4.IC.1 Impacts of Computing

> *The student will identify and examine the positive and negative impacts of the prevalence of computing technologies. (a) Identify computing technologies that have changed Virginia's economy. (b) Examine and explain how computing technologies influence and are influenced by culture. (c) Identify social and ethical issues related to computing devices and networks.*

Understanding the Standard

There is a complex relationship between technology and society in that each influences the other in both positive and negative ways. The development of technology is driven by people's needs and wants. Computing technology is created and modified to meet the demands of society, increase the benefits, and decrease the risks. On the flip side, technology has changed how people in different cultures share information, communicate and collaborate. Students should provide specific examples of how new developments in computing technologies have impacted the world and Virginia in particular, and describe how changes in society and culture have influenced the need for new technologies. Students can identify the ways technology use makes people's lives easier as well as more complicated as it becomes increasingly universal in daily life. Positive impacts may include examples such as automated machinery, easier access to information, and fast, accurate data processing. Negative impacts may include privacy concerns, increased spread of misinformation, exacerbation of inequality, and plagiarism complications. Evaluating the relationship between computing technologies and society will help prepare young students to show responsibility and care in their use of these technologies.

Term	Definition
Internet	A global computer network that allows people to communicate, create and share content.
Technology	Using a process, method, or knowledge to accomplish a task.
Social	Interacting with an individual or group.
Ethical	Understanding right and wrong conduct.

Prerequisite Knowledge

Students should have foundational knowledge of timelines, comparing and contrasting and identifying cause and effect relationships.

Integration Opportunities

History VS.13 Identify computing technologies that are major products and industries important to Virginia.

Science 4.8 a-d Identify Virginia's important human, natural, and capital resources that have impacted the local economy.

Math 4.NS.1 a,b Research and collect data on significant tech advancements and their economic contributions to Virginia, practicing reading, writing, and identifying the place and value of large numbers.

Visual Arts 4.6 Examine the cultural influences of works of art created using computing technologies.

Summary of a Lesson

Students will choose and research a specific computational technology to create a linear timeline infographic in Google drawings. Each timeline will start with a problem or need that the technology addressed and how it has influenced society/culture today. Examples include data storage, face-to-face communication, entertainment, banking, transportation, etc. Timelines must also include notable people who contributed to the development of that technology and examples of both positive and negative effects of the use of the selected technology. As a whole class students will display and critique their work in a gallery walk.

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