



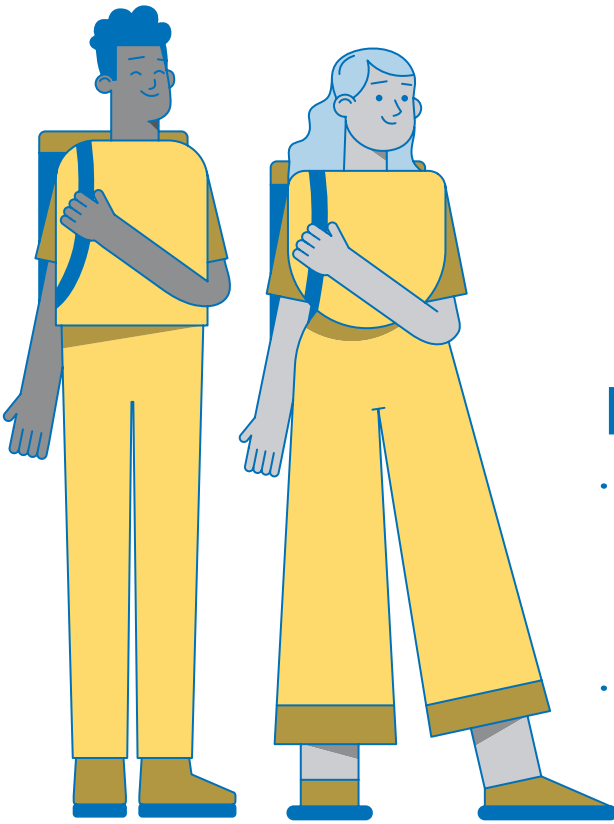
ICILS 2023 Infographic Presentation



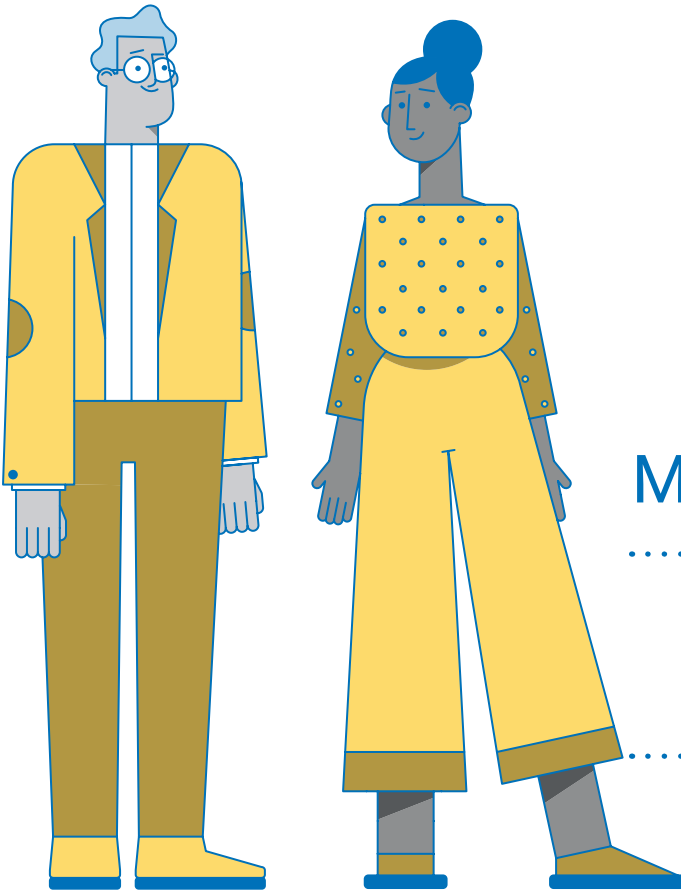
How well are students prepared for study, work, and life in a digital world?

ICILS is the only international large-scale assessment that focuses solely on digital literacy education and that provides measures to monitor changes in students' digital literacy achievement over time.

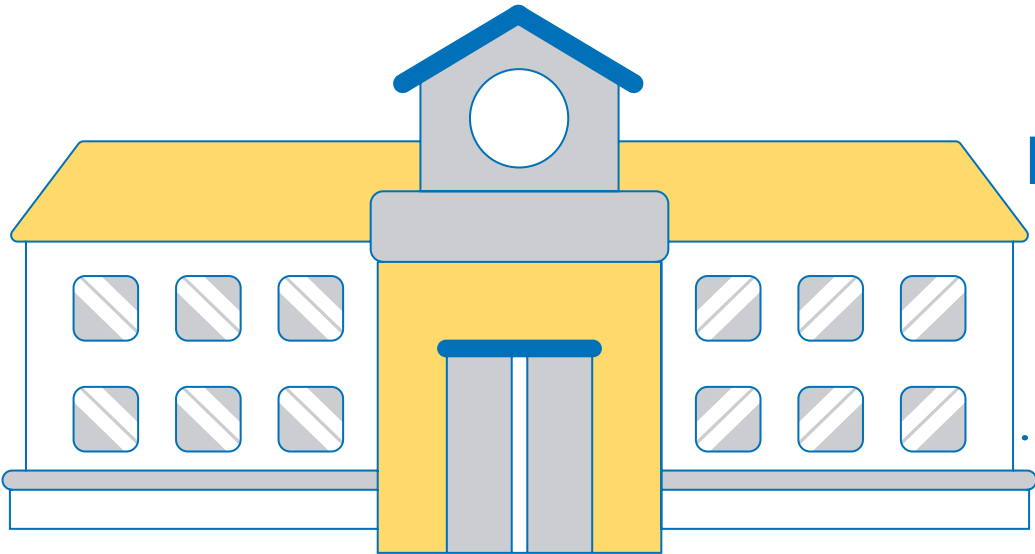
ICILS 2023 collected high-quality data from:



More than
130,000
eighth-grade students*



More than
60,000
teachers



More than
5,000
schools



In
34
countries and 1
benchmarking participant

*Typically about 14 years of age in most countries

What is ?

Computer and Information Literacy: the ability to use computers to investigate, create, and communicate in order to participate effectively at home, at school, in the workplace, and in society.

1. UNDERSTANDING COMPUTER USE

The fundamental technical knowledge and skills that underpin the operational use of computers. This includes knowledge and understanding of the generic characteristics and functions of computers.

2. GATHERING INFORMATION

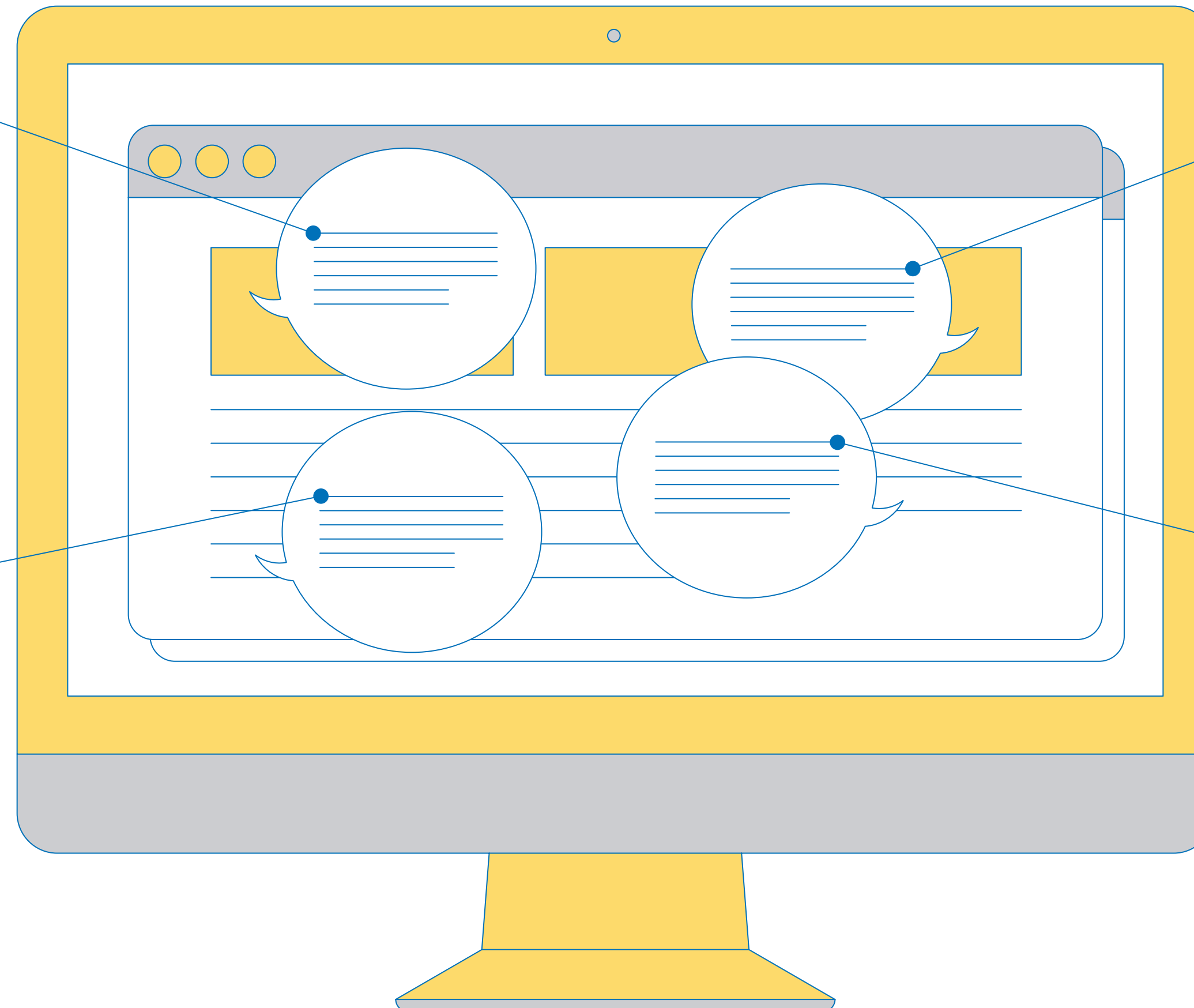
The investigative processes that enable a person to find, retrieve, and make judgments about the relevance, integrity, and usefulness of computer-based information. This includes understanding and applying techniques and tools to effectively handle and store computer-based information.

3. PRODUCING INFORMATION

The use of computers to adapt information display, and to design and generate information products for specified purposes and audiences.

4. DIGITAL COMMUNICATION

The competencies connected with information sharing through various online platforms, such as instant messaging, social media, and other forums, together with the responsibilities associated with sharing information with others.



Levels of Proficiency

The distribution of students' CIL scores in ICILS 2023 fell within or below 4 levels:

BELOW LEVEL 1 (Undeveloped)

Students can complete simple actions under explicit instructions.

LEVEL 1 (Basic/Functional)

Students demonstrate basic operational skills in, and understanding of, the use of computers as tools for completing simple tasks.

LEVEL 2 (Need Support)

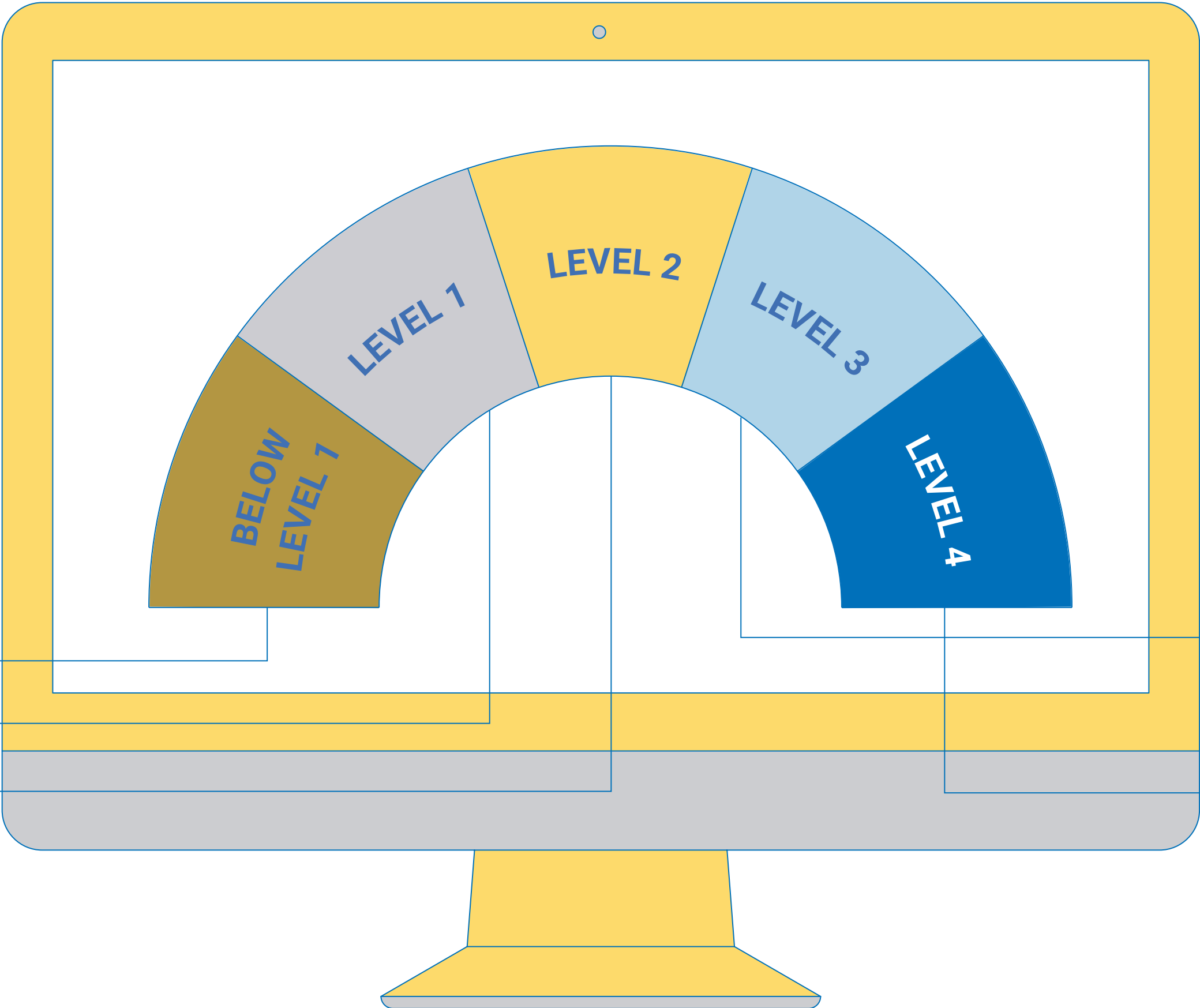
Students can use computers under instruction to complete basic information gathering and management tasks, and to create simple information products.

LEVEL 3 (Independence/Autonomy)

Students demonstrate the capacity to work independently with computers for information gathering and management tasks, and show an understanding of basic information design conventions.

LEVEL 4 (Precision)

Students select the most relevant information to use for communicative purposes, evaluate its usefulness, credibility, and reliability, and create information products adapted from digital resources in ways that make the information more accessible to the target audience.



Levels of Proficiency

The distribution of students' CIL scores in ICILS 2023 was across and below 4 levels:

BELOW LEVEL 1; 24% of students
(Undeveloped)

Students can complete simple actions under explicit instructions.

LEVEL 1; 27% of students
(Basic/Functional)

Students demonstrate basic operational skills in, and understanding of, the use of computers as tools for completing simple tasks.

LEVEL 2; 34% of students
(Need Support)

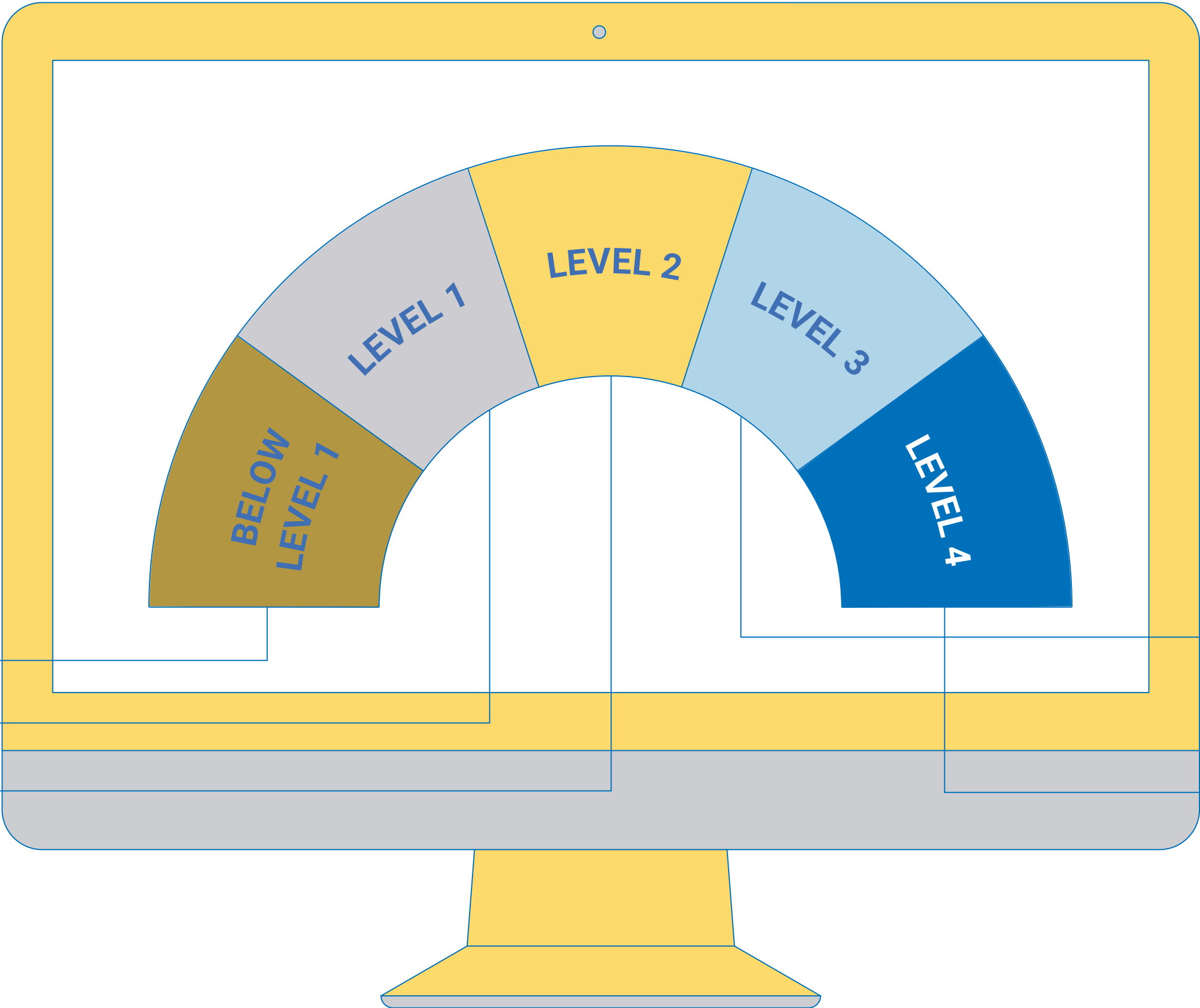
Students can use computers under instruction to complete basic information gathering and management tasks, and to create simple information products.

LEVEL 3; 14% of students
(Independence/Autonomy)

Students demonstrate the capacity to work independently with computers for information gathering and management tasks, and show an understanding of basic information design conventions.

LEVEL 4; 1% of students
(Precision)

Students select the most relevant information to use for communicative purposes, evaluate its usefulness, credibility, and reliability, and create information products adapted from digital resources in ways that make the information more accessible to the target audience.



Note: ICILS 2023 average is based on all non-benchmarking participants that met sampling participation requirements except Romania.

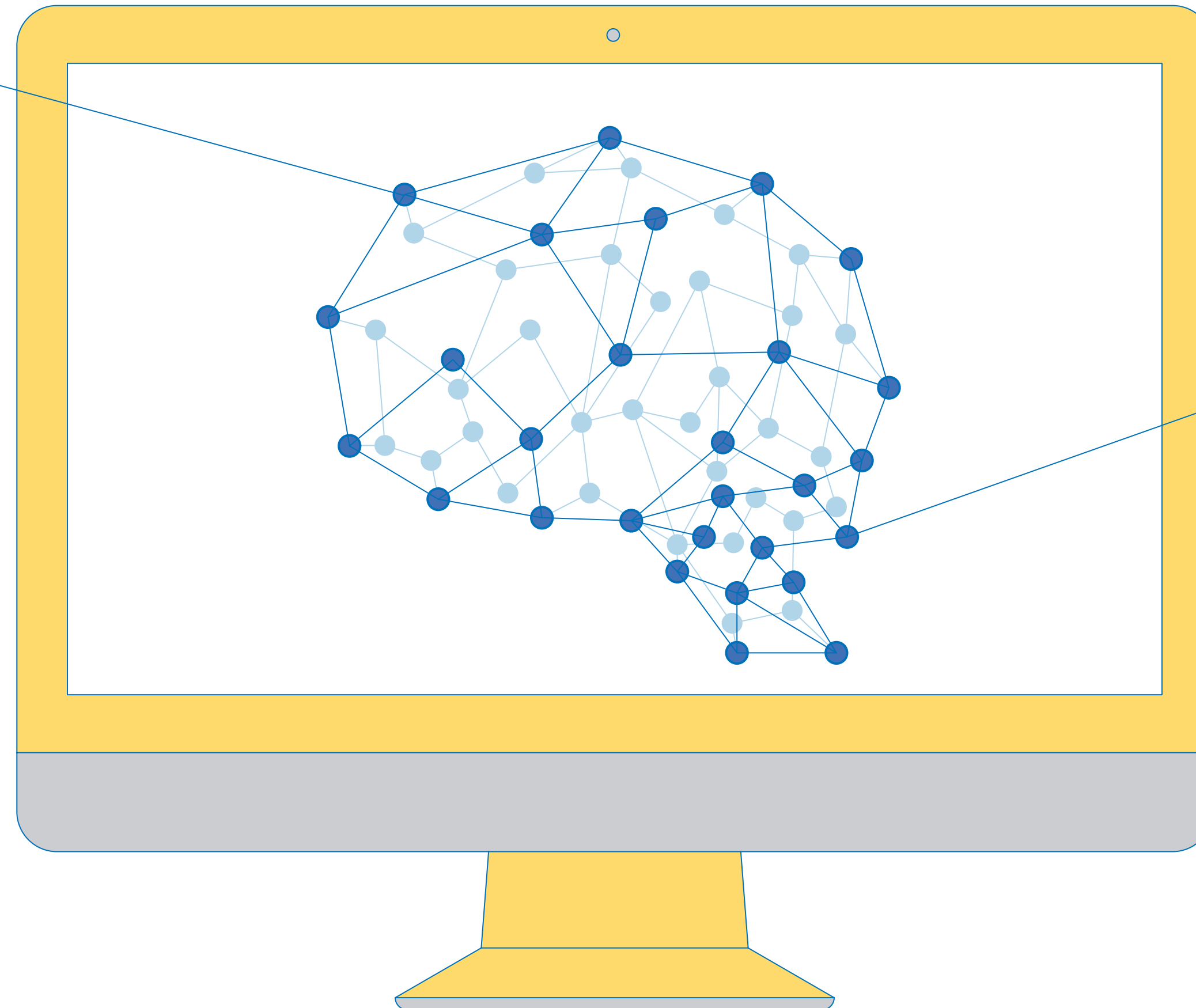
What is ?

Computational Thinking:

The ability to plan and implement computer-based solutions to real-world problems

1. CONCEPTUALIZING PROBLEMS

Understanding problems in a way that allows systems thinking to help develop solutions.



2. OPERATIONALIZING SOLUTIONS

Creating and implementing computer-based responses to problems. In ICILS, this doesn't require the use of a coding language.

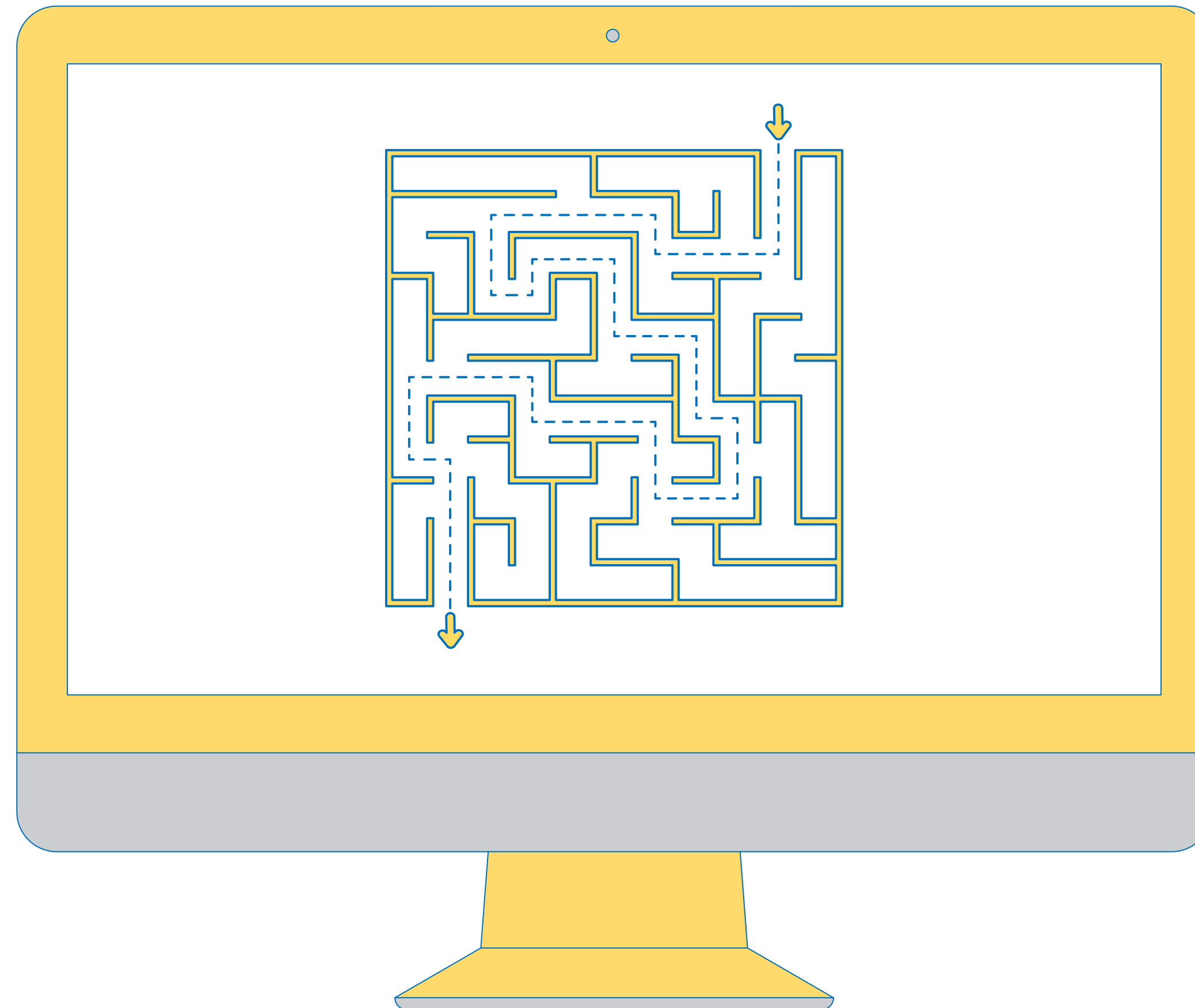
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Levels of Proficiency

Students' CT achievement can be described across four levels of increasing proficiency:

LEVEL 1 (Fundamental sequencing)

Student recognizes the logic associated with fundamental computational concepts.

LEVEL 2 (Structured problem solving)

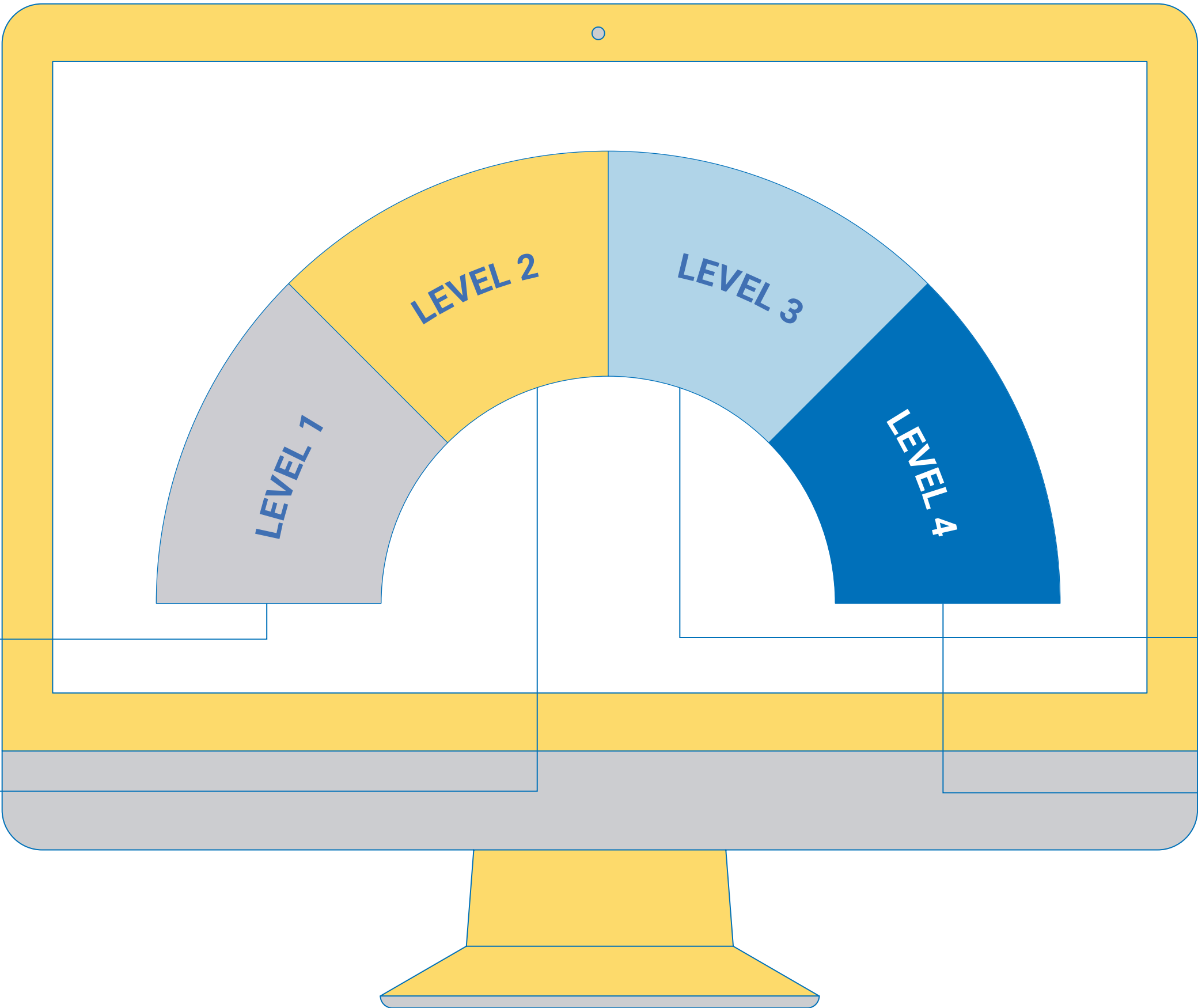
Student demonstrates the ability to engage with a range of structured computational problems.

LEVEL 3 (Integrated problem solving)

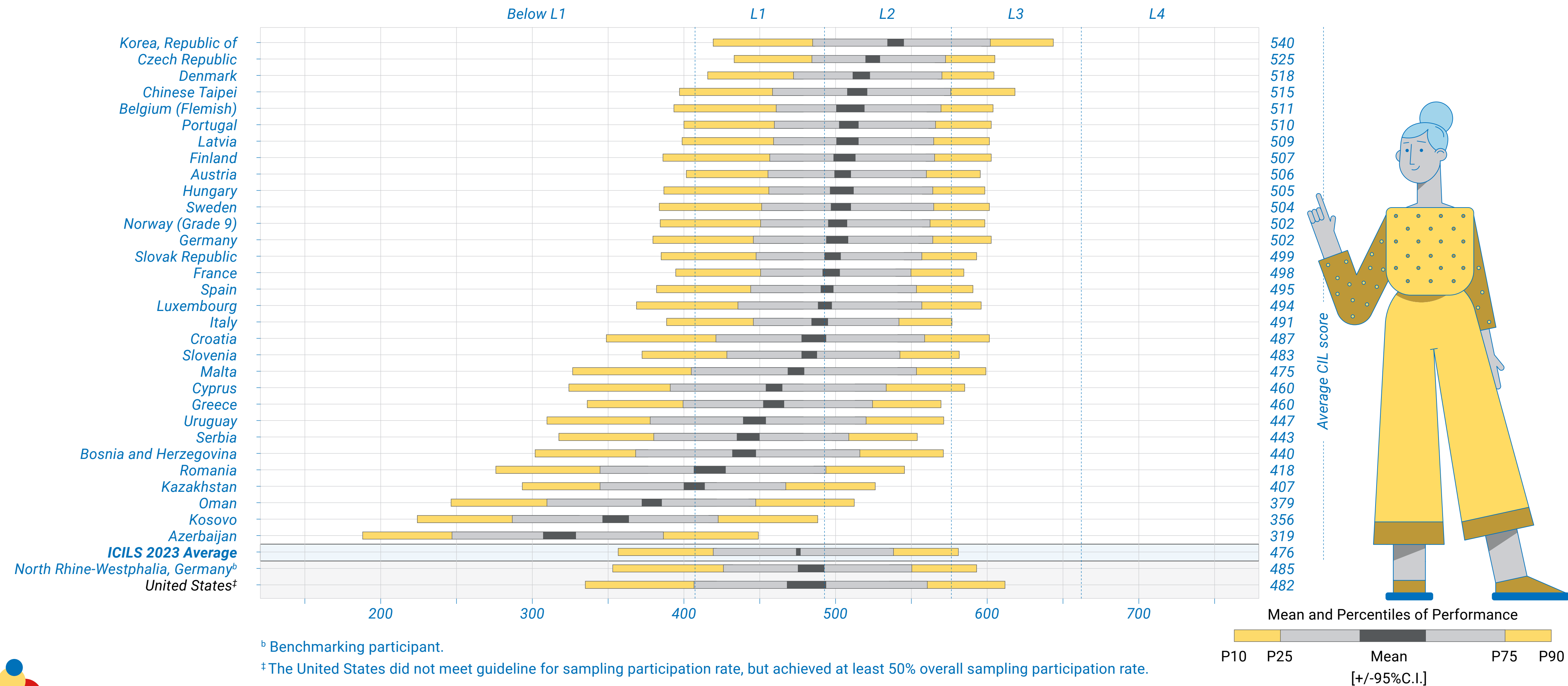
Student engages with problems that include a variety of computational concepts. Can interpret problem scenarios and explain the application of fundamental elements of problem-solving.

LEVEL 4 (Systems thinking)

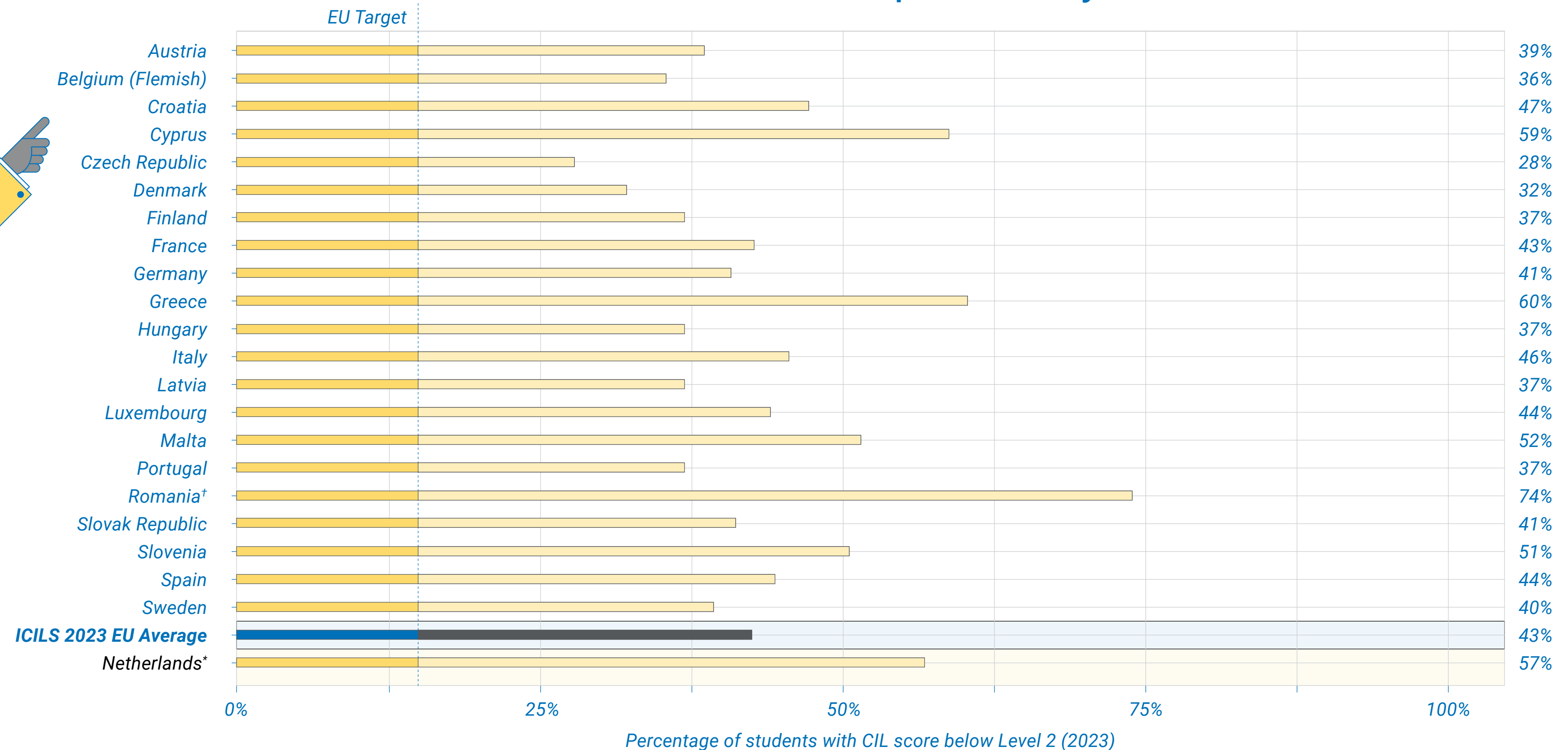
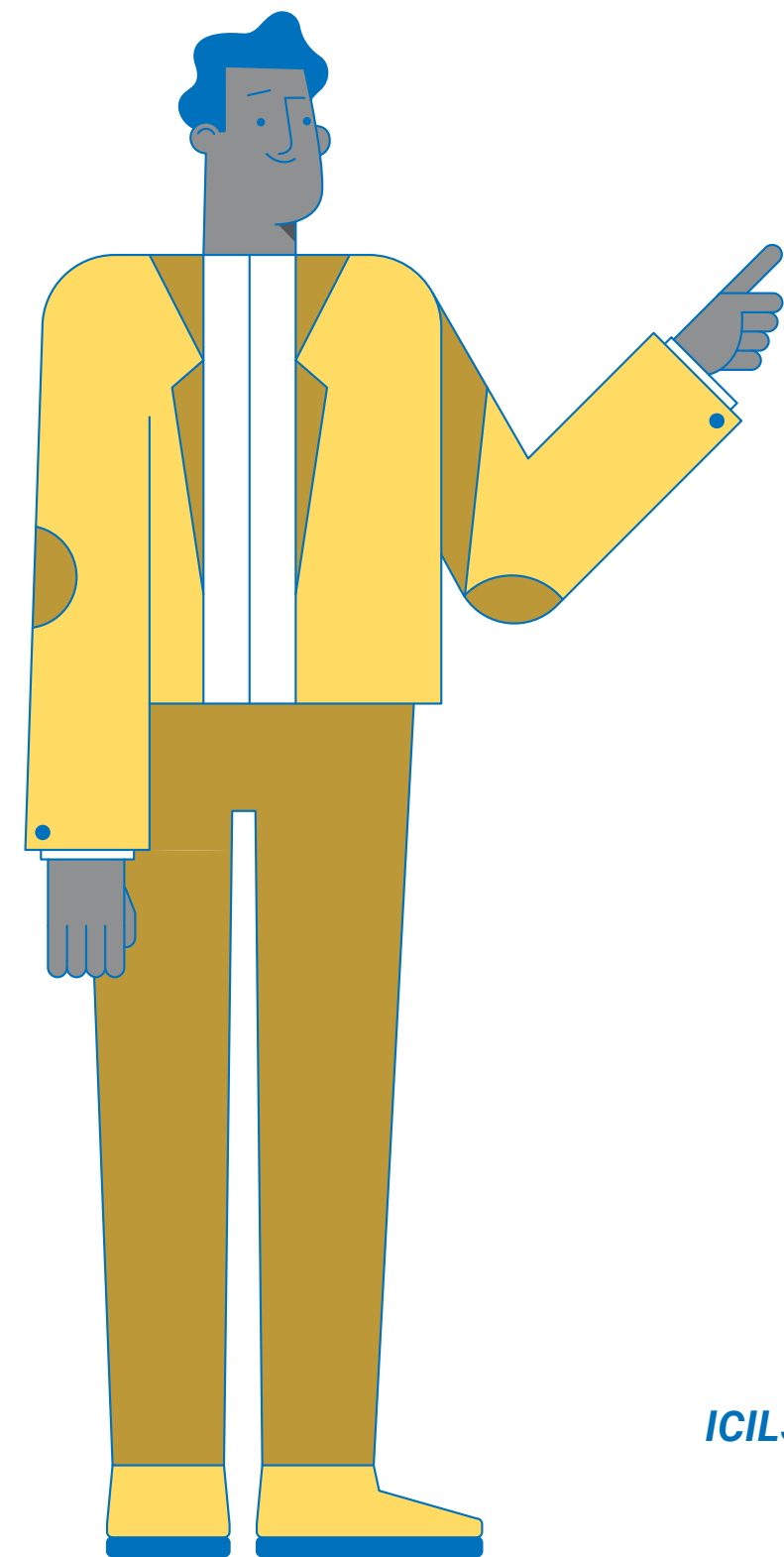
Student recognizes and analyzes problems involving a broad variety of computational concepts and operations. Can decompose complex problems into smaller, solveable components.



Results from ICILS 2023 reveal that differences in students' **Computer and Information Literacy (CIL)** scores vary considerably within and across countries



Progress toward reaching the EU goal of reducing the proportion of eighth-grade students with CIL below Level 2 to less than 15 percent by 2030



[†] Romania surveyed the target grade in the first half of the school year. As such, their data are not included in the EU average.

*The weighted participation rate in the Netherlands corresponds to less than 50% of the population. As these data do not meet IEA reporting standards, they are not included in the EU averages.

We urge great caution when interpreting the results and strongly discourage comparison of these data with data from other participating countries.

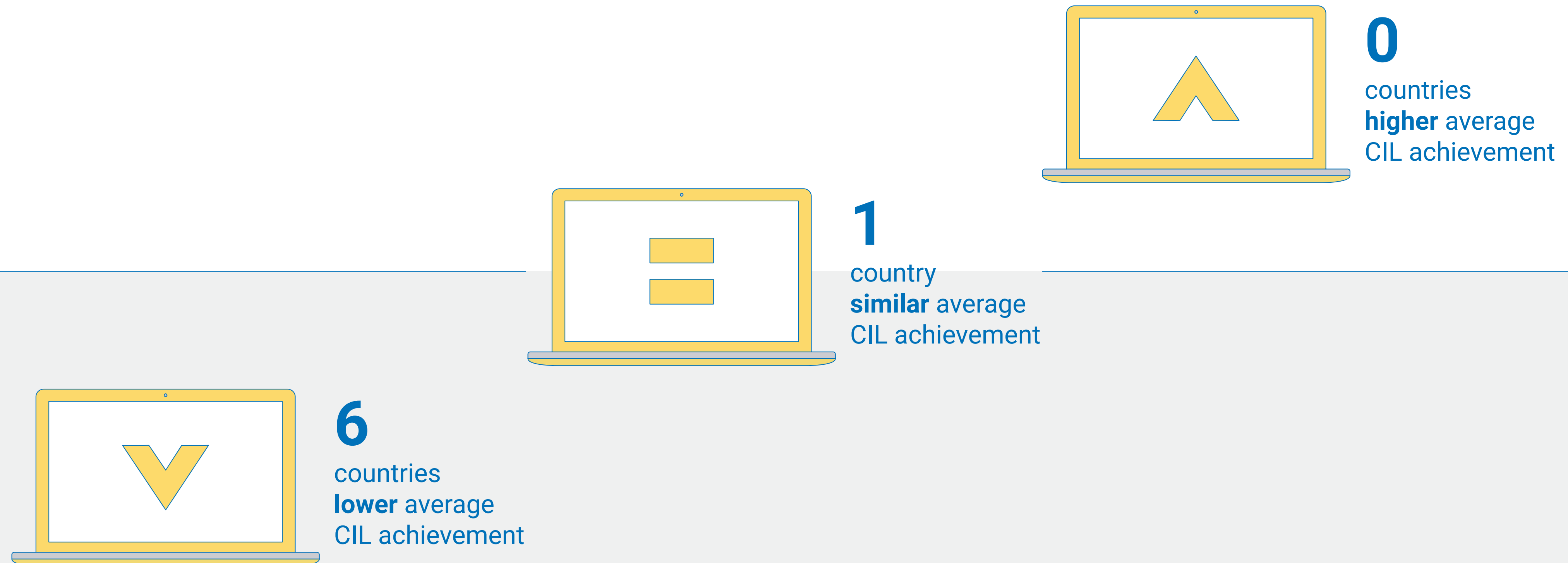
This target is part of the European Commission's Digital Education Action Plan (2021-2027).

The source for measuring progress toward this target is ICILS.

Note: ICILS 2023 EU Average is based on all non-benchmarking participants that met sampling participation requirements except Romania.

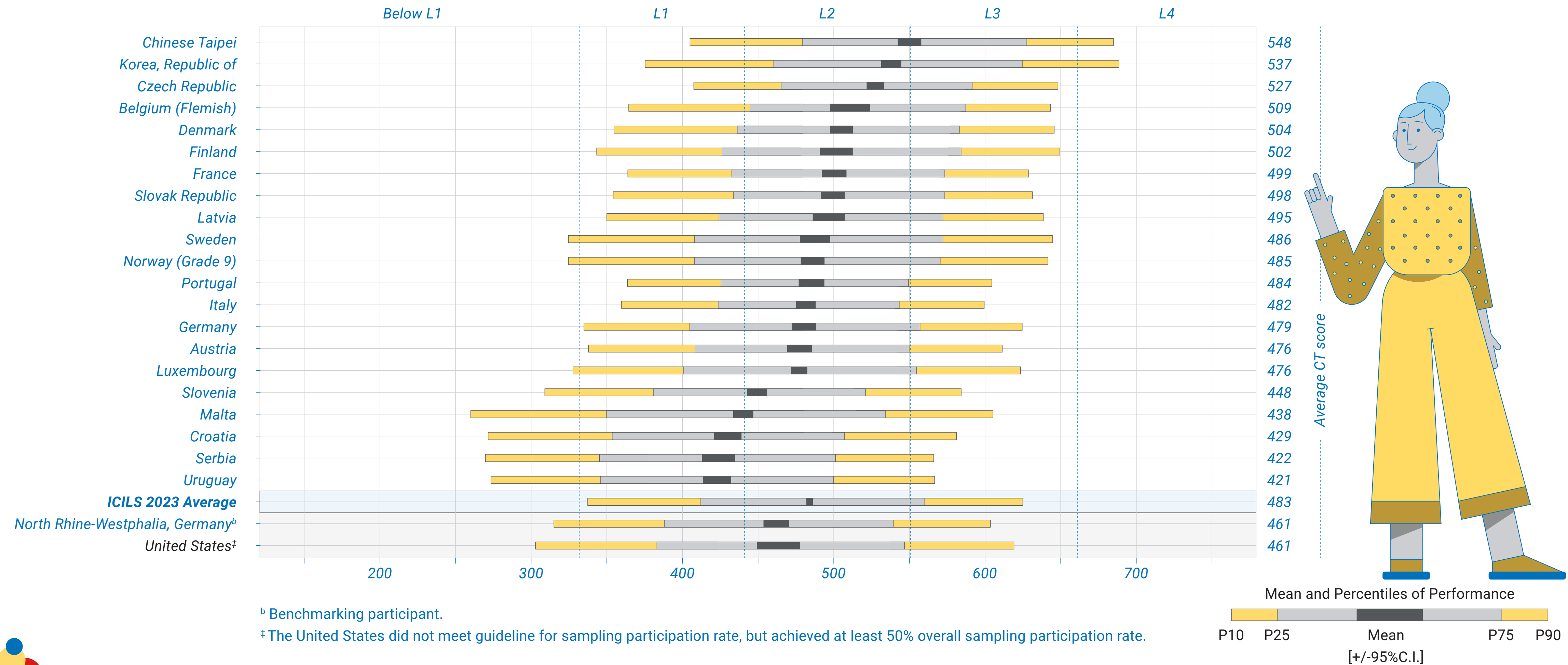
Across the ten-year period from ICILS 2013 to 2023, **decreases in average CIL achievement were seen in six countries** and no country recorded a statistically significant increase.

Long-Term Trends 2013-2023



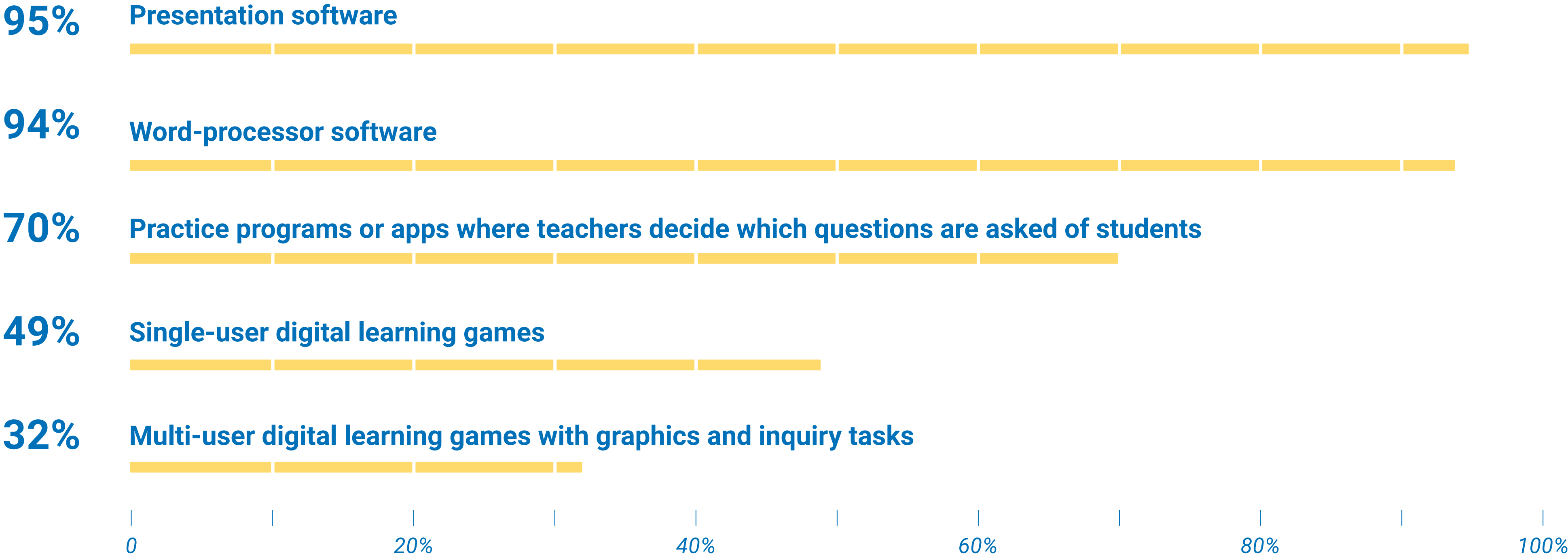
Note: Data reflect the 7 countries participating in both ICILS 2023 and 2013 cycles that met ICILS sample participation requirements in both cycles.

Results from ICILS 2023 reveal that differences in students' Computational Thinking (CT) scores within countries are larger than the differences between countries.



Note: ICILS 2023 average is based on all non-benchmarking participants that met sampling participation requirements.

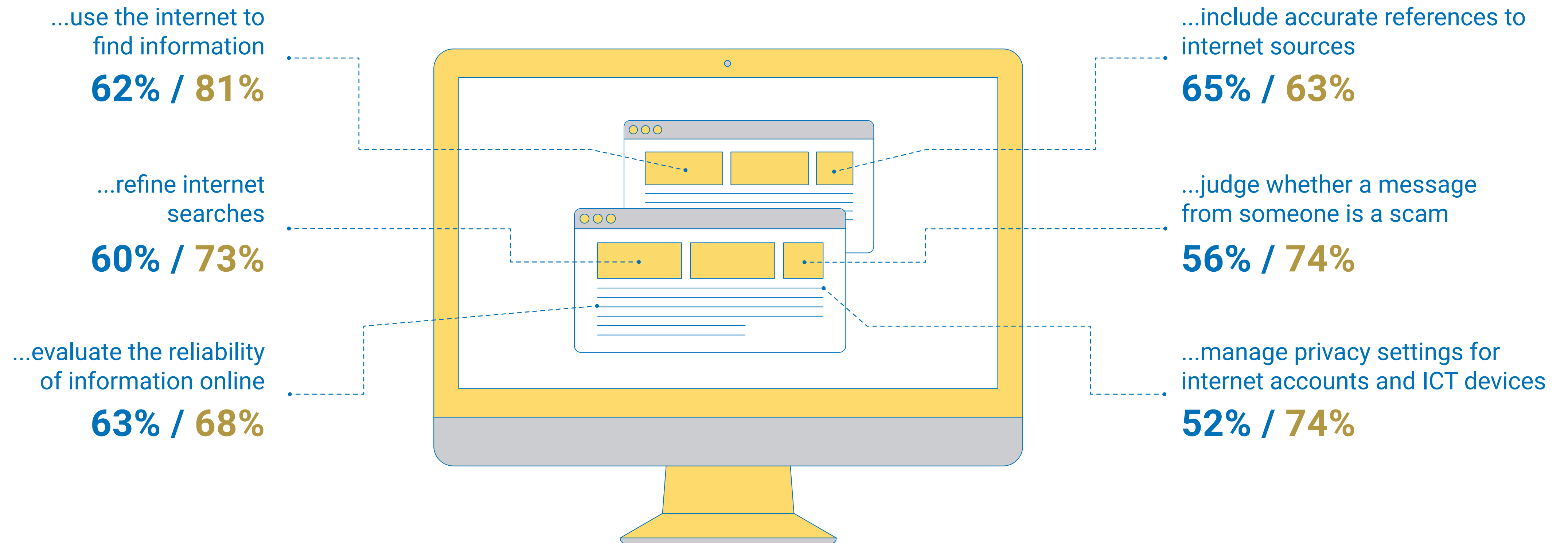
Percentage of students at schools where ICT coordinators indicate certain software resources are available to teachers and students



Note: ICILS 2023 average is based on all non-benchmarking participants that met sampling participation requirements except Romania.

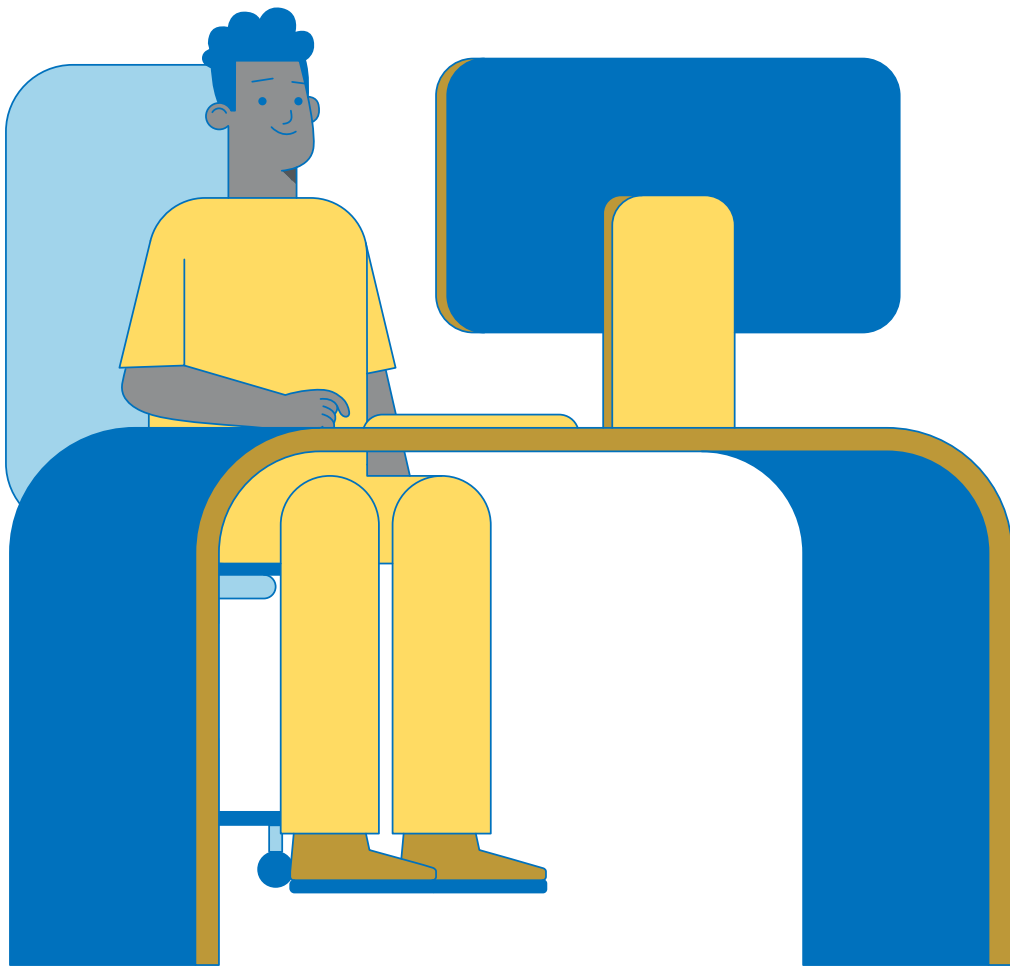
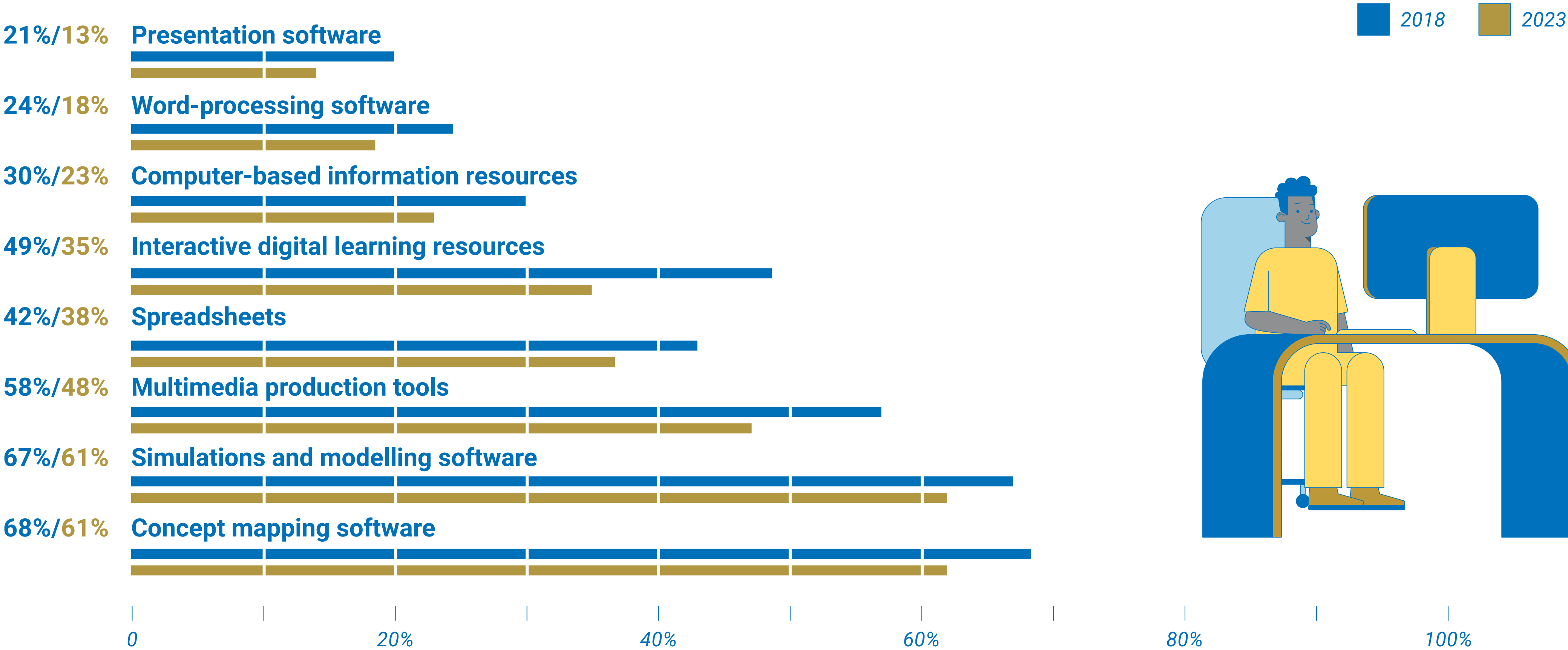


Students report having learned, at least to a moderate extent, **at school**, and **outside of school**, to...



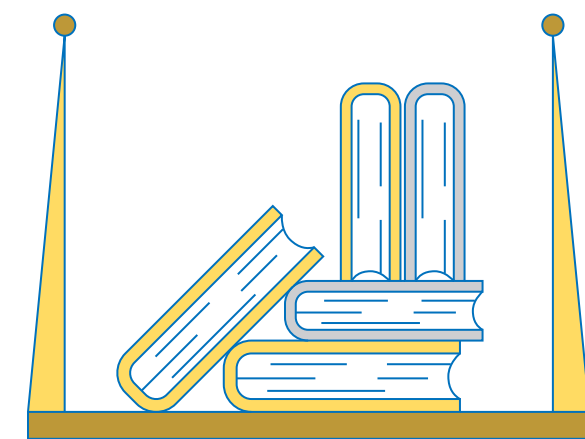
Note: ICILS 2023 average is based on all non-benchmarking participants that met sampling participation requirements except Romania.

Percentages of students reporting they NEVER use certain Information and Communications Technology (ICT) resources in school lessons 2018 and 2023



Note: Data reflect the 10 countries participating in both ICILS 2023 and 2018 cycles that met ICILS sample participation requirements in both cycles.

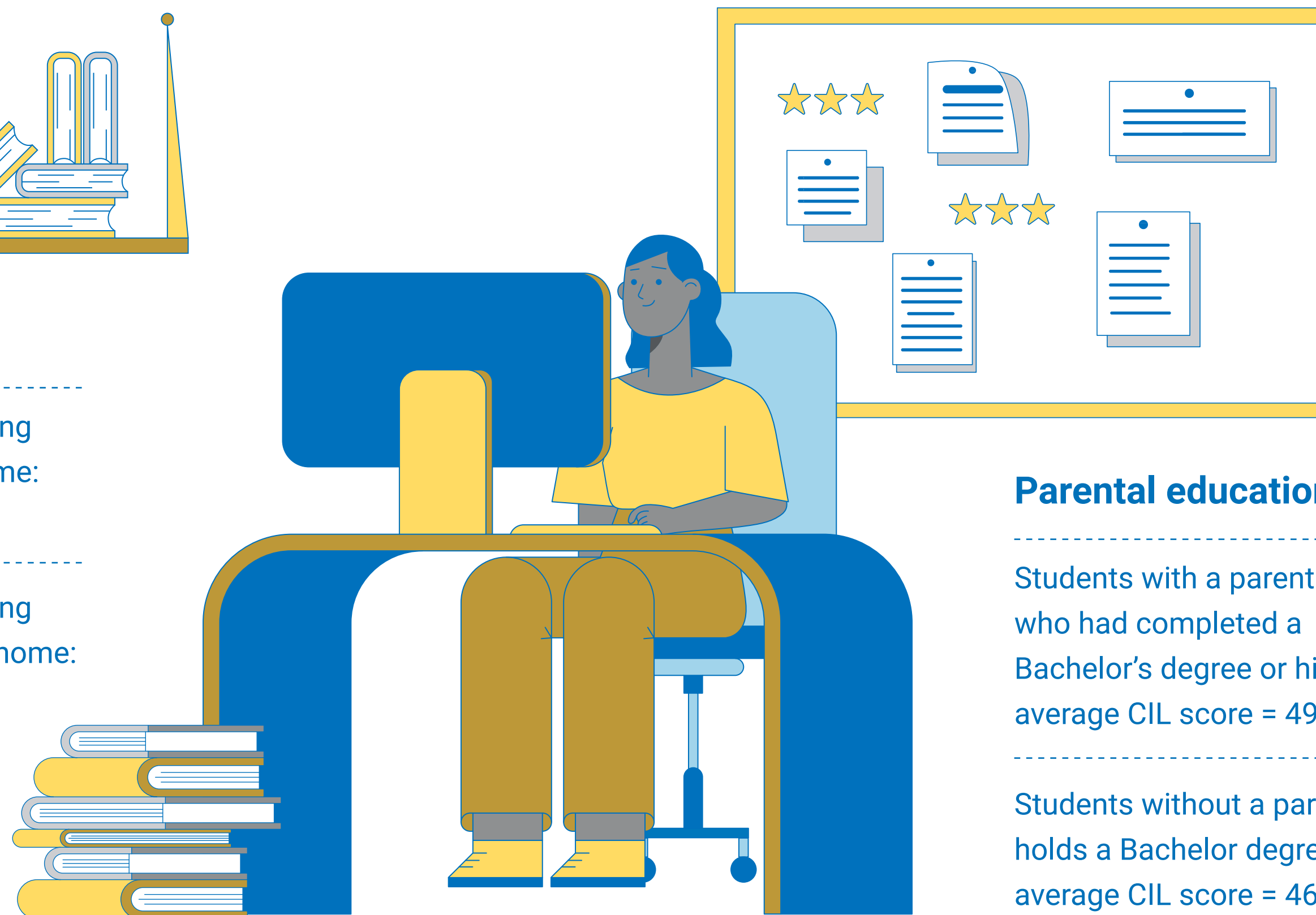
Students from higher socioeconomic backgrounds (measured by parental education and number of books in the home) had **significantly higher Computer and Information Literacy (CIL) scores** in all participating countries and benchmarking participants.



Books in the home

Students who reported having 26 or more books in the home: average CIL score = 496

Students who reported having fewer than 26 books in the home: average CIL score = 448



Parental education

Students with a parent who had completed a Bachelor's degree or higher: average CIL score = 497

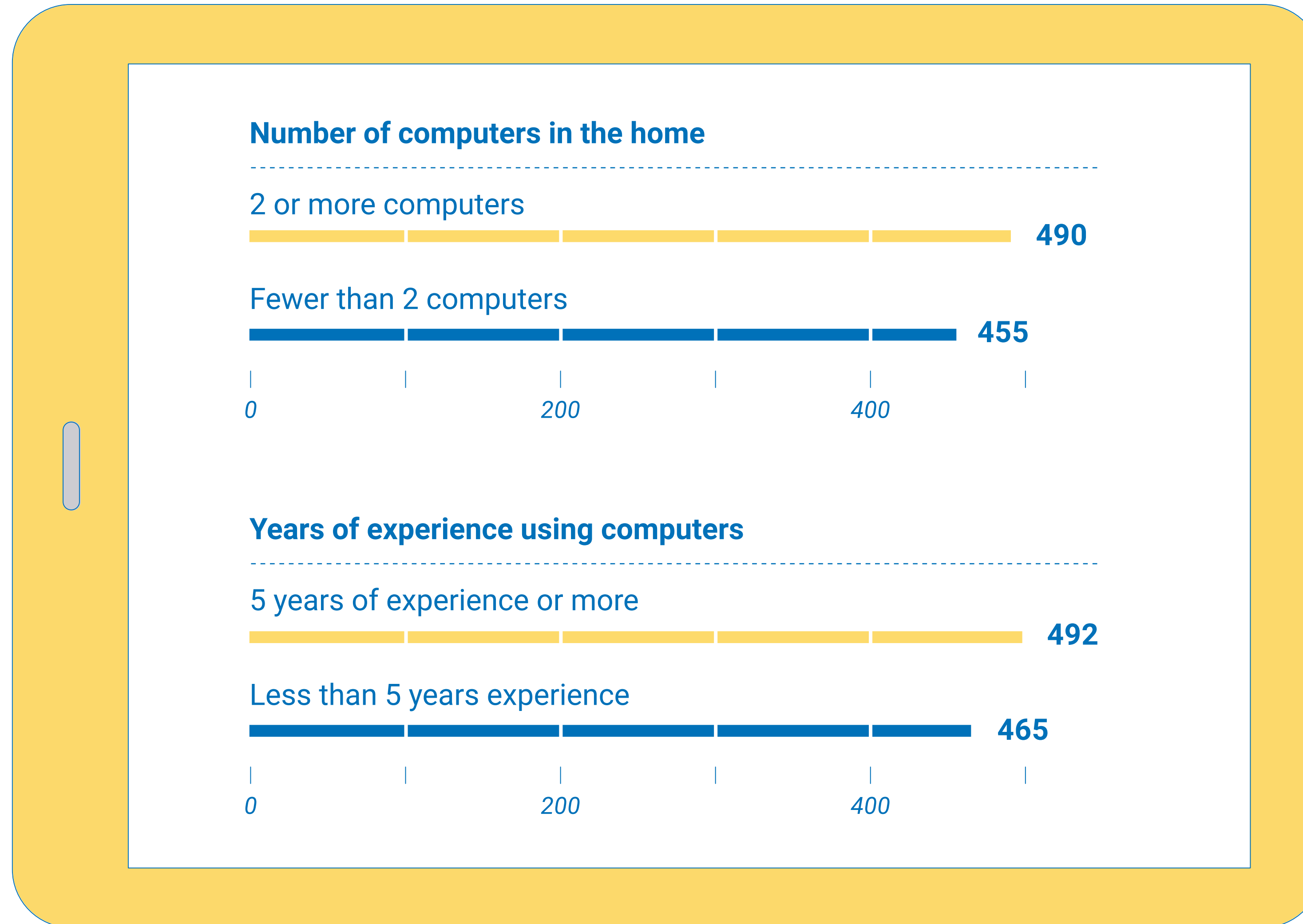
Students without a parent who holds a Bachelor degree: average CIL score = 464

Students from higher socioeconomic backgrounds (measured by parental education and number of books in the home) had **significantly higher Computational Thinking (CT) scores** in all participating countries and benchmarking participants



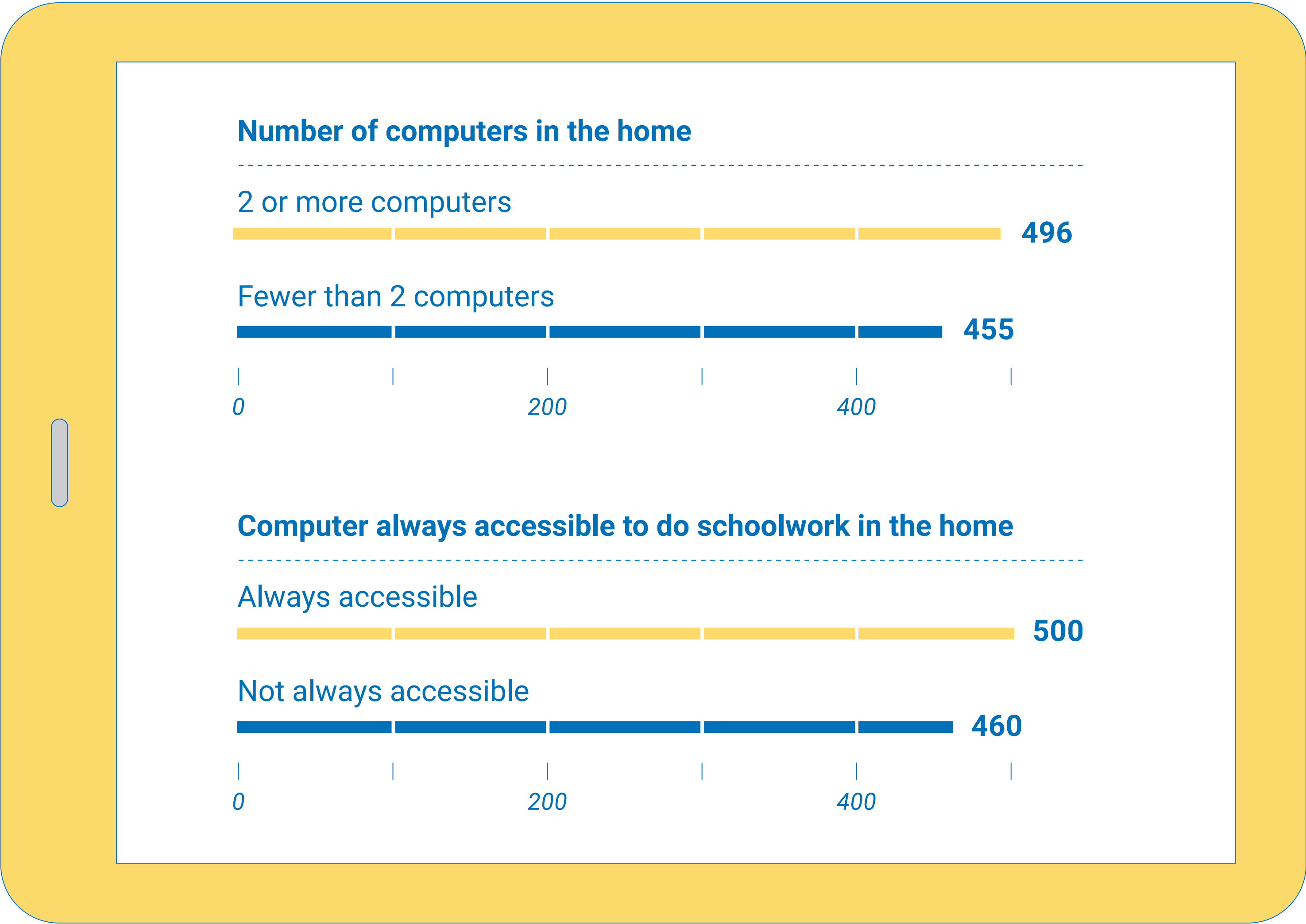
Note: ICILS 2023 average is based on all non-benchmarking participants that met sampling participation requirements.

Students with more computers in the home have **higher CIL scores**.



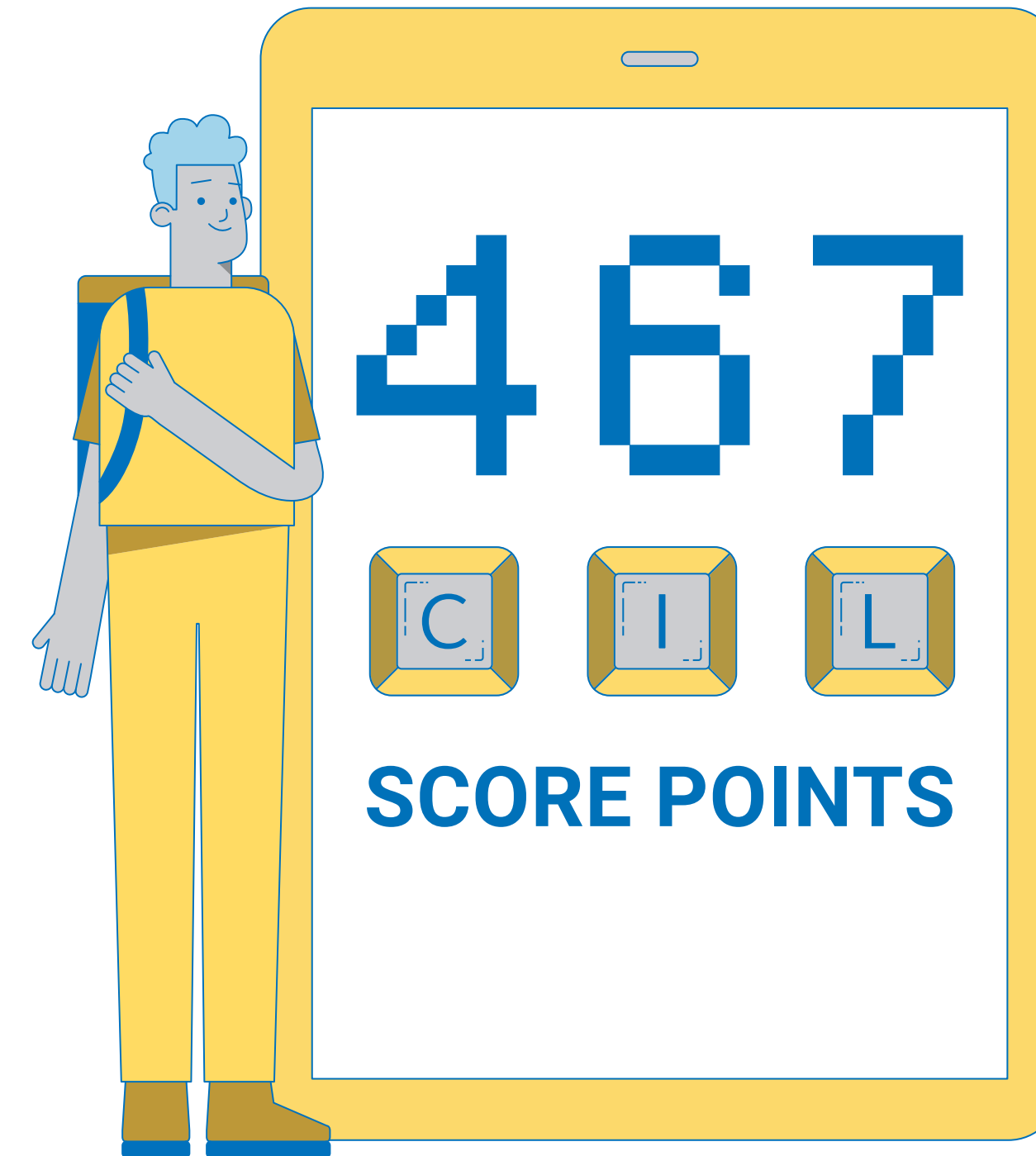
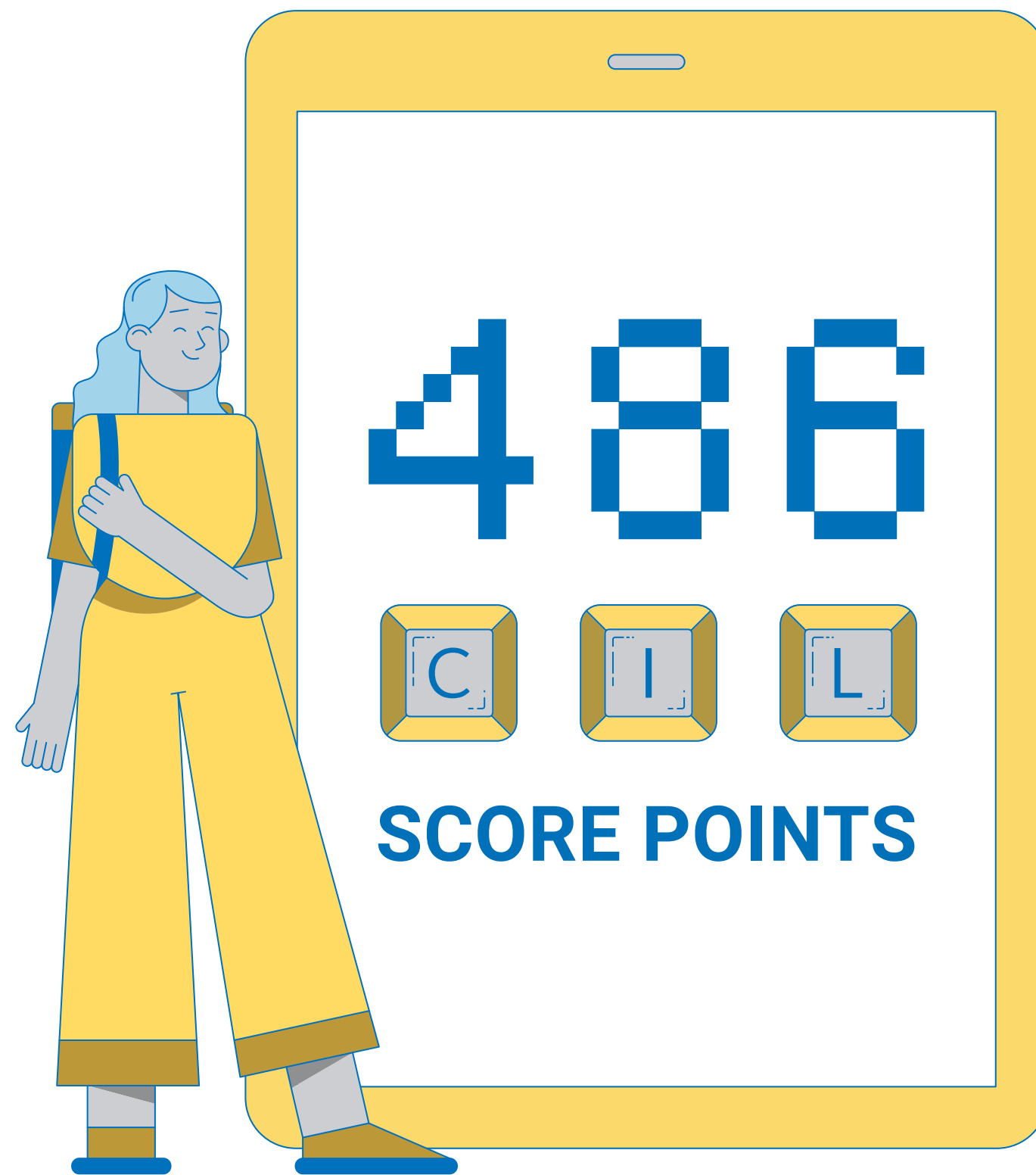
Students with more years of experience using computers have **higher CIL scores**.

Students with more computers in the home and who always have access to a computer to do schoolwork at home have **higher CT scores**.



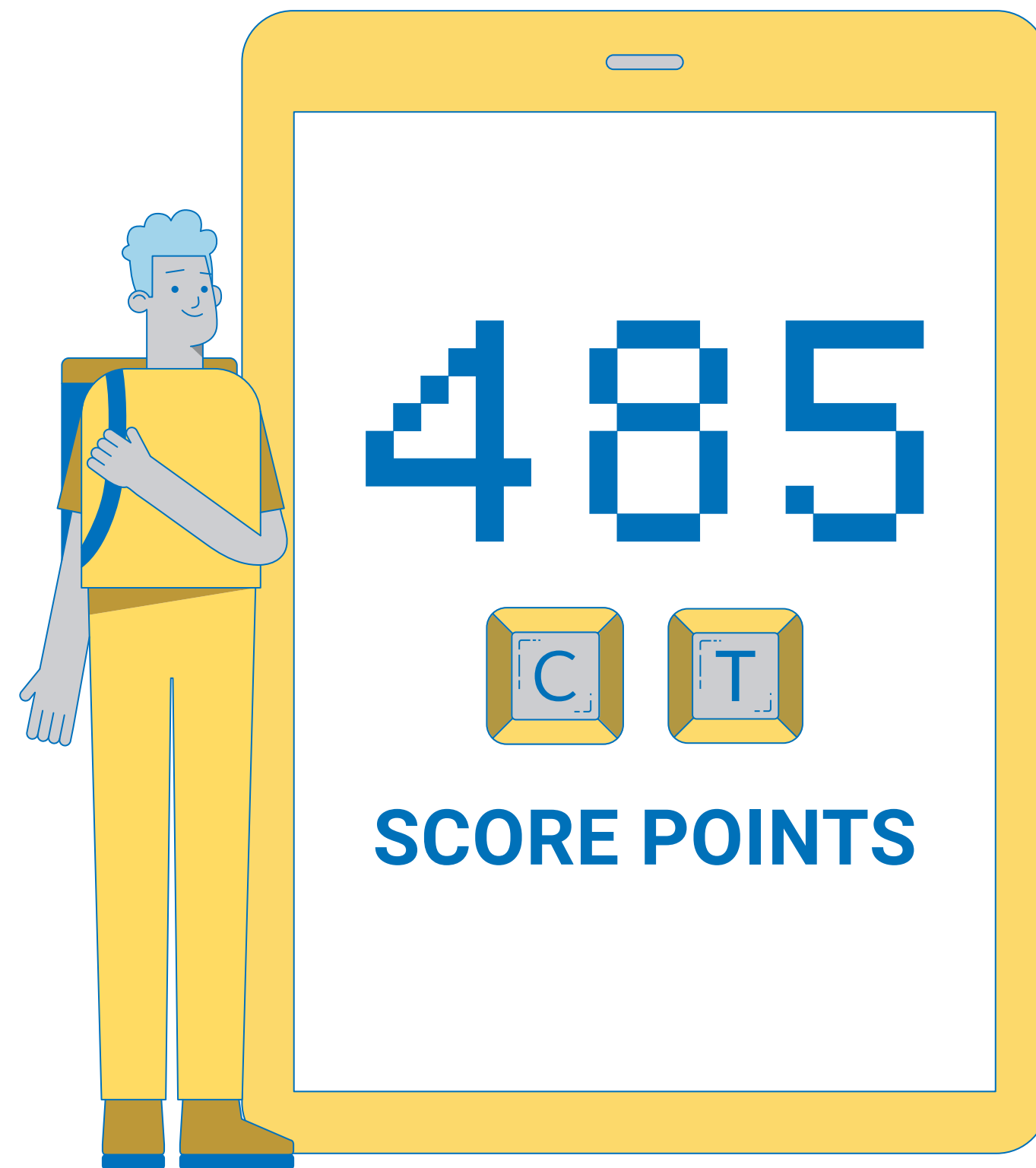
Having ICT devices in the home is **not entirely sufficient for students** if they are not available to them for use for school-related activities.

On average, female students perform better than male students
in **Computer and Information Literacy (CIL)**.



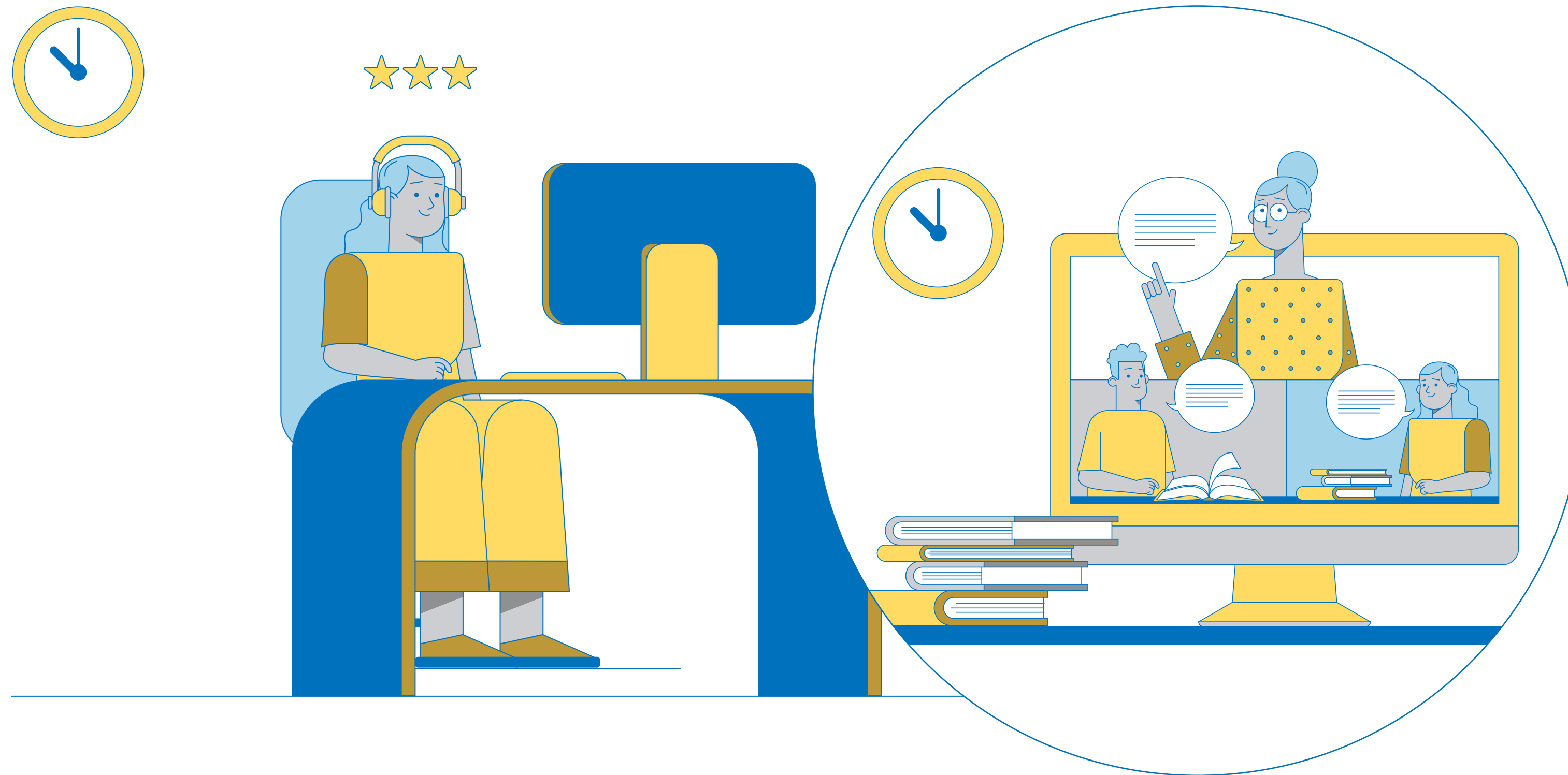
Note: ICILS 2023 average is based on all non-benchmarking participants that met sampling participation requirements except Romania.

On average, male students perform very slightly better than female students
in **Computational Thinking (CT)**



On average, female students demonstrate **higher Computer and Information Literacy (CIL)** than male students in ICILS 2023.

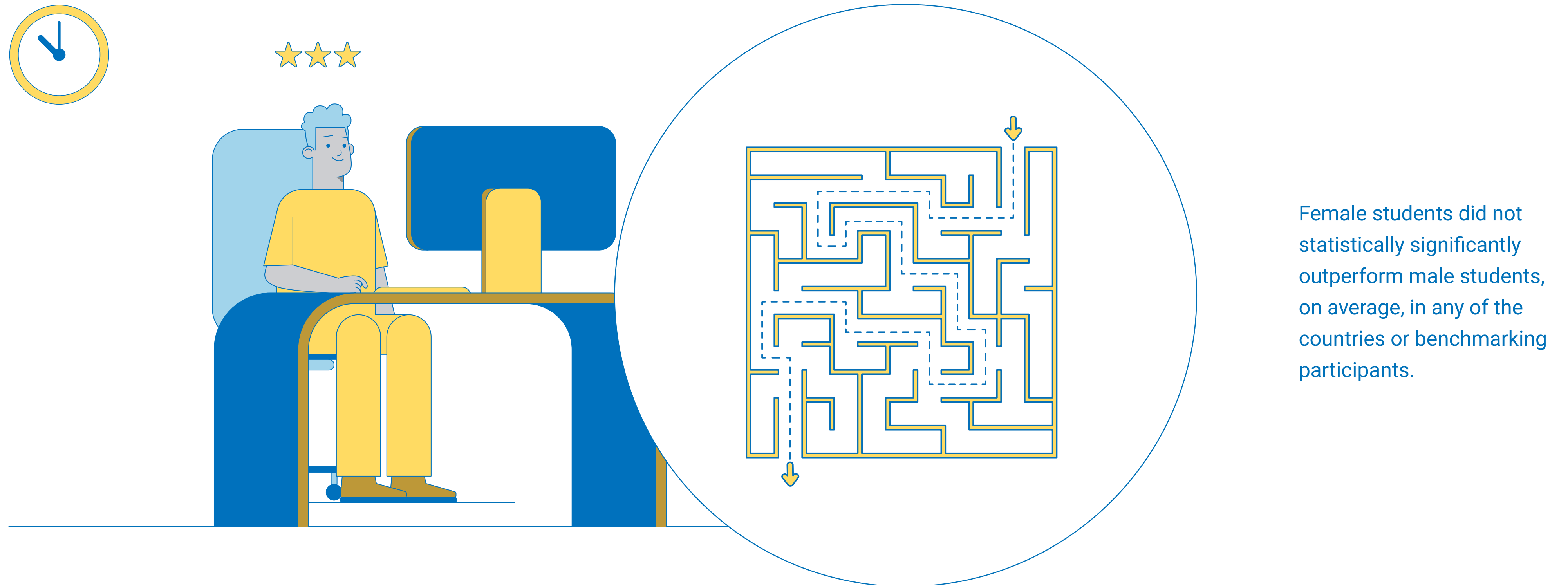
Female students outperformed male students in **28 of 32 countries**.



Male students did not statistically significantly outperform female students, on average, in CIL in any of the countries or benchmarking participants.

On average, male students demonstrate **higher Computational Thinking (CT)** than female students in ICILS 2023.

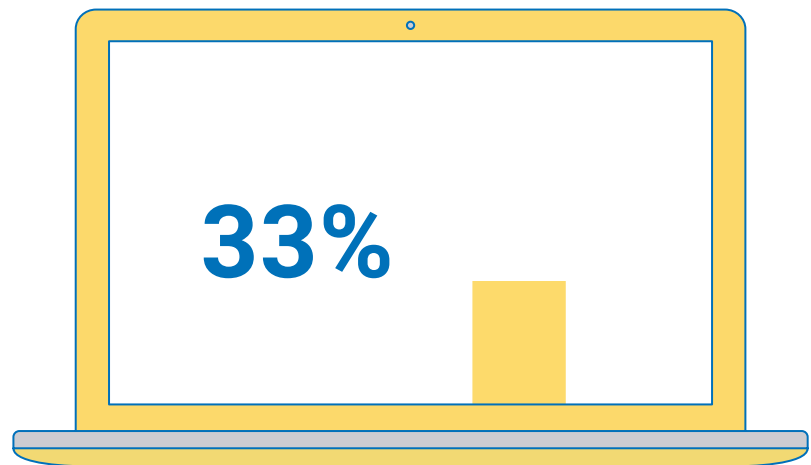
Male students outperformed female students in **6 of 22 countries**



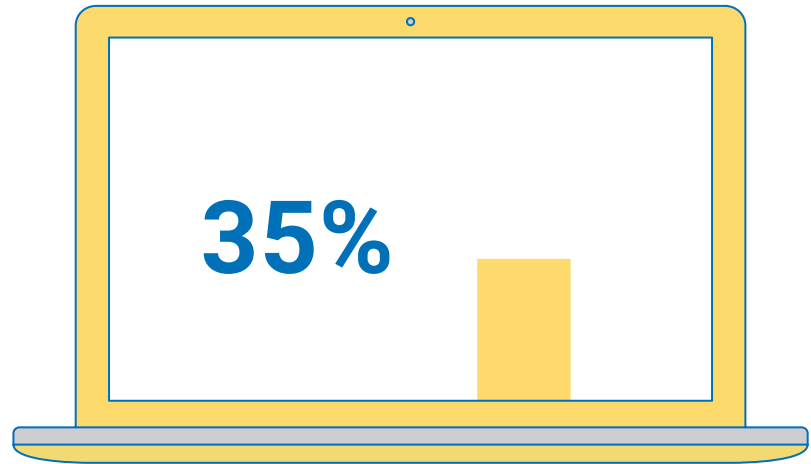
Female students did not statistically significantly outperform male students, on average, in any of the countries or benchmarking participants.

Students' use of Information and Communications Technology (ICT) devices on school days

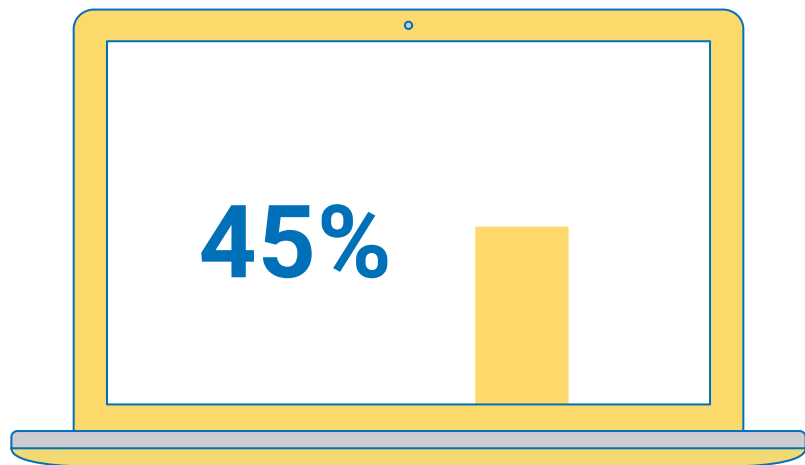
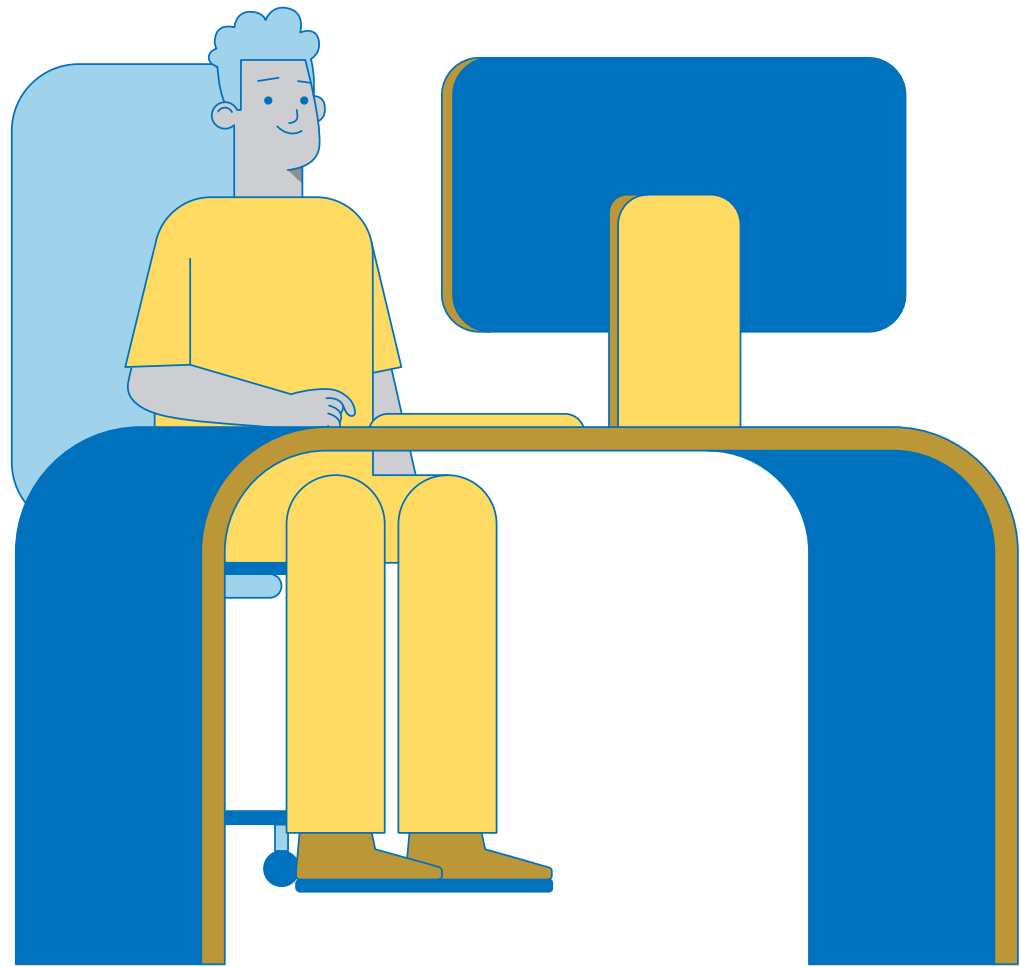
Students reporting at least daily ICT use:



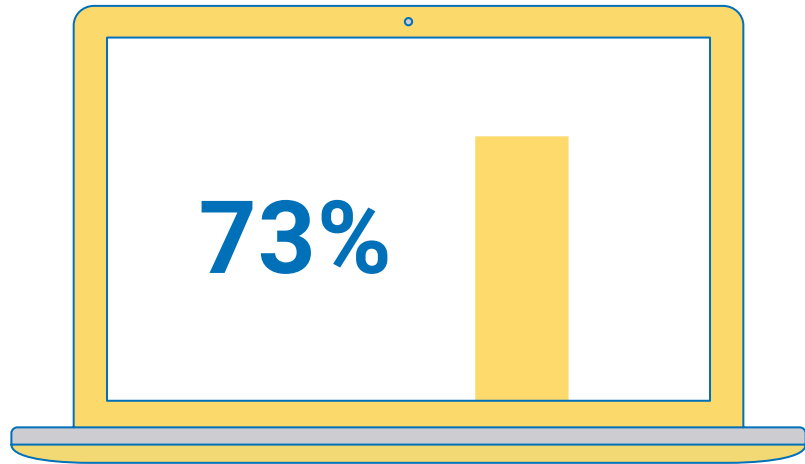
at school for schoolwork



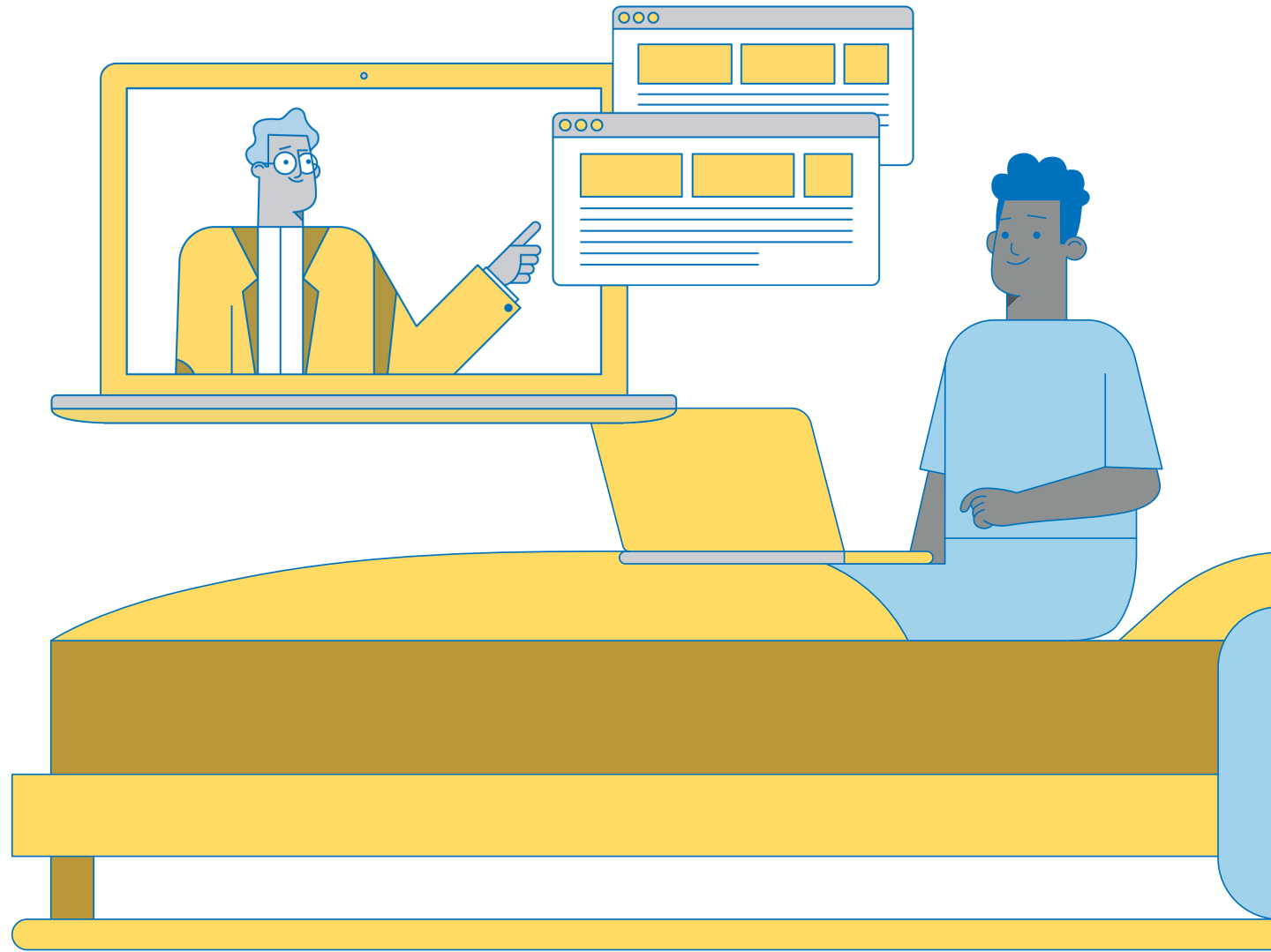
at school for other purposes



outside of school for schoolwork



outside of school for other purposes



Most students acknowledged positive outcomes of Information and Communications Technology (ICT) for society



85%

Agreed or strongly agreed that advances in ICT usually improve people's living conditions

85%

Agreed or strongly agreed that ICT helps us to understand the world better

82%

Agreed or strongly agreed that ICT is valuable to society

82%

Agreed or strongly agreed that advances in ICT bring many social benefits

Many students acknowledge that **Information and Communications Technology (ICT)** can have negative impacts on society



83%

Agreed or strongly agreed that people spend far too much time using ICT

76%

Agreed or strongly agreed that using ICT may be dangerous for people's health

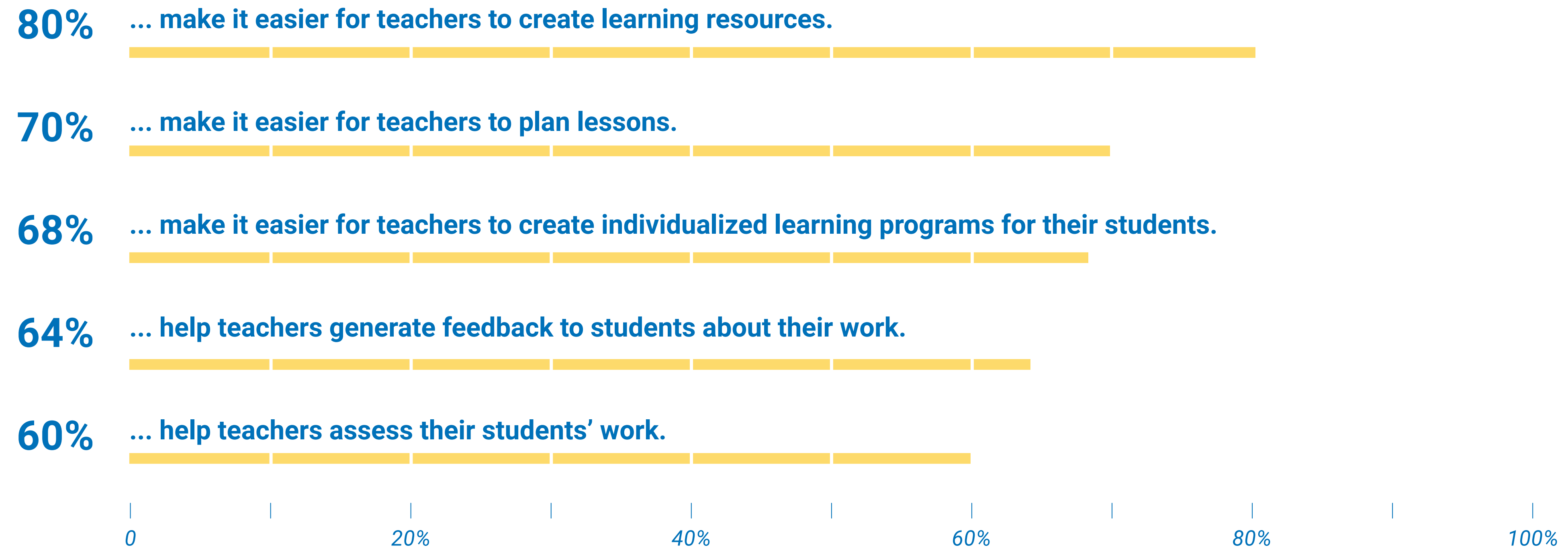
69%

Agreed or strongly agreed that using ICT makes people more isolated in society

59%

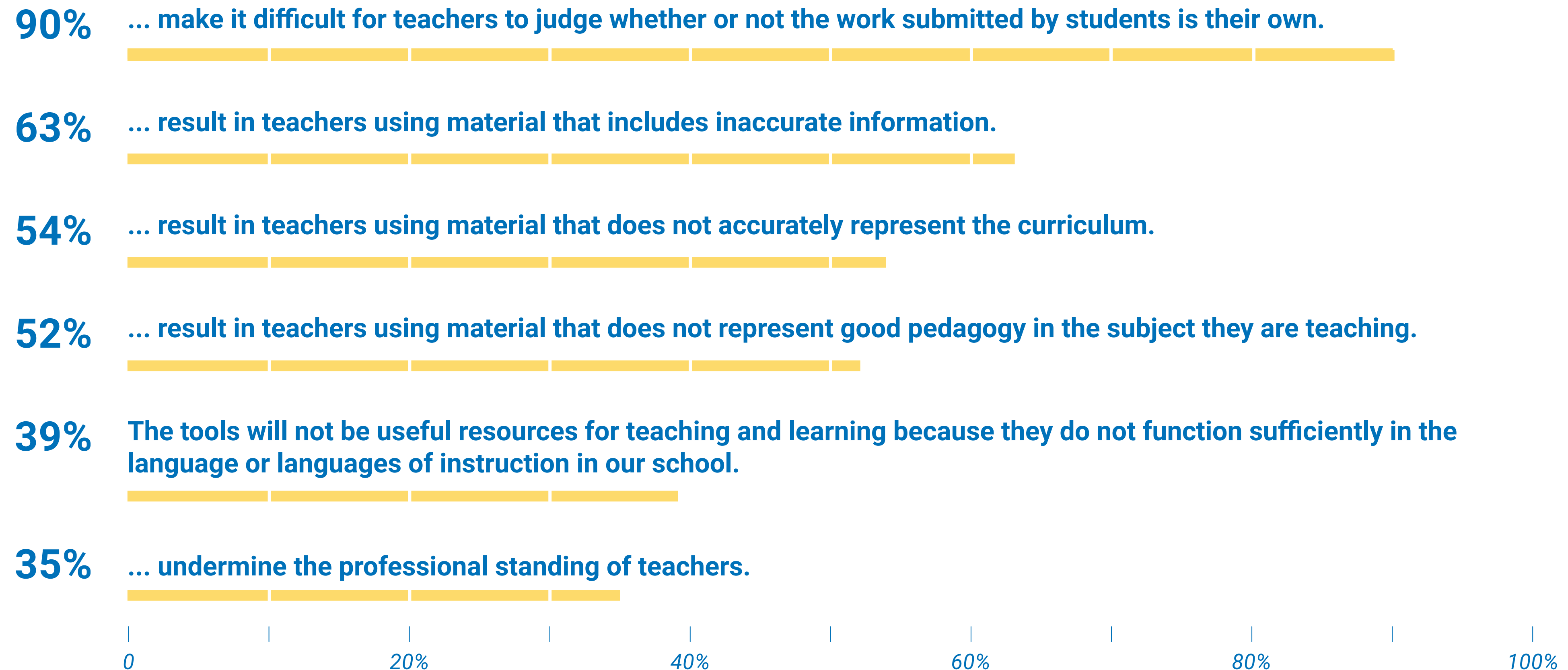
Agreed or strongly agreed that with more ICT there will be fewer jobs

Percentages of students in schools where principals indicate that **ChatGPT or similar tools will likely or very likely result** in the following **positive consequences**:



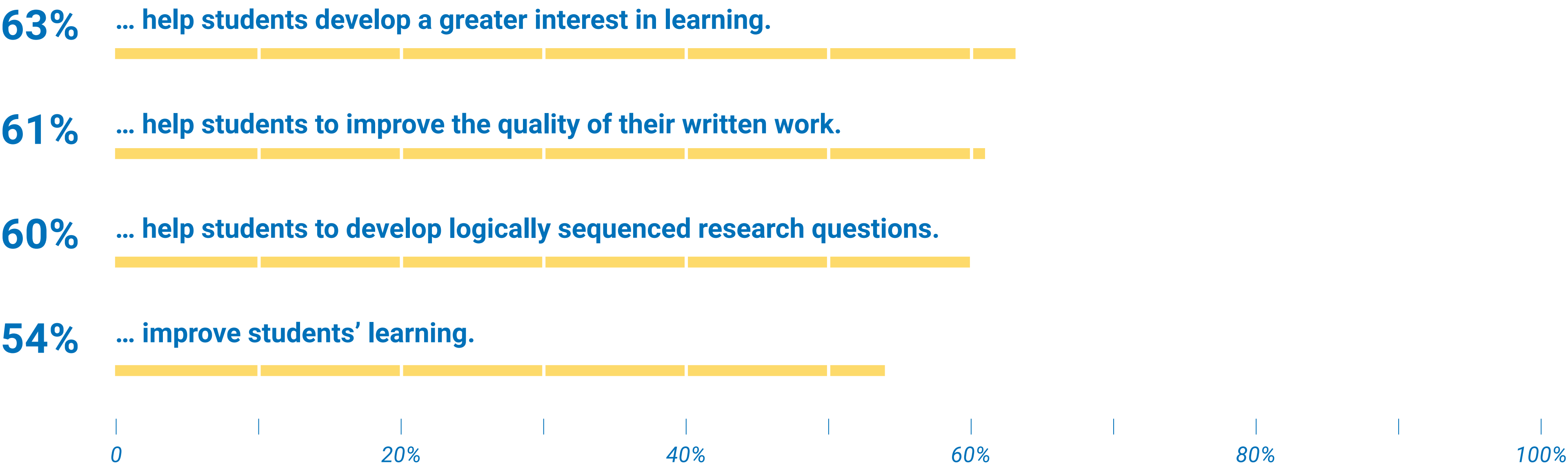
Note: Percentages reflect 10 countries that participated in the optional data collection addressing principals' reports about the use of generative AI tools in schools and met ICILS sample participation requirements.

Percentages of students in schools where principals indicate that **ChatGPT or similar tools will likely or very likely result** in the following **negative consequences** for the work of teachers:



Note: Percentages reflect 10 countries that participated in the optional data collection addressing principals' reports about the use of generative AI tools in schools and met ICILS sample participation requirements.

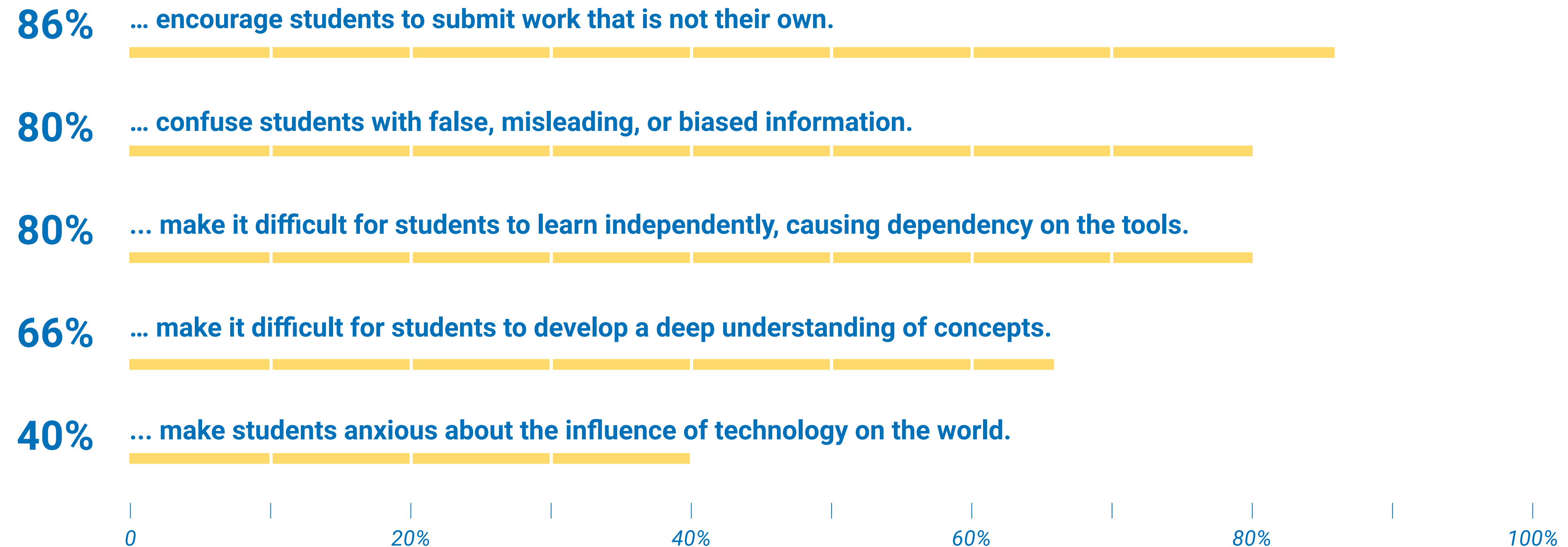
Percentages of students in schools where principals indicated that the use of **ChatGPT or similar tools** will result in the following **positive consequences** with respect to students' learning:



Note: Percentages reflect 10 countries that participated in the optional data collection addressing principals' reports about the use of generative AI tools in schools and met ICILS sample participation requirements.

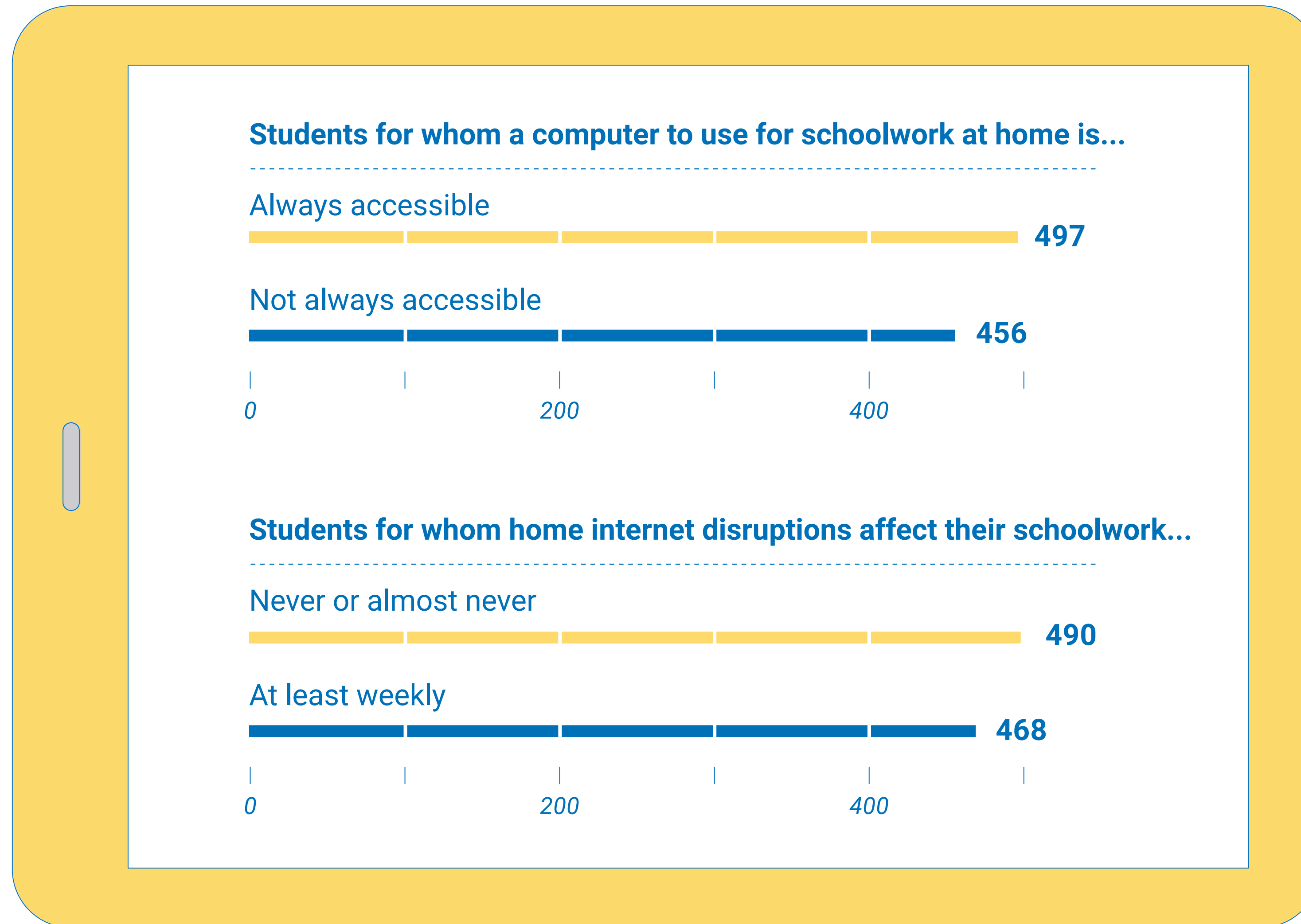


Percentages of students in schools where principals indicated that the use of **ChatGPT or similar tools** will result in the following **negative consequences** with respect to students' learning:



Note: Percentages reflect 10 countries that participated in the optional data collection addressing principals' reports about the use of generative AI tools in schools and met ICILS sample participation requirements.

Students who always have access to a computer to do schoolwork at home have **higher CIL scores**



Students with more stable internet access have **higher CIL scores**



To access the international report with full findings, go to:

<https://www.iea.nl/publications/icils-2023-international-report>