



An Roinn Oideachais
agus Scileanna
Department of
Education and Skills

National Workshop 4

ALT3: Investigate and plan

Overview of the Session

Section 1	Introduction to ALT 3 via LCCS specification
Section 2	Group activity 1: share potential ideas for ALT 3 (Investigate)
Section 3	Group activity 2: develop one potential idea for ALT 3 (Plan)
Section 4	Feedback

By the end of this session participants will have:



worked in groups to **share and evaluate potential ideas** for ALT 3 (modelling & simulation)



collaborated on **developing one** potential idea for ALT 3 **further**



given and received feedback on potential ALT 3 ideas



enhanced their understanding of the **Investigate** and **Plan** stages of the **Design Process** with a particular focus on ALT 3

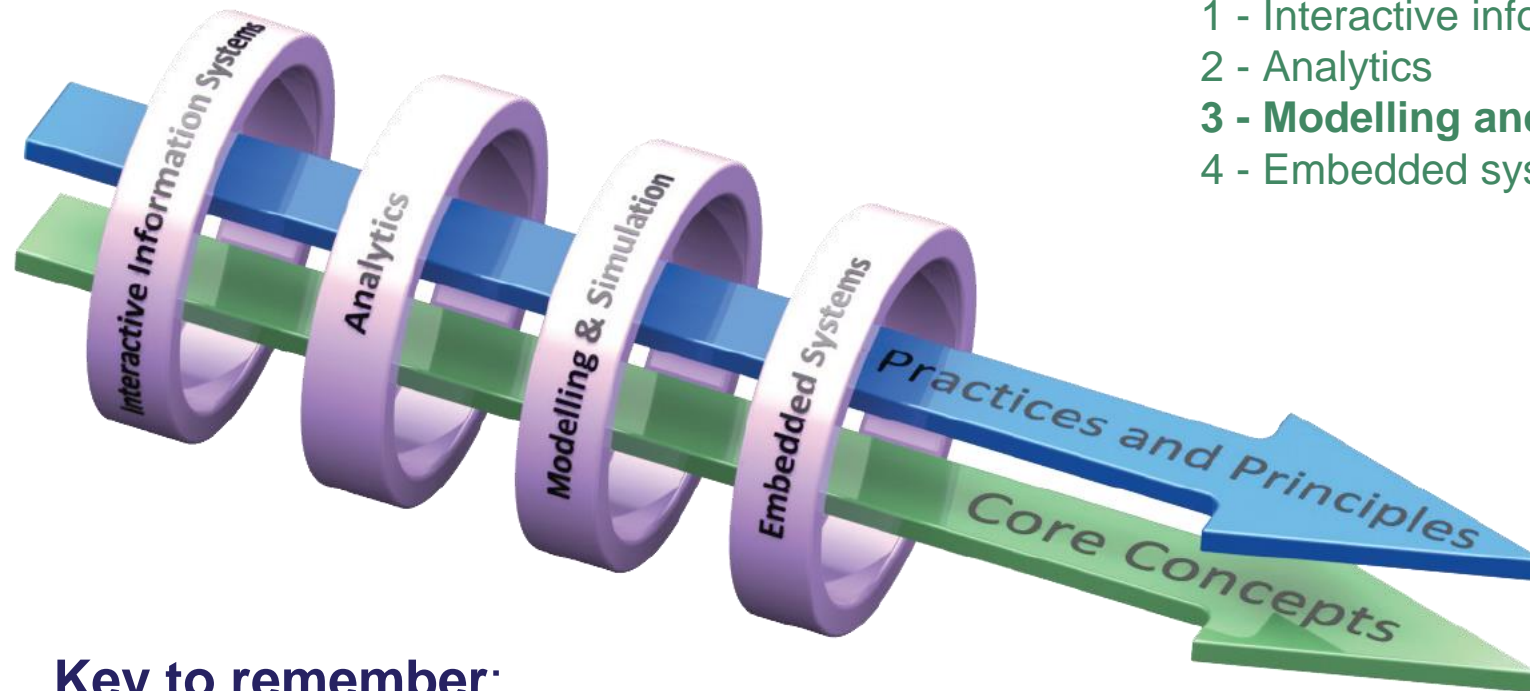
Applied Learning Task 3

Modelling and simulation

LCCS Interwoven

The four applied learning tasks explore the four following contexts:

- 1 - Interactive information systems
- 2 - Analytics
- 3 - **Modelling and simulation**
- 4 - Embedded systems.



Key to remember:

Explore and teach the LOs through the lens of ALTs.

'Students work in teams to carry out four applied learning tasks over the duration of the course.'

'Each of which results in the creation of a real or virtual computational artefact.'



'Where possible, the artefacts should be beneficial to the community and society in general.'

'These artefacts should relate to the students' lives and interests.'

'Examples of computational artefacts include programs, games, web pages, simulations, visualisations, digital animations, robotic systems, and apps.'

LCCS Specification: p10

Applied Learning Task 3

*Modelling, programming and coding require careful **analysis of patterns and relationships** to solve problems.*

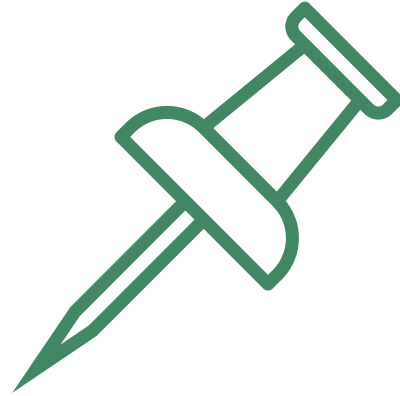
*Students will engage with a **problem that is difficult to solve analytically**, but that is amenable to a solution using simulation or modelling.*

*Students will develop a computer system that simulates or models the problem. Engaging with a problem in this way will **heighten students' awareness and understanding of how algorithms can be used** across a wide range of disciplines and subjects.*

LCCS Specification: p22

ALT 3: Learning Outcomes

- 3.8 develop a model that will allow different scenarios to be tested
- 3.9 analyse and interpret the outcome of simulations **both before and after modifications have been made**
- 3.10 **explain the benefits of using agent-based modelling and how it can be used to demonstrate emergent behaviours**

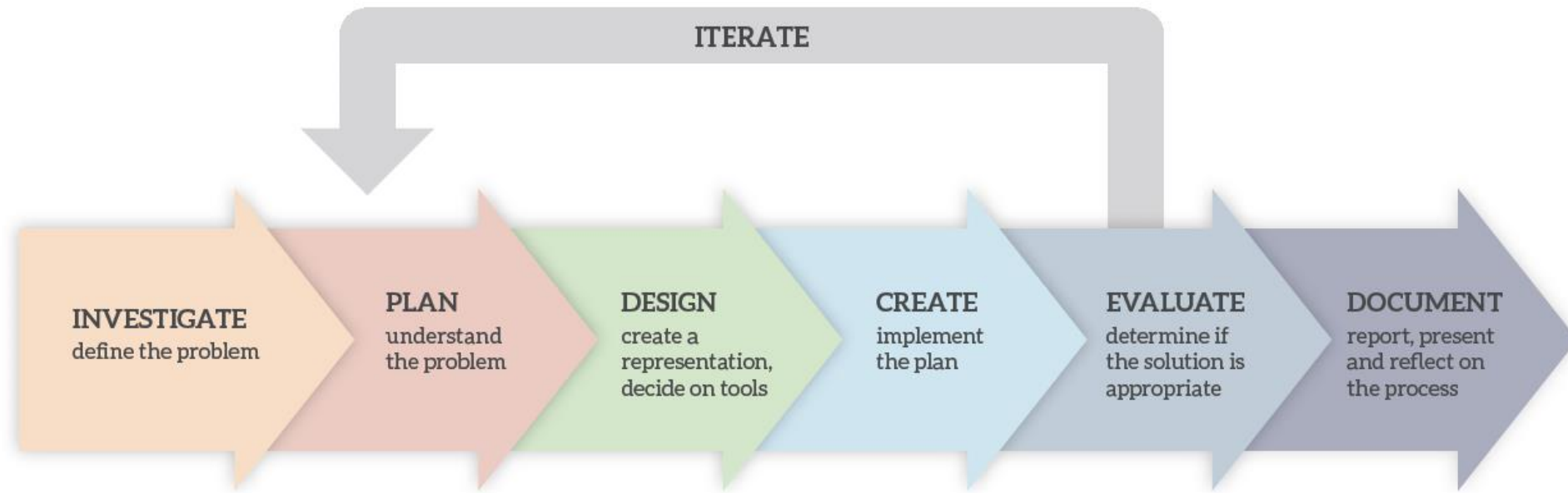


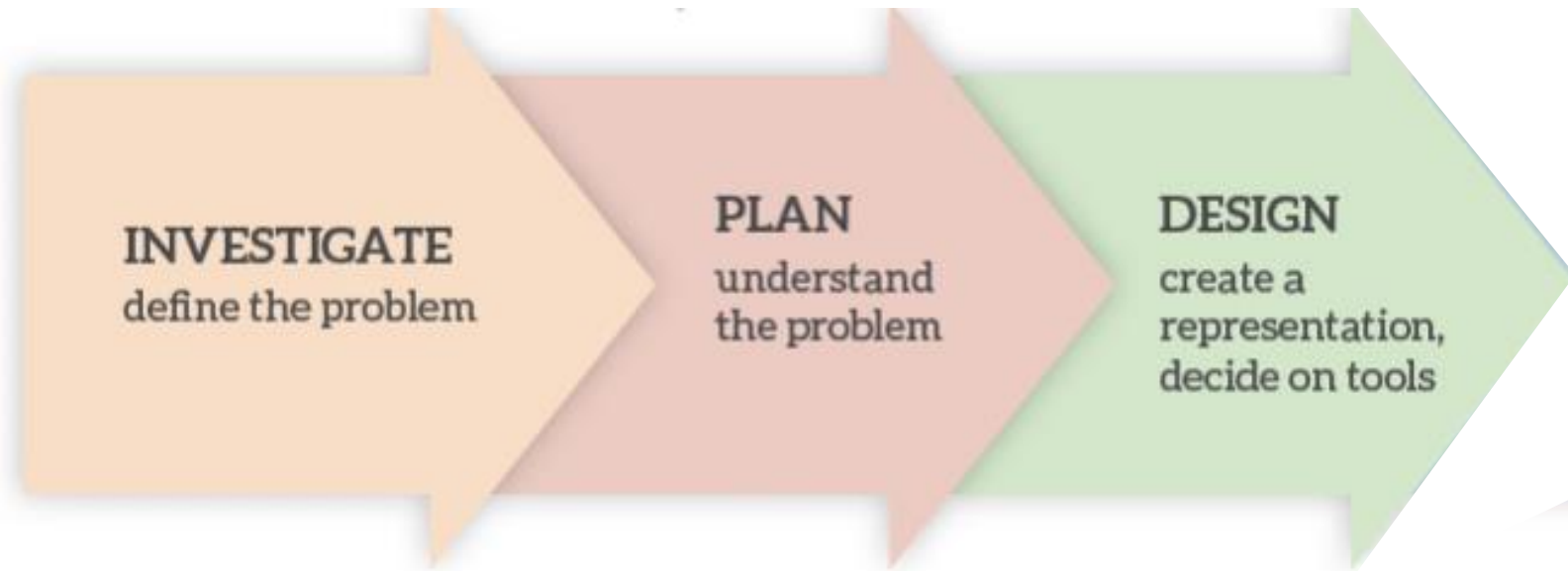
Key Message to remember:

*Explore and teach the LOs through the lens of
ALTs.*

There are numerous ways to achieve this.

The Design Process





Group activity



ALT 3: Investigate

In your groups, share **potential ideas** for ALT 3

Aim for **as many ideas** as you can

Add your ideas to the **butcher sheet**

Nominate a timekeeper, notetaker, chairperson and spokesperson

15 minutes





2 minute stretch break



What will your project do?

Aims? Any limitations?

End users?

Group roles and responsibilities?

Tools/materials required?

Will your project allow you to make predictions/decisions more easily?

What is new and has to be researched further?

What other LOs can be experienced through the lens of this project?

Are there any ethical issues?

Features/characteristics of Models

“All models are wrong but some are useful” – George Box

- Future – forecasting/predicting
- Messy
- Real-life
- Not easily solved by other means

ALT 3: Plan

In your assigned groups, **evaluate** your potential ideas for ALT 3

Choose **one idea** for further development

Develop a **functional specification** for your chosen idea

You may use the **prompt questions** to help you

30 minutes



What will your project do?

Aims? Any limitations?

End users?

Group roles and responsibilities?

Tools/materials required?

Will your project allow you to make predictions/decisions more easily?

What is new and has to be researched further?

What other LOs can be experienced through the lens of this project?

Are there any ethical issues?



2 minute stretch break



Presentation & Debrief





An Roinn Oideachais
Department of Education



© PDST 2022