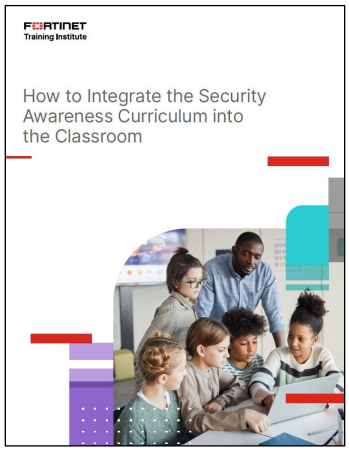

How to Integrate the Security Awareness Curriculum into the Classroom

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How to Integrate the Security Awareness Curriculum into the Classroom

Security Awareness Curriculum: What's Included

"Curriculum refers to an interactive system of instruction and learning with specific goals, content, strategies, measurement, and resources."[1] A curriculum contains goals, objectives, content, and subject matter, including lessons and classroom resources, learning methods and experiences, and evaluation. Keeping this definition in mind, we built our curriculum to include a flexible, holistic framework with lessons and materials that teachers can implement in their classrooms. The Security Awareness Curriculum is a supplemental cybersecurity curriculum designed to easily integrate into existing educational requirements and academic schedules.

The Security Awareness Curriculum features lesson packages created with the input of educators and classroom teachers. Each of the Cyber 7 strands includes age-appropriate lesson materials with everything teachers need to implement the Security Awareness Curriculum.

Lesson packages include:

- Ready-to-teach lesson plans with step-by-step instructions and teacher answer guides
- Background information and teaching points
- Multimedia assets and lesson resources

Teacher Guides

Teachers need to know that the content they teach is relevant and up to date. To guide students, teachers also need to feel confident in their content knowledge. Every lesson includes background information: vocabulary and definitions, technical information, action steps, and facts that will empower teachers to feel confident and knowledgeable as they teach the lessons.

The Cyber 7 background information is an optional resource. Some teachers may already have the expertise needed to teach the lesson. Other teachers may want to use the background information to educate themselves about the cybersecurity knowledge and skills they need. Background information is also a go-to resource when students or families have questions. Teachers can be sure that information about cybersecurity skills, safety and security, and digital resilience will be at their fingertips.

Lesson Plans

Lesson Objectives

Each lesson in the Security Awareness Curriculum begins with the end in mind, helping students achieve lesson objectives in three categories: security awareness, technical skills, and digital resilience.

- **Security awareness** is the knowledge and understanding of risks and benefits in our connected, digital world. Students will weigh the pros and cons of technology and will learn how to stay safe and secure online.
- **Technical skills** include relevant, age-appropriate technical vocabulary and procedural knowledge that students can use to keep their devices, accounts, and information safe and secure. Students will learn to adjust privacy and security settings, understand terms of service, and learn where to look for information and directions to take control of their online security in an ever-changing digital landscape. Cybersecurity technology and the human factor combine to help create a secure digital world.
- Each lesson includes digital resilience: practical steps to recover and move forward when things go awry. This objective is included in each lesson because having technical skills and being aware of cyberthreats are not always enough to stop a cyberattack.

CYBER Instructional Model

Each lesson plan is easy to follow, with step-by-step instructions and talking points designed to guide teachers through the lesson. The CYBER lesson plan is based on the 5E instructional model "which focuses on allowing students to understand a concept over time through a series of established steps or phases. These phases include Engage, Explore, Explain, Elaborate, and Evaluate."[2] The 5E model guides students to construct their knowledge as they activate prior experiences and use collaborative and active learning to grasp new concepts and skills. With the CYBER lesson steps, students are active participants in their learning. They have voice and choice as they build a strong foundation of cybersecurity knowledge.

The CYBER lesson plan includes the following steps:

1. **Connect:** Students activate prior knowledge and context for their learning through introduction videos, scenarios, class discussions, and opportunities to reflect and respond in writing.
2. **You Need to Know:** Teachers lead students in a mini lesson that supports their learning with direct instruction about new cybersecurity vocabulary and concepts.
3. **Be a Cybersecurity Hero:** In this active learning stage, students synthesize new information with flexible, engaging class activities and group assignments.
4. **Evaluate:** As the class regroups, teachers can assess knowledge through anecdotal observations and class discussions, or by collecting written work. Each lesson includes an answer guide and rubrics to help teachers assess student understanding.
5. **Resilience:** Each lesson closes with actionable steps that students can take when problems arise. Cybersecurity and digital safety breaches can happen to anyone. Students need to know what they can do to recover and return to the digital world.

Lesson Resources and Multimedia Assets

The Security Awareness Curriculum includes everything teachers need to teach the lessons. Slides with teacher notes—available as Google slides or PowerPoint files—guide students and teachers through the lessons, highlighting vocabulary, reflection questions, scenarios, embedded videos, and directions for student activities.

Videos

Every lesson includes short, engaging videos to facilitate students' learning. Each lesson includes an introduction video encouraging students to activate prior knowledge and experiences and become curious about the lesson topic. Later, different videos that highlight key concepts are included to bring expert perspectives and instruction. Last, a video on digital resilience guides students on ways to recover when things in their online world go awry. Videos are embedded in the slide decks and are available as separate multimedia assets.

Classroom Handouts

Each lesson has different types of handouts. Each handout is designed to support different parts of the lesson and student learning. For example, student lesson notes handouts include note-catchers and graphic organizers that support and guide student learning while reinforcing crucial information. Activity handouts include directions and open-ended prompts that help students synthesize and construct their knowledge through collaboration and creativity. Optional journal pages guide students to reflect on their growth in future-ready competencies and cybersecurity knowledge.

Teacher Resources

Accompanying answer guides help teachers ensure that students understand lesson objectives and avoid misconceptions. Single-point rubrics and suggested answers guide teachers in analyzing open-ended student work to determine whether students meet lesson objectives.

Suggestions for optional cross-curricular connections, extensions, and multiday projects give teachers additional ideas for integrating the lessons into their curricular needs. Each lesson package is designed to work as-is. Teachers know their students, subjects, and standards best. The inclusion of additional options gives teachers the flexibility and creativity to adapt the lessons to meet their classroom goals.

Assessment Guidelines

Grading structures and criteria vary across ages, grades, schools, and districts. Student growth, learning, and improvement is universal. The following rubrics, designed for adaptability and ease of use, highlight student progress and justify achievement that teachers can use to assess learning and assign grades.

Competencies

Students know themselves best. When it comes to setting goals for growth as well-rounded individuals, students' metacognition and reflection on the six Cs—compassion, critical thinking, communication, collaboration, computational thinking, and creativity—helps them understand areas for improvement. A holistic rubric guides teachers and students in assessing skills best understood though classroom conversation, journaling, and self-reflection. Teachers can use this optional rubric to gather evidence of student growth in each area of the six Cs.

Teacher-Facing Rubric: Competencies

Scale	Description
Beginning	No evidence of recognizing the competency, or a circular definition given *Ex. "I was a good communicator when I used my communication skills."*
Developing	Correctly identifies the competency and how it relates to the lesson *Ex. "I was a creative thinker when I thought of two different ways to solve the problem."*
Meeting	Identifies the competency, how the competency relates to the lesson, and how the competency was helpful *Ex. "I used computational thinking when I listed the steps to ask a trusted adult for help. I can use these steps if I have trouble later."*
Excelling	Identifies the competency, how it relates to the lesson, and how it was helpful, and articulates at least one goal for using the competency in the future *Ex. "I was a collaborator when my team worked together to write a script. I know how to listen and share my ideas as we work on projects. I know this will help our project be the best it can be. When I grow up, I know I will need to be a good collaborator to work well with other people.*

Student-Facing, Single-Point Rubric

Using a single-point rubric allows students to assess their own progress and set personal goals for improvement. Students can use it as a reflection tool or teachers can use it to provide detailed and specific feedback for students. Teachers may choose to use the "stars and wishes" format for younger students to provide feedback for improvement in a positive light. Older students may appreciate the straightforward approach of listing areas for improvement and areas of excellence.

Wishes Areas for improvement	**Goal** Lesson objective	**Stars** Areas of excellence
Comments:	Cybersecurity objective(s) for each lesson are listed here.	Comments:

Optional Project

Suggestions for optional unit projects for each strand include an interdisciplinary and cross-curricular approach. An analytic rubric follows the same four-point structure as the competencies rubric. This allows teachers and students to have a common structure to assess and understand progress. The analytic rubric allows teachers to assess multiple areas of understanding. Each project has specific criteria tied to the Cyber 7 strands as well as cross-curricular assessment areas.

Teachers can choose to use the whole rubric or modify it, choosing individual rows that support their own classroom goals and student needs.

Example Project Rubric

Criteria	Beginning	Developing	Meeting	Excelling
Safety Awareness	Does not indicate benefits or risks associated with social media use	Identifies a benefit or risk of social media use	Identifies both benefits and risks to social media use and the possible impact of social media on emotional and cognitive well-being	Weighs the benefits and risks of social media use and its impact on cognitive and emotional well-being Uses knowledge to develop personal boundaries for social media use
Technical/ Cybersecurity Skills	Does not indicate an understanding of how social media uses personal data for manipulation or commercialization	Identifies one way that social media uses personal data for manipulation or commercialization	Analyzes how social media uses personal data for manipulation or commercialization and the impact of following certain people or organizations on social media	Analyzes how social media uses personal data for manipulation or commercialization Understands the impact of following certain people or organizations on social media
Digital Resilience	Does not indicate steps to protect personal information while using social media	Identifies at least one way to protect personal information while using social media	Identifies and plans to apply strategies to protect personal well-being and personal information online while using social media	Identifies and shares strategies to protect personal well-being and personal information online while using social media Shares best practices and guidelines with others
Language Arts/ Literacy *Writing*	Limited written evidence of understanding Writing lacks examples Writing has grammatical and spelling errors	Some written examples that illustrate the topic No more than one grammatical or spelling error	Written examples contain appropriately complex sentence structure that fully illustrated all points Writing is free of grammar and spelling errors	Writing uses expression, voice, and tone to fully illustrate all points Writing keeps the audience in mind and is thorough enough to persuade or educate others Writing is free from errors
Language Arts/ Literacy *Speaking*	Speech is unprepared Audience eye contact is limited or nonexistent Volume is inappropriate, either too loud or too quiet Pacing makes speech unclear	Speech is prepared and shows an understanding of the topic Audience eye contact is limited Volume is inappropriate, either too loud or too quiet Pacing makes speech unclear	Speech is prepared and shows an understanding of the topic Audience eye contact, pacing, and volume is appropriate Reliance on notes or slides is limited	Speech is fully prepared Speaker fully engages audience with clarity and personality Appropriate pacing, eye contact, and volume that enhance the topic
Mathematics	No statistics or data used as evidence	Some research and use of data or statistics as evidence	At least one statistic is used as evidence Student cites where they found the statistic and relates it to a familiar population, such as classroom or school demographics	Multiple current statistics and data points are used as evidence Student relates this data to classroom, school, or community demographics though proportional comparisons, or by conducting their own surveys to corroborate data

Lesson Planning and Pacing Adjustment

The Security Awareness Curriculum is flexible. Teachers know their students and classroom needs best. While each lesson package can be used as-is, with limited teacher preparation, teachers can adjust the lesson planning and pacing. For example, videos are embedded in the slide decks and are available as separate files. Teachers might choose to project the included slides or move through the lesson using the slides as an outline. Journal pages are optional and can be used for reflection or as exit tickets. Ideas for cross-curricular connections and extensions are open-ended and ready for teachers to adjust to meet their standards and classroom goals.

Pacing

Each topic in the Cyber 7 strand—and each lesson within the strands—can stand alone. Designed to flexibly integrate into school and classroom schedules, the strands and lessons can be taught in any order. Suggestions for cross-curricular connections and six Cs competencies ensure that lessons fit into goals and objectives in a variety of academic subjects, homerooms, advisory periods, and more, giving schools options for including the Cyber 7 strands in their classrooms.

Lesson Plan: Minimum

Ideally, students will experience all the lessons for each of the Cyber 7 strands. Teachers will become knowledgeable and confident by reviewing background information. School days are busy, and rigorous academic schedules mean there is not always time to teach every lesson, every school year. Cornerstone lessons are highlighted to guide teachers in choosing which lessons to focus on in the event they must choose only some of the lessons. If it is not possible to implement the entire Security Awareness Curriculum, teachers are free to introduce any of the cybersecurity lessons that they can to their classes.

Each lesson should take approximately one 60-minute class period; however, no class is exactly like another. Teachers might choose to split the lesson, engaging students' prior knowledge and introducing new concepts in one session with the Connect and You Need to Know steps, then returning to the active learning, evaluation, and resilience sections—Be a Cybersecurity Hero, Evaluate, and Resilience—in the following class session(s). Others might extend the lesson over several days to include additional time for active learning, cross-curricular connections, or optional projects.

Each lesson package is designed so that teachers can lead the lesson by following the CYBER lesson plan, using the slides, showing the videos, and guiding students with printable handouts and activities. By viewing the slide deck and following the lesson steps "out-of-the-box," students will have an engaging learning experience and achieve lesson objectives. Teachers can implement the lessons in the way that is best for their students. Extensions, cross-curricular connections, and project ideas are all optional.

References

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[5] New Jersey Department of Education (2014-2015) Student Growth Objectives Developing and Using Practical Measures of Student Learning. Retrieved October 2023.

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