*“Learning to code is learning to create and innovate. We want our young people, who have such enormous talent, to acquire this skill, so that they will become the trailblazers who will shape and change our future.”*

Enda Kenny

Taoiseach, Ireland

# Vision

***The abilities to effectively use and create technology to solve complex problems are the new and essential literacy skills of the twenty-first century.***

# Overview

The Digital Literacy and Computer Science (DLCS) skills and knowledge articulate critical learning outcomes for Kindergarten through Grade 12 to help prepare students for success in world. The standards represent the core elements of digital literacy and computer science and are intended to drive coherent, rigorous instruction which results in the mastery and application of digital literacy and computer science knowledge, reasoning, and skills.

The purpose of this document is to introduce educators to the DLCS Framework by providing a general overview of the key skills and knowledge in Grade 3 to Grade 5.

# DLCS Skills and Knowledge

Upper elementary students learn to differentiate tasks that are best done by computing systems or digital tools and those best done by humans. Students explore a variety of computing devices and digital tools and further develop their computational thinking problem solving skills. As students progress through grades 3–5, they begin to evaluate the uses and limitations of existing artifacts and modify parts of existing artifacts to develop something new. Students are able to describe and document their computational work in writing, using presentation tools and through demonstrations of their work.

Grade 3 to 5 standards integrate all seven practices. Standards in this grade span ask students to demonstrate the ability to:

Computing and Society (CAS)

* Understand safety and security concepts, safe and appropriate use of technology, and how to deal with cyberbulling.
* Demonstrate responsible use of technology, digital content, and interactions.
* Observe and describe how technology can influence people.
* Basic understanding of digital media messaging and equity of access to technology.

Digital Tools and Collaboration (DTC)

* Use digital tools and keyboarding skills to publish multimedia artifacts.
* Use digital tools to communicate or exchange information.
* Develop intermediate research skills to create artifacts and attribute credit.

Computing Systems (CS)

* Understand different computing devices and their components.
* Use different computing devices and troubleshoot and solve simple problems.
* Differentiate tasks that are best done by computing systems and humans.
* Understand the components of a network and basic network authentication.
* Basic understanding of services.

Computational Thinking (CT)

* Create a new representation and breakdown a larger problem into sub problems.
* Write, debug, and analyze an algorithm.
* Understand databases and organizing and transforming data.
* Write, debug, and correct programs using successively sophisticated techniques.
* Create a model and use data from a simulation.

With increased maturity, students in third through fifth grade are able to engage in learning in ways that are both more systematic and creative. Upper elementary is a critical time to engage students in the DLCS practices. Students’ capabilities as creators and problem solvers build on their experiences in K–2. They continue to develop concepts through exploration, discovery, and creativity with the guidance, support, and encouragement of their educator. Standards for this grade span allow teacher flexibility in deciding when students are ready to use technology.

**Resources**

DLCS Resources – <http://www.doe.mass.edu/stem/dlcs/>

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