

W E L C O M E

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# An investigation into the use of technology-enhanced simulation as an integrative authentic assessment approach on a blended learning professional programme

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Dearbhú Cáilíochta  
agus Cáilíochtaí Éireann  
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Qualifications Ireland



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# Guiding the Research

## Aim:

To design and develop a school-based integrative authentic virtual scenario-based learning (VSBL) environment to:

- Enhance pre-service teachers' sense of self-efficacy by providing virtual mastery opportunities
- Formatively assess programme learning outcomes in an authentic manner

## Research Question:

'What are the characteristics of a VSBL authentic assessment environment to improve pre-service teachers' self-efficacy and assess programme learning outcomes which will best support pre-service teachers before their first school-based experience on a Professional Master of Education (PME) programme?'

- **Does the VSBL authentic assessment environment affect pre-service teachers' self-efficacy and assess programme learning outcomes?**
- **What are the design informants and resources needed to consider to create an effective VSBL authentic assessment environment for use across other professional programmes?**

# Research Design

## Educational Design Research (EDR)

Setting is any context where teaching and learning take place

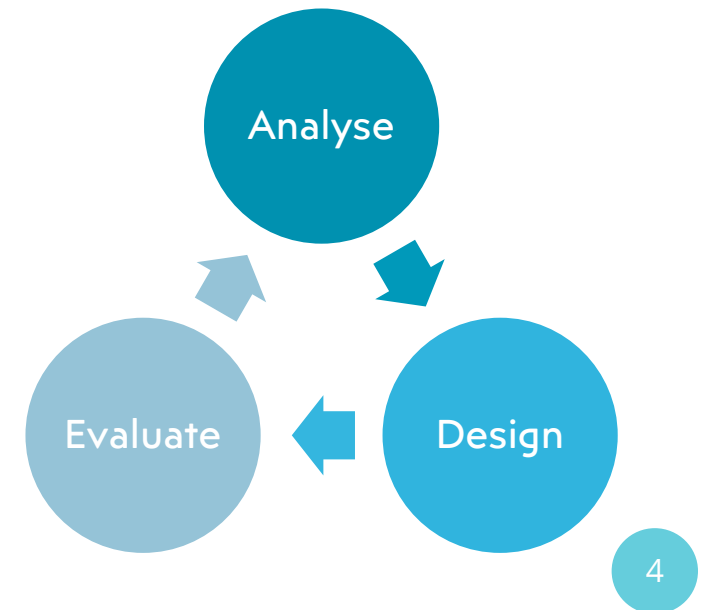
Iterative development of solutions to practical and complex educational problems (McKenney, Reeves, 2014)

Systematic study of designing, developing and evaluating educational programmes, processes and products

Two Primary Goals: **Develop Knowledge and Develop Solutions**

## Why EDR?

- Increase the relevance of educational research for policy and practice
- Study of process of learning and the means that support that process
- Real-world setting
- Often used in developing educational technologies



# Phase One: Analysis & Exploration



**April 2023**

**Initial Key Stakeholder Engagement:**

- Student Reps
- Identify the problem(s)



**May 2023**

**Choose an Intervention:**

- Focus on School Placement
- TLA, Classroom Management and UDL



**May-June 2023**

**Literature Review:**

- Self-efficacy and classroom readiness
- Social Cognitive Theory Reflective Practice



**May-June 2023**

**Data Collection:**

- Semi-Structured Interviews and Focus Groups
- Students, SP Tutors and Co-operating Teachers



**June 2023**

**Analysis and Meaning-Construction:**

- Identification of initial design proposition
- Partnership with DLD, Academic Faculty and Registrar

# Phase Two: Design & Construction



**August 2023**

**Initial Key Stakeholder Engagement:**

- Student Reps
- Identify the problem(s)



**September 2023**

**Mapping Solutions:**

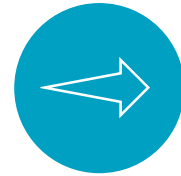
- Skeleton Design
- Detailed Specifications
- Lesson narrative development
- Lesson scenario design



**October 2023**

**Construction 1:**

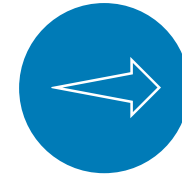
- Iterative design of animated scenario prototypes



**November 2023**

**Construction 2:**

- Evaluation and review of scenarios- review of narratives



**December 2023**

**Construction 3:**

- Final animated scenarios

# Phase Three: Evaluation & Reflection



**July 2024**

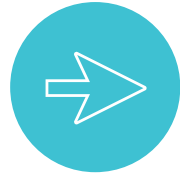
Post VSBL  
Self-Efficacy  
Survey



**September 2024**

Live Launch

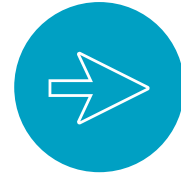
- PME Cohort and Feedback



**October 2024**

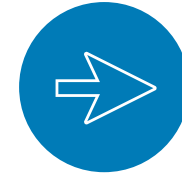
Adapt, Expand

- Purpose?
- Scope?
- Pathways?
- The Environment?



**November 2024**

Research Paper



**December 2024**

Dissemination and  
Collaboration

# Pilot VSBL Simulation



# School Context

## Avatar selection and Setting the scene



Please select your avatar for this activity

Next ->

Please type in your name in the box below and select next to continue.

Eve

Next ->

Setting the scene

Over the course of this activity you will be asked to make choices about the progression of a lesson based on the information you are given and your own knowledge and experience as a student teacher.

Introduction → Development → Conclusion

On completion, you can review your choices and the feedback.

Begin



# School Context

## Background and Lesson Plan



Would you like to review the prior knowledge of the children?  
Consider why it is useful to understand prior knowledge as part of the learning context.

**Prior knowledge from second class** 2

**Prior knowledge from third class** 3

**Lesson Plan**

Previous
Next

### Prior knowledge from third class

You have planned and taught four lessons on weight this week. This is the fifth and final lesson on the topic, in which the children will apply problem-solving and reasoning skills to a practical real-life scenario. So far, the class has engaged in various activities including estimating, comparing, measuring and weighing items ranging from 0-1000 g/1 kg.


In the previous lesson, the children estimated the weight of an item, weighed it, read the weight and compared it to their original estimation, all within the range of 1000 g/1 kg. Through exploration, they discussed the suitability of the devices, for example, bathroom scales are more suited to weighing a full school bag than the kitchen scales. Not all children were comfortable with reading the weight of items and require more practice.

The next learning step for the children is solving and completing practical tasks and problems involving the addition and subtraction of units of weight (kg and g). They have experience in adding and subtracting numbers, both with and without renaming, up to 1000.

### Prior knowledge from second class

The children have experience weighing and reading the weight of various objects using different weighing devices - for example, direct handling, beam/pan balance, spring balance and homemade weighing devices using elastic. These devices include:

- Digital kitchen scales
- Non-digital kitchen scales
- Digital bathroom scales
- Non-digital bathroom scales
- Luggage spring scales



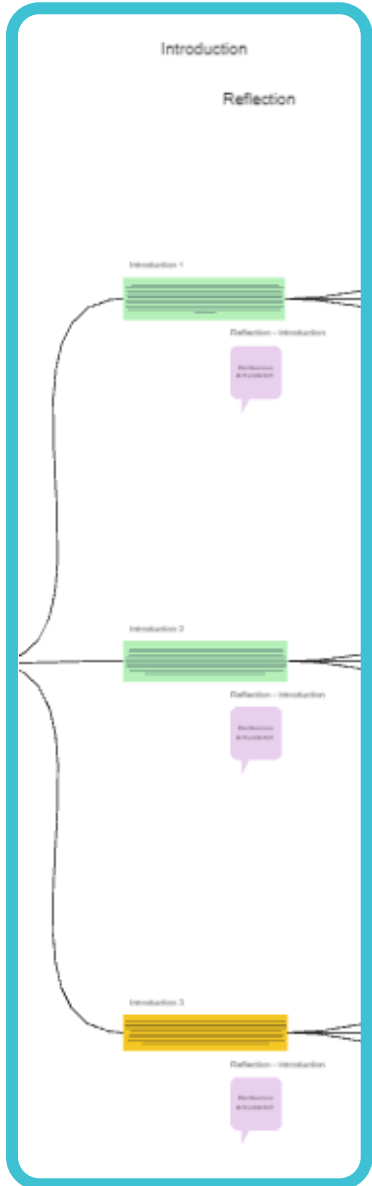
The children are familiar with the terms **heavy, heavier, heaviest, light, lighter, lightest, more than, less than** and **equal/equals**.

They are familiar with **1 kg, ½ kg** and **¼ kg** weights.

Consider: How will the learning objectives be met throughout the lesson?  
It is important to ensure that you address all learning objectives.

Lesson Plan		School Placement	
Please use precise language. You may use bullet points. Please write in the third person. Please consult the Guidelines for Lesson Plans prior to completing.			
Class Level:	Third class	No of Children:	26
Subject:	Maths		
Strand(s):	Measures	Strand Unit(s)/ Element(s):	Weight
Content Objective(s)/ Learning Outcome(s):	Through appropriately engaging learning experiences children should be able to compare, approximate and measure weight using appropriate instruments, record using appropriate units of measurement, and solve and complete practical tasks and problems involving the addition and subtraction of units of weight (kg and g)		
<b>Learning Objectives:</b>			
<ol style="list-style-type: none"> <li>1. All children should be enabled to estimate, weigh, and compare various objects from 0-1000 g/kg.</li> <li>2. All children should be enabled to calculate the difference between an estimated weight and the actual weight of a variety of items.</li> <li>3. All children should be enabled to use a delivery cost table to determine the cost of sending a package to a specific destination.</li> </ol>			

# Introduction



## Introduction

Watch the three introductions and choose one.  
Consider possible pitfalls, prior learning and the learner profiles of the children.  
You will be asked to reflect on your choice.

### Introduction A

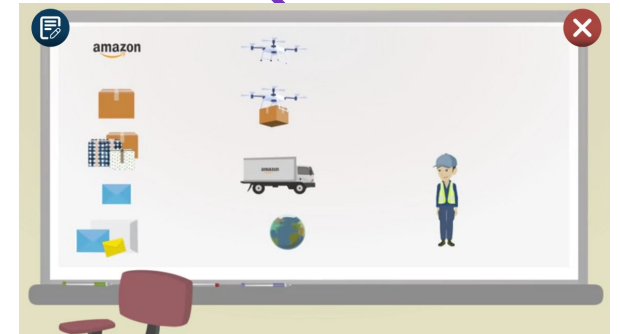
Previous

### Introduction B

Next

### Introduction C

Next



### Introduction Reflection

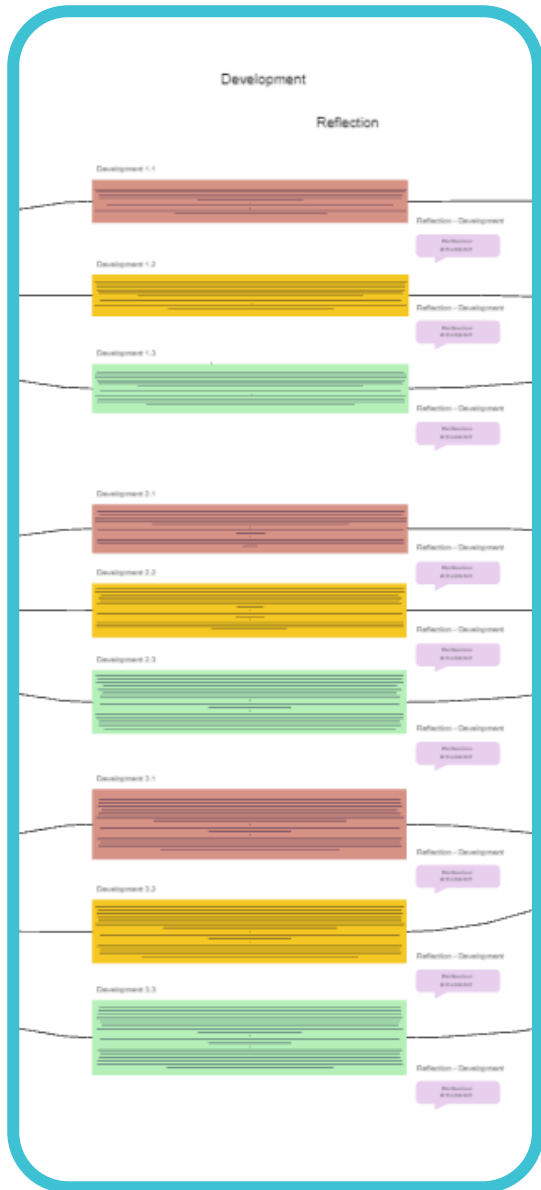
Please reflect on why you chose this Introduction B.

Enter your text here.

Submit

[https://rise.articulate.com/share/2-jlGe7kYtkXVy3Q5RzJ0ZF2oikTbc-B#/lessons/rIxBNSMoiH\\_hnHIA-14TZ7mSKiobAJm8](https://rise.articulate.com/share/2-jlGe7kYtkXVy3Q5RzJ0ZF2oikTbc-B#/lessons/rIxBNSMoiH_hnHIA-14TZ7mSKiobAJm8)

# Development



### Development

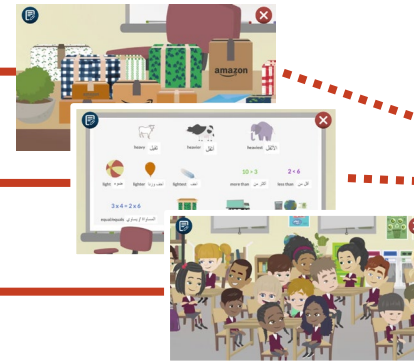
Watch the three developments and choose one.  
Consider the pitch of the lesson, possible classroom management issues and inclusive practices.  
You will be asked to reflect on your choice.

**Development A**

**Development B**

**Development C**

Next



#### Development Reflection

Please reflect on why you chose this Development C.

Enter your text here.

Submit

### Development

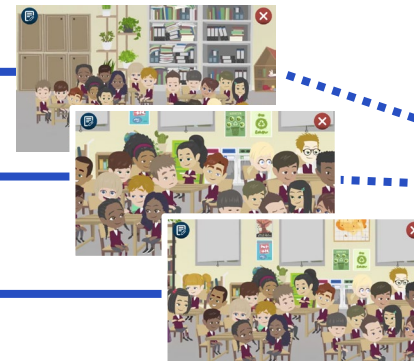
Watch the three developments and choose one.  
Consider the pitch of the lesson, possible classroom management issues and inclusive practices.  
You will be asked to reflect on your choice.

**Development A**

**Development B**

**Development C**

Next



#### Development Reflection

Please reflect on why you chose this Development B.

Enter your text here.

Submit

### Development

Watch the three developments and choose one.  
Consider the pitch of the lesson, possible classroom management issues and inclusive practices.  
You will be asked to reflect on your choice.

**Development A**

**Development B**

**Development C**

Next



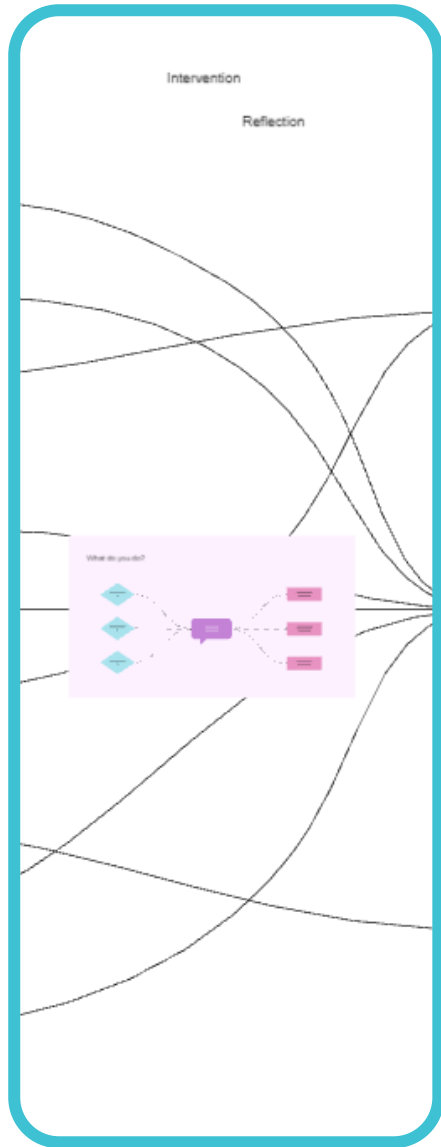
#### Development Reflection

Please reflect on why you chose this Development A.

Enter your text here.

Submit

# Intervention - What do you do?



**What do you do?**

Watch the three choices and choose one.  
You will be asked to reflect on your choice.

**Choice 1**

Previous

**Choice 2**

**Choice 3**

Next

**RESPECT** starts with you:

- 1 Responsibility
- 2 Excellence
- 3 Self-control
- 4 Politeness
- 5 Empathy
- 6 Cooperation
- 7 Trust

**Packages**

Zone 1	Zone 2
Ireland, Northern Ireland, UK	UK, Europe
Weight 500 g	Weight 500 g
€25.00	€25.00
Weight 1000 g	Weight 1000 g
€30.00	€30.00
Weight 1.5 kgs	Weight 1.5 kgs
€35.00	€35.00
Weight 2 kgs	Weight 2 kgs
€40.00	€40.00

**10 seconds**

**Choice Reflection**

Please reflect on this Choice 2.

Enter your text here.

Submit

**Tutor Feedback:**

- Classroom contract: Referring to the classroom contract reinforces the shared commitments and expectations of the class.
- Private conversation: Having a private conversation with Liam and Eva after the incident allows for a more focused discussion.
- Lesson interruption: Pausing the lesson and addressing the issue publicly may disrupt the flow of the class and affect other students' engagement.
- Lack of immediate resolution: While it addresses the issue after the incident, it may not prevent future disruptions during the same lesson.

Next

**Tutor Feedback:**

- Implement Voting System: This choice encourages critical thinking and hands-on learning while minimizing conflict and encouraging cooperation.

Next

**Tutor Feedback:**

- Individual Reflection and Compromise: This choice introduces a peer-to-peer approach to conflict resolution, allowing the children to learn from each other and develop problem-solving skills.

Next

# Conclusion

Questions - Measures 1/1

How does Amazon decide how much it costs to ship a package? كيف تقرر أمازون كم يكلف شحن حزمة؟	What kinds of things influence the delivery costs of packages? ما هي أنواع الأشياء التي تؤثر على تكاليف تسليم الحزم؟
What does weight have to do with this? ما علاقة الوزن بهذا؟	Can you think of a scenario where estimating the weight of a package might be important? هل يمكنك التفكير في سيناريو حيث قد يكون تقدير وزن الحزمة مهماً؟

What is a cost delivery table used for?

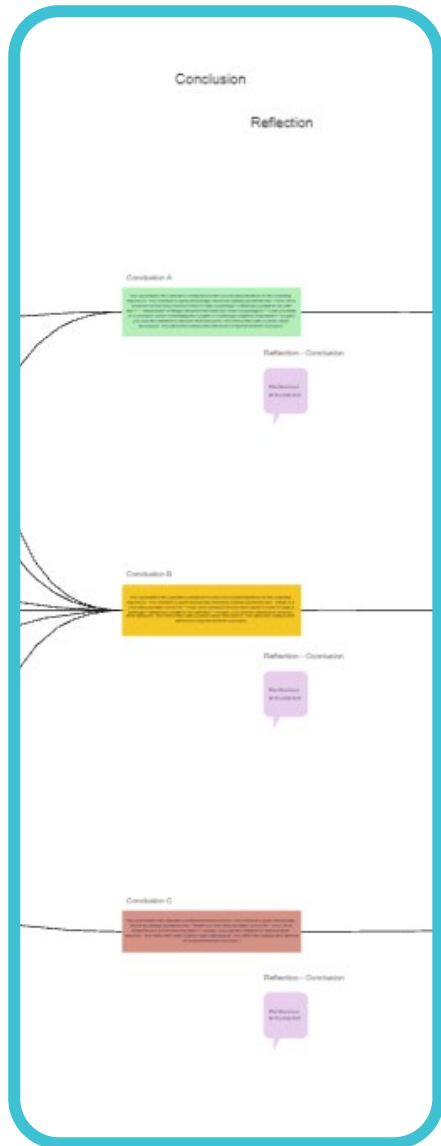
How does Amazon decide how much it costs to ship a package?

What does weight have to do with this?

Questions - Measures

What is a cost delivery table used for?  
ما هو جدول تسليم التكلفة المستخدمة؟

How does Amazon use a cost delivery table?  
كيف تستخدم الأمازون جدول تسليم التكلفة؟



Conclusion

Consider:

- Have the learning objectives been achieved?
- Have you been able to appropriately assess and record new learning?
- What would be a good activity to follow this lesson with?

Next

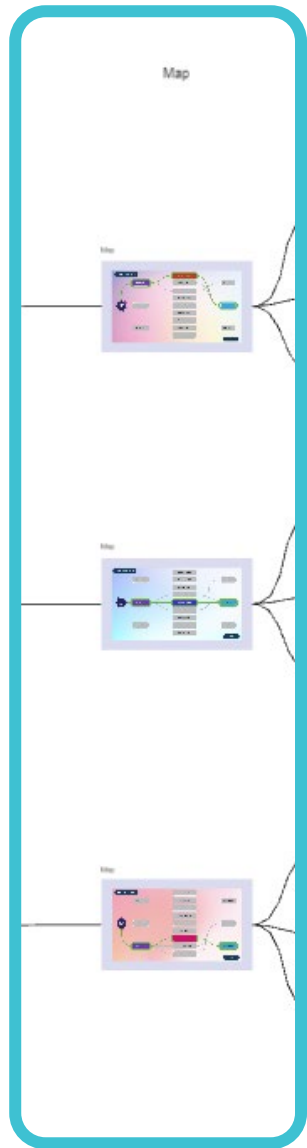
Conclusion Reflection

Please reflect on this Conclusion.  
Enter your text here.

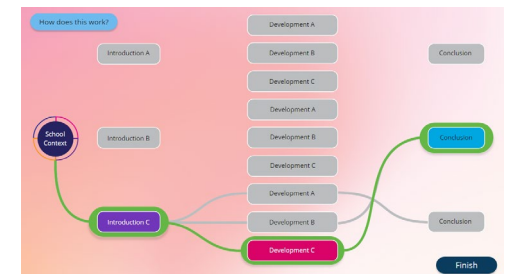
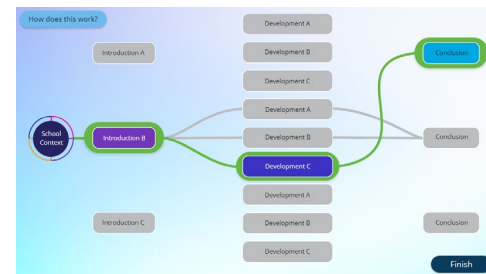
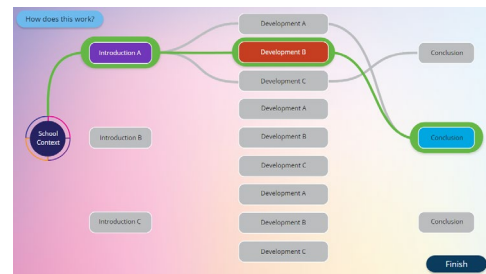
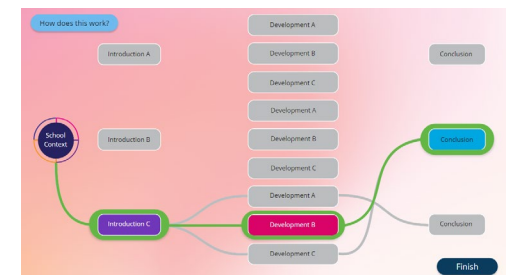
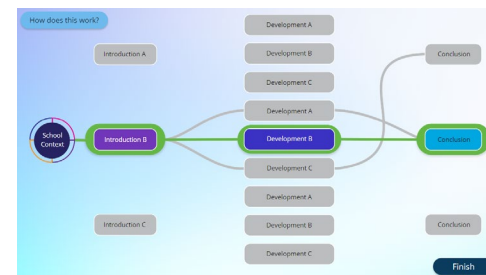
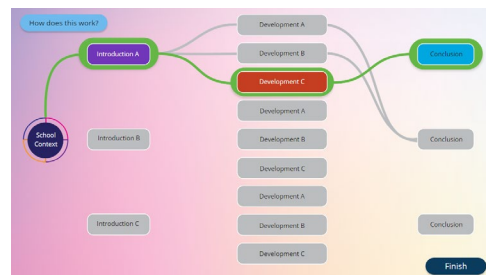
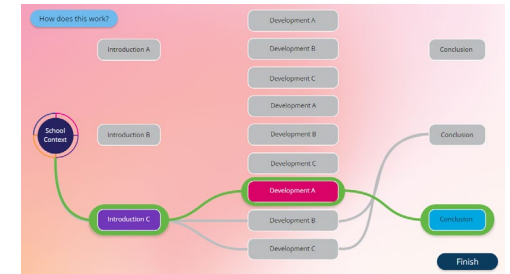
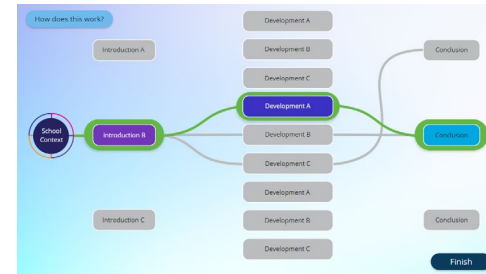
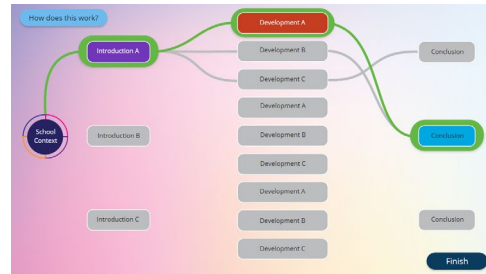
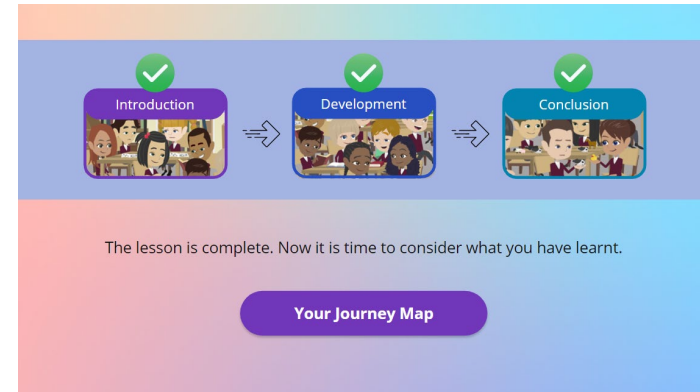
Eve

Submit

# Journey Map



9 different possibilities/paths



# Tutor Feedback and Reflection

**Tutor Feedback**

Feedback

Feedback

Feedback

Feedback

Feedback

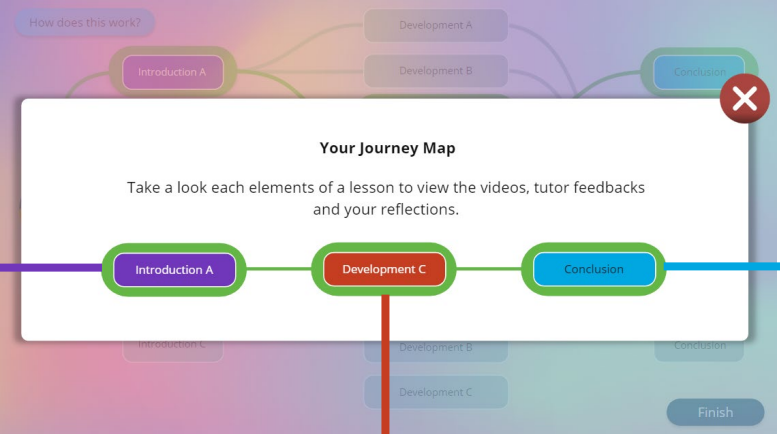
Feedback

Feedback

Feedback

Feedback

Feedback



**Introduction A Reflection**

Eye

**Introduction A Tutor Feedback:**

- You used a captivating opening stimulus.
- You connected the learning to children's personal experiences.
- You elicited prior knowledge
- You clearly stated the learning intentions.
- You engaged the children from the beginning of the lesson
- You set a clear context for the lesson.

Introduction A   Tutor Feedback   My Reflection

**Development C Reflection**

Eye

**Development C Tutor Feedback:**

- You used highly effective inclusive teaching approaches.
- You used highly engaging concrete resources.
- You used active learning and talk and discussion approaches.
- You clearly connected the tasks to the lesson's objectives.
- You used teacher modelling.
- The challenge of the lesson was highly effective.
- You used an engaging story to set the context for the final task.

Development C   Tutor Feedback   My Reflection

**Flashcards Review - Measures** 1/12

heavy ثَقِيلٌ light خَفِيفٌ

heavier أَثْقَلُ lighter أَخَفُّ

**Conclusion Tutor Feedback:**

- You linked the learning activities back to the learning objectives
- You conducted a knowledge check
- You use highly effective teacher questioning
- You used active teaching approaches
- You used inclusive teaching approaches

Conclusion   Tutor Feedback   My Reflection



# School Placement: Welcome to the virtual classroom

You will have the opportunity to experience the classroom environment from the perspective of a student teacher in a controlled, safe and managed space.

Start



**Technology driven solutions  
to the challenges of authentic assessment**

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THANK YOU

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Patricia Nunan

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[Pnunan@hiberniacollege.net](mailto:Pnunan@hiberniacollege.net)

