system using artificial intelligence technology which could predict the next US President and to do this you used all the images of previous US presidents.

Watch the video and then ask them what do you think this data would predict? Ask them why do you think this might be an issue?

Explain that by using data (information) which already has a bias this then creates a biased AI system.

Explain that bias is a key issue as the data that we give AI systems to learn often needs context and needs to be diverse so the people developing it have a responsibility to think about it.

However if the people who are developing these systems are all the same type of people then they may not notice that there is a bias at all, which is why it is really important that there is a diverse range of people involved in creating AI solutions.

**Slide 5:**

Example 2 - Ask participants if they have heard of Faceapp - this is the app which created an image of what you might look like when you are older.

They may have also heard that it was in the news recently due to worries about the way it uses the information it collects and was then criticised over not being transparent with people who were using it - more than 100 million people downloaded the app![1]

Explain that respecting people's privacy and data (information)  is extremely important. If you want someone to use your solution then building trust through being as transparent as possible is a great way to start.

**Slide 6:**
Example 3 - Ask the group if anyone has heard the term data breach or if they know of any companies which have been hacked?

Explain that this has happened to a number of organisations for example the NHS was hacked in 2018 and Facebook had a data breach in 2014 among many others.

Ask the group why they think someone would be upset if they heard an organisation they used had a security issue, like a data breach?

Explain that if you use people's information then it is very important to keep it safe as they have put their trust in you to do so.

**References**
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# Part 2 - Application writing time

**Slide 8:**
Explain that the groups now have an opportunity to use the remaining time to start to complete answers to the application form which can be downloaded as a word document from: **https://longitudeexplorer.challenges.org/** or hand them out if to hand.

Remind the group that all the work they have done so far will help them to write their answers to the form and that they only need complete section 2 - Your Idea.

At the end of the session if teams have finished writing their answers then collect them in, alternatively ask them to take them home to continue to work on them.

**Don't forget applications close 12th of February 2021 at 5pm (GMT)**