BRIDGE²¹

Sample Lesson Plan – Dolly Diving

Topic/Theme: _____Dolly Diving_____

Class/Year Group: _____Transition Year (Year 10)_____

Subject(s): _____Mathematics_____

Outline

What is the challenge your students will tackle?	*Why is this meaningful to the students – what's the hook?*	*What are the key ideas that the students will remember?*
Using a doll, rubber bands, and free software, calculate how many bands it would take to give the doll a save, but exhilarating jump from a height? Resources here.	Students love to throw things out of windows! It is active and fun.	Links between mathematical representations. Difference between correlation and causality. What a function is! Extrapolation.

Learning Objectives

What curriculum content will be addressed?

Linear functions, Collection, representation and analysis of data, correlation, line of best fit, extrapolation.

By the end of the activity students will be able to:

Understand that functions represent a relationship between variables; gather data and represent them in different ways; use those data to extrapolate (make predictions); understand correlation and causality…

How are the 4 key 21st Century Skills addressed?

- *Creativity*: Students are required to think about the problem, and come up with a creative solution.
- *Communication*: Students need to clearly communicate their rationale for the steps they have taken
- *Collaboration*: Students work in teams to solve the problem.
- *Critical Thinking*: Students need to evaluate the approaches as well as their results, before the competition.

Reflection

How will you know what they are learning?

This activity has a good roadmap. The facilitator will be able to ensure the students are on track through regular team lead meetings, as well as observation. Questions in plenary will be used to reflect on learning.

In what ways will students reflect on progress?

Students will reflect through interactions with the facilitators, as well as peer-to-peer interactions within and outside their groups. The final plenary session will allow them to reflect fully on the content of the activity.

Possible Aspects	Description	Time
	Warm up (skip set-up and team formation if in teams): How many €2 coins would it take to fill this room? With 2 min discussion answers and approaches.	10 mins
	Investigate: present the problem and ask the teams to brainstorm approaches.	5 mins
	Planning: Plenary discussion about possible approaches and their merits. Discuss available technology. Allow the teams time to plan and divide tasks.	10/15 mins
	Create: Iterative phase in which the teams gather data using Kinovea, and then find ways to represent the data using a spreadsheet. The mathematics will emerge throughout this process. The spreadsheet will enable the generation of a function to represent the relationship between bands and distance.	1 - 1.5 hours
	Create: teams will need to calculate the distance the doll is to drop, using the clinometer App in MobiMaths.	10 mins
	Present: A competition in which the teams drop the dolls from the height, to see whose calculations are most accurate.	10 mins
	Reflect: All groups reflect on their calculations. In a final plenary, groups discuss their approaches. The facilitator leads a discussion around the mathematics.	30 mins

Set-Up

Warm Up

Investigate

Plan

Create

Present

Reflect