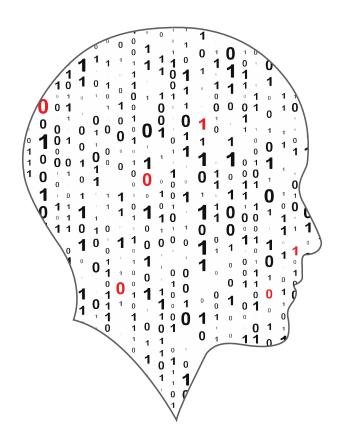




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LEAVING CERTIFICATE COMPUTER SCIENCE

National Workshop 3



#### **Key Messages**

Leaving Certificate Computer Science aims to develop and foster the learner's creativity and problem solving, along with their ability to work both independently and collaboratively.

Computing technology presents new ways to address problems and computational thinking is an approach to analyse problems, design, develop and evaluate solutions

The computational artefacts that students design through engaging with the ALTs should be personally relevant to them or their peers, to their community or to society in general.

The externally assessed coursework will be based on all learning outcomes, with those of strand 3 being particularly relevant.

The Learning Outcomes are designed so that the learners can engage with them to varying degrees depending on their ability and the support they are given by their teachers.



#### Schedule – Day 2

9.00am - 11.00am	Session 3: Computational Thinking
	Break
11.30am - 1.00pm	Session 4: ALT3 – Modelling and Simulation
	Lunch
2.00pm – 4.00pm	Session 5: ALT3 – Project Design and Development



## Session 3 Computational Thinking



## Part 1 Warmup Activities



# www.pdst.ie

#### How did you TC?

$$x^2 - y^2 = 41$$

**SISTERS** 

**MATHS** 



**4 CHALICES** 















## Part 2 Two Viewpoints: Wing vs. Denning



#### What is CT?

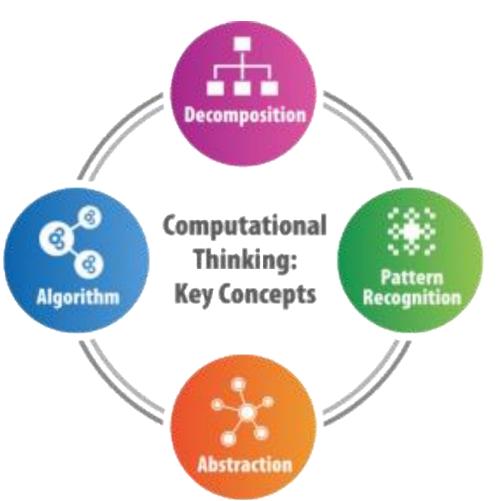
Computational thinking is "a way of solving problems, designing systems, and understanding human behaviour that draws on concepts fundamental to computer science... a fundamental skill for everyone, not just computer scientists. (Wing, 2006)





#### Computational thinking is made up of four parts:

- Decomposition.
- Pattern recognition.
- Abstraction.
- Algorithm design.





#### **Computational Thinking Across Subjects**





#### Unresolved questions concerning CT

What is computational thinking?

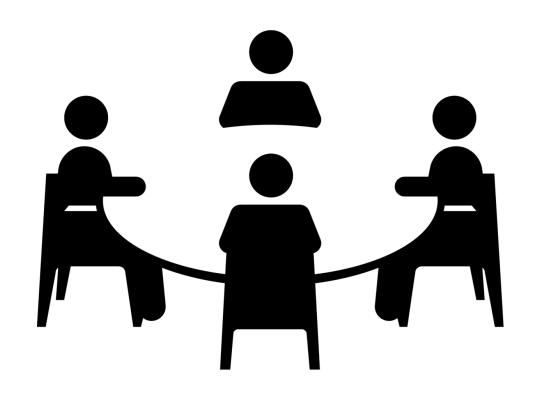
How can it be assessed?

Is it good for everyone?





#### **Group Activity 1**









#### **Activity 2**

How does CT relate to programming?

How does CT relate to other subjects?

Do you think CT best taught or learned?

How will you assess CT?







#### What are Denning's views?

What are Wing's views?

What is Computational Thinking?

How can it be assessed?

Is computational thinking good for everyone?

Should CT be taught?



Should CT be learned?

CT vs. programming?





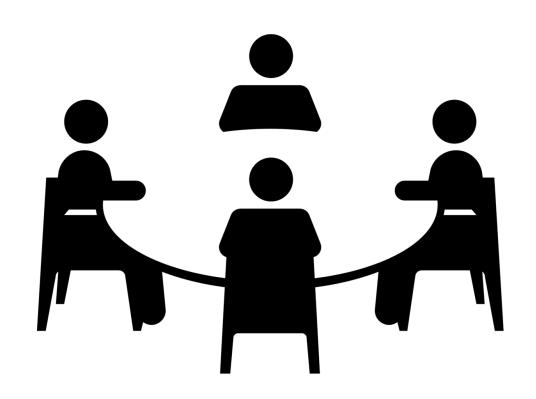
https://www.ted.com/talks/michael\_bierut\_the\_genius\_of\_the\_london\_tube\_map/transcript?language=en\_



## Part 3 Further CT Activities



#### **Group Activity**





#### **Further CT Activities**

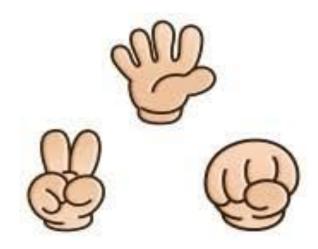
I I I



in TURN

to leave YOUR

**OPPONENT WITH the LAST ONE** 



ROCK, PAPER, SCISSORS







### Could I make algorithms more efficient?

Were skills involved in CT enhanced?



How did I solve?

Did I produce functional code?







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