Competencies in Technology

by Grade Level

German International School New York

Table of Contents

1. Introduction

Today, our society is shaped to a large extent by the media. Digital media permeate and shape everyday life as a matter of course: work, information, education, communication, creativity, entertainment, and more are nowadays unimaginable without digital media. This ubiquity and accessibility of digital media also have a significant influence on the personality development of children and adolescents.

Successful use of digital media requires the development of appropriate skills. Therefore, it must also be a goal of the school to accompany and support students on this path through media education. This includes both learning with media and learning about media with the aim of triggering self-determined, critical, and reflective media knowledge on the part of the students.

In alignment with our mission statement, the use of technology is embedded into everyday learning processes across various subjects. For many children, this is a particularly motivating element. At the same time, technology opens a variety of ways to support children in their independent and self-directed learning and offers additional support opportunities. However, technology is always just one offer among many. Hands-on learning, creative processes, social experiences, etc. can be supplemented by an adequate use of technology, but not replaced.

To foster greater transparency, as well as support communication and collaboration across grade levels, we have aligned our IT competencies with the KMK "Education in the Digital World standards".

The following overview shows the KMK competencies as they are utilized at GISNY. In the lower school, the standards are integrated throughout the daily learning process. In the Upper School, the standards are embedded into each subject, the details of which can be found within each individual curriculum.

2. Overview of Competencies
Section A: Lower School Curriculum (Pre-K to 4th Grade)

Pre-Kindergarten:

In the Pre-Kindergarten, students are exposed to digital media and use them with teacher support:
- Zoom is used as a platform for Mystery Reader (connect with readers from international locations)
- With support, children use the iPads to take pictures of creations, nature, or art both indoors and outdoors.
- With support, children use iPad applications (such as book creator) to create stories from their artwork or creations.
- Teachers post these photos, as well as those of classroom activities to Classtag to foster a connection between home and school

KMK Standards addressed: 2.1.1, 5.2.1

Entry Stage and First Grade:
In the beginning stages of lower school, students:
- Use TING and TipToi-pens independently for bilingual dictionary books
- Begin interacting with the SmartBoard during class activities
  - Learning to use the Smart Board
  - Writing with the Smart Board Pens
  - Clicking and dragging icons
  - Watching educational videos
  - Viewing and interacting with Scholastic Magazine (English)
  - Playing interactive educational games
  - Using the board to view and demonstrate literacy and math skills
  - Viewing photos to recall events
- Create a safe environment around technological devices
- Begin using iPads and applications to support their access to the curriculum
- Access teachers 'online platforms with support
- Access Zoom with support
- Begin showing awareness of how to use digital devices health consciously

KMK Standards addressed:
2.3.1, 2.3.2, 2.4.1, 4.3.1, 4.3.2, 5.2.1, 5.4.1

Second Grade:

In the second grade, students at GISNY build on their previously acquired skills continue to build new skills. Students:

- Use several different types of technology with care, such as iPads and Chromebooks
- Use previously learned technology, such as iPads, independently
- Interact appropriately with the SmartBoard during class activities
- Begin to use approved websites to find specific information about topics
- Begin to secure and retrieve data
    - Save their own documents to a device or the cloud
    - Find and open previously saved documents
- Access and use the teachers 'online platforms with direction
- Access Zoom and utilize a variety of functions, just as screen sharing, with support
- Begin to take measures for data security, such as keeping passwords safe
- Continue to show growing awareness of the health-conscious use of digital devices

KMK Standards addressed:
1.1.2, 1.1.3, 1.3.1, 4.2.1, 4.2.2, 5.2.1

Third Grade:

In the third grade, students at GISNY build on their previously acquired skills continue to expand their understanding of technology. Students:

- Continue to appropriately interact with the SmartBoard during class activities
- Use previously learned technological devices, such as iPads and Chromebooks, independently and demonstrate basic operating skills and knowledge:
    - Turning device on/off
    - Adjust volume
    - Access, use, and close applications
    - Use touchpad (Chromebook)
- Use approved websites and applications to research and find specific information about topics
- Independently access and use teachers 'online platforms
- Access and utilize Zoom and its functions independently
    - With support, solve basic technological problems when using Zoom, such as loss of sound or camera
- Begin using presentation programs such as MS PowerPoint and Google Slide
- Begin using word processing programs such as MS Word and Google Docs
- Begin to practice safe internet use
- Continue to show growing awareness of the health-conscious use of digital devices

KMK Standards addressed:
1.1.1, 1.1.2, 1.1.3, 1.1.4, 1.3.1, 2.3.1, 2.3.2, 2.4.1, 3.1.1, 3.1.2, 3.2.1, 4.1.1, 4.1.2, 4.2, 4.3, 5.3.1, 6.1.3

Fourth Grade:

In the fourth grade, students at GISNY build on their previously acquired skills continue to expand on their independent use of technology. Students:

- Demonstrate basic operating skills and knowledge of previously learned technological devices through independent use
- Use a variety of technology and information strategies to
  - Conduct research using approved websites
  - Think critically about information
  - Effectively communicate findings
- Independently utilize word processing programs, such as MS Word and Google Docs
- Create independent and collaborative presentations using presentation programs such as MS PowerPoint or Google Slides
- Independently access and use teachers 'online platforms
- Independently access and troubleshoot Zoom
- Are introduced to and begin to use Microsoft Teams with teacher support
- Develop an understanding of safe internet practices, such as safe searching
- Continue to show growing awareness of the health-conscious use of digital devices

KMK Standards addressed:
1.1, 1.2, 2.4.1, 2.4.3, 3.1, 3.1.2, 3.2, 4.1, 4.2

2. Overview of competencies
Section B: Upper School Curriculum (5th grade to 12th grade)

Fifth Grade:

In fifth grade, students at GISNY build on their previously acquired skills from Lower School and attend a technology class, in addition to using technology within their subjects.

Some examples of how students use technology within their subjects:
- Conduct research for literature presentations
- Provide constructive criticism in Teams chat
- Use a shared document
- Take pictures of notes and homework and upload it
- Conduct an image search
- Respect the netiquette
- Learn about social media and e-mail programs
- Get to know search engines (for children)
- Get to know Word, Excel and Powerpoint

Additionally, students:
- Independently use Microsoft Teams
- Continue to develop an understanding of safe internet practices, such as safe searching
- Continue to show growing awareness of the health-conscious use of digital devices
- Learn our school technology rules and expectations, and sign a technology agreement stating their understanding and cooperation

KMK Standards addressed:
1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, 3.3, 4.3, 5.4, 6.2

Sixth Grade:

In sixth grade, students at GISNY build on their previously acquired skills continue to expand on their independent use of technology.

Some examples of how students use technology within their subjects:
- Use Teams, online dictionaries and textbooks and audio components
- Use apps for self-evaluation
- Present diagrams and parameters on spreadsheets
- Assess ads and product developments in the digital world
- Create Power Point Presentations
- Create an online blog
- 3D-Tour through Rome
- Summarize Information found online
- Conduct guided research connected to anchor text

Additionally, students:
- Independently use Microsoft Teams
- Continue to develop an understanding of safe internet practices, such as safe searching
- Continue to show growing awareness of the health-conscious use of digital devices
- Learn our school technology rules and expectations, and sign a technology agreement stating their understanding and cooperation

KMK Standards addressed:
1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 5.2, 5.4, 6.1, 6.2

Seventh Grade:

In seventh grade, students at GISNY build on their previously acquired skills continue to expand on their independent use of technology.

Some examples of how students use technology within their subjects:
- Prepare a PPT for independent book reviews
- Utilize digital graphic organizers for vocabulary comprehension
- Heuristic evidence with Geogebra and spreadsheets
- Create graphs and look-up tables in Excel
- Identify sources of error when using online dictionaries
- Use videos, songs, and websites for studying
- Use simulation software
- Exercise caution when sharing personal information online

Additionally, students:
- Independently use Microsoft Teams
- Continue to develop an understanding of safe internet practices, such as safe searching
- Continue to show growing awareness of the health-conscious use of digital devices
- Follow our school technology rules and expectations, and sign a technology agreement stating their understanding and cooperation

KMK Standards addressed:
1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 2.5, 3.1, 3.2, 3.3, 4.1, 4.2, 4.3, 5.2, 5.3, 5.4, 6.1

Eighth Grade:

In eighth grade, students at GISNY build on their previously acquired skills continue to expand on their independent use of technology.

Some examples of how students use technology within their subjects:
- Use of age-appropriate digital helping devices
- Critical contemplation of ones' own use of media
- Create flow charts
- Work together in shared documents
- Use of digital tools for experiments
- Simulation of technical processes
- Delegate group roles when working digitally
- Create an ad campaign using media
- Compare information found on Wikipedia with other sources
- Evaluate credibility of information found online

Additionally, students:
- Independently use Microsoft Teams
- Continue to develop an understanding of safe internet practices, such as safe searching
- Continue to show growing awareness of the health-conscious use of digital devices
- Follow our school technology rules and expectations, and sign a technology agreement stating their understanding and cooperation

KMK Standards addressed:
1.1, 1.2, 1.3, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 4.3, 4.4, 5.1, 5.2, 5.3, 5.4, 6.1, 6.2

Ninth Grade:

In ninth grade, students at GISNY build on their previously acquired skills continue to expand on their independent use of technology.

Some examples of how students use technology within their subjects:
- Use of Geogebra for self evaluation
- Use of simulation software
- Analyzing ads
- Analyzing data about climate change
- Use digital heart rate monitors
- Use Youtube for independent learning
- Design a multimedia report
- Cite digital sources correctly

Additionally, students:
- Independently use Microsoft Teams
- Continue to develop an understanding of safe internet practices, such as safe searching
- Continue to show growing awareness of the health-conscious use of digital devices
- Follow our school technology rules and expectations, and sign a technology agreement stating their understanding and cooperation

KMK Standards addressed:
1.1, 1.2, 1.3, 2.2, 2.3, 2.5, 3.1, 3.2, 3.3, 4.3, 5.1, 5.2, 5.4, 6.1, 6.2

Tenth Grade:

In tenth grade, students at GISNY build on their previously acquired skills continue to expand on their independent use of technology.

Some examples of how students use technology within their subjects:
- Information based writing
- Design and share a multimedia report
- Organize material in digital form in order to prepare for written examinations
- Use spreadsheets to evaluate and visualize data
- Listen to difficult reading material online
- Learn about the laws protecting online music
- Use podcasts as models to plan interviews
- Write resumes and job applications on the computer

Additionally, students:
- Independently use Microsoft Teams and various computer programs
- Continue to develop an understanding of safe internet practices, such as safe searching
- Continue to show growing awareness of the health-conscious use of digital devices
- Follow our school technology rules and expectations, and sign a technology agreement stating their understanding and cooperation

KMK Standards addressed:
1.1, 1.2, 1.3, 2.2, 2.3, 2.5, 3.1, 3.2, 3.3, 4.3, 4.4, 5.2, 5.3, 5.4, 6.1, 6.2

Eleventh and Twelfth Grades:

In eleventh and twelfth grade, students at GISNY build on their previously acquired skills continue to expand on their independent use of technology.

Some examples of how students use technology within their subjects:
- Multi Genre research project
- Cite online sources correctly
- Analysis and interpretation of online sources
- Use videos, podcasts, short films, and websites
- Critical analysis of YouTube videos
- Organize material in order to prepare for Abitur exams
- Critically assess EU data versus Fed data
- Create multimedia projects on the computer
- Use shared documents for group projects or shared notes for note taking and presentations
- Analyze the presentation of political debates in the media

Additionally, students:
- Independently use Microsoft Teams and various computer programs
- Have a strong understanding of safe internet practices
- Show awareness of the health-conscious use of digital devices and multimedia
- Follow our school technology rules and expectations, and sign a technology agreement stating their understanding and cooperation
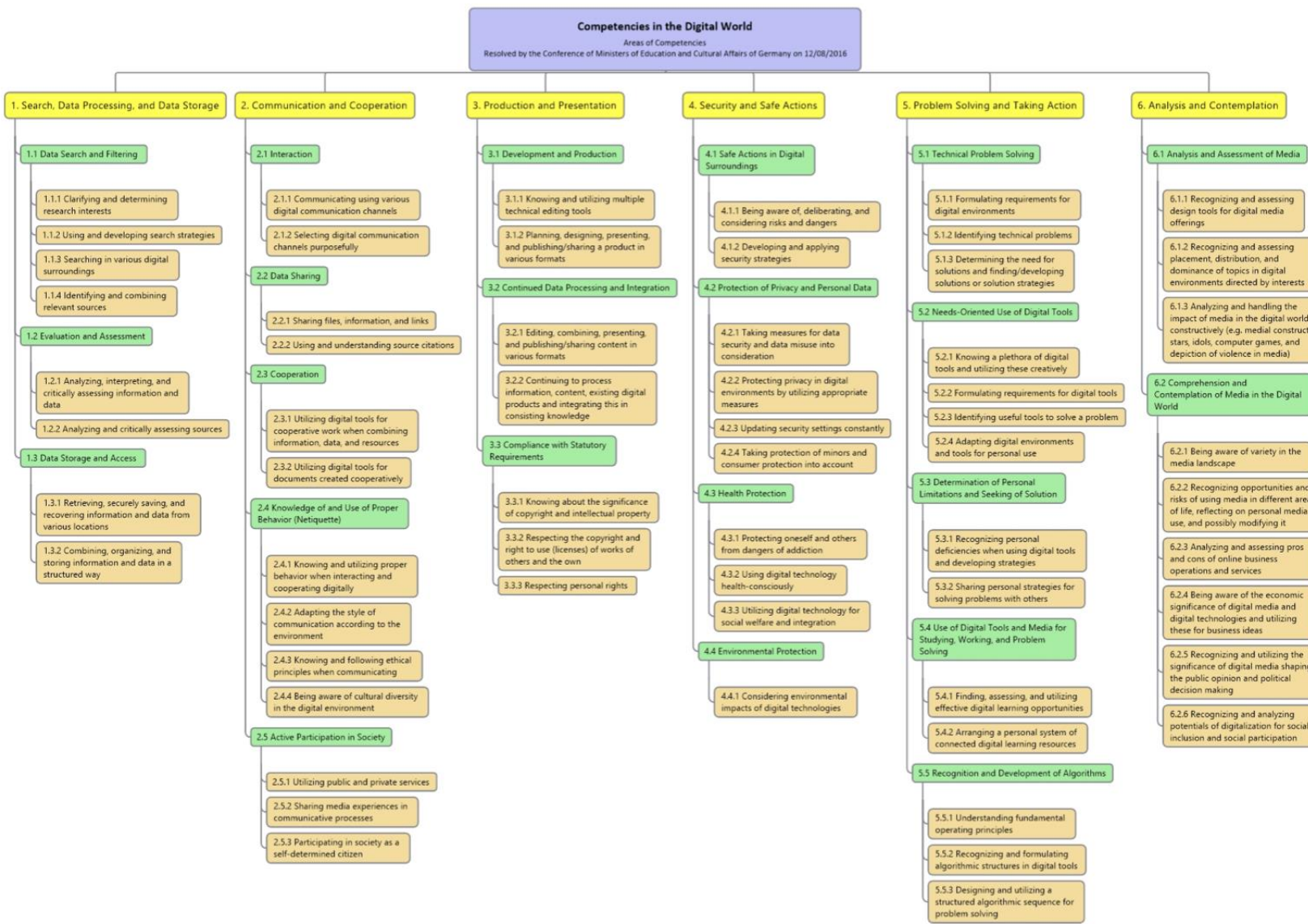
KMK Standards addressed:
1.1, 1.2, 1.3, 2.2, 2.3, 2.5, 3.1, 3.2, 3.3, 4.2, 4.4, 5.1, 5.2, 5.3, 5.4, 5.5, 6.1, 6.2

3. Review and updates

The IT competencies are reviewed and updated by the responsible departments.

Any changes will be communicated to the Technology group, who will in-turn update this overview.

4. Appendix

Competencies in the Digital World
Areas of Competencies
Resolved by the Conference of Ministers of Education and Cultural Affairs of Germany on 12/08/2016

1. Search, Data Processing, and Data Storage

1.1 Data Search and Filtering
- 1.1.1 Clarifying and determining research interests
- 1.1.2 Using and developing search strategies
- 1.1.3 Searching in various digital surroundings
- 1.1.4 Identifying and combining relevant sources

1.2 Evaluation and Assessment
- 1.2.1 Analyzing, interpreting, and critically assessing information and data
- 1.2.2 Analyzing and critically assessing sources

1.3 Data Storage and Access
- 1.3.1 Retrieving, securely saving, and recovering information and data from various locations
- 1.3.2 Combining, organizing, and storing information and data in a structured way

2. Communication and Cooperation

2.1 Interaction
- 2.1.1 Communicating using various digital communication channels
- 2.1.2 Selecting digital communication channels purposefully

2.2 Data Sharing
- 2.2.1 Sharing files, information, and links
- 2.2.2 Using and understanding source citations

2.3 Cooperation
- 2.3.1 Utilizing digital tools for cooperative work when combining information, data, and resources
- 2.3.2 Utilizing digital tools for documents created cooperatively

2.4 Knowledge of and Use of Proper Behavior (Netiquette)
- 2.4.1 Knowing and utilizing proper behavior when interacting and cooperating digitally
- 2.4.2 Adapting the style of communication according to the environment
- 2.4.3 Knowing and following ethical principles when communicating
- 2.4.4 Being aware of cultural diversity in the digital environment

2.5 Active Participation in Society
- 2.5.1 Utilizing public and private services
- 2.5.2 Sharing media experiences in communicative processes
- 2.5.3 Participating in society as a self-determined citizen

3. Production and Presentation

3.1 Development and Production
- 3.1.1 Knowing and utilizing multiple technical editing tools
- 3.1.2 Planning, designing, presenting, and publishing/sharing a product in various formats

3.2 Continued Data Processing and Integration
- 3.2.1 Editing, combining, presenting, and publishing/sharing content in various formats
- 3.2.2 Continuing to process information, content, existing digital products and integrating this in consisting knowledge

3.3 Compliance with Statutory Requirements
- 3.3.1 Knowing about the significance of copyright and intellectual property
- 3.3.2 Respecting the copyright and right to use (licenses) of works of others and the own
- 3.3.3 Respecting personal rights

4. Security and Safe Actions

4.1 Safe Actions in Digital Surroundings
- 4.1.1 Being aware of, deliberating, and considering risks and dangers
- 4.1.2 Developing and applying security strategies

4.2 Protection of Privacy and Personal Data
- 4.2.1 Taking measures for data security and data misuse into consideration
- 4.2.2 Protecting privacy in digital environments by utilizing appropriate measures
- 4.2.3 Updating security settings constantly
- 4.2.4 Taking protection of minors and consumer protection into account

4.3 Health Protection
- 4.3.1 Protecting oneself and others from dangers of addiction
- 4.3.2 Using digital technology health-consciously
- 4.3.3 Utilizing digital technology for social welfare and integration

4.4 Environmental Protection
- 4.4.1 Considering environmental impacts of digital technologies

5. Problem Solving and Taking Action

5.1 Technical Problem Solving
- 5.1.1 Formulating requirements for digital environments
- 5.1.2 Identifying technical problems
- 5.1.3 Determining the need for solutions and finding/developing solutions or solution strategies

5.2 Needs-Oriented Use of Digital Tools
- 5.2.1 Knowing a plethora of digital tools and utilizing these creatively
- 5.2.2 Formulating requirements for digital tools
- 5.2.3 Identifying useful tools to solve a problem
- 5.2.4 Adapting digital environments and tools for personal use

5.3 Determination of Personal Limitations and Seeking of Solution
- 5.3.1 Recognizing personal deficiencies when using digital tools and developing strategies
- 5.3.2 Sharing personal strategies for solving problems with others

5.4 Use of Digital Tools and Media for Studying, Working, and Problem Solving
- 5.4.1 Finding, assessing, and utilizing effective digital learning opportunities
- 5.4.2 Arranging a personal system of connected digital learning resources

5.5 Recognition and Development of Algorithms
- 5.5.1 Understanding fundamental operating principles
- 5.5.2 Recognizing and formulating algorithmic structures in digital tools
- 5.5.3 Designing and utilizing a structured algorithmic sequence for problem solving

6. Analysis and Contemplation

6.1 Analysis and Assessment of Media
- 6.1.1 Recognizing and assessing design tools for digital media offerings
- 6.1.2 Recognizing and assessing placement, distribution, and dominance of topics in digital environments directed by interests
- 6.1.3 Analyzing and handling the impact of media in the digital world constructively (e.g. medial construct, stars, idols, computer games, and depiction of violence in media)

6.2 Comprehension and Contemplation of Media in the Digital World
- 6.2.1 Being aware of variety in the media landscape
- 6.2.2 Recognizing opportunities and risks of using media in different areas of life, reflecting on personal media use, and possibly modifying it
- 6.2.3 Analyzing and assessing pros and cons of online business operations and services
- 6.2.4 Being aware of the economic significance of digital media and digital technologies and utilizing these for business ideas
- 6.2.5 Recognizing and utilizing the significance of digital media shaping the public opinion and political decision making
- 6.2.6 Recognizing and analyzing potentials of digitalization for social inclusion and social participation

Appendix A: KMK Competencies in the Digital World