A free resource for educators . . .

iKeepSafe C3 MATRIX™
DIGITAL CITIZENSHIP

The iKeepSafe Digital Citizenship C3 Matrix shown here is abbreviated for printing in *Thresholds* and provides only the full proficiency level for C3 concepts. For detailed breakdown of C3 competency levels (i.e., basic, intermediate, and proficient), download the complete C3 Matrix at www.iKeepSafe.org/C3Matrix. This document also includes instruction for augmenting existing technology standards (i.e., ISTE: NETS•S, AASL 21st Century Learner, and AASL/AECT) with C3 concepts.

INTRODUCTION

The iKeepSafe Digital Citizenship C3 Matrix is provided here to assist educators in integrating the essentials of cyber-safety, cyber-security, and cyber-ethics (C3) into existing technology and literacy standards and curricula. Based on the C3 Framework created by education and technology expert Davina Pruitt-Mentle, the iKeepSafe Digital Citizenship C3 Matrix takes a holistic and comprehensive approach to preparing students for 21st century digital communication. The Matrix outlines competency levels for C3 concepts divided into three levels: basic, intermediate, and proficient.

Although the Matrix presents the C3 principles as separate categories, they are not distinct and/or separable; they are, in fact, interrelated and should be considered as a whole. These principles should be embedded systemically throughout students' K-12 experience, not taught in isolation and should be applied when meeting learning outcomes in the content areas. They can also be used as a companion and supplement to the various technology literacy standards for students created by ISTE, AASL, AECT, and others.

The three competency levels outlined in the full Matrix are not identified by grade level; rather, they represent progressive levels of cognitive complexity at which youth should be expected to understand and practice. The levels were developed utilizing Bloom's Taxonomy of Educational Objectives (2001 revised edition), a hierarchy of six progressively complex cognitive processes that learners use to attain objectives or perform activities.

Cyber-safety, security, and ethics cannot be stagnant, because technologies are dynamic and ever changing. For example, cyber-ethical issues are experiencing vast transformation as a result of factors driven by the multi-media aspects of cell phones and the immense reservoir of information on the Internet. It is essential that educators have tools for technology education that are also dynamic and evolving. The C3 Matrix provides these tools for teachers and administrators—and the students they teach.

The Augmented Standards sheet (page 4 of insert) enumerates where and how the C3 Matrix may be used to fill in the gaps in existing technology and literacy standards and in fulfilling professional development.

iKeepSafe C3 MATRIX™ DIGITAL CITIZENSHIP

CYBER-SAFETY

CYBER-SECURITY

PROFICIENT: Safe and Responsible Practices

PROFICIENT: Secure Practices for Personal Protection and Network Defense

PROFICIENT: Responsible and Appropriate Practices

Students will:

A. Recognize online risks, make informed decisions, and protect themselves.

- **Recognize** and **discuss** safety issues* related to technology, technology systems, digital media and information technology including the Internet (e.g., online predator tactics or posting controversial content).
- **Use** safe practices and procedures related to technology, technology systems, digital media and information technology including the Internet.
- **Explain** the purpose of and analyze the use of different protection measures for technology, technology systems, digital media, and information technology.

B. Make informed decisions about appropriate protection methods and secure practices.

- **Adhere** to privacy and safety guidelines, policies, and procedures.
- **Describe** and **practice** procedures for disciplined and productive Internet use (e.g., balance between time on and off the Internet).
- **Describe** and **practice** procedures for exiting an inappropriate site.
- **Describe** and **practice** procedures for reducing the chance of becoming a victim of cyber-bullying.
- **Describe** and **practice** effective steps to manage and resolve a cyber-bullying situation.

C. Advocate for safe practices and behaviors among peers, family, and community.

- **Demonstrate** and **advocate** for safe behaviors among peers, family, and community.
- **Model** personal safety within a variety of situations.
- **Demonstrate** commitment to stay current on safety issues and effective protection practices.

* Safety issues could include: upload and download of objectionable content, cyber-bullying, reputation damage, response to unwanted communications from businesses or predators, and Internet addiction.

Students will:

A. Recognize security risks, make informed decisions, and protect themselves while using technology.

- **Understand** and **discuss** security risks and the potential harm of intrusive applications related to technology, technology systems, digital media and information technology including the Internet (e.g. email viruses, digital propaganda, spyware, adware, identity theft, phishing/pharming/spoofing scams, spam, social engineering).
- **Practice** effective security practices and analyze new options, beyond the basic level, related to technology, technology systems, digital media and information technology, including the Internet, and critically evaluate digital resources.
- **Recognize** and **understand** the purpose of security protection measures for technology, technology systems, digital media, and information technology.

B. Understand appropriate protection methods and secure practices.

- **Adhere** to security guidelines, policies, and procedures.
- **Describe** and **practice** strategies for managing everyday hardware and software problems.
- **Describe** and **practice** strategies for securing wireless connections (e.g., connect only to legitimate wi-fi hot spots or turn off wi-fi, turn off file share mode, encryption of sensitive data/information, use and update of anti-virus software, use of a firewall, and update of operating system).

C. Demonstrate commitment to stay current on security issues, software, and effective security practices.

- **Demonstrate** commitment to stay current on security issues and effective security practices.
- **Model** secure practices within a variety of digital communities.

D. Advocate for secure practices and behaviors among peers and community.

The following abbreviated C3 Matrix shows only full proficiency in C3 concepts. For a detailed breakdown of C3 competency levels (i.e., basic, intermediate, and proficient), download the complete Matrix at www.iKeepSafe.org/C3Matrix.

CYBER-ETHICS

Students will:

A. Understand and follow acceptable use policies.

- **Understand** and **follow** acceptable use policies (e.g., school, home, and community settings).
- **Demonstrate** responsible use of technology, technology systems, digital media, and information technology in different settings (e.g., school, home, and community settings), and describe and analyze personal and societal consequences of inappropriate use.
- **Make informed choices** about acceptable use of technology, technology systems, digital media, and information technology when confronted with usage dilemmas.

B. Demonstrate and advocate for ethical and legal behaviors among peers, family, and community.

C. Avoid plagiarism and practice citing sources of digital information.

- **Understand** and **follow** ethical standards of conduct (e.g., AUP, Student Handbooks, Student Code of Conduct, Honor Codes).
- **Discuss** definitions and basic concepts and issues related to plagiarism/electronic cheating and describe personal and societal consequences of plagiarism.
- **Demonstrate** appropriate strategies for avoiding plagiarism (e.g., quoting, citing, acknowledging source and/or paraphrasing).
- **Determine** the most appropriate methods to avoid plagiarism, create original work, and practice citing sources of digital information.
- **Demonstrate** and **advocate** for ethical behavior among peers, family, and community.

D. Make ethical/legal decisions in usage dilemmas.

- **Discuss** definitions and basic concepts and issues related to intellectual property rights, media copyright laws, private/public domain, fair use, and file sharing.
- **Describe** personal and societal consequences of respecting verses ignoring rights, laws and practices such as copyright, private/public domain, fair use and file sharing.
- **Describe** personal and societal consequences involving intellectual property rights, media copyright laws, private/public domain, fair use and file sharing.
- **Understand** and **follow** school, home and community policies on access to information resources and adhere to local, state, and federal laws.
- **Distinguish** the legal implications between personal, educational and commercial uses of protected works.
- **Demonstrate** social and ethical behaviors when using technology and digital media regarding intellectual property recognition, fair use of copyrighted material, including file sharing, and pirating verses legal downloading of software, music, and videos.
- **Make ethical and legal use** of technology, technology systems, digital media, and information technology when confronted with usage dilemmas.
- **Demonstrate** and **advocate** for legal and ethical behaviors in this domain among peers, family, and community.

E. Exhibit responsibility and netiquette.

- **Recognize** personal differences and practice etiquette within diverse digital communities.
- **Recognize** and **analyze** positive and negative social and ethical behaviors when using technology and digital media and information technology.

F. Recognize signs, consequences, and solutions for cyber-bullying.

- **Demonstrate** a thorough understanding of the signs, emotional effects, legal consequences, and effective solutions for cyber-bullying.
- **Make informed choices** when confronted with cyber-bullying dilemmas.
- **Recognize** appropriate time and place to use digital tools, techniques and resources (e.g., when appropriate to use lingo and emoticons, or when to use cell phone and text message).
- **Apply** proper netiquette (i.e., appropriate digital communication skills).
- **Practice** digital etiquette to support collaboration.
- **Advocate** for proper netiquette behavior among peers, family, and community.

G. Recognize appropriate use of digital tools.

- **Understand** that content posted to the Web or sent through other digital means (e.g., cell phone or camera) is accessible to a wide audience and can be permanently archived.

H. Understand and advocate for identity and reputation management.

- **Understand** the importance of Online Reputation Management and Monitoring (ORM).
- **Recognize** positive and negative uses of electronic media/postings as related to ORM.
- **Demonstrate** appropriate ORM strategies for protecting, monitoring and/or positively promoting personal identity.
- **Analyze** selected electronic media/postings and reflect, as an individual, on the appropriateness of each for effective ORM.

Augmented Technology Literacy Standards for Students

The following worksheet is designed to help educators integrate essential C3 concepts (i.e., cyber-safety, cyber-security, and cyber-ethics) into existing national technology standards for students. A teacher or technology coordinator may refer back to the C3 Matrix for ways to address safety, security, and ethics while teaching concepts from the national standards.

How content addresses:
- ISTE/NETS•S Standards
- AASL Standards for the 21st Century Learner
- AASL/AECT Information Literacy Standards for Student Learning
- iKeepSafe C3 Matrix
- 21st Century Framework

ISTE/NETS•S STANDARD & OUTCOMES	INDICATORS	ADDRESSED IN THIS ACTIVITY	EXAMPLE
1. Creativity and Innovation Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes: AASL: 1.1.1, 1.2.1, 1.2.3, 2.1.1, 2.1.6, 2.2.4, 4.1.5, 4.1.8 AASL/AECT: 1.3, 3.2, 3.3, 5.3 iKeepSafe C3 Matrix 21st Century: 1.1, 1.4, 2.4, 2.5, 3.1.	**Students:** **a.** apply existing knowledge to generate new ideas, products, or processes **b.** create original works as a means of personal or group expression **c.** use models and simulations to explore complex systems and issues **d.** identify trends and forecast possibilities.	☐ YES ☐ NO	**Integrate ISTE 1.b with C3Matrix:** Teachers assigning an activity to correspond with 1.b. will refer to the C3 Matrix to choose C3 concepts that will fit into the planned activity. **For example:** Create a presentation or other original work. SAFETY (1.B): Adhere to privacy and safety guidelines, policies, and procedures. SECURITY (2.A): Understand potential for malware while downloading. ETHICS (3.D): Consider ethical issues related to fair use and copyright as images and information are acquired, and advocate for others to be fair and responsible users.

* This Augmented Standards Worksheet is abbreviated to show only the first ISTE/NETS•S Standard, "Creativity and Innovation." The complete worksheet shows the correlation with all six ISTE/ NETS•S Standards for Students. Download the full worksheet at www.iKeepSafe.org/C3Matrix.

Correlation of the ISTE/NETS•S, AASL, and AASL/AECT Standards with C3 Matrix and 21st Century Framework

AASL Addressed				AASL/AECT Addressed										C3 Matrix	21st Century Framework Addressed											
1	2	3	4	1	2	3	4	5	6	7	8	9	ISTE/NETS•S Standards	Cyber-safety Cyber-security Cyber-ethics	1	2	3	4	5	6	7	8	9	10	11	12
X	X		X	X		X		X	X	X			1. Creativity & Innovation	X	X	X	X										
X	X	X	X			X		X		X		X	2. Communication & Collaboration	X	X		X	X				X		X			
X	X	X	X	X	X	X	X		X				3. Research & Information Fluency	X		X			X	X	X					X	
X	X	X							X				4. Critical Thinking, Problem Solving, & Decision Making	X		X		X				X	X				
X	X	X	X							X	X		5. Digital Citizenship	X				X	X	X	X		X	X		X	
		X											6. Technology Operation & Concepts	X													

NETS•S -Educational Technology Standards and Performance Indicators for Students
http://www.iste.org/Content/NavigationMenu/NETS/ForStudents/2007Standards/NETS_for_Students_2007.htm
AASL - http://www.ala.org/ala/mgrps/divs/aasl/aaslproftools/learningstandards/standards.cfm
AASL/AECT - http://www.ala.org/ala/mgrps/divs/aasl/aaslproftools/informationpower/InformationLiteracyStandards_final.pdf
Partnership for 21st Century Skills http://www.21stcenturyskills.org/index.php?Itemid=120&id=254&option=com_content&task=view
Numerical ordering of skill/definitions are assigned for brevity