Seattle Digital Equity Initiative

# Digital skill sets for diverse users

*A comparison framework for curriculum and competencies*

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## ABSTRACT

The City of Seattle's Digital Equity Initiative provides a roadmap to reach the City of Seattle's vision to become a more digitally equitable city, where technology's opportunities equitably empower all residents and communities. The City, in partnership with TASCHA, developed a set of Digital Equity Indicators that helps measure Seattle's progress in meeting the initiative's goals. Building upon this work, TASCHA and the City developed a set of recommended digital skills and assessments that meet the goals outlined in the indicator framework. The City will use the results to inform its digital equity program and investments and assist training providers in their program planning and delivery. The created framework and recommendations contribute to digital equity research resources for partners to use for policy, design, and curriculum development.

## 130-CHARACTER SUMMARY

According to digital literacy frameworks and curricula, what digital skills do people need to learn to participate in today's world?

## KEYWORDS

Digital equity, digital skills, curriculum, frameworks

## RECOMMENDED CITATION

## ABOUT THE AUTHORS

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## ACKNOWLEDGEMENTS

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## TECHNOLOGY & SOCIAL CHANGE GROUP (TASCHA)

The Technology & Social Change Group (TASCHA) at the UW Information School explores the role of digital technologies in building more open, inclusive, and equitable societies. We are a center for multidisciplinary research, currently focusing on data equity, essential skills for digital life, women and technology, civic engagement, new geographies of knowledge, and public libraries. We are particularly interested in people and places that face social, economic, and political barriers. TASCHA is an applied research center that advances knowledge and creates public resources for improving policy and practice. In particular, we co-create research programs with organizations and donors committed to achieving positive social change. Our work has helped international organizations, governments, foundations, civil society organizations, and public libraries in the United States and more than 50 countries.

## CITY OF SEATTLE INFORMATION TECHNOLOGY DEPARTMENT

The City of Seattle Information Technology Department (Seattle IT) delivers powerful information solutions for the City and the public we serve. As Seattle strives to become a safe, affordable, vibrant, innovative and connected City, the need for effective technology solutions is critical. Seattle IT supports City departments in the pursuit of this mission by connecting people with their government, ensuring an effective and productive workforce, and building a digitally equitable community.

## CONTACT

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# Introduction

Digital skills are now well recognized as key to participating in society. However, among many policy makers, educators, nonprofit practitioners, and individuals, it is still unclear exactly which digital skills are important to learn and nurture. Additionally, it is difficult to stay on top of constantly changing technology and trends. The City of Seattle, a national leader in digital equity work, has implemented a Digital Equity Initiative to provide a roadmap to reach the city's vision of becoming a more digitally equitable city, "where technology's opportunities equitably empower all residents and communities – especially those who are historically underserved or underrepresented."[1]

The City, in partnership with Technology and Social Change Group (TASCHA), developed a set of Digital Equity Indicators that helps measure Seattle's progress in meeting the initiative's goals. Building upon this work, the City asked TASCHA to examine digital skill frameworks and curricula to help answer the following questions:

- What digital skills do existing frameworks and curricula cover?
- What digital skills should the City and partners recommend to digital skill instructors to teach and promote?
- Do these resources have corresponding assessments to help assess individuals' digital skill abilities?

In this report, we select popular digital literacy frameworks and curricula, identify what skills exist in these resources, and create a framework to compare these resources. While designing the project, we made a deliberate decision for this review not to be an exhaustive examination of all digital literacy frameworks and curricula. We sought to understand the scope of a sample of popular resources aimed primarily at adults or high school students. In Appendix A and B, we provide detailed overviews of each of the 15 digital literacy resources examined in this report.[2]  The City will use the results to inform its digital equity program and investments and assist training providers in their program planning and delivery. We also aimed to create a reference document for local and national partners to use for policy, design, and curriculum development.

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[1] City of Seattle, "Digital Equity," http://www.seattle.gov/tech/initiatives/digital-equity

[2] All information and links were accurate as of January 2019.

# Approach

To answer the questions posed by the city, we followed a multi-step process:

1. Identified digital literacy frameworks and curricula for our analysis
2. Identified skills covered by the chosen resources and classified the skills into descriptive categories
3. Analyzed skills coverage across frameworks and curricula

TASCHA worked with the City of Seattle to identify what digital literacy frameworks and curricula to examine. We wanted to study sources from popular, well-known organizations but also looked for promising resources from lesser-known organizations. We focused on comprehensive frameworks and curricula that covered a more holistic range of digital literacy competencies for adults and high-school students. However, we also selected a few narrowly focused yet well-known projects as points of comparison. We also wanted to ensure we chose only recently updated resources to reflect up-to-date digital skills. In the end, we examined six digital literacy frameworks and nine digital literacy curricula. The following sections give brief introductions to each resource reviewed.

## Frameworks

A digital literacy framework is an organized conceptualization digital literacy skills and competencies[3]. Some frameworks offer learning benchmarks for an entire population while others focus on distinct populations or purposes such as job-seeking adults or school-aged youth. Most frameworks do not offer associated curriculum. The framework instead serves can serve a guide for what skills and competencies a curriculum should cover. Government and civil organizations adopt a framework as a way to categorize dimensions of digital literacy to guide policy or curriculum development. The following is a brief overview of each of the examined frameworks. See Appendix A for a comprehensive overview of each framework.

- **Essential Skills Framework**
  - The United Kingdom (UK) Department of Education's Essential Digital Skills Framework is designed to support adults in enhancing their digital skills with "foundational skills" at the core, surrounded by five "Essential Digital Skills:" communicating, handling information & content, transacting, problem solving, and being safe & legal online.[4]
- **DigComp 2.1**
  - DigComp 2.1 is a digital competency framework that guides European Union (EU) digital literacy initiatives.[5] The framework is organized into five digital competency areas: information and data literacy, communication and collaboration, digital content creation, safety, and problem solving.
- **International Computer Driving License**

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[3] Anusca Ferrari, "Digital Competence in Practice: An Analysis of Frameworks," (2012), doi:10.2791/82116, http://ftp.jrc.es/EURdoc/JRC68116.pdf, 21

[4] Department for Education, "Essential Digital Skills Framework," (2018), https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/738922/Essential_digital_skills_framework.pdf, 3

[5] EU Science Hub, "Overview," https://ec.europa.eu/jrc/en/knowledge, (October 20, 2018)

- o The International Computer Driver's License (ICDL) is an internationally recognized computer skills certification offer in certified testing centers.[6] Modules focus on workplace digital literacy skills and are separated into Basic, Standard, and Advanced. Our analysis only includes skills from the Basic and Standard Modules. The Advanced Modules dive into higher-level skills needed for Office Productivity Software.
- International Society for Technology in Education (ISTE)
  - o International Society for Technology in Education (ISTE) Student Standards, intended for grade 4 - 12 curriculum use, categorizes skills into "roles:" empowered learner; digital citizen; knowledge constructor; innovative designer; computational thinker; creative communicator; global collaborator. Washington State K-12 Educational Technology Standards are based on ISTE standards.[7]
- Mozilla Web Literacy
  - o Mozilla's framework divides web literacy into three competencies: read, write, and participate. Each foundational competency has a set of associated web literacy skills and 21st Century leadership skills. Mozilla also hosts a curriculum aligned with their framework.
- Northstar Assessment
  - o Northstar Digital Literacy Assessment defines what basic skills people need to use the computer and get online for work and everyday life. Northstar breaks the standards into three categories: Essential Computer Skills, Essential Software Skills, and Using Technology in Daily Life.[8] Northstar provides a free, online assessment tool and works with approved testing centers to provide proctored assessments and certificates.[9]

# Curricula

Many different in-person and online outlets offer some type of digital skills learning. To narrow the analysis, we selected curriculum that a technology lab could use as part of or entirely for their own coursework. We did not consider MOOCs or similar resources designed for students to take independently. Additionally, we sought curriculum that had a sequence or modules to guide teachers and learners. We did not include giant repositories of lessons or "how-tos" without corresponding resources for instructors. See Appendix B for a comprehensive overview of each curriculum.

- Compass Digital Skills
  - o Compass is "a free and interactive learning platform, co-financed by the European Commission" targeted at job-seeking youth and young adults and based on DigComp.[10] Skills are divided into five competencies: Information and Data Literacy, Communication and Collaboration, Digital Content Creation, Safety, and Problem Solving.
- Digital Learn
  - o Created and hosted by the Public Library Association (PLA), Digital Learn is a series of self-directed tutorials for people to increase their digital skills. However, the lessons are designed to

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[6] ICDL USA, "Our Values," http://icdlusa.org/values

[7] Washington State Learning Standards, "Educational Technology Learning Standards," (May 2018), http://www.k12.wa.us/EdTech/Standards/pubdocs/K-12-EdTech-Standards-Complete-2018.pdf, 7

[8] Northstar, "About the Assessments," https://www.digitalliteracyassessment.org/assessment-info

[9] Northstar, "About Northstar," https://www.digitalliteracyassessment.org/about

[10] Compass Digital Skills, "About the Project," https://www.compassdigitalskills.eu/public-page/view/about-project

integrate into classroom led instruction. Modules include video-based narration with PDF transcriptions.[11]

- GCF Teacher Guide
    - GCF Learn Free has expansive lessons on technology, basic skills, and career development. To narrow the focus for the skills comparison, our analysis focused on the GCF Teacher Guides for Technology and Microsoft Office. These lesson guides were developed specifically for technology instructors wanting to use GCF in their own classrooms.
- Google Applied Digital Skills
    - Google Applied Digital skills is Google product-focused video curriculum targeted at middle school students to adults. Lessons designed for use in schools are aligned to Washington state ISTE-aligned educational standards.[12] Each ½ - full day lesson is broken down into shorter, videos covering specific tasks.
- Learn My Way
    - Good Things Foundation in the UK operates Learn My Way for use in the Online Centres Network but anyone can access lessons online.[13] Modules involve written subject-specific text, with the option to have it read aloud, and interactive activities to practice skills.
- Literacy Source
    - Literacy Source, a Seattle-based non-profit, integrates digital literacy lessons into their in-person adult basic education, citizenship, and English as a Second Language (ESL) classes. Literacy Source teaches participants to use Google cloud-based products such as Gmail and Google Drive. The curriculum is not available online.
- Microsoft Imagine Academy
    - The Washington State Library offers Microsoft Imagine Academy for free for Washington State residents. The lessons and certifications cover "industry-recognized Microsoft skills standards and certifications" (Microsoft Office Suite.[14] The Academy also offers additional certifications on more advanced specific technology topics such as coding for Python and Network Fundamentals but are out of scope in this analysis.
- Mozilla Web Literacy - Core Curriculum
    - Mozilla's Core Web Literacy Curriculum offers group in-person lessons using a combination of offline and online activities aligned with Mozilla's Web Literacy Framework.[15] Users are encouraged adapt and share their "remixes" with other educators.
- Seattle Goodwill
    - Seattle Goodwill offers in-person technology classes aimed at people looking to improve the skills for work. Lessons start with keyboarding and basic computer/internet and then move into classes focused on Microsoft Office products. Goodwill's curriculum is not available online.

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[11] Public Library Association, "About DigitalLearn.org," https://digitallearn.org/cms_pages/about-digitallearn-org

[12] ISTE, "Google Applied Digital Skills," http://www.iste.org/standards/seal-of-alignment/google-applied-digital-skills

[13] Learn My Way, "About Us," https://www.learnmyway.com/about-us.html

[14] WA Secretary of State, "Washington State Library Microsoft Imagine Academy," https://www.sos.wa.gov/library/libraries/projects/ita/content.aspx?a=1

[15] Mozilla, https://foundation.mozilla.org/en/opportunity/web-literacy/core-curriculum/

# Categorizing skills

In order to compare skills, we started an inventory of skills covered in the frameworks and curricula. In our review, we did not distinguish between competencies, "the combination of knowledge, skills, and attitudes," [16] and skills, "the ability to use a specific tool and/or application."[17]  To simply our discussion, we refer to both as a "skill."

Additionally, we tried to strike a balance between very specific and more general description of skills. For example, we identified a skill as "Basic mouse functionality." Within this one skill, there are many more specific, distinct skills such as using the left button versus the right button etc. However, we tried not to get too granular and instead focus on the skill a person ultimately needs.

To identify skills covered by a resource, we worked through each framework and curriculum's official documentation. The documentation available for this work varied by resource. For some non-copyrighted resources such as Mozilla, DigComp, and Digital Learn, all materials were available online. However, for some proprietary resources such as ICDL, an outline of the modules was accessible but the curriculum and certification tests are only available after paying for access. Our process simply identifies whether or not a skill exists. We did not evaluate the effectiveness of the learning approach.

As we identified the skills covered in each framework or curriculum, we created categories to understand what types of skills were covered. This also enabled us more easily compare the frameworks and curriculum to each other. We ended up with the following 10 categories:

- **Communication**: Exchanging information with others on digital platforms using various strategies to collaborate, share, and communicate.
- **Creation**: Engaging in digital spaces to design, create, and revise content online.
- **Device ownership**: Practices that support device longevity, including physical care, protective software, and using technical support.
- **Gateway skills**: Foundational skills required to use a device and participate online.
- **Information skills**: Skills to apply, evaluate, and manage information across digital and physical environments.
- **Lifelong learning**: Engagement in self-assessment of digital skills. Using self-reflection to tailor accessible digital environments and continue digital skills learning.
- **Mobile**: Understanding basic functions of a mobile device to communicate and access goods and services.
- **Online life**: Access to online resources that support digitalization of daily tasks and socialization within a broader digital community.
- **Privacy and Security**: Maintenance of practices to secure digital identity, recognize threats, and understand the broader safety implications of working in a digital environment.
- **Workplace**: Advancing workplace success and professionalism through engagement with an organization's online tools and other supportive digital systems.

At first, we had an additional "Education" category that focused on the skills that high school students need for college and career. However, during our analysis we discovered that these skills overlapped with other categories such as "information skills" and "workplace." Instead, we marked which skills would also apply to education, which we have noted later in our analysis.

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[16] Mirijam Neelen & Pual A. Kirschner, "21st Century Skills Don't Exist. So Why Do We Need Them," (November 1, 2016), https://3starlearningexperiences.wordpress.com/2016/11/01/21st-century-skills-dont-exist-so-why-do-we-need-them/

[17] Anusca Ferrari, "Digital Competence in Practice: An Analysis of Frameworks," (2012), http://ftp.jrc.es/EURdoc/JRC68116.pdf

Across the six frameworks and nine curricula, we tallied 74 skills across the 10 skill categories. The following table and bar chart show the breakdown of skills across the categories.

*Table 1: Number of skills in each category*

| Skill category | Count of Skills |
|---|---|
| Communication | 8 |
| Creation | 8 |
| Device ownership | 4 |
| Gateway skills | 11 |
| Info skills | 7 |
| Lifelong learning | 3 |
| Mobile | 6 |
| Online life | 11 |
| Privacy & Security | 7 |
| Workplace | 9 |
| **Grand Total** | **74** |

*Figure 1: Number of skills in each category*



Number of identified skills vary by category type
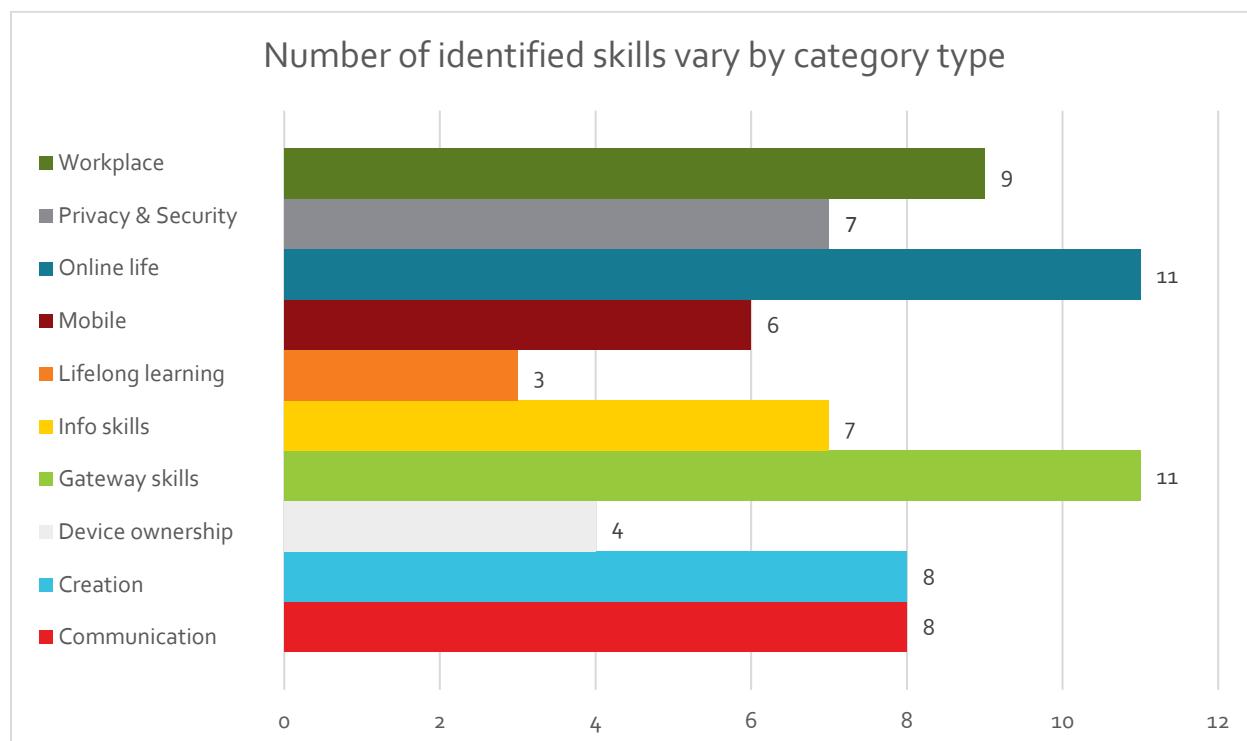
The categories with the most skills were Online Life (11) and Gateway (11). The categories with the fewest skills were Lifelong learning (3), Device Ownership (4), and Mobile (6).

# Identified skills

The following is a list of all of the identified skills. Skills cross-coded as "education" marked with (E).

- Communication
  1. Awareness and adaptation of communication strategies to meet behavioral norms and respect user diversity (Netiquette) (E)
  2. Digital collaboration (E)
  3. Make Internet-based voice and video calls (using Skype, FaceTime etc.)
  4. Post messages and media on social media
  5. Understand and identify the purposes of different social media platforms and online communities
  6. Understand and set privacy settings on social media (E)
  7. Understanding ways to share information with others (E)
  8. Use a messaging app to communicate with others (WhatsApp, Messenger)
- Creation
  1. Beginning coding/programming (understanding concepts, writing basic code)
  2. Computational thinking
  3. Creating a new digital content based on existing digital material
  4. Design
  5. Increasing the amount of open content through creation, advocacy etc.
  6. Multimedia production
  7. Revising digital content to improve processes and product
  8. Website creation basics - simple pages, HTML, WordPress (E)
- Device ownership (E)
  1. Device basics (purchasing, disposal, recycling)
  2. Finding technical support
  3. Protect devices by managing risks & threats in a digital environment by applying safety & security measures
  4. Troubleshooting more complex technical problems
- Gateway skills: Essential foundations (E)
  1. Accessibility tools on device
  2. Basic internet searching
  3. Basic mouse functionality
  4. Browser skills [e.g. address bar, web navigation, favorites/bookmarks, forward/back, etc.]
  5. Password basics: creation, safe storage, resetting
  6. Sending and receiving an email including using attachments
  7. Set up an email account
  8. Understand how to protect privacy when using shared devices and public Internet (signing out of accounts, clearing search history, etc.)
  9. Understand if my computer is connected to the Internet/Wi-Fi and how to connect/disconnect
  10. Understanding computer and peripheral components; basic troubleshooting; using an OS
  11. Understanding what the internet and web are
- Information skills (E)
  1. Apply info [synthesize understanding and knowledge, draw conclusions]
  2. Awareness and value of traditional info tools and "people networks" to supplement and support use of online tools
  3. Evaluate info [credibility, compare]
  4. Identify info needs and competence/knowledge gaps
  5. Info search strategies [including search and browse skills]
  6. Manage info [e.g. organize and store it in a reasonable manner, use agents and filters]
  7. Understand that search engines use algorithms to display results

- Lifelong learning (E)
    1. Access and use of educational resources
    2. Adaptability [e.g. open to learning new tech, reapply/build on tech experiences]
    3. Self-reflection/lifelong learning
- Mobile
    1. Buy goods or services using an app
    2. Differences between Wi-Fi and cellular data (E)
    3. Manage money and transactions securely via an app ( bank)
    4. Mobile basics (basic functions, OS, layout etc.) (E)
    5. Privacy and security - mobile specific (E)
    6. Using mobile devices for online collaboration (E)
- Online life
    1. Access and use of social & consumer services (housing, child care, health/mental health, consumer/legal)
    2. Accessing community resources (Gov't, Neighborhood groups, Schools, Libraries) (E)
    3. Awareness of technology's impact (environment, society) (E)
    4. Buy goods or services through a website
    5. Copyright/open source (E)
    6. Engaging in civic life/ participating in society online (E)
    7. Finance (online banking, credit search and protection)
    8. Legally access entertainment such as videos, books, and games
    9. Transportation (E)
    10. Use local and cloud storage to manage information and access content from different devices (E)
    11. Use website help features to help solve problems (E)
- Privacy & Security
    1. Awareness of permanence of actions in digital environments (E)
    2. ID secure websites and transactions (E)
    3. Managing digital identity reputation & data creation (tools and behaviors to limit tracking)
    4. Online safety for kids
    5. Protect health & well-being; awareness of social inclusion technologies; managing interpersonal risks & threats in a digital environment (cyberbullying) (E)
    6. Recognize and avoid suspicious links and downloads (phishing, online scams) (E)
    7. Understand how a "privacy policy" informs the use of personal data (E)
- Workplace
    1. Employment search skills: resume, job search & applying (E)
    2. Follow workplace IT & social media policies and security rules (E)
    3. How to manage a project using computer/online tools
    4. Understand, identify, and choose appropriate digital tools for work (E)
    5. Understanding and using databases
    6. Use an online or PC-based presentation software to present information to others (E)
    7. Use an online or PC-based word processor to create a document (E)
    8. Use online or PC-based spreadsheet software to manipulate or analyze data (E)
    9. Using professional online networks and communities

# Skill comparison

Next, we wanted to see how the different skills and categories broke down across the frameworks and curricula. This gave us an overview of the contents of each resource. See Appendix C for a table that compares the number of skills by category across all frameworks and curricula. The skills comparison is not meant as an evaluation tool but only to help us understand the breadth of skills covered by the different resources.

## Frameworks

As shown in Figure 2, the frameworks covering the most skills were DigComp (38 skills) and Essential Digital Skills (37 skills). However, the focus of these two frameworks is quite different. DigComp has skills in nine out of ten of the skill categories (zero in mobile), and Essential Digital Skills only covers seven of the categories (zero in creation and lifelong learning). Although DigComp is ultimately more comprehensive, Essential Digital Skills covers more of the Gateway skills and targeted at more beginning users. The other frameworks cover roughly the same number of total skills (27- 31) but focus on distinct sets of skills.

*Figure 2: Number of skills in each category by framework*



Types of skills covers varies by framework

Legend:
- Communication (red)
- Creation (light blue)
- Device ownership (light gray)
- Gateway skills: Essential foundations (green)
- Info skills (yellow)
- Lifelong learning (orange)
- Mobile (dark red)
- Online life (teal)
- Privacy & Security (dark gray)
- Workplace (dark green)
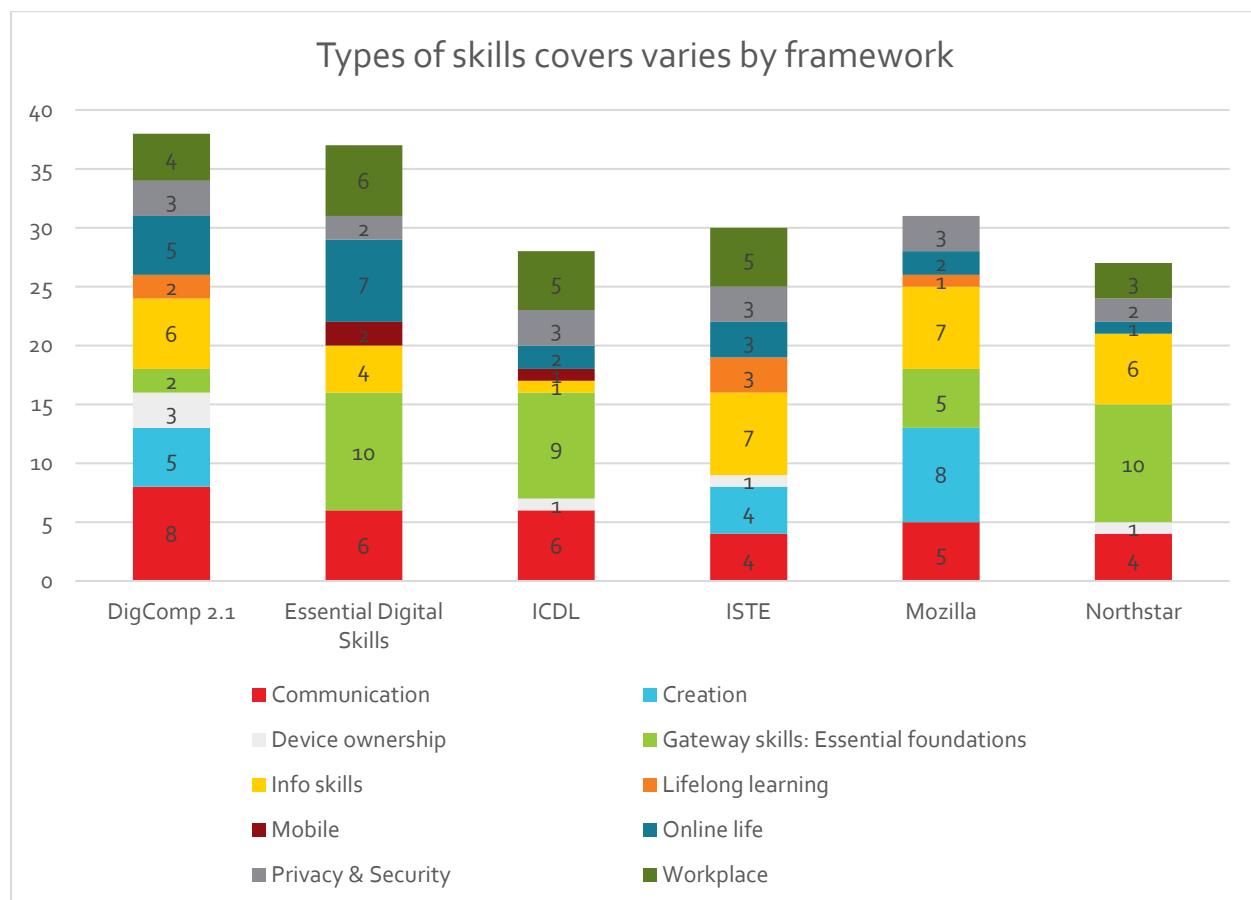
The following provides a brief description of the skills covered by each framework.

**DigComp 2.1**
DigComp 2.1's digital competency framework is the most evenly distributed across digital skill areas in comparison to other frameworks. It demonstrates strengths in the areas of communication and information literacy skills. As proficiency grows in these two domains, DigComp 2.1 relies on workplace specific skills to demonstrate increased proficiency in these areas. Despite its more holistic approach to digital skills, DigComp 2.1 weakly addresses mobile-specific skills and gateway/foundational skills.

**Essential Digital Skills Framework**
The Essential Digital Skills Framework is a foundational skill oriented framework, acutely focused on getting adults online with basic digital skills. The framework defines specific actions (i.e. turning on a device) that will support more complex digital skills. This focus leaves the framework surprisingly lacking in related areas of device ownership and creation which may not immediately meet the short-term goal of getting online

**International Computer Driver's License**
The International Computer Driver's License focuses on rudimentary tasks of using the computer in the workplace. The skills set is quite narrow, comprising of foundational and communication skills, with a number of workplace applications. More complex skills (creation) and topics (information literacy) are underrepresented.

**ISTE**
ISTE's Standards for Students is grounded in the assumption that every student has experienced digital life in some way. ISTE avoids prescribing any particular skill including the foundational, in lieu of aspirational roles which describe cognitive approaches to digital literacy. In our comparative matrix, Standards for Students scores weakly in foundational skills, mobile use, device ownership, and online life. It scores strongest in information literacy and workplace skills.

**Mozilla**
Mozilla's web literacy framework revolves around the value of open sourced digital information. Mozilla places high value on creation and information skills. Although its core curriculum does support foundational learning, skill sets which stray from creating, reworking, and interpreting open sourced content are generally ignored. This includes device ownership, mobile specific, and workplace skills.

**Northstar**
Northstar Assessment focuses on gateway skills to give new computer users the skills they need to operate the machine and get online. Targeted at adult basic education students and job seekers, the rest of the assessment focuses on Microsoft Office Suite, social media, and information skills.

# Curricula

Figure 3 shows that the curricula cover fewer overall skills but tend to focus more deeply on Gateway skills. The comparison is not meant as a critique. For the purposes of a provider's curriculum, more skills coverage does not always mean a better curriculum.  Digital Learn, GCF Teacher Guides, Literacy Source, and Goodwill cover half or more of Gateway skills. Learn My Way covers all 11. Microsoft Imagine Academy and Seattle Goodwill extensively cover Microsoft Office Products and thus have less of a focus on the other skill categories.

*Figure 3 Number of skills in each category by curriculum*
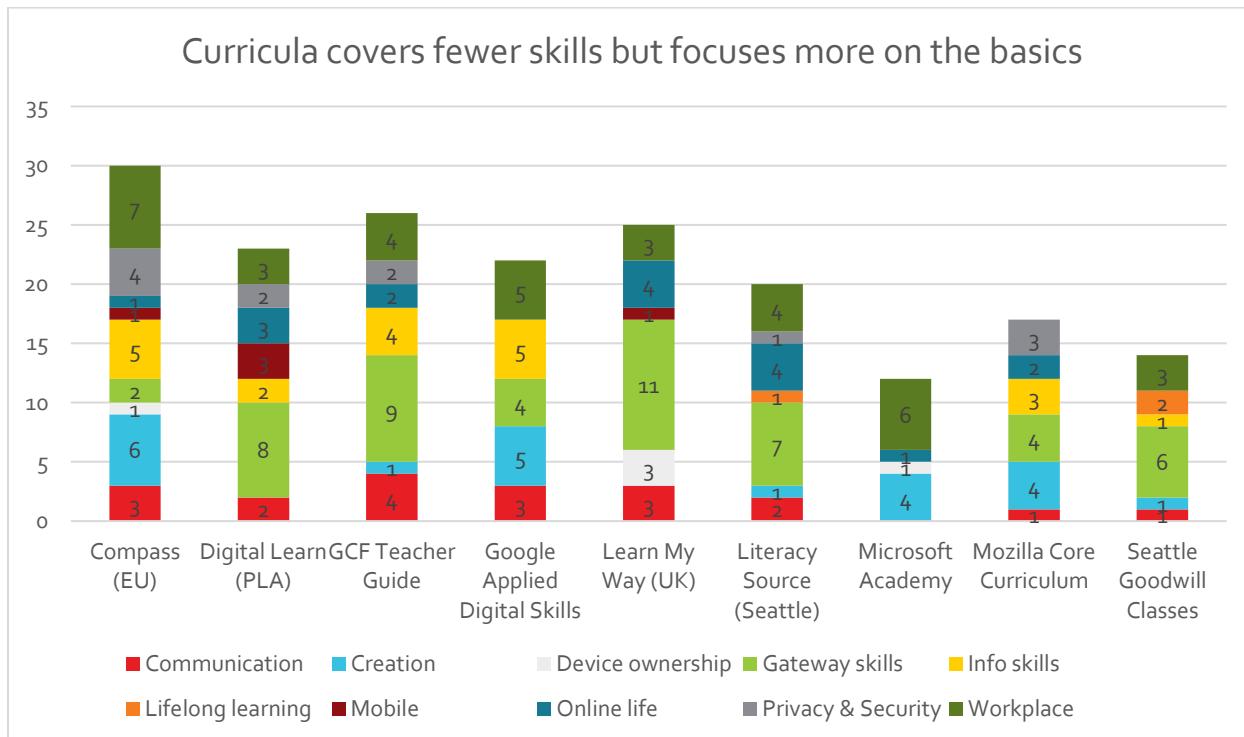


The following provides a brief description of the skills covered by each curriculum.

**Compass Digital Skills**
Compass is heavily grounded in the areas of workplace, information skills, and creation. It largely ignores the areas of online life, lifelong learning, and gateway skills.

**Digital Learn**
The majority of Digital Lean's lessons focus on foundational skills with additional modules covering popular topics such as safety and Microsoft Office. Digital Learn does feature some uncommon topics such as access and using online health information and using a mobile device (Android).

**GCF Learn Free**
GCF Teacher Guides have a relatively narrow focus - mainly on gateway skills and communication, information skills, and workplace. GCF's additional lessons are more expansive and cover topics like mobiles and 3D printing.

**Google Applied Digital Skills**
Google's skills focus almost solely on Workplace, Creation, and Information Skills. Some communication skills like digital collaboration that are used within Google Apps are also covered. Google provides a non-interactive PDF that lists the foundational skills needed before starting the modules.

**Learn My Way**
Created for adults in the UK, Learn My Way is most appropriate for individuals new to digital environments. Their curriculum is comprised of predominantly gateway skills. The curriculum builds on those skills to support the user for successful interactions with UK specific tools, like government run utilities. These skills are somewhat represented in the content categories of workplace, communication, and online life. It largely ignores all other content categories.

**Microsoft Imagine Academy**
Microsoft Imagine Academy focuses on workplace and creation skills specific to Microsoft Office Suite services.

**Mozilla Core Curriculum**
Mozilla's Web Literacy Core Curriculum covers the same type of skills outlined in the Web Literacy framework. However, due to the more narrow lessons, not all skills are covered. Mozilla does offer lessons outside the core framework that cover all of the framework's skills.

**Seattle Goodwill**
Seattle Goodwill's curriculum focuses almost exclusively gateway and workplace skills.

# Comparing skills

After assessing the coverage of skill categories by the frameworks and curricula, we continued our analysis to examine specific skills. Table 2 shows what skills appear in at least half of the frameworks (three or more) and at least half of the curricula (four or more).[18] Cells that are colored purple mark that the skills appears in at least half of the frameworks or curricula.

*Table 2: Skills in more than half of the frameworks or curricula*

| Skills | # of Framework | # of Curriculum |
|---|---|---|
| **Communication** | | |
| Awareness and adaptation of communication strategies to meet behavioral norms and respect user diversity (Netiquette) | 5 | 1 |
| Digital collaboration | 5 | 4 |
| Make Internet-based voice and video calls (using Skype, FaceTime etc.) | 3 | 2 |
| Post messages and media on social media | 5 | 2 |
| Understand and identify the purposes of different social media platforms and online communities | 4 | 2 |
| Understand and set privacy settings on social media | 5 | 4 |
| Understanding ways to share information with others | 4 | 3 |
| Use a messaging app to communicate with others (WhatsApp, Messenger) | 2 | 1 |
| **Creation** | | |
| Beginning coding/programming (understanding concepts, writing basic code) | 2 | 4 |
| Computational thinking | 3 | 1 |
| Creating a new digital content based on existing digital material | 3 | 3 |
| Design | 1 | 4 |
| Increasing the amount of open content through creation, advocacy etc. | 1 | 0 |
| Multimedia production | 2 | 5 |
| Revising digital content to improve processes and product | 3 | 2 |
| Website creation basics - simple pages, HTML, WordPress | 2 | 3 |
| **Device ownership** | | |
| Device basics (purchasing, disposal, recycling) | 1 | 1 |

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[18] Since the Microsoft Imagine Academy covered such a narrow range of skills, we decided four would be our cut off for "half" of nine curricula.

| Skills | # of Framework | # of Curriculum |
|---|---|---|
| Finding technical support | 1 | 2 |
| Protect devices by managing risks & threats by applying safety & security measures (anti-malware software, avoiding possible attacks) | 2 | 2 |
| Troubleshooting more complex technical problems | 2 | 0 |
| **Gateway skills: Essential foundations** | | |
| Accessibility tools on device | 4 | 1 |
| Basic internet searching | 4 | 8 |
| Basic mouse functionality | 1 | 5 |
| Browser skills [e.g. address bar, web navigation, favorites/bookmarks, forward/back, etc.] | 4 | 7 |
| Password basics: creation, safe storage, resetting | 3 | 6 |
| Sending and receiving an email including using attachments | 3 | 6 |
| Set up an email account | 3 | 6 |
| Understand how to protect privacy when using shared devices and public Internet (signing out of accounts, clearing search history, etc.) | 4 | 3 |
| Understand if my computer is connected to the Internet/Wi-Fi and how to connect/disconnect | 3 | 1 |
| Understanding computer and peripheral components; basic troubleshooting; using an OS | 3 | 5 |
| Understanding what the internet and web are | 4 | 3 |
| **Information skills** | | |
| Apply info [synthesize understanding and knowledge, draw conclusions] | 4 | 3 |
| Awareness and value of traditional info tools and "people networks" to supplement and support use of online tools | 4 | 0 |
| Evaluate info [credibility, compare] | 6 | 4 |
| Identify info needs and competence/knowledge gaps | 5 | 5 |
| Info search strategies [including search and browse skills] | 5 | 4 |
| Manage info [e.g. organize and store it in a reasonable manner, use agents and filters] | 5 | 3 |
| Understand that search engines use algorithms to display results | 2 | 1 |
| **Lifelong learning** | | |
| Access and use of educational resources | 1 | 2 |
| Adaptability [e.g. open to learning new tech, reapply/build on tech experiences] | 2 | 0 |
| Self-reflection/lifelong learning | 3 | 1 |
| **Mobile** | | |
| Buy goods or services using an app | 1 | 0 |
| Differences between Wi-Fi and cellular data | 0 | 1 |
| Manage money and transactions securely via an app (e.g. bank) | 1 | 1 |
| Mobile basics (basic functions, OS, layout etc.) | 0 | 1 |
| Privacy and security - mobile specific | 0 | 2 |
| Using mobile devices for online collaboration | 1 | 0 |
| **Online life** | | |

| Skills | # of Framework | # of Curriculum |
|---|---|---|
| Access and use of social & consumer services (housing, child care, health/mental health, consumer/legal) | 1 | 2 |
| Accessing community resources (Gov't, Neighborhood groups, Schools, Libraries) | 1 | 2 |
| Awareness of technology's impact (environment, society) | 3 | 0 |
| Buy goods or services through a website | 1 | 2 |
| Copyright/open source | 4 | 2 |
| Engaging in civic life/ participating in society online | 2 | 0 |
| Finance (online banking, credit search and protection) | 1 | 2 |
| Legally access entertainment such as videos, books, and games | 1 | 1 |
| Transportation | 0 | 2 |
| Use local and cloud storage to manage information and access content from different devices | 4 | 3 |
| Use website help features to help solve problems | 2 | 1 |
| **Privacy & Security** | | |
| Awareness of permanence of actions in digital environments | 1 | 1 |
| ID secure websites and transactions | 4 | 4 |
| Managing digital identity reputation & data creation (tools and behaviors to limit tracking) | 4 | 2 |
| Online safety for kids | 0 | 1 |
| Protect health & well-being; awareness of social inclusion technologies; managing interpersonal risks & threats in a digital environment (cyberbullying) | 2 | 0 |
| Recognize and avoid suspicious links and downloads (phishing, online scams) | 4 | 2 |
| Understand how a "privacy policy" informs the use of personal data | 1 | 2 |
| **Workplace** | | |
| Employment search skills: resume, online forms for job applications, job search & applying | 1 | 6 |
| Follow workplace IT & social media policies and security rules | 1 | 1 |
| How to manage a project using computer/online tools | 2 | 3 |
| Understand, identify, and choose appropriate digital tools for work | 2 | 3 |
| Understanding and using databases | 2 | 1 |
| Use an online or PC-based presentation software to present information to others | 5 | 6 |
| Use an online or PC-based word processor to create a document | 4 | 8 |
| Use online or PC-based spreadsheet software to manipulate or analyze data | 5 | 6 |
| Using professional online networks and communities | 1 | 1 |

As shown by the table, frameworks well covered Communication, Gateway and Information skills. Due to the fact that the curricula focused on a more narrow range of skills, the only category curricula covered more extensively was Workplace. Both frameworks and curricula covered Device ownership and Online life poorly. Only a few frameworks or curricula covered these skills at all.

# Assessments

During our analysis, we also looked for what assessments existed for the resources we identified. Table 3 documents the assessment type and availability. The table also shows that more than half the resources do not have any type of assessment. The assessments that are available vary widely in the format accessibility. See the respective framework or curriculum overview in the Appendix for more details on the assessments available.

*Table 3: Assessments available by resource*

| | Assessments | Type | Availability |
|---|---|---|---|
| **Framework** | | | |
| DIGCOMP | No official assessments, but other organizations have created based on the framework. | Multiple choice test; self-assessment | Free online |
| Essential Digital Skills | NA | | |
| ICDL | Official certification | In-person paid exam | Only at certified testing center |
| ISTE | No official assessment. Organizations that base their standards on ISTE (example: Google or state education boards) may host an exam. | | |
| Mozilla | NA | | |
| Northstar | Official certification | Multiple choice test | Free online (non-official) test or official test taken at certified location |
| **Curriculum** | | | |
| Compass | Skill assessment taken at the beginning and end of the online modules | Multiple choice test | Free online |
| Digital Learn | NA | | |
| GCF Teacher Guides | NA | | |
| Google Digital Skills | G Suite certification exam | Multiple choice and performance based | Paid exam (online or in-person) |
| Learn My Way | NA | | |
| Literacy Source | Skills checklist | Instructor rates student's ability to complete the skill | In-class |
| Microsoft | Microsoft Office Specialist (MOS) | Online test | Free online for WA residents. Otherwise, paid. |
| Mozilla Core | NA | | |
| Seattle Goodwill | NA | | |

# Recommendations

## Skills recommendations

After examining the skills frequency across all of skill categories, we created a list of recommended skills. We included skills that were included in at least half of the frameworks or curricula. However, as our analysis uncovered, some skill categories were uncovered, such as Mobile and Device ownership. Since we see these skills as essential to today's online participation, we included them in our list. Lastly, since the "Life-long learning" category had so few skills, we folded them into "Online Life."

- **Communication**
  1. Awareness and adaptation of communication strategies to meet behavioral norms and respect user diversity (Netiquette)
  2. Digital collaboration
  3. Make Internet-based voice and video calls (using Skype, FaceTime etc.)
  4. Post messages and media on social media
  5. Understand and identify the purposes of different social media platforms and online communities
  6. Understand and set privacy settings on social media
  7. Understanding ways to share information with others
- **Creation**
  1. Beginning coding/programming (understanding concepts, writing basic code)
  2. Creating a new digital content based on existing digital material
  3. Design
  4. Multimedia production
  5. Website creation basics - simple pages, HTML, WordPress
- **Device ownership**
  1. Device basics (purchasing, disposal, recycling)
  2. Finding technical support
  3. Protect devices by managing risks & threats by applying safety & security measures (anti-malware software, avoiding possible attacks)
  4. Troubleshooting more complex technical problems
- **Gateway skills: Essential foundations**
  1. Accessibility tools on device
  2. Basic internet searching
  3. Basic mouse functionality
  4. Browser skills [e.g. address bar, web navigation, favorites/bookmarks, forward/back, etc.]
  5. Password basics: creation, safe storage, resetting
  6. Sending and receiving an email including using attachments
  7. Set up an email account
  8. Understand how to protect privacy when using shared devices and public Internet (signing out of accounts, clearing search history, etc.)
  9. Understand if my computer is connected to the Internet/Wi-Fi and how to connect/disconnect
  10. Understanding computer and peripheral components; basic troubleshooting; using an OS
  11. Understanding what the internet and web are
- **Information skills**
  1. Apply info [synthesize understanding and knowledge, draw conclusions]

2. Awareness and value of traditional info tools and "people networks" to supplement and support use of online tools
3. Evaluate info [credibility, compare]
4. Identify info needs and competence/knowledge gaps
5. Info search strategies [including search and browse skills]
6. Manage info [e.g. organize and store it in a reasonable manner, use agents and filters]
7. Understand that search engines use algorithms to display results

- **Mobile**
    1. Buy goods or services using an app
    2. Differences between Wi-Fi and cellular data
    3. Manage money and transactions securely via an app (e.g. bank)
    4. Mobile basics (basic functions, OS, layout etc.)
    5. Privacy and security - mobile specific
- **Online life**
    1. Access and use of educational resources
    2. Access and use of social & consumer services (housing, child care, health/mental health, consumer/legal)
    3. Accessing community resources (Gov't, Neighborhood groups, Schools, Libraries)
    4. Awareness of technology's impact (environment, society)
    5. Buy goods or services through a website
    6. Copyright/open source
    7. Engaging in civic life/ participating in society online
    8. Finance (online banking, credit search and protection)
    9. Legally access entertainment such as videos, books, and games
    10. Transportation
    11. Use local and cloud storage to manage information and access content from different devices
    12. Use website help features to help solve problems
- **Privacy & Security**
    1. ID secure websites and transactions
    2. Protect health & well-being; awareness of social inclusion technologies; managing interpersonal risks & threats in a digital environment (cyberbullying)
    3. Recognize and avoid suspicious links and downloads (phishing, online scams)
    4. Understand how a "privacy policy" informs the use of personal data
- **Workplace**
    o Employment search skills: resume, online forms for job applications, job search & applying
    o Understand, identify, and choose appropriate digital tools for work
    o Use an online or PC-based presentation software to present information to others
    o Use an online or PC-based word processor to create a document
    o Use online or PC-based spreadsheet software to manipulate or analyze data

## Skill groupings

Our next step was to break down the skills by different audiences. The City of Seattle asked TASCHA to create a list of recommended skills for the following groups:

- Gateway (beginner users)
- Life skills (post-Gateway)
- Job skills (skills for employment)
- Education (skills for high-school students to prepare for college and career)
- Parents

Using the skill categories, we created a list of skills for each group:

**Gateway skills**

In addition to the Gateway skills category, we added a few mobile-specific gateway skills.

- Gateway skills
- "Mobile gateway"
  - Mobile basics (basic functions, OS, layout etc.)
  - Differences between Wi-Fi and cellular data
  - Privacy and security - mobile specific

**Life skills**

- Communication
- Information Skills
- Mobile
- Online life
- Privacy & Security

**Jobs (skills for employment)**

- Communication
- Privacy & Security
- Workplace

**Education skills**

- Communication
  1. Awareness and adaptation of communication strategies to meet behavioral norms and respect user diversity (Netiquette)
  2. Digital collaboration
  3. Understand and set privacy settings on social media
  4. Understanding ways to share information with others
- Creation
  1. Website creation basics - simple pages, HTML, WordPress
- Device ownership
  1. Protect devices by managing risks & threats by applying safety & security measures (anti-malware software, avoiding possible attacks)
  2. Troubleshooting more complex technical problems
- Info skills
  1. Apply info [synthesize understanding and knowledge, draw conclusions]
  2. Awareness and value of traditional info tools and "people networks" to supplement and support use of online tools
  3. Evaluate info [credibility, compare]
  4. Identify info needs and competence/knowledge gaps
  5. Info search strategies [including search and browse skills]
  6. Manage info [e.g. organize and store it in a reasonable manner, use agents and filters]
  7. Understand that search engines use algorithms to display results
- Mobile
  1. Differences between Wi-Fi and cellular data
  2. Mobile basics (basic functions, OS, layout etc.)
  3. Privacy and security - mobile specific
  4. Using mobile devices for online collaboration
- Online life
  1. Accessing community resources (Gov't, Neighborhood groups, Schools, Libraries)
  2. Awareness of technology's impact (environment, society)
  3. Copyright/open source

4. Engaging in civic life/ participating in society online
5. Transportation
6. Use local and cloud storage to manage information and access content from different devices
7. Use website help features to help solve problems
8. Access and use of educational resources
- Privacy & Security
    1. Awareness of permanence of actions in digital environments
    2. ID secure websites and transactions
    3. Managing digital identity reputation & data creation (tools and behaviors to limit tracking)
    4. Recognize and avoid suspicious links and downloads (phishing, online scams)
    5. Understand how a "privacy policy" informs the use of personal data
- Workplace
    1. Employment search skills: resume, online forms for job applications, job search & applying
    2. Follow workplace IT & social media policies and security rules
    3. How to manage a project using computer/online tools
    4. Understand, identify, and choose appropriate digital tools for work
    5. Use an online or PC-based presentation software to present information to others
    6. Use an online or PC-based word processor to create a document
    7. Use online or PC-based spreadsheet software to manipulate or analyze data
    8. Using professional online networks and communities

**Parents**

For parents, we created an additional category titled "Parent-specific skills." In this category, we added two skills not present in our list – "family screen time strategies" and "school-specific interactive tools (such as The Source)."

- Communication
- Device Ownership
- Information Skills
- Mobile
- Online Life
- Privacy & Security
- Parent-specific skills
    o Online safety for kids
    o *Family screen time strategies*
    o *School-specific interactive tools*


OTHER SUGGESTED AUDIENCE CATEGORIES

In addition to the categories suggested by the City of Seattle, we identified two additional audience groups:

**Senior citizens**
- Communication
- Device Ownership
- Information Skills
- Mobile
- Privacy & Security

**Mobile-based** (individuals that exclusively or almost exclusively use the Internet on a mobile phone)
- Communication
- Information Skills
- Mobile
- Privacy & Security

# Assessment recommendations

Our review of digital literacy resources revealed an overall lack of available assessments. Digital literacy training providers that want to assess their students' skills should evaluate the trade-offs across the assessments uncovered in our analysis. Additionally, our investigation did not test the accuracy or the usability of available assessments.

Four of assessments (ICDL, Compass, Google, and Microsoft) are tied to a particular curriculum and only make sense for a provider in conjunction with that curriculum. By far, Northstar Assessment is the easiest to access and addresses almost all of the Gateway skills and has a good coverage of other skill categories. The free, online assessment does not provide any official certification, but an organization has the potential to become a certified testing center. Northstar could be paired with an organizations' own curriculum and official. Official Northstar curriculum is currently under development.

# Future Work

As Seattle moves to its next phase of work on the Digital Equity Initiative and others work to develop skills training and assessment, we recommend a series of short-term and longer-term work to build upon and use our findings.

### Short-term

As a first step, TASCHA and the City should find opportunities to disseminate the outputs to inform program development and funding. One example of outreach is to present to the Seattle Digital Equity Network. Although a new community, this network of training providers and local government officials can provide feedback and ultimately build upon the findings. Additionally, the researchers should look for other dissemination opportunities that reach training providers, funders, government planners, and curriculum and program developers.

Next, the City and others in the broader digital equity community should look for opportunities to use and apply the results. A few options include

- **Create a worksheet for organizations to assess their current curriculum**: An organization providing digital skills training could compare their curriculum with the comparison framework to help them identify potential skills to add. The skill categories could give the provider additional language to describe the skills covered by their training for marketing and funding purposes. The provider may also identify skills they teach that are not currently listed in the framework. Identifying missing skills in this way could help grow and improve the comparison framework.
- **Apply the skills competencies to different audience groups:** Further work should be done to refine the skill recommendations for different audience groups. One way to do this is to create personas for different audience groups. Creating a persona that describes their technology needs can help communicate the skill categories and be used with organizations and communities to test the accuracy of the recommendations. Audience groups could be expanded from a more population-focused orientation such as "high school student" to particular life activities such as "transit rider."

### Longer-term

Longer-term work to build upon the comparison framework can be adopted by the greater digital equity community including researchers, practitioners, and governments.

- **Updating the framework**: One of the biggest challenges to skills frameworks is keeping the skills current and addressing emergent skills. Technology changes rapidly and not only do new skills emerge but skills

previously considered "cutting edge" become needed by broader audiences. If the digital equity community finds the skills recommendations valuable, then a plan should be created for updating the skills list on a regular, consistent basis through a combination of professional review and crowdsource suggestions. This includes publishing the skills frameworks in a method that will allow others to use and modify and add to the skills competencies comparison.

- **Develop training to fill skill gaps:** The skills matrix uncovered a lack of curriculum coverage of some skill categories such as Mobile and Safety & Privacy. Additionally, it is unclear if the skills covered in Information Skills adequately prepare individuals for current online misinformation threats. Other more basic skills also go uncovered such as saving documents (locally and to the cloud). A practitioner could potentially use the comparison matrix as evidence for further curriculum development to potential funders.

- **Develop more assessment resources for digital literacy practitioners and individuals**: Our review shows the lack of comprehensive skill assessments explicitly tied to curriculum and frameworks. Developing an assessment based on a framework with an accompanying curriculum with wide skills coverage would provide a valuable resource to digital equity community.

- **Use the comparison framework to evaluate online government services:** As government online services continue to grow, online service providers can use the skill categories and skills list as a way to evaluate their designs and their audiences' capacity to use the service. For example, while creating an app for city service payment, the developer can track the number of skills needed to successfully submit a payment and adjust to better support residents will a lower number of skills.

- **Expand digital skill research areas**: The scope of the digital skill subject areas could expand to cover more of K-12, STEM, workforce technology training, and small business and entrepreneurship.

# Appendix A Frameworks[19]

## Dig Comp 2.1

### Overview/map

The DigComp Framework has 5 dimensions:

- Dimension 1: Competence areas identified to be part of digital competence
- Dimension 2: Competence descriptors and titles that are pertinent to each area
- Dimension 3: Proficiency levels for each competence
- Dimension 4: Knowledge, skills and attitudes applicable to each competence
- Dimension 5: Examples of use, on the applicability of the competence to different purposes[20]

### Competencies and/or skills

**Competency Areas**

1. Competence area 1: Information and data literacy
   a. Browsing, searching, filtering data, information and digital content
   b. Evaluating data, information and digital content
   c. Managing data, information and digital content
2. Competence area 2: Communication and collaboration
   a. Interacting through digital technologies
   b. Sharing through digital technologies
   c. Engaging in citizenship through digital technologies
   d. Collaborating through digital technologies
   e. Netiquette
   f. Managing digital identity
3. Competence area 3: Digital content creation
   a. Developing digital content
   b. Integrating and re-elaborating digital content
   c. Copyright and licenses
   d. Programming
4. Competence area 4: Safety
   a. Protecting devices
   b. Protecting personal data and privacy
   c. Protecting health and well-being
   d. Protecting the environment
5. Competence area 5: Problem solving

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[19] Categories and layout adapted from Ferrari, A. (2012). *Digital Competence in Practice: An Analysis of Frameworks.* European Commission Joint Research Center Institute for Prospective Technological Studies: Seville, Spain; Law, N., Woo, D., de la Torre, J., & Wong, G. (2018). *A Global Framework of Reference on Digital Literacy Skills for Indicator 4.4.2.* UNESCO Institute for Statistics: Montreal, Quebec.

[20] Carretero, S. Vuorikari, R. and Punie, Y. (2017). *DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use*, 10, EUR 28558 EN, doi:10.2760/38842, (2017).

      a. Solving technical problems
      b. Identifying needs and technological responses
      c. Creatively using digital technologies
      d. Identifying digital competence gaps

## Mobile specific competencies or skills

None.

## Proficiency levels

<u>Foundation</u>
1. Simple tasks with guidance
2. Simple tasks, autonomous and with guidance when needed

<u>Intermediate</u>
3. Well-defined and routine tasks, and straightforward problems on my own
4. Tasks, and well-defined and non-routine problems; independent and according to my needs

<u>Advanced</u>
5. Different tasks and problems; guiding others
6. Most appropriate tasks; able to adapt to others in a complex context

<u>Highly specialized</u>
7. Resolve complex problems with limited solutions; integrate to contribute to the professional practice and to guide others
8. Resolve complex problems with many interacting factors; propose new ideas and processes to the field

| Proficiency level descriptors | | | | |
|---|---|---|---|---|
| **Proficiency levels** | | **Complexity of Task** | **Autonomy** | **Cognitive Domain** |
| **1.0** (earlier version of framework) | **2.1** (current version) | | | |
| Foundation | 1 | Simple tasks | With guidance | Remember |
| | 2 | | Autonomy, guidance as needed | |
| Intermediate | 3 | Well-defined, routine tasks & straightforward problems | On my own | Understand |
| | 4 | Well-defined tasks & non-routine problems | Independent | |
| Advanced | 5 | Different tasks & problems | Guiding others | Apply |

| Proficiency level descriptors | | | | |
|---|---|---|---|---|
| | 6 | Most appropriate tasks | Able to adapt in complex context | Evaluate |
| Highly specialized | 7 | Resolve complex problems with limited solutions | Integrate to contribute to professional practice | Create |
| | 8 | Resolve complex problems with many interacting factors | Propose new ideas to the field | |

[21]

## Assessments

No official assessments have been developed but several countries and organizations have developed their own assessment tools based on DigComp. Unfortunately, many of these tools are in languages other than English and/or tied to specific training programs. Descriptions of all known assessment tools (as of May 2018) can be found in *DigComp into Action*.  Below are more details on the open English-language assessment tools.
- Compass Digital Skills: https://www.compassdigitalskills.eu/
  - Offers a free, online test and rates users in three competence areas: communication and collaboration, digital content creation, and safety. Target audience is un/underemployed youth.[22]
- Digital Competency Wheel (Denmark): https://digital-competence.eu/
  - Offers a free, online self-assessment. Users self-assess their own knowledge in 54 different competencies on a scale of 1 – 7.[23]

## Institution

The EU Science Hub & Joint Research Centre (JRC). Funded by the EU, JRC employs scientists to carry out research in order to provide independent scientific advice and support to EU policy."[24]

## Brief description

DigComp 2.1 is a digital competency framework. It was a collaborative effort, designed by the EU's knowledge and competency centers, which include EU Science Hub and JRC[25]. Each of the framework's competency area is divided into proficiency levels and sub divided into task complexity, autonomy, and cognitive domain. These capture the "knowledge, skills and attitudes applicable to each competence"[26] and support the provided examples.

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[21] Carretero, S.; Vuorikari, R. and Punie, Y. (2017). *DigComp 2.1: The Digital Competence Framework for Citizens with eight proficiency levels and examples of use*, 11-13, EUR 28558 EN, doi:10.2760/38842, (2017).

[22] European Commission, "DigComp into Action: Get Inspired Make it Happen" http://publications.jrc.ec.europa.eu/repository/bitstream/JRC110624/dc_guide_may18.pdf, 96

[23] European Commission, "DigComp into Action: Get Inspired Make it Happen," 106

[24] European Commision, "Joint Research Centre," https://ec.europa.eu/info/departments/joint-research-centre_en.

[25] EU Science Hub, "Overview," https://ec.europa.eu/jrc/en/knowledge, (October 20, 2018).

[26] EU Science Hub, "The Digital Competence Framework 2.0" https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework, (April 20, 2017).

## Webpage
https://ec.europa.eu/jrc/en/digcomp/digital-competence-framework

## Type of initiative
Supporting framework for the European Commission & Member States to guide digital literacy and inclusion initiatives through implementation and policy design. It is meant for use at all levels: EU, national, and local.

## Objective
The initial effort aimed "to provide evidence-based policy support to the European Commission and the Member States on harnessing the potential of digital technologies to innovate education and training practices, improve access to lifelong learning and to deal with the rise of new (digital) skills and competences needed for employment, personal development and social inclusion."[27]

## Type of organization
Government

## Literacy focus
DigComp 2.1's digital competency framework is most evenly distributed across digital skill areas in comparison to other frameworks. It demonstrates strengths in the areas of communication and information literacy skills. As proficiency grows in these two domains, DigComp 2.1 relies on workplace specific skills to demonstrate increased proficiency in these areas. Despite its more holistic approach to digital skills, DigComp 2.1 weakly addresses mobile-specific skills, gateway/foundational skills, and lifelong learning.

## Target audience
All adults in European Commission & Member States

## Supporting materials
- DigComp 2.1 User Guide
- Gallery of Implementations
- Translated into 28 languages

## Timeline
2005: JRC conduct "research on Learning and Skills for the Digital Era"[28] for policy support
2006: 2006 European Recommendation on Key Competences determines digital competence as one of the 8 key competences for lifelong learning
December 2010: JRS begins framework "on behalf of the Directorate General for Education and Culture"[29]
2011: Mapping digital competence
2013: DigComp 1.0 published as a reference for strategic & developmental planning of EU digital initiatives
June 2016: DigComp 2.0 released, updated model with examples of use at EU, national, and local levels.
2017: DigComp 2.1, expanded proficiency levels & provided examples at each level

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[27] EU Science Hub, "The Digital Competence Framework 2.0" (April 20, 2017).
[28] EU Science Hub, "The Digital Competence Framework 2.0" (April 20, 2017).
[29] EU Science Hub, "DigComp Project Background," https://ec.europa.eu/jrc/en/digcomp/project-background, (June 23, 2017).

## Implementation locations

The [Gallery of Implementations](#) includes a list of 30 case studies and list of 20 tools associated with DigComp across the EU Member States.

## Copyright restrictions

Reuse with attribution[30]

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[30] EU Science Hub, "The Digital Competence Framework 2.0" (April 20, 2017).

# Essential Digital Skills Framework

## Overview/map
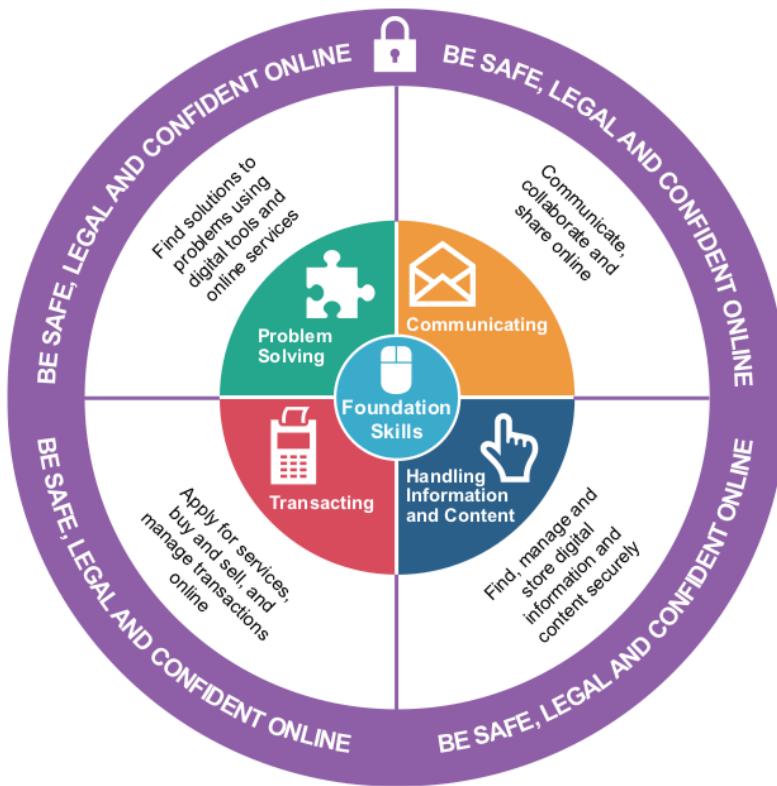


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## Competencies and/or skills

All categories except foundational skills broken into "skills for life" and "additional skills for work."

- Foundational Skills
- Five categories of Essential Digital Skills
    - Communicating: Communicate collaborate & share
    - Handling information and content: Find, manage, store digital information and content securely
    - Transacting: Register and apply for services, buy and sell goods and services, and administer and manage transactions online
    - Problem solving: Find solutions of problems using digital tools and online services
- Additional layer encompassing all the other skills:
- Being safe and legal online: Stay safe, legal, and confident online

## Mobile specific competencies or skills

**Communicating:** set up a group on messaging platforms, such as WhatsApp or Messenger, to talk to friends or family members; set up and use video-phone products such as FaceTime or Skype for video communications with

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31 UK Department of Education, *Essential Digital Skills Framework*, 2.

friends and family

**Handling information & content:** can synchronize and share information across different devices including computers, tablets and mobile phones; Manage a calendar or appointments system on multiple devices, including work computer and phone or tablet

Other skills include language that applies to mobile apps, as well as other web devices.

### Proficiency levels

Although many of the skills build upon one another, there is no intentional progression or ranking of skill complexity.

### Assessments

Formally, none. However, the Lloyds Bank Consumer Digital Index, a basic digital and financial skills survey of UK residents, used an earlier version of framework to create a "Basic Digital Skills" measure. During a face-to-face interview, if a person said they could do at least one of the tasks in the following categories, they were considered as having "basic digital skills:[32]"

Managing Information

- Use a search engine to look for information online
- Find a website I have visited before
- Download/save a photo I found online

Communicating

- Send a personal message via email or online messaging service
- Carefully make comments and share information online

Transacting

- Buy items or services from a website
- Buy and install apps on a device

Problem solving

- Verify sources of information I found online
- Solve a problem with a device/digital service using online help

Creating

- Complete online application forms which include personal details
- Create something new from existing online images, music or video

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[32] Lloyds Bank, *UK Consumer Digital Index 2018*, https://www.lloydsbank.com/assets/media/pdfs/banking_with_us/whats-happening/LB-Consumer-Digital-Index-2018-Report.pdf, 10

### Institution
Department of Education, United Kingdom[33]

### Brief description
The UK's Department of Education's Essential Digital Skills Framework is designed to support adults in enhancing their digital skills. The framework defines "the digital skills adults need to safely benefit from, participate in and contribute to the digital world."[34] Each Essential Digital Skill offers actions which define the skill, skills for life, additional skills for work, life examples, and work examples. The skills in the framework informs the Lloyds Bank Consumer Digital Index, a basic digital and financial skills survey of 9,000 UK residents.[35]

### Webpage
https://www.gov.uk/government/publications/essential-digital-skills-framework

Legacy site: https://www.tpdegrees.com/tech-partnership-legacy/

### Type of initiative
This initiative is the result of a consultation between "employers, charities, national and local government departments, academics and individuals[36]" resulting the UK Department of Ed's adoption.

### Objective
The Essential Digital Skills Framework seeks to create a common framework for adult digital literacy to enable progression and transferability of skills.

### Type of organization
Government

### Literacy focus
The Essential Digital Skills Framework is a foundational skill oriented framework, acutely focused on getting adults online with basic digital skills. The framework defines specific actions (i.e. turning on a device) that will support more complex digital skills. This focus leaves the framework surprisingly lacking in related areas of device ownership, privacy, and creation which may not immediately meet the short term goal of getting online. Although the overall number of mobile-specific skills is small, the framework does recognize the use of mobile devices more than other frameworks.

### Target audience
Adults in the UK

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[33] UK Department of Education, *Essential Digital Skills Framework*, (Crown publishing, 2017), 2.

[34] UK Department of Education, "Essential Digital Skills framework," https://www.gov.uk/government/publications/essential-digital-skills-framework (September 12, 2018).

[35] UK Department of Education, "Essential Digital Skills framework," (September 12, 2018).

[36] UK Department of Education, *Essential Digital Skills Framework*, 2.

### Supporting materials
Framework available in HTML or PDF.

### Timeline
2018: Framework update, addition of "distinct skills statements"
2015: Basic Digital Skills Framework published

### Implementation locations
UK

### Copyright restrictions
Crown copyright 2018 (can copy, distribute, and adapt with proper attribution)[37]

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[37] The National Archives, "Crown Copyright," http://www.legislation.gov.uk/licence.

# International Computer Driving License (U.S.)

## Competencies and/or skills

**Module categories, skill sets, & tasks:**

**Note:** Since the Advanced Modules are targeted at specialized users, those modules are not included in the skills comparison.

| Basic Modules | Standard Modules | Advanced Modules |
|---|---|---|
| Essential skills for anyone that uses a computer | Develop skills in areas for life and work | For work users that need more in depth knowledge in certain topic areas. |

**Computer Essentials**
Module Summary
Syllabus

**Presentation**
Module Summary
Syllabus

**Advanced Word Processing**
Module Summary
Syllabus

**Online Essentials**
Module Summary
Syllabus

**Using Databases**
Module Summary
Using Databases

**Advanced Spreadsheets**
Module Summary
Syllabus

**Word Processing**
Module Summary
Syllabus

**Project Planning**
Module Summary
Syllabus

**Advanced Databases**
Module Summary
Syllabus

**Spreadsheets**
Module Summary
Syllabus

**Using Databases**
Module Summary
Syllabus

**Advanced Presentation**
Module Summary
Syllabus

**Online Collaboration**
Module Summary
Syllabus

**Health Information System Usage**
Module Summary

**EqualSkills**

ICDL program aimed at people with no experience with computers and the Internet. However, the details of the program are unavailable online.[38] Only available at testing centers.

## Mobile specific competencies or skills
Small subset in the "Online Collaboration" module

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[38] ICDL USA, "Equal Skills," http://icdlusa.org/equalskills.

### Proficiency levels

eSkills
ICDL base
ICDL standard
ICDL expert

### Assessments

Paid certification exams available at ICDL Test Centers.

### Institution

ECDL (European Computer Driver's Licence) Foundation & ICDL (International Computer Driver's License) USA LLC

### Brief Description

Connected to the ECDL, the ICDL is an "internationally recognised qualification that enables people to certify their computer skills to an internationally recognised standard."[39] The modules are meant to be flexible and adaptive. Although ICDL modules are offered in-person and online, participants must contact a certified testing center to enroll, pay, and receive online access. Additionally, exams for certification must be taken at certified testing centers, making proximity to a testing a center an important factor in program engagement.

### Webpage

http://icdlusa.org/modules

### Type of initiative

The ICDL US initiative aims to distribute and coordinate the International Computer Driver's License program to allow access "to all citizens, irrespective of age, gender, status, ability or race."[40]

### Objective

"To enable proficient use of Information and Communication Technology (ICT) that empowers individuals, organizations and society, through the development, promotion, and delivery of quality certification programs throughout the United States."[41]

### Type of organization

ICDL is a for-profit corporation. ECDL Foundation is a nonprofit organization based in Dublin.[42]

### Literacy focus

The International Computer Driver's License solely focuses on digital skills while using computers. This makes it incredibly thorough, with an exhaustive list of every skill which could lead to successful interaction. It also makes the suggested skills quite narrow, comprising of foundational and communication skills, with a number of workplace applications. More complex skills (creation) and topics (information literacy) are underrepresented,

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[39] ICDL USA, 'FAQs," http://icdlusa.org/faqs

[40] ICDL USA, "Our Values," http://icdlusa.org/values.
[41] ICDL USA, "Our Mission," http://icdlusa.org/mission.
[42] ICDL USA, http://icdlusa.org.

making it most appropriate for a new user.

### Target audience

Adults and young adults who would like to develop and certify their digital computer skills for use at work or in day-to-day life

### Supporting materials

Online modules
In-person testing & certification centers
ICDL profile
Endorsed modules: created by other groups

### Timeline

1995: Council of European Professional Informatics Societies (CEPIS Task Force), supported by the European Commission through the ESPRIT research programm, creates European Computer Driving Licence (ECDL) concept
August 1996: New certification programm launched in Sweden
1997: ECDL Foundation nonprofit established in Dublin
1999: ICDL introduced outside of Europe, promoted in Africa & South America
1999: UNESCO, through its Cairo office, signs an agreement with ECDL Foundation to become the national operator for several Arab States
1999: ICDL launched in the North America and Asia
2003: ECDL / ICDL Advanced Introduced
2007: ECDL / ICDL Syllabus 5 Launched
2009: Over 9 Million Candidates in 148 Countries
2012: 12 million Candidates in over 148 countries; 24,000 test centers established[43]

### Implementation locations

U.S. Education: Community colleges, technical skills training centers, charter & public schools[44]
U.S Workforce: UN Headquarters, Goodwill of Southern Pennsylvania,
Internationally: Private business, public organizations, & higher education

### Copyright restrictions

Copyrighted

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[43] ICDL USA, "ICDL History," http://icdlusa.org/history.

[44] ICDL USA, "ICDL in Action," http://icdlusa.org/inaction-education.

# International Society for Technology in Education (ISTE)

## Competencies and/or skills

1. **Empowered Learner:** Students leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences.
2. **Digital Citizen:** Students recognize the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical
3. **Knowledge Constructor:** Students critically curate a variety of resources using digital tools to construct knowledge, produce creative artifacts and make meaningful learning experiences for themselves and others.
4. **Innovative Designer:** Students use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions.
5. **Computational Thinker:** Students develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions.
6. **Creative Communicator:** Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
7. **Global Collaborator:** Students use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally.

## Mobile specific competencies or skills

Although they can be applied to a mobile context, the standards are described as "technology neutral."[45]

## Proficiency levels

All level standards for students, no assumed proficiency. A series of "scenarios" have been developed for different age ranges to reflect a students application of skills.

## Assessments

No student oriented assessments

## Institution

The International Society for Technology in Education (ISTE)

## Brief description

ISTE Standards for Students describe the "skills and qualities" that enable students to "engage and thrive in a connected, digital world."[46]These are captured through the "functional and aspirational roles of today's learners," which can be applied across ages 4-18.[47] These roles are: empowered learner; digital citizen; knowledge constructor; innovative designer; computational thinker; creative communicator; global collaborator. Each role is defined by performance indicators which describe measurable and observable behavior.[48] ISTE Standards for Students offers age-range specific scenarios, providing in-classroom examples of use. ISTE Standards for

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[45] International Society for Technology in Education, *ISTE Standards for Students,* 2.

[46] International Society for Technology in Education, *ISTE Standards for Students: a practical guide for learning with technology,* (International Society for Technology in Education, 2017), 3.

[47] International Society for Technology in Education, *ISTE Standards for Students,* i.

[48] International Society for Technology in Education, *ISTE Standards for Students,* 2.

Students does not focus on basic skills or integration into standardized assessment. It is meant to be paired with content standards, for example WA State Educational Technology Standards.

## Webpage
https://www.iste.org/standards/for-students

## Type of initiative
ISTE Student Standards are meant to guide design, vision, and goals around digital learning. They are intended for educators and education leaders.

## Objective
ISTE Student Standards are intended for educator use across curriculum, "with a goal of cultivating these skills throughout a student's academic career."[49] For students who live in a "globally connected world," it is designed to empower, own their learning process, and blend "exploration, creativity, and discovery."[50]

## Type of organization
The International Society for Technology in Education (ISTE) is ISTE is a nonprofit, 501(c)(3) offering membership association to educators and education leaders.

## Literacy focus
ISTE's Standards for Students is a combination of broadly interpreted digital skills and best practice educational recommendations for digital teaching and learning. Because of this dual purpose, many of the framework's strengths cannot be appropriately categorized under specific skills. In fact, it's roles can be interpreted in a variety of ways and ascribed to a number of skills. However, Standards for Students is grounded in the assumption that every student has experienced digital life in some way. ISTE avoids prescribing any particular skill including the foundational, in lieu of aspirational roles which describe cognitive approaches to digital literacy. In our comparative matrix, Standards for Students scores weakly in foundational skills, mobile use, device ownership, and online life. It scores strongest in information literacy and workplace skills.

## Target audience
Educators and education leaders "interested in pedagogy, not tools"[51]

## Supporting materials
Age-range scenarios connected to standards
Digital Learning Pathways: online professional development for teachers
ISTE Standards Community
Open Educational Resources
ISTE U: online courses
ISTE Certification: professional training & competency-based portfolio

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[49] International Society for Technology in Education, *ISTE Standards for Students,* 3.

[50] International Society for Technology in Education, *ISTE Standards for Students,* i.

[51] International Society for Technology in Education, "ISTE Certification," https://www.iste.org/learn/iste-certification.

## Timeline

2018: Call for feedback on developing iterations of ISTE Standards for Teachers
2017: Update to ISTE Standards for Students
2008-2009: Update to Standards for Teachers and Administrators
2007: Update and renaming of ISTE Standards for Students
2000-2001: Standards for Teachers and Standards for Administrators Developed
1998: First iteration of Standards for Students under the name of National Educational Technology Standards[52]

## Implementation locations

Collaborations with:
- Washington State
- Vermont State Board of Education
- Connecticut Commission for Educational Technology
- Malaysia's Multimedia Development Corporation (MDeC)
- The Arab Bureau of Education for the Gulf States
- India's Learning Links Foundation

## Copyright restrictions

"No part of the book [printed framework] may be reproduced or transmitted in any form or by any means… without prior written permission from the publisher."

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[52] Stager, Gary, "Refreshing the ISTE Technology Standards," Direcat Administration, https://www.districtadministration.com/article/refreshing-iste-technology-standards, (June 1, 2007).

# Mozilla Web Literacy

Competencies and/or skills



**21st Century Skills**

☑ Problem-Solving  ☑ Communication  ☑ Creativity  ☑ Collaboration

Write: Building & constructing new content
Read: Explore & engage content on the web
Participate: Engagement in a healthy, safe online community

**21st Century Skills**
Problem-Solving (P): Defining a problem & formulating a plan
Communication (COM): Effective use of nonverbal & verbal messages
Creativity (CR): Creation, generation, & refinement of ideas
Collaboration (COL): Being a member of a responsive, responsible & aware community that uses tech tools effectively

| Web Literacy | | |
|---|---|---|
| **Read** | **Write** | **Participate** |
| Search (P) | Remix (P, COM, CR) | Share (COM, CR) |
| Navigate (P) | Revise (P, CR) | Contribute (P, CR, COL) |
| Synthesize (P, COM) | Compose (P, COM) | Open Practice (COM, COL) |
| Evaluate (P) | Code (P, CR) | Protect (P, COM) |
| | Design (P, COM, CR) | Connect (P, COM, OL) |

Both Mozilla and contributing community members create activities that offer individual online engagement and/or group facilitation of skills aligned with their framework. Mozilla has suggested "serving sizes" for their core curriculum, including ordered activities which focus on each area listed in the table, but any modules can be accessed based on interest and leveling.

### Mobile specific competencies or skills

Many of the activities attend to mobile use, but they are framed as "web usage" and are not organized by device.

### Proficiency levels

Consistent leveling: Beginner, Intermediate[53]
Specialty Leveling: Javascript Intermediate, 13+
Users can use Open Badges to track progress

### Assessments

None

### Institution

Mozilla Foundation

### Brief description

Mozilla offers a "framework for entry-level web literacy & 21st Century skills"[54] with complementary curriculum activities. It aims to support equitable access to the internet to better the lives of individuals and our world. The framework and curriculum were designed on the basis of open sourced and "remixable" content; participatory and learner centered activities; and hands-on application that create a tangible product.[55] The framework has four levels 1) web literacy 2) foundational skills 3) web literacy skills and 4) 21st Century leadership skills and the competencies that define them. Web literacy is positioned at its center. Reading, writing, and participating are the foundational skills which frame the core curriculum. Each foundational skill has an associated web literacy skill, which correspond to online, participatory activities offered by Mozilla. Each web literacy skill is

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[53] Mozilla Learning, "Teaching Activities," https://learning.mozilla.org/en-US/activities.

[54] Mozilla, "Web Literacy," https://learning.mozilla.org/en-US/web-literacy.

[55] Mozilla Foundation, "Web Literacy Overview," https://foundation.mozilla.org/en/opportunity/web-literacy/.

complemented by 21st Century leadership skills, including problem-solving, communication, creativity, and collaboration. 21st century leadership skills are defined by competencies.

### Webpage
https://foundation.mozilla.org/en/opportunity/web-literacy/

### Type of initiative
Supporting framework and curriculum for skills training related to equitable access to the web and promotion of open, public web resources.

### Objective
Mozilla is committed to reaching and meeting the web literacy needs of diverse audiences, to help them become good digital citizens. They believe that reading, writing, and participating in web spaces expand access and opportunity. By focusing on open and public web resources, Mozilla hopes to leverage emerging community leaders, who will ultimately impact the open sourcing of online materials.[56]

### Type of organization
A nonprofit organization "dedicated to putting you in control of your online experience and shaping the future of the web for the public good."[57] They have an annual budget of 20 million dollars. In addition to web literacy, they support other initiatives including political activism to support coordination and mobilization efforts. They are the sole shareholder of the Mozilla Corporation, which makes openly sourced web tools.[58]

### Literacy focus
Mozilla's web literacy framework revolves around the value of open sourced digital information. Mozilla places high value on creation and information skills. Although it's core curriculum does support foundational learning, skill sets which stray from creating, reworking, and interpreting open sourced content are generally ignored. This includes device ownership, mobile specific, and workplace skills. Much of the coursework offers skills that both encourage and equip students to create their own digital modules and collaborate within Mozilla community spaces.

### Target audience
Beginner to advanced users seeking practical skills for engaging in web spaces. Specifically target professionals in their language, educators and community organizers.

### Supporting materials
**Curriculum:** Online modules which might include an introduction, activity, & reflection/assessment. Includes core, additional skill modules created by participants, web literacy skills, open leadership. Activities for in person facilitation

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[56] Chung, An-Me, Bond Gill, Iris, O'Byrne, Ian, "Web Literacy 2.0," https://mozilla.github.io/content/web-lit-whitepaper/.

[57] Mozilla Foundation, "Web Literacy Overview."

[58] Mozilla Foundation, "About Us," https://foundation.mozilla.org/en/about/.

**Online Tools:** Thimble. X-Ray Goggles, Webmaker[59]

## Timeline

May 2012: Mozilla Webmaker released; designed to shift web use to web content creation[60]
2013: Web Literacy Map established as a framework[61]
May 2014: Mozilla offers four online courses through the peer platform P2PU[62]
April 2014: Tools & resources, focused on alignment, are released to support Web Literacy Map use[63]
March 2016: Web literacy hybrid workshops offered
April 2016: Web Literacy map 2.0 launched.
April 2016: Public libraries & library information schools "invited to submit proposals to adapt and pilot Mozilla's Web Literacy training and digital badges/credentials with library staff or students.[64]" Part of the Web Literacy Skills for library staff project
April 2017: Web Literacy Map 2.0 Released[65]

## Implementation locations

Implementation worldwide, sites unknown

## Copyright restrictions

Open sourced, 'remixing' on GitHub encouraged

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[59] Mozilla, "Tools," https://learning.mozilla.org/en-US/tools.

[60] Thomas, Web, "Introducing 'Mozilla Webmaker:'helping the world make the web," The Mozilla Blog, https://blog.mozilla.org/blog/2012/05/22/introducing-mozilla-webmaker/ (May 22, 2012).

[61] Mozilla, "To Empower People Online, Mozilla Launches Interactive Web Literacy Map," Mozilla Learning Blog, https://learning.mozilla.org/blog/page/7 (April 6, 2016).

[62] Mozilla, "Love the open web? Now you can teach other people to love it too," Mozilla Blog, https://blog.mozilla.org/ blog/2014/05/12/love-the-open-web-now-you-can-teach-other-people-to-love-it-too/ (May 12, 2014).

[63] Belshaw, Doug, "Introducing new resources making use of the web literacy map," Mozilla Learning Blog, https://learning.mozilla.org/blog/weblitmap-resources (April 22, 2014).

[64] Gorr, Kristina, "Engaging Learners Outside of Formal Education," Mozilla Learning Blog, https://learning.mozilla.org/blog/page/5, (July 4, 2016).

[65] Mozilla, "Introducing Mozilla's Web Literacy Map, Our new Blueprint for Teaching People About the Web," Mozilla Blog, https://blog.mozilla.org/press/2016/04/introducing-mozillas-web-literacy-map-our-new-blueprint -for-teaching-people-about-the-web/ (April 8, 2016).

# Northstar Assessment

## Competencies and skills

Three standards:

Standards for Essential Computer Skills
- Basic Computer Skills
- Internet Basics
- Using Email
- Windows
- Mac OS X

Standards for Essential Software Skills
- Microsoft Word
- Microsoft Excel
- Microsoft PowerPoint

Standards for Using Technology in Daily Life
- Social Media
- Information Literacy

## Mobile Specific competencies

None.

## Proficiency levels

None

## Assessments

If someone receives a score of at least 85% on proctored assessment at a testing location earn the "Northstar Digital Literacy Certificate." Individuals that pass assessments can also earn digital badges from Northstar.[66] Anyone can take the assessment on Northstar's website for free to test their own skills. Do-it-yourself assessments do not earn an official certificate.

## Institution

Program of the Minnesota Literacy Council

## Brief description

In response to job seekers needing to increase their digital skills for work and everyday life, Northstar Digital Literacy Assessment defines what basic skills people need to use the computer and get online. Northstar provides a free, online assessment tool and works with approved testing centers to provide proctored assessments and certificates.[67] Northstar does not currently have any customized curriculum but recommends curricula from other providers.[68]

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[66] Northstar, "About the Assessments," https://www.digitalliteracyassessment.org/assessment-info#certificate.
[67] Northstar, "About Northstar," https://www.digitalliteracyassessment.org/about.
[68] Northstar, "Curricula," https://www.digitalliteracyassessment.org/assessment-info#curricula.

## Webpage
https://www.digitalliteracyassessment.org/

## Type of Initiative
Free, online assessment of digital literacy skills and network of testing centers

## Objective
To provide credentials in basic computer skills for job seekers, higher education students, and people who use social media and online information. Individuals can also use the assessment to provide a "roadmap" to what skills they need to obtain.[69]

## Type of organization
Non-profit

## Literacy focus
Northstar Assessment focuses on gateway skills to give new computer users the skills they need to operate the machine and get online. Targeted at adult basic education students and job seekers, the rest of the assessment focuses on Microsoft Office Suite, Social Media, and Information Literacy skills.

## Target audience
Adults, primarily job seekers and adult basic education students

## Supporting materials
Detailed list of standards
Take the free, online assessment
Directory of testing locations
How to become a testing location
List of recommended curricula

## Timeline
2010: Standards were launched as a partnership between Saint Paul Public Library and Saint Paul Community Literacy Consortium. The standards were developed as part of a collaborative, community-based process in the Twin Cities, Minnesota.
2011: Online assessments are implemented and Minnesota Literacy Council begins hosting the project.
2016: Information Literacy module released.
2018: Modules begin update. Currently, 4/10 of the modules have been updated to V 2.0.[70]
2019: Plan to launch Northstar curriculum[71]

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[69] Northstar, "About Northstar," https://www.digitalliteracyassessment.org/about

[70] Northstar, "About Northstar," https://www.digitalliteracyassessment.org/about

[71] Northstar, "About Northstar" https://www.digitalliteracyassessment.org/about#faqs

### Implementation locations

Currently used by over 595 Adult Basic Education programs, colleges, nonprofits, workforce centers, government agencies, and businesses. Testing centers are mostly in the United States, but centers exist in Australia, Canada, New Zealand, United Kingdom, and Papua New Guinea.

### Copyright Restrictions

Copyrighted

# Appendix B Curricula

## Compass Digital Skills (EU)

### Competencies & Skills

1. Information and Data Literacy
   a. Browsing, searching and filtering data, information and digital content
2. Communication and Collaboration
   a. Collaborating through digital technologies
   b. Interacting through digital technologies
   c. Sharing through digital technologies
3. Digital Content Creation
   a. Developing Digital Content
   b. Programming
4. Safety
   a. Protecting Devices
   b. Protecting personal data and privacy
5. Problem Solving
   a. Creatively Using Technology

### Proficiency levels

Every lesson is offered in two different levels:

- Foundation: "The Foundation level is for users with basic knowledge and limited digital experience; therefore, the lessons focus on developing fundamental and conceptual knowledge."
- Advanced: "The Advanced level is geared towards more experienced digital users that already have a strong basic knowledge and are able to appropriately manipulate digital technologies and solve problems autonomously, but still require more extensive and structured training."[72]

### Assessments

User takes a free multiple choice skill assessment at the beginning and the end of the online modules.

### Institution

Compass Digital Skills & the European Commission

### Type of organization

Compass is "a consortium of 4 agencies across 4 European nations (France, Ireland, Italy and Romania) was created to develop this project, backed and co-funded by the European Commission." They are a member of the

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[72] Compass Digital Skills, "FAQs," https://www.compassdigitalskills.eu/public-page/view/help-and-faqs#FAQs

[Digital and Skills Jobs Coalition](#). "Compass is a free and interactive learning platform, co-financed by the European Commission"[73]

### Brief description
Following free sign-up, users are prompted to take a skills assessment. Answers denote novice or advanced rating in three categories: communication and collaboration, digital content creation, and safety. The initial assessment does not offer ratings in the area of information and data literacy and problem solving. Users are prompted to choose a career pathway, options include: teaching professionals, business and administration professionals, general and keyboard clerks, and legal, social, and cultural professionals.

### Website
https://www.compassdigitalskills.eu

### Literacy focus
Compass digital skills is heavily grounded in the areas of workplace, information skills, and creation. It largely ignores the areas of online life, lifelong learning, and gateway skills.

### Target audience
It focuses on digital competences which support young Europeans in engaging with the economy, interested in digital literacy skills that support employability and workforce development.

### Supporting materials
- o  Lessons accessible through mobile apps & web platforms
- o  [Mentorship blog](#), advice from industry leaders
- o  Further information & useful links following lessons to external sites

### Timeline
A two-year pilot program

### Implementation locations
Ireland, France, Romania, & Italy

### Framework alignment
DigComp 2.1 framework

### Copyright restrictions
The name is copyright protected, but there is [no information](#) on the curriculum's copyright.

### Supported Languages
English
Romanian
French
Italian

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[73] Compass Digital Skills, "About the Project," https://www.compassdigitalskills.eu/public-page/view/about-project

# Digital Learn

## Competencies and skills

- Starting Out
  - Why Use a Computer?
  - Getting Started on a Computer
  - Using a PC (Windows 10)
  - Navigating a Website
  - Intro to Email
  - Intro to Email 2: Beyond the Basics
  - Basic Search
  - Using a PC (Windows 7)
  - Using a Mac (OS X)
- Being Safe Online
  - Accounts and Passwords
  - Online Scams
  - Internet Privacy
- Job Skills
  - Creating Resumes
  - Online Job Searching
  - Applying for Jobs Online
- Being Productive
  - Microsoft Word
  - Cloud Storage
  - Creating a Basic Budget with Excel
  - Online Health Information
- Connecting with Others
  - Intro to Skype
  - Intro to Facebook
- Mobile Devices
  - Using a Mobile Device (Android)
- Online Shopping
  - Buying a Plane Ticket

## Mobile specific competencies or skills

Yes- Overview of Android OS basics - including texting, calling, emailing, privacy and security, and differences between Wi-Fi and cellular data.

## Proficiency levels

None

## Assessments

None

## Institution

Public Library Association (PLA)

### Type of organization
Nonprofit

### Brief description
A series of self-directed tutorials for people to increase their digital skills. However, lessons can be integrated into classroom led instruction. Public libraries can set up their own Digital Learn sites. These library-specific branded sites allow libraries to track analytics and give library users to ability to track progress and receive course completion certificates. Modules include video-based narration with PDF transcriptions. Videos last between 6 - 22 minutes using language written in elementary/middle-school reading levels.[74]

### Website
https://digitallearn.org/

### Literacy focus
The majority of Digital Learn's lessons focus on foundational skills with additional modules covering popular topics such as safety and Microsoft Office. Digital Learn does feature some uncommon topics such as access and using online health information and using a mobile device (Android).

### Target audience
Adults

### Supporting materials
"Tools and Resources for Trainers" includes additional materials and lessons created by the Gail Borden Public Library (Elgin, Illinois) between 2015-2017).[75] Unlike the main DigitalLearn courses, these are available as downloadable Word Documents, not video. Courses cover additional topics such as Outlook, Computer Maintenance, creating websites, and using eBay. Since these lessons are not integrated into the main Digital Learn curriculum, the skills covered are not reflected in the skills matrix.

### Timeline
2013: Site launched, funded by Institute of Museum and Library Services, originally part of a partnership with ALA's Office of Information Technology Policy and Chief Officers of State Library Agencies, along with other public library stakeholders.
2016: Updated version launched in partnership with Chicago Public Library. The update allows the creation of custom sites for libraries.
2018: Working with new Digital Literacy Committee to identify new course topics and adding additional functionality for custom sites.[76]

### Implementation locations
US-based. Unknown number of users or number of libraries that use the service.

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[74] Digital Learn, "About Digital Learn," https://digitallearn.org/cms_pages/about-digitallearn-org

[75] Digital Learn, "About this Project," https://training.digitallearn.org/pages/about-this-project

[76] Digital Learn, "About Digital Learn," https://digitallearn.org/cms_pages/about-digitallearn-org

## Copyright restrictions

Creative Commons Attribution-ShareAlike 3.0

## Supported languages

English and Spanish (21/23 courses are translated)

# Google Applied Digital Skills

Not a clear formalized, structure. The lessons (4 - 9 hours long) list the skills taught, target audience, and apps used.

Lessons are heavily focused on Document, Spreadsheet, and Presentation creation and collaboration.

Skills include:

- Digital Skills
    - Coding
    - Spreadsheets
    - Data visualization
    - Graphic design
    - Website publishing
    - Document formatting
    - Internet search
    - File organization
- Practical Life Skills
    - Communication
    - Organization
    - Budgeting
    - Event planning
    - Research
    - Group decision-making
    - Creating presentations
    - Resume writing

Each lesson lists the state standards it is aligned to.

Apps covered include:

- Script
- Search
- Maps
- Sites
- Forms
- Sheets
- Slides
- Docs
- Gmail
- Calendar
- Drive

Mobile specific competencies or skills

None

## Proficiency levels

Lessons targeted at school aged students include a rubric that allows teachers to assess their understanding.

Beginning lessons assume user isn't familiar with G Suite (but has Google account). Most advanced lessons cover ARRAY Formulas and basic website code.

Google's Basic Digital Skills Guide covers what skills are needed before the first Applied Digital Skills class.

## Assessments

Offers G Suite Certification Exam that verifies proficiency in the following G Suite Applications:

- Drive
- Gmail
- Hangouts Meet
- Docs
- Sheets
- Forms
- Slides

The two-hour exam includes multiple choice and performance based sections and can be taken at home or a public center. Cost is $75.[77]

## Institution

Google

## Type of organization

For profit company

## Brief description

Google-focused video curriculum that teachers can use as part of a class or individuals can learn on their own. Lessons aligned to state educational standards. Each ½ - full day lesson are broken down into shorter, videos covering specific tasks.

## Website

https://applieddigitalskills.withgoogle.com/s/en/home

## Literacy focus

Digital and information literacy

## Target audience

- ○ Late Elementary;
- ○ Middle School Students;
- ○ High School Students;

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[77] Google Cloud, "Google Cloud Certified," https://cloud.google.com/certification/gsuite

- o Adult Learners (some lessons have different versions for different audiences - same skills covered but using different subjects)

### Supporting materials

Includes additional resources for teachers - lesson plans, classroom poster, ability to evaluate students' work. ISTE-aligned lessons include a rubric.
G Suite certification exam. Cost is $75.
Teacher-specific training and certification (aligned with ISTE standards) is also available. The teaching certification doesn't directly align with the Applied Digital Skills class, but it looks like it would support it.

### Timeline

Originally part of the "Grow with Google" initiative. No start date listed, but according to this blog post, Google added new content and features for the 2018 school year.

### Implementation locations

International.
According to Google (as of 10/2018): 328,300 participants; 27,700 locations

### Framework alignment

ISTE. Includes specific alignment to Washington State Tech Education Standards. Details the alignment with ISTE standards:  http://www.iste.org/standards/seal-of-alignment/google-applied-digital-skills

Rated 4 out of 5 stars from Common Sense Education:
https://www.commonsense.org/education/website/google-applied-digital-skills

### Copyright restrictions

Copyrighted

### Supported languages

# Mozilla Web Literacy - Core Curriculum

### Competencies and skills

Focused on building understanding of how the internet and web works and build skills for digital content creations such as websites

Crosswalk of Web Literacy Map 2.0 and Core Curriculum

### Mobile specific competencies or skills

None

### Proficiency levels

None

### Assessments

None

### Institution

Mozilla Foundation

### Type of organization

non-profit

### Brief description

"Mozilla's Core Web Literacy Curriculum consists of Core Activities aligned with the Web Literacy Map to provide learners with a basic understanding of the web and web technologies, and with confidence and satisfaction to **read** - how we explore the web, **write** - how we build the web, and **participate** - how we connect on the web"[78].

Lessons are meant to be taught in-person to a group of people using a variety of offline and online activities.

### Website

https://foundation.mozilla.org/en/opportunity/web-literacy/core-curriculum/

### Literacy focus

Web literacy

### Target audience

General public

### Supporting materials

Web Literacy Map 2.0

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[78] Mozilla, "Core Curriculum," https://foundation.mozilla.org/en/opportunity/web-literacy/core-curriculum/

Core curriculum page [79] has an overview of
- How the "facilitator-friendly" materials work
- How to earn digital badges/credentials
- How to make additions or changes to curriculum using GitHub
- Mozilla's Open Practices - with a link to a one hour workshop
- Core sequence and "serving suggestions" for the curriculum

Additional materials: https://foundation.mozilla.org/en/opportunity/web-literacy/additional-resources/

## Timeline

Mozilla started offering online courses to teach people about the open web in 2014.[80] The latest version of the Web Literacy Map launched in 2016.[81]

## Implementation locations

Anyone can teach and adapt the lessons.

In 2017, through a grant from IMLS and USO, Mozilla convened a cohort of "Web Literacy Leaders" from public libraries and military personnel to learn from and implement the curriculum[82]

## Copyright restrictions

Creative Commons

## Supported languages

English

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[79] Mozilla, "Core Curriculum," https://foundation.mozilla.org/en/opportunity/web-literacy/core-curriculum/

[80] Mozilla, "Love the Open Web? Now You can Teach Other People to Love it Too," https://blog.mozilla.org/blog/2014/05/12/love-the-open-web-now-you-can-teach-other-people-to-love-it-too/

[81] Mozilla, "Introducing Mozilla's Web Literacy Map," https://blog.mozilla.org/blog/2016/04/08/introducing-mozillas-web-literacy-map-our-new-blueprint-for-teaching-people-about-the-web/

[82] Mozilla, "Introducing Mozilla's Web Literacy Leaders," https://medium.com/read-write-participate/introducing-mozillas-web-literacy-leaders-c7f230d0e4dd

# GCF Teacher Guide

## Competencies and skills

- Technology
  - Basic computer skills
  - Introduction to computers
  - Connecting online
  - Getting started with the cloud
  - Introduction to social media
  - Introduction to social media for parents
  - Digital photography and image editing
  - Online Research
- Microsoft Office
  - Word, Excel, and PowerPoint
  - Working in the cloud: Microsoft account
  - Working in the cloud: Google account

## Mobile specific competencies or skills

None

## Proficiency levels

None

## Assessments

None

## Institution

Goodwill Community Foundation[83]

## Type of Organization

Nonprofit

## Brief description

GCF Learn Free has expansive lessons on technology, basic skills, and building a career. To narrow the focus for the skills comparison, we focused on the GCF Teacher Guides for Technology and Microsoft Office. These lesson guides were developed specifically for technology instructors wanting to use GCF in their own classrooms.

## Website

https://edu.gcfglobal.org/en/gcfteacherguides/

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[83] GCF Global, "Who We Are," https://edu.gcfglobal.org/en/info/who-we-are/1/

### Literacy focus

GCF Teacher Guides have a relatively narrow focus - mainly on gateway skills and communication, information skills, and workplace. However, GCF's complementary lessons are much more expansive and cover topics like mobiles and 3D printing.

### Target audience

Adults

### Supporting materials

Teaching Tips and Teaching Technology Tips

Additional resources - everything from ESL to Advanced technology topics

Recommends a list of Google Applied Digital Skills lessons that compliment and build upon GCF lessons.

GCF hosts "more than 180 topics, including more than 2,000 lessons, 800+ videos, and 55+ interactives and games."[84] List of topics includes: technology, basic reading and meth, workplace skills and more.

### Timeline

GCFLearnFree.org has existed "for more than a decade."[85]

### Implementation locations

Site lists many organizations that use GCF. Includes K-12, NGOs, libraries, and more. Claims "more than 60 million people have learned on the site.

### Framework alignment

None.

### Copyright restrictions

Copyrighted. Content can only be used for non-commercial purposes and content used for personal or educational purposes cannot be redistributed.[86]

### Supported languages

English, Spanish, Porteugese

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[84] GCF Global, "Who we are," https://edu.gcfglobal.org/en/info/who-we-are/1/

[85] GCF Global, "Who uses us," https://edu.gcfglobal.org/en/info/who-uses-us/1/

[86] GCF Global, "Terms of use,"  https://edu.gcfglobal.org/en/info/terms-of-use/1/

# Learn My Way

## Competencies and skills

Mobile specific competencies or skills

1. Using your computer or device
   a. Using a keyboard
   b. Using a mouse
   c. Using a touchscreen
   d. Using a computer
   e. Creating Documents
2. Online basics
   a. Using the internet
   b. Using online forms
   c. Using emails
   d. Using search engines
   e. Introduction to internet safety
3. More internet skills
   a. Online shopping
   b. Socialising Online
   c. Using Facebook
   d. Using a digital camera
   e. Watching and listening online
   f. Smart internet
   g. How to be a Digital Champion
4. Online safety
   a. Keeping your personal information secure online
   b. More about internet safety
   c. Staying safe in your digital world
5. Finding a job online
   a. Job hunting online
   b. National Careers Service website: a how to guide
   c. Jobs and interviews
6. Improving your health online
   a. GP services online: a how to guide
   b. The NHS website: a how to guide
7. Managing your money online
   a. Online and mobile banking
   b. Make money work
8. Public services online
   a. Using public services online
   b. Universal Credit: a how to guide

## Proficiency levels

There are no clear proficiency levels. However, the introductory skills taught in subjects 1-3 are the foundational to the application of those skills in subjects 4-8.

## Assessments

None

### Institution

Learn My Way provides online access to digital skills for beginners. "Learn My Way is owned by [Good Things Foundation](#)."[87] Learn My Way is used in the UK's Online Centres, 5,000 individual community spaces which constitute the Online Centres Network. OCN is comprised of "grassroots organisations, all working to tackle digital and social exclusion by providing people with the skills and confidence they need to access digital technology."[88] The network is coordinated by the Good Things Foundation.[89]

### Type of organization

Good Things Foundation is a social change charity based in the UK, which focuses on digital inclusion and community action to improve people's lives.[90] Learn My Way is also associated with 1st Floor, 1 East Parade, Sheffield, & S1 2ET.[91]

### Brief description

The Learn My Way website offers access to online modules which offer digital skills instruction. These modules are available through a free online registration. Modules involve written subject-specific text, with the option to have it read aloud, and interactive activities to practice skills.

### Website

[https://www.learnmyway.com/subjects](https://www.learnmyway.com/subjects)

### Literacy focus

Created for adults in the UK, Learn My Way is most appropriate for individuals new to digital environments. Their curriculum is comprised of predominantly gateway/foundational skills. The curriculum builds on those skills to support the user for successful interactions with UK specific tools, like government run utilities. These skills are somewhat represented in the content categories of workplace, communication, and online life. It largely ignores all other content categories.

### Target audience

Adults at the beginning of their engagement with digital technologies, including those with learning differences.[92]

### Supporting materials

[Tutor access](#) with dedicated login with UK Online Centre affiliation; grants additional access to teaching aids
Linked external resources connected to each module to support courses

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[87] Learn My Way, "About Us," [https://www.learnmyway.com/about-us.html](https://www.learnmyway.com/about-us.html).

[88] Online Centres Network, "A social movement with a shared vision," [https://www.onlinecentresnetwork.org](https://www.onlinecentresnetwork.org).

[89] Good Things Foundation. "Online Centres Network," [https://www.goodthingsfoundation.org/online-centres-network](https://www.goodthingsfoundation.org/online-centres-network).

[90] Good Things Foundation, "About Us," [https://www.goodthingsfoundation.org/about-good-things-foundation](https://www.goodthingsfoundation.org/about-good-things-foundation).

[91] Learn My Way, "Terms and conditions," [https://www.learnmyway.com/terms-and-conditions.html](https://www.learnmyway.com/terms-and-conditions.html).

[92] Learn My Way, "Accessibility help," [https://www.learnmyway.com/accessibility.html](https://www.learnmyway.com/accessibility.html) (May 25, 2018).

## Timeline

Implemented in the UK Online Centres Network in 2013 by Good Things Foundation[93]

## Implementation locations

5,000 community sites in the UK

## Framework alignment

Learn My Way has connections to the Essential Digital Skills Framework. The Online Centres Network requested feedback in Winter of 2018. In addition to the feedback, network members answered questions about the revised framework posed by Tech Partnership.[94]

## Copyright restrictions

"You cannot copy, reproduce, publish, upload, post, transmit or distribute any of the content.

You can download and temporarily store these pages for your own personal and private use. You can also print them for your own non-commercial use as long as you do not change the content and you do not use them in any other publication without getting our prior permission."[95]

## Supported Languages

English and Welsh

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[93] Good Things Foundation, "Learn My Way," https://www.goodthingsfoundation.org/learn-my-way.

[94] Online Centres Network, "Basic Digital Skills Framework," https://www.onlinecentresnetwork.org/news-and-activity/Basic-Digital-Skills-Framework.

[95] Learn My Way, "Terms and conditions."

# Literacy Source

## Competencies and skills

- Basic skills
- Internet skills
- Email
- Google Drive

## Proficiency levels

None

## Assessments

Literacy Source uses an in-class skills checklist developed internally to assess a person's skill progression. The instructor rates the student's ability to complete the skill as a pre and post assessment.

## Institution

Literacy Source

## Type of Organization

Non-profit

## Brief Description

Literacy Source offers in-person basic education classes that integrate basic technology skills into its lessons. Literacy Source uses cloud-based Google products to support the students' learning. Literacy Source's curriculum is not available online.

## Website

https://www.literacysource.org/

## Literacy focus

Basic digital literacy

## Target audience

Adults (English as a Second Language or Adult Basic Education)

## Supporting materials

Literacy Source's curriculum is not available online.

## Timeline

Founded in 1986

## Implementation locations

- Literacy Source's headquarters in Lake City, Seattle

- Asian Counseling and Referral Center
- Rainer Beach Library
- Neighborhood House High Point.
- Angle Lake Family Center, SeaTac[96]

## Framework alignment

None

## Copyright restrictions

Unknown

## Supported languages

English (however, all materials are tailored to English language learners)

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[96] Literacy Source, "Become a Student," https://www.literacysource.org/become-a-student/

# Microsoft Imagine Academy

## Competencies & Skills

1. Productivity/Office Learning Path: Office 2016 (also have Office 2013 option)
    a. Word
    b. Excel
    c. Powerpoint
    d. Access
    e. MSIA Microsoft Online learning directory
    f. Microsoft Office Specialist Study Guide
        i. Each content area links to a OneNote online module with:
            1. Introduction (text with links)
            2. Online Learning (mixed multimedia & text)
            3. Assessments (printable text assessments with answer key)
            4. Study Guide (PDF text)
            5. Associated Microsoft Official Academic Course (MOAC) (textbook)
2. Computer Science Learning Path
    a. Computer Science Online (excel file with broken links)
        i. Intro to computer science (online module with GitHub project links)
    b. Data Science Online (excel file with broken links)
    c. IT Infrastructure Online (excel file with broken links)

## Proficiency levels

The productivity/office learning path begins with foundational skills & builds upon them. It is best for beginners or people seeking specific Microsoft Office functions. The Computer Science learning path assumes a certain level of basic computer skills in order to navigate modules.

## Assessments

Microsoft Imagine Academy provides Microsoft Office Specialist (MOS) exam at no cost for Washington residents. This Microsoft certified verification covers Microsoft Office 2016 including Word, Excel, PowerPoint, Access, and Outlook. The exam must be taken at participating public library or college.[97]

## Institution

Collaboration: Microsoft, Washington State libraries, & the Institute for Museum and Library Services (IMLS) through the Library Services and Technology Act (LSTA).

## Type of organization

Microsoft is a private technology company. "IMLS is an independent federal agency that provides library grants, museum grants, policy development, and research."[98] Washington State Libraries are a part of the Washington Secretary of State's office. They provide training to library staff and provides interlibrary lending in the State of Washington. "The Office of the Secretary of State received special Legislative appropriation to fund a statewide subscription to the Microsoft Imagine Academy, with access through the Washington State Library's Central

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[97] Microsoft Imagine Academy Online Learning, https://www.sos.wa.gov/library/libraries/projects/ita/content.aspx?a=1

[98] Institute of Museum & Library Services, https://www.imls.gov.

Library website."[99] It is partially funded by the Institute for Museum and Library Services (IMLS) through the Library Services and Technology Act (LSTA).

### Brief description

This partnership exits to "leverage existing Washington IT curriculum resources with an additional and enhanced IT education solution that is meaningful and relevant by mapping to industry-recognized Microsoft skills standards and certifications that align to the requirements of the workplace."[100]

### Website

https://www.sos.wa.gov/library/libraries/projects/ita/content.aspx?a=1
https://www.spl.org/online-resources/online-learning/microsoft-imagine-academy

### Literacy focus

Microsoft Imagine Academy focuses on workplace and creation skills specific to Microsoft suite services.

### Target audience

People who live or work in Washington State. The productivity/office learning path is designed for any person who would like to gain Microsoft Office Suite skills. The computer science path is mixed, designed for middle school students, teachers without computer science experience, and other adults interested in computer science.

### Supporting materials

Microsoft Office Specialist (MOS), Microsoft Technology Associate (MTA), Microsoft Certified Educator (MCE) certifications

### Timeline

2008: Launched under original name DreamSpark, provided free access to Microsoft software
2016: Renamed & relaunched as Imagine Academy to align with Microsoft's Imagine Cup competition

### Implementation locations

Washington State
K-12 & university level in 120 countries

### Framework alignment

No. Aligned with Microsoft certification programs.

### Copyright restrictions

Access to materials only with subscription. User owns the content they create ("your content"). May not use materials or images outside of subscription.[101]

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[99] WA Secretary of State, "Washington State Library Microsoft Imagine Academy," https://www.sos.wa.gov/library/libraries/projects/ita/info.aspx.

[100] WA Secretary of State, "Washington State Library Microsoft Imagine Academy."

[101] Microsoft, "Microsoft Imagine Subscription Agreement Direct Subscriptions" https://imagine.microsoft.com/en-us/about/LicenseAgreement.

## Supported Languages

Available in 60 languages,[102] must change preferences on office.com.

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[102] Office.com Worldwide, https://store.office.com/worldwide.aspx?rs=en-us&cmapid=1&returnURL= https%3A%2F%2Fsupport.office.com%2Fen-us%2Farticle%2Fwhat-is-word-aee9c7ff-f9c5-415f-80dc-103ad5e344d7%3Fwt.mc_id%3DAID573689_QSG_141919%26ui%3Den-US%26rs%3Den-US%26ad%3DUS

# Seattle Goodwill's Digital Equity Computer Classes

## Competencies & Skills

1. Computers: Keyboarding
   a. Keyboarding Pre-Test
   b. Keyboarding Skills
   c. Keyboarding Technique
   d. Keyboarding Post-Test
2. Computers: Basic
   a. What is a computer?
   b. Windows Basics
   c. Managing Files and Folders
   d. Getting Started with Word
   e. Editing and Formatting Documents
   f. Introduction to the Internet
   g. Using Email
3. Computers: Internet & Email
   a. Windows Basics
   b. Introduction to the Internet
   c. Using Email
4. Computers: Outlook
   a. Intro to Outlook
   b. Email
   c. Calendars
   d. Contacts
   e. Optional: Sharing Calendar
   f. Optional: Notes
   g. Optional: Tasks
   h. Optional: PowerPoint
5. Computers: Word
   a. Getting Started with Word
   b. Editing and Formatting a Document
   c. Changing the layout of a document
   d. Using Editing and Proofing Tools
   e. Working with Graphics
   f. Working with Columns
   g. Working with Tables
6. Computers: Word 2
   a. Page Layout & Formatting
   b. Graphics: Review as Needed from Level 1
   c. Long Documents & Building Blocks
   d. Tables: Review as Needed from Level 1
   e. Mailings
7. Computers: Excel
   a. Worksheet Fundamentals
   b. Editing and Formatting Worksheets
   c. Performing Basic Calculations
   d. Print Options
   e. Working with Rows, Columns, and Worksheets
   f. Using Tables
   g. Working with Charts

8. Computers: Excel 2
9. Computers: Online Job Search
   a. Career Exploration & Job Search
   b. Online Job Search & Online Job Applications
   c. Email Job Applications
   d. Resume & Cover Letter
   e. Interviewing
10. Computers: ESOL Basic 1 (Basic class offered in two sessions for ESL learners)
11. Computers: ESOL Basic 2

## Proficiency levels

Proficiency levels are determined by participant pre-test and communicated needs. Each class builds on previous content, growing in complexity. They are primarily designed for a learner seeking foundational, beginner, or content-specific skills.

## Institution

A partnership between Seattle Goodwill and Comcast.

## Type of organization

Seattle Goodwill is a nonprofit organization dedicated to dismantling barriers to finding work including education, job training, and language barriers. Comcast is a large scale telecom company.

## Brief description

Seattle Goodwill's 'key concepts' in digital literacy are:
1. Exposure and Exploration – Discovering and trying it out
2. Foundational Skill Building – Learning the "how-to" and practicing
3. 21st Century Skill Building - Putting it to use[103]

Seattle Goodwill and Comcast's plan to approach digital equity by employing:
1. Web-based ESOL (English for Speakers of Other Languages) training through Rosetta Stone for students to strengthen their English language skills
2. Point of Sale cashiering tools for equipping students for better employment opportunities
3. Job search and employment readiness training that teach students to research and navigate the internet[104]

This curriculum demonstrates strengths in the area of gateway skills.

## Website

https://seattlegoodwill.org/job-training-and-education/work-readiness/digital-equity
(curriculum is not online)

## Literacy focus

"Digital literacy involves the knowledge, skills, and attitudes to effectively navigate, critically evaluate,

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[103] Seattle Goodwill, *Digital Literacy: Theoretical Framework* (September 2014).
[104] Seattle Goodwill, "Digital Equity." https://seattlegoodwill.org/job-training-and-education /work-readiness/digital-equity.

create or adapt information using a range of digital technologies (independently or collaboratively) to accomplish authentic, relevant goals."[105]

## Target audience

Low-resource individuals whose access to digital literacy will enhance their employability.

## Supporting materials

Online job seeker resources blog
Other vocational & employment support
Hiring network & recommendation
GED completion

## Timeline

2013: Seattle partners with Comcast to fund Digital Equity Computer classes & articulate three-pronged approach

September 2014: Goodwill creates Digital Literacy: Theoretical Framework to capture foundational competencies integrated into their trainings

## Implementation locations

Goodwill: Bellingham, Bremerton, Marysville, Mount Vernon, Seattle and South Everett.

## Framework alignment

This curriculum aligns with Seattle Goodwill's Digital Literacy: Theoretical Framework document.

## Copyright restrictions

Unknown

## Supported Languages

English
English as a second language

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[105] Seattle Goodwill, *Digital Literacy: Theoretical Framework* (September 2014).

# Appendix C Skill comparison table

| | Communication | Creation | Device ownership | Gateway skills | Info skills | Lifelong learning | Mobile | Online life | Privacy & Security | Workplace | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Total skills** | 8 | 8 | 4 | 11 | 7 | 3 | 6 | 11 | 7 | 9 | **74** |
| **Framework** | | | | | | | | | | | |
| DIGCOMP | 8 | 5 | 3 | 2 | 6 | 2 | 0 | 5 | 3 | 4 | **38** |
| Essential Digital Skills | 6 | 0 | 0 | 10 | 4 | 0 | 2 | 7 | 2 | 6 | **37** |
| ICDL | 6 | 0 | 1 | 9 | 1 | 0 | 1 | 2 | 3 | 5 | **28** |
| ISTE | 4 | 4 | 1 | 0 | 7 | 3 | 0 | 3 | 3 | 5 | **30** |
| Mozilla | 5 | 8 | 0 | 5 | 7 | 1 | 0 | 2 | 3 | 0 | **31** |
| Northstar | 4 | 0 | 1 | 10 | 6 | 0 | 0 | 1 | 2 | 3 | **27** |
| **Curriculum** | | | | | | | | | | | |
| Compass | 3 | 6 | 1 | 2 | 5 | 0 | 1 | 1 | 4 | 7 | **30** |
| Digital Learn | 2 | 0 | 0 | 8 | 2 | 0 | 3 | 3 | 2 | 3 | **23** |
| GCF Teacher Guides | 4 | 1 | 0 | 9 | 4 | 0 | 0 | 2 | 2 | 4 | **26** |
| Google | 3 | 5 | 0 | 4 | 5 | 0 | 0 | 0 | 0 | 5 | **22** |
| Learn My Way | 3 | 0 | 3 | 11 | 0 | 0 | 1 | 4 | 0 | 3 | **25** |
| Literacy Source | 2 | 1 | 0 | 7 | 0 | 1 | | 4 | 1 | 4 | **20** |
| Microsoft | 0 | 4 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 6 | **12** |
| Mozilla Core | 1 | 4 | 0 | 4 | 3 | 0 | 0 | 2 | 3 | 0 | **17** |
| Seattle Goodwill | 1 | 1 | 0 | 6 | 1 | 2 | 0 | 0 | 0 | 3 | **14** |