



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 2: Defining the problem

Learning objectives:

- Defining a problem and being able to communicate this.
- Working as a group, and as an individual, to research social and environmental challenges or issues to potentially solve using technology.

Time:

- 30-40 mins

Materials needed:

- Post-it notes/paper or word document/notes
- Pen/pencil
- Problem statement template - available online and in powerpoint

Slide 1:
(title slide)

Slide 2:
Explain that to begin they are going to do a quick recap of what they covered in the last session and then share with each what they found out about their different problem areas.

Last week we explored the importance of beginning with the problem at the start of a design process. Can anyone tell me why this is important?

Answer: To ensure that the ideas and solutions they come up with will help solve real problems and issues for people.

We also started to think about the challenge and the different themes within this: *“How can you use technology to create an app, product or service that will make the world a better place, enabling people to Live Better, Live Longer, Live Greener and Live Together?”*

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.
- Develop and apply analytic, problem-solving and design thinking skills.



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We then split into groups to identify problems within these four themes and at the end of the session. I asked you all to do some quick research about your top 3 problems, and to answer these three questions:

- Who has this problem?
- How are they addressing it/Is anyone addressing it?
- Are there any existing solutions already?



Ask everyone to go back into these groups and explain that they have 10 minutes to share with each other what they discovered during their research. If they haven't had a chance to do any further research in between sessions then ask them to think about the three questions and speak to others in the group about what they could be.

Slide 3:

Explain that the main purpose of today's session is to further define the problems they have identified so far by writing a problem statement. A problem statement helps to explain what the current situation is (i.e. the problem) and the desired situation (i.e. what the situation would look like once the problem is solved). Importantly the statement should focus on the users needs!

Writing a problem statement is a useful exercise as it can help you to focus on the specific needs of the people affected by the problem which will in turn help you to come up with effective ideas about how to help solve them - and develop a great project!

Hand out the problem statement template, as shown on slide 4 on the powerpoint, to the groups and ask them to write a statement for each of the problems they have identified using the research and thinking they have done around them already to do this. Explain that they have 15 minutes to do this.

Slide 4:

Show the problem statement template to help the group as they write their own. Encourage the groups to share their draft statements for feedback from each other and edit them as they go.

Note to the facilitator: If the group has access to the internet and devices then this time can also be used for further research online to help find answers to the above questions.

Note to the facilitator: If there is no access to a printer then the template can also be copied from slide 4 with pens and paper or using a word document if conducting this session online.



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Explain that problem statements shouldn't be too long or complicated but should clearly state what the problem is from the point of view of the people most affected and what it would look like once the problem was solved.

Slide 5:

To wrap up the session, ask the group for a few people to read out their problem statement to the others. Spend about 5 minutes on this and encourage the others to provide positive feedback on these statements, explaining what they liked about it and if they recommended including anything else in the statement.

Slide 6:

Ask the group to bring their problem statements to the next session as they will use this to kick off ideation activities - coming up with brilliant ideas to solve these now well-defined problems!



Remind the group that they have access to lots of free resources on <https://longitudeexplorer.challenges.org/> including helpful case studies of tech for good and more.

References

- https://www.sheffield.ac.uk/polopoly_fs/1.440722!/file/HowtoWriteaProblemStatement.pdf
- <https://www.indeed.com/career-advice/career-development/how-to-write-a-problem-statement>
- <https://examples.yourdictionary.com/problem-statement-examples.html>
- <https://www.scribbr.com/research-process/problem-statement/>
- <https://careerfoundry.com/en/blog/ux-design/stage-two-design-thinking-define-the-problem/>
- <https://medium.com/eightshapes-llc/how-to-build-a-problem-statement-d1f21713720b>
- <https://www.atlassian.com/team-playbook/plays/problem-framing>