

An Roinn Oideachais Department of Education



pdst.ie yf

May 2023



LEAVING CERTIFICATE COMPUTER SCIENCE

Welcome / Introductions / Meet the team





Joe English joeenglish@pdst.ie



Tony McGennis tonymcgennis@pdst.ie



Sinéad Crotty sineadcrotty@pdst.ie



Neil Butler neilbutler@pdst.ie



Irene Stone irenestone@pdst.ie



Helen Van Eesbeck helenvaneesbeck@pdst.ie Post-Primary STEM Team Leader



Slack pdst_phase_5

twitter @PDSTcs

Gmail computerscience@pdst.ie

Workshop Overview





Key Messages for National Workshop 1 (NW1)





There are many ways to use the LCCS specification

ALTs

The Applied Learning Tasks (ALTs) provide an opportunity to teach theoretical aspects of LCCS.



The learning outcomes (LOs) are non-linear



LCCS can be mediated through a constructivist pedagogical approach



An Roinn Oideachais Department of Education

Session 1

Introduction to LCCS and LCCS Specification



Session Schedule

Section 1	Introduction to Computer Science
Section 2	Growth Mindset
Section 3	Culture, Expectations and The Role of the PDST
Section 4	Group Activity (exploring the LCCS specification)
Section 5	The LCCS CPD programme (CPD framework overview)

By the end of this session participants will have





reflected on what computer science is and who it is for



started to build a community of practice for phase 5 of the CPD programme



lerned that mindset is the foundation of all learning



agreed on a culture and expectations for the group



engaged with the LCCS sepcification



become more informed about the role of the PDST and the CPD programme for LCCS





Section 1

Introduction to Computer Science

Activity #1: Think-Pair-Share







Participants spend time in silence writing or thinking about their own ideas Participants turn to the person beside them to discuss their ideas



Pairs share their answers with other pairs (square) or the wider group

What is computer science?

Who is computer science for?

What is Computer Science ?



Computer science is the study of computers and algorithmic processes, including their principles, their hardware and software designs, their applications, and their impact on society.

(Tucker et al. 2003)





What is Coding ?

Coding is the practice of developing a set of instructions that a computer can understand and execute.

Who is Computer Science for?





- It is structured to enable all students, of all abilities, to embrace this subject and succeed in every aspect of the course.
 It applies to many aspects of society and is therefore relevant to a wide range of student interests.
- A basic ability in mathematics is necessary but a curious and logical mind are more important
- Every career choice will increasingly require both digital and computer science literacy.



Ice Breaker

Find someone who ...

PDS	\mathbf{N}
Professional Development	An tSeirbhís um Fhorbairt
Service for Teachers	Ghairmiúil do Mhúinteoirí

My Favo	ourite	Your Favourite (Write your favourite in this column)	Names (Who else's favourite?)
0	Film		
۳©۹	Food		
	Team		
5	Song		
	Book		









Section 2

Growth Mindset



Source: https://www.youtube.com/watch?v=75GFzikmRY0



Growth Mindset



Source: https://alumni.stanford.edu/get/page/magazine/article/?article_id=32124









Section 3

Culture and Expectations



PDS

Professional Development An tSeirbhis um Fhorbairt Service for Teachers Ghairmiúil do Mhúinteoiri



Teachers are the Key



Leader &

Privileged Place

Bring Different Experiences



Activity #2: Culture and Expectations

Mentimeter

Questions:

- 1. What should the culture be in the group?
- 1. What expectations do you have from each other?
- 1. Discuss in groups and respond using menti.com





Mentimeter



Go to www.menti.com and use the code 10 78 86

What should be the culture in this group? What expectations do you have from each other?

support learning help collaboration Open and willing to share a shared learning journey of resources and experiences. Pass collaboration and support on good practice. Model on open source Cooperation, sharing resources, support for each other, strategies Share Resources of good teaching & learning practice in CS The culture should be one of collaboration. supportive, approachable, sharing ideas, positivity collaboration and patience Sharing

Pause scroll Show image



Mentimeter





Section 3

The Role of the PDST

The Role of the PDST



What we are not

- Evaluators
- Policy makers
- Curriculum developers
- Assessors

What we are

- Teachers & school leaders
- Teacher Educators
- Facilitators / Enablers
- Purveyors of lifelong learning





Section 4

Group Activity

Group Activity Exploring the Curriculum Specification



Leaving Certificate Computer Science Curriculum Specification





Activity #3: Home Expert



- 1 Each group will be given a flip chart and a marker.
- 2 You should nominate a chair and a note taker.
- 3 Each group will be given a section of the curriculum specification document to read, dissect and break down further (excluding the LOs).
- 4 Present you finding to the other groups.

Н
ш
Ĥ





'Home Expert' Activity - Groups

- Group 1 & 9 : Senior Cycle
- Group 2 & 10 : Computer Science (Rationale / Aim / Objectives)
- Group 3 & 11: Related Learning
- Group 4 & 12 : Structure of LCCS
- Group 5 & 13: Key Skills of Senior Cycle
- Group 6 & 14: Teaching & Learning ALTs
- Group 7 & 15 : Teaching & Learning Differentiation
- Group 8 & 16: Assessment



15 minutes





Group Activity: Feedback



Key Skills and the Computer Science Student



Learning in computer science takes place in an information-intensive environment; it promotes independent research activities, evaluation and recording of information and making decisions based on judgements and data. Students develop an appreciation of the differences between information and knowledge.

Students will develop their critical and creative thinking skills by analysing patterns and relationships, solve problems using computational thinking, developing and testing hypothesis and develops metacognition dimension of knowledge. In computer science, students are designers and creators of technology rather than merely users of technology.



Pg 13 & 14 Specification

Through the act of collaborative project work students communicate both face to face and through digital media. Students will express and share opinions through dialogue, discussion and argument.

> Students will develop the skill of being personally effective as they develop strategies for managing, monitoring and evaluating their learning

Students may work collaboratively and through this they will learn from others, but more importantly they will be engaged in a social experience involving the understanding of interpersonal dynamics



LCCS Strands

There are three strands in the Computer Science specification: Practices and principles, Core concepts and Computer science in practice. All three strands are interwoven and should be studied concurrently at different stages of the course and should not be studied in a linear order. Skills and knowledge learned in strands 1 and 2 are applied to collaborative learning tasks outlined in strand 3. In that way, the applied learning tasks provide further practical context. Student application in the strand 3 learning tasks should increase in complexity and sophistication, thus developing and deepening the skills and knowledge learned in strands 1 and 2.

Strand 1: Practices	Strand 2: Core	Strand 3: Computer science
and principles	concepts	in practice
 Computers and society Computational thinking Design and development 	 Abstraction Algorithms Computer systems Data Evaluation/Testing 	 Applied learning task 1 Interactive information systems Applied learning task 2 - Analytics Applied learning task 3 Modelling and simulation Applied learning task 4 Embedded systems

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. ractive Information Analytics Simul edded Systen elling actices and Principle Core Concepts

Key to remember:

Explore and teach the LOs through the lens of ALTs.



LCCS Assessment

Component	Percentage
End-of-course examination	70
 Computer-based assessment of learning outcomes 	
Coursework assessment	30
 One computational artefact with report 	
Total	100





Section 5

CPD Framework: Overview





Overview of Framework

Timeline – Round 0







Timeline – Round 1 (5th Year)

(subject to DE approval)





Timeline – Round 2 (6th Year)

(subject to DE approval)



LCCS Community of Practice







PDS C



CESI - Teacher Professional Network (TPN) for Computer Science







An Roinn Oideachais Department of Education



© PDST 2023