UIS Survey on Statistics of Information and Communication Technology (ICT) in Education:

Building capacity to establish an international statistical framework

Moscow, Russian Federation, 25-27 November 2015

OUTLINE

- Why measure ICT in education?
- Global survey on ICT in education
  - Policy and Curriculum
  - Educational Institutions & ICT infrastructure
  - Enrolment
  - Computers
  - Teachers
- Sources of information
- Data collection and dissemination

This workshop will allow you to :

- Explain the policy rationale for data collection;

- Interpret concepts and definitions covered by the ICT in education survey;

- Provide examples on how to fill in the questionnaire and perform logical checks;

- Calculate and analyse ICT in education indicators derived from survey items.

Role of UNESCO / UIS

❖ UNESCO assigned to guide policy formulation and methodological work;

❖ UIS to achieve an international data collection with differing policy needs;

❖ Regional approach:

  ❖ Latin America and the Caribbean (38 countries) (2011)

  ❖ Arab States (5 countries) (2011)

  ❖ Asia (30 countries) (2012)

  ❖ Francophone and Lusophone Africa (32 countries) (2013)

  ❖ Anglophone sub-Saharan Africa (14 countries) (2014)

❖ Global survey (2015)

WHY MEASURE ICT4E?

International Commitments

Millennium Development Goals (MDGs) Target 8.F

"In cooperation with the private sector, make available the benefits of new technologies, especially information and communications"

Education for All (EFA) goals

While not mentioned explicitly in the Education for All goals (EFA), it is argued they fulfill a pivotal role in their achievement including broadening access, eliminating exclusion, and improving quality in education.

International Commitments

WSIS Targets on education and their related indicators

Target 2. Connect all secondary schools and primary schools with ICTs.

2.1 Proportion of schools with a radio used for educational purposes;

2.2 Proportion of schools with a television used for educational purposes;

2.3 Learners-to-computer ratio;

2.4 Proportion of schools with Internet access, by type of access.

International Commitments

WSIS Targets on education and their related indicators

Target 7. Adapt all primary and secondary school curricula to meet the challenges of the information society, taking into account national circumstances.

7.1 Proportion of ICT-qualified teachers in schools;

7.2 Proportion of teachers trained to teach subjects using ICT;

7.3 Proportion of schools with computer-assisted instruction (CAI);

7.4 Proportion of schools with Internet-assisted instruction (IAI).

WHY MEASURE ICT4E?

Regional commitments

❖ eLAC 2015: Connect all schools to the Internet (preferably by broadband) by 2015

National commitments

❖ Georgia (Deer Leap Programme/ "Georgia without Poverty") to provide access to computers and the Internet in all schools

❖ Azerbaijan, where computer-assisted instruction (CAI) was available in 84 per cent of schools in 2012, aims to provide a computer classroom to every school (that is, CAI in 100 per cent of schools) (ADB, 2012).

❖ Kazakhstan to supply 48 per cent of schools (4 120) with interactive whiteboards by 2014.

❖ Kazakhstan to train all teachers (100%) to be able to teach using ICTs.

❖ In South Africa, to connect all schools with broadband Internet by 2020 (Department of Communications, 2013).

Qingdao Declaration
Item #16:

"We commit to developing comprehensive national monitoring and evaluation systems to generate sound evidence for policy formulation on the integration, use and impact of ICT in education…"

UNESCO
UNESCO
INSTITUTE FOR STATISTICS
INSTITUTE *for* STATISTICS

COMMUNICATION *and* INFORMATION
STATISTICS

Qingdao Declaration
Item #17:

- ❖ *"We further recommend that governments and other partners support capacity development in data collection, analysis and reporting at the country, regional and global levels."*

- ❖ *"We request UIS and other partners to support countries in reinforcing and sustaining efforts to establish the appropriate national-level mechanisms and processes."*

- ❖ *"We commit to continue to report accurate and complete data in a timely manner to the UIS, facilitating its mission to build and maintain a global repository for ICT in education data."*

Qingdao Declaration
Item #18:

❖ *"We recommend that the Global Education Monitoring Report, to be hosted and published by UNESCO, uses UIS core indicators on ICT in education to provide regular global-level monitoring of ICT in education.*

UNESCO

UNESCO
INSTITUTE FOR STATISTICS

INSTITUTE *for* STATISTICS

COMMUNICATION *and* INFORMATION
STATISTICS

WHY INDICATOR PRIORITIZATION

Priority based on:

❖ Policy relevance (pilot experience 2009 - WISE)

❖ Regional specificity (partner consultation: incorporation of new items)

- ❖ LAC experience
- ❖ Arab countries
- ❖ Asia
- ❖ Africa

❖ Minimizing burden on country respondents

Questionnaire on Statistics of ICT4E

❖ **Coverage**:

➢ Focuses on primary and secondary education (**ISCED 1- 3**)

➢ **All programmes:** General + technical and vocational education and training (TVET), but excluding Adult Education

➢ **Public & private (Total)**

  ➢ Public only

➢ **ISCED 2011**

2015 SURVEY OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN EDUCATION (ISCED 1-3)

Data for the academic year ending in 2015 or most recent

Deadline for returning the completed questionnaire: 18 December 2015

This questionnaire is designed to collect internationally comparable data on information and communication technology (ICT) in education at the primary and secondary levels necessary for the evaluation and monitoring of education systems worldwide. The data form a central part of the database of communication and information statistics maintained by the UNESCO Institute for Statistics (UIS). They are disseminated widely to the user community and help to inform policymakers at both national and international levels. The data are required for the calculation of many ICT in education indicators used in the monitoring of progress towards regional and global goals, including the World Summit on the Information Society, Education for All, and the Millennium Development Goals.

Instructions for completing the questionnaire

Please refer to the Instruction Manual: Survey of Information and communication technology (ICT) in education for detailed concepts and definitions used in this survey.

All UIS questionnaires and manuals are available on the Questionnaire Website: http://www.uis.unesco.org/UISQuestionnaire/Pages/country.aspx
Completed questionnaires should be sent by email attachment to: uis.survey@unesco.org
Data from previous surveys are available at: http://www.uis.unesco.org/datacentre

Coverage

This questionnaire covers the entire formal primary and secondary education system in both public and private institutions within the borders of your country. The data provided should include formal adult education programmes. If data are not available for some part of the education system, please make estimates to ensure full data coverage.

Before completing this questionnaire, education programmes should first be classified by level according to the 2011 revision of the International Standard Classification of Education (ISCED 2011). The UIS will use the ISCED 2011 mapping of your country to validate your data submission. If your country does not have a recent ISCED mapping or if there have been subsequent changes to your national education system, please download and complete or update the questionnaire on National Education Systems (UIS/ED/ISC11) which is available on our Questionnaire Website.

Academic year/reference period for the data collected in this questionnaire

This questionnaire collects data on the academic year ending in 2015 or a more recent year. If data are not available for 2015, please report the latest year for which data are available.

Using the Excel questionnaire

This questionnaire has been designed for optimal functionality in Microsoft Excel 2010 but can also be used with other versions of Excel. The questionnaire has been locked to preserve the layout and the integrity of the automatically calculated totals (shaded in blue) and validations. To the extent possible, data should be entered in the white cells only. If data are not available for a given category please use the missing codes described below.

Validation checks

The questionnaire contains validation checks using conditional formatting to highlight errors or invalid data entries. If further input is required, for example when a comment is needed to explain a missing code or if an error is detected in the data, the cell will turn yellow and/or a pop-up message will appear.

Structure of data items

In order to ensure the provision of complete data and metadata, each data item is composed of three distinct cells which accept numeric data (including zeros to indicate nil or negligible data), missing data codes and comments, respectively. Countries are requested to make every effort to provide complete data in the numeric cell, if data are not available please use the appropriate codes described below. Please note that the Excel commenting feature has been disabled. Comments should be entered in the appropriate comment cell.

Numeric data → Codes → Comment

Numeric data

These cells only accept numeric values, including zeros (to indicate nil or negligible data). Please note that an error message will appear if a non-numeric value is entered.

Codes

These cells only accept the letters Z, X, W or M and are located to the right of the numeric data cells. The correct use of codes is an essential condition to ensure cross-national comparability and completeness of data. The codes are used in statistical analyses and reports to indicate the coverage of the data and to explain why data are not available. Please explain any data coverage issues using the following codes:

Z - category not applicable (previously denoted as 'a')

If a data item or table refers to a category which does not apply or exist in your national education system, please leave the numeric data cell blank and enter 'Z' in the related codes cell. The use of this code indicates that data for these categories do not even hypothetically exist.

X - data included elsewhere

If a data item or category exists in your national education system but cannot be disaggregated from another category, please leave the numeric data cell blank and enter 'X' in related codes cell. Please also indicate in the comment cell, in which cell data are included, by using the Excel column and row identifiers or free text. Where appropriate, please also use the code 'W' described below.

W - includes data from another category (new code)

If data include other categories (e.g. primary data also include pre-primary data) and are therefore over-covered, please enter the value in the numeric data cell and 'W' in the related codes cell. Please also indicate in the comment cell which data are included by using the Excel column and row identifiers or free text. Where appropriate, please also use the 'X' code described above.

M - data not available or missing

If a category exists in your national education system but the related data are not available, cannot be estimated and are not included in any other cells of the questionnaire, please leave the numeric data cell blank and enter 'M' in the related codes cell. In such cases, please note that the total is considered to be missing or incomplete with respect to these categories. If possible, please provide a comment to indicate why data are not available.

Contact information for the UNESCO Institute for Statistics

For any queries concerning the questionnaire, please contact the UIS by:

Email: uis.survey@unesco.org
Tel: +1 514 343 6880
Fax: +1 514 343 5740
Mail: UNESCO Institute for Statistics
        PO Box 6128, Station Centre-ville
        Montreal, QC H3C 3J7
        CANADA
Web: http://www.uis.unesco.org

Questionnaire on Statistics of ICT4E

❖ Excel version

❖ Contains validation checks

❖ Excel commenting feature has been disabled

❖ Tables have three types of cells for numeric data (including zeros (0) for nil or negligible)
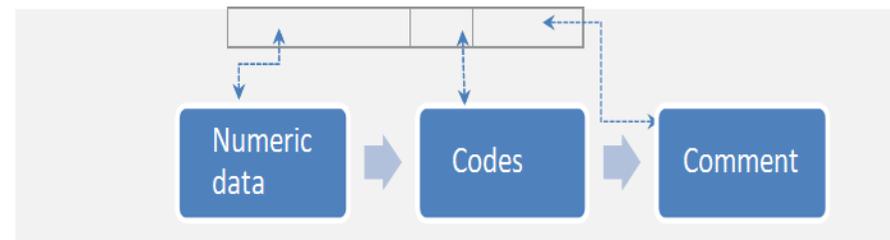
❖ **Numeric data**

❖ **Codes**

❖ **Comments**

HOW? THE QUESTIONNAIRE

Data codes

❖ **Z – Category not applicable (previously denoted as 'a')**

    ❖ If a data item or table refers to a category which does not apply or exist in your national education system, please leave the numeric data cell blank and enter 'Z' in the related codes cell. The use of this code indicates that data for these categories do not even hypothetically exist.

❖ **X – Data included elsewhere**

    ❖ If a data item or category exists in your national education system but cannot be disaggregated from another category, please leave the numeric data cell blank and enter 'X' in related codes cell. Please also indicate in the comment cell, in which cell data are included, by using the Excel column and row identifiers or free text. Where appropriate, please also use the code 'W' described below.

HOW? THE QUESTIONNAIRE

Data codes

- ### W – Includes data from another category (new code)

  - If data include other categories (e.g. primary data also include pre-primary data) and are therefore over-covered, please enter the value in the numeric data cell and 'W' in the related codes cell. Please also indicate in the comment cell which data are included by using the Excel column and row identifiers or free text. Where appropriate, please also use the 'X' code described above.

- ### M – Data not available or missing

  - If a category exists in your national education system but the related data are not available, cannot be estimated and are not included in any other cells of the questionnaire, please leave the numeric data cell blank and enter 'M' in the related codes cell. In such cases, please note that the total is considered to be missing or incomplete with respect to these categories. If possible, please provide a comment to indicate why data are not available.

THE QUESTIONNAIRE - Data sources

Section E1 — Gen. information

Section E2 — Policy / Curriculum

Section E3 — ICT Infrastructure

Section E4 — Enrolment

Section E5 — Computers

Section E6 — Teachers

E1: General information on the data collected in the questionnaire

Questionnaire code:	UIS_ED_E_2015	EN	3

Country: [▼]

1. Please provide information on the person(s) responsible for completing this questionnaire.

Contact 1: Person in charge of completing the questionnaire:

Full name:	
Organization:	
Organization unit:	
Function:	
Email address:	
Phone number:	
Fax number:	

Contact 2: Head of the organization (if different from Contact 1):

Full name:	
Organization:	
Organization unit:	
Function:	
Email address:	
Phone number:	
Fax number:	

THE QUESTIONNAIRE - Data sources

Section E1 — Gen. information

Section E2
- Policy
- Curriculum

Section E3
- ICT Infrastructure

Section E4
- Enrolment

Section E5
- Computers

Section E6
- Teachers

2. Please indicate the reference year of data provided in this questionnaire:

The academic year ended on:	

3. Please provide the main data source for each section of the questionnaire:

	Ministry/Department	Data source
Policy and curriculum		
ICT infrastructure		
Enrolment		
Computers		
Teachers		

Please provide the Ministry or department and main data source (name of publication, database, website, etc.) for each section of the questionnaire.

4. Do the data provided in this questionnaire correspond to your national ISCED 2011 mapping?

Check the appropriate box.

Yes	☐
No	☐
Do not know	☐

THE QUESTIONNAIRE - Data sources

Section E1 — Gen. information

Section E2 — Policy

Section E3 — ICT Infrastructure

Section E4 — Enrolment

Section E5 — Computers

Section E6 — Teachers

MINISTRY OF EDUCATION

NATIONAL INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) STRATEGY FOR EDUCATION AND TRAINING

Improved Teaching & Learning

June, 2006
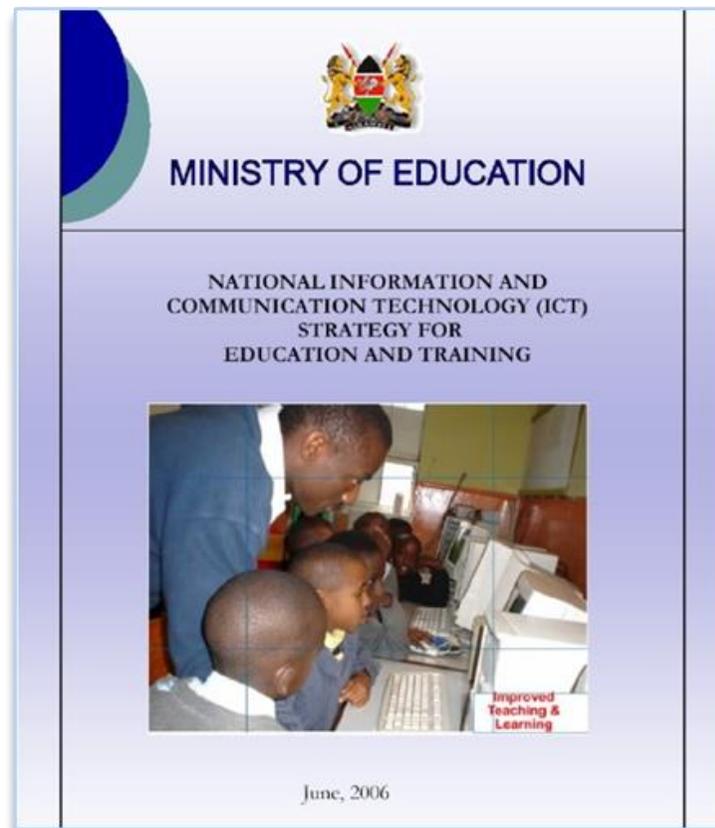
ICT policy in education is geared towards ensuring better conditions for students and creating an environment conducive to learning

SECTION B: POLICY AND CURRICULUM

❖ **Main questions or items respond to:**

- ❖ What policies/plans/provisions are in place to integrate ICT into education systems?

- ❖ What policies and systems are in place to promote effective use of ICT in education?

- ❖ Are ICTs part of curriculum reform?

- ❖ How much instructional time is allocated to using ICTs?

- ❖ Are ICTs emphasized within accredited teacher training programmes?

1. Does your country promote the use of ICT in education using the following? *(Choose from the drop-down menu. Please select a response for all items at all levels).*

	Primary (ISCED 1)	Lower secondary (ISCED 2)	Upper secondary (ISCED 3)
National policy			
National plan			
National law			
Regulatory mechanism			
Teacher incentive programme			
If there are teacher incentives, please specify:			

Indicate "yes", "no" or "NA/ state or provincial level".

INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN EDUCATION

Information and communication technology (ICT) is defined as a diverse set of technological tools and resources used to transmit, store, create, share or exchange information. These technological tools and resources include computers, the Internet (websites, blogs and emails), live broadcasting technologies (radio, television and webcasting), recorded broadcasting technologies (podcasting, audio and video players, and storage devices) and telephony (fixed or mobile, satellite, visio/video-conferencing, etc.).

POLICY

Refers to a set of ideas that has been agreed officially by a group of people, a business organization, a government or a political party usually expressed in a document which outlines the principles, guidelines and strategy in relation to a particular activity.

PLAN

Refers to a document of how a set policy is to be achieved within a specified timeframe. It details each activity to be undertaken, the method employed for implementation, the resources required and the actors responsible for implementing each activity.

LAW

A law is an act of the supreme legislative body of a state or nation, as distinguished from the constitution.

REGULATION

A regulation is also a law, but is supported by an enabling statute, and is not issued by a legislative body but by an executive branch of government.

REGULATORY MECHANISM

Regulatory mechanism refers to a separate body, organization, committee or bureau that has been given responsibility by the government for promoting, coordinating and ensuring correct implementation of a law or regulation.

TEACHER INCENTIVE PROGRAMME

A teacher incentive programme is used to incite various actions among teachers including improving the quality of their teaching, improve their current teaching qualifications, or remain in the profession. Incentives programmes may be monetary or non-monetary in nature. Monetary incentives include salary differentials and other benefits including bonuses, pension, benefits or job stability. In contrast non-monetary incentives may include opportunities for professional growth and advancement.

2. Does your country have a specific ICT in education policy or planning document? (Choose from the drop-down menu. Please select a response for all items at all levels).

	Primary (ISCED 1)	Lower secondary (ISCED 2)	Upper secondary (ISCED 3)
Select the levels which apply			

3. If no, is ICT in education promoted within: *(Choose from the drop-down menu. Please select a response for all items at all levels).*

|	Primary (ISCED 1)	Lower secondary (ISCED 2)	Upper secondary (ISCED 3)
Education sector policy and/ or planning documents			
National ICT Master policy and/ or planing documents (Cross sectoral)			
Teacher education/ training policy			
Other			

Indicate "yes", "no" or "NA/ state or provincial level".

National plans to implement ICT in education, by type, Asia, 2012

- ■ Standalone Sector-Wide ICT in Education Plan
- ■ Standalone ICT in Education Plan (Not Sector-Wide)
- ■ ICT Mentionned in National Education Plan/ Education Mentionned in National ICT Master Plan
- ■ No Plan
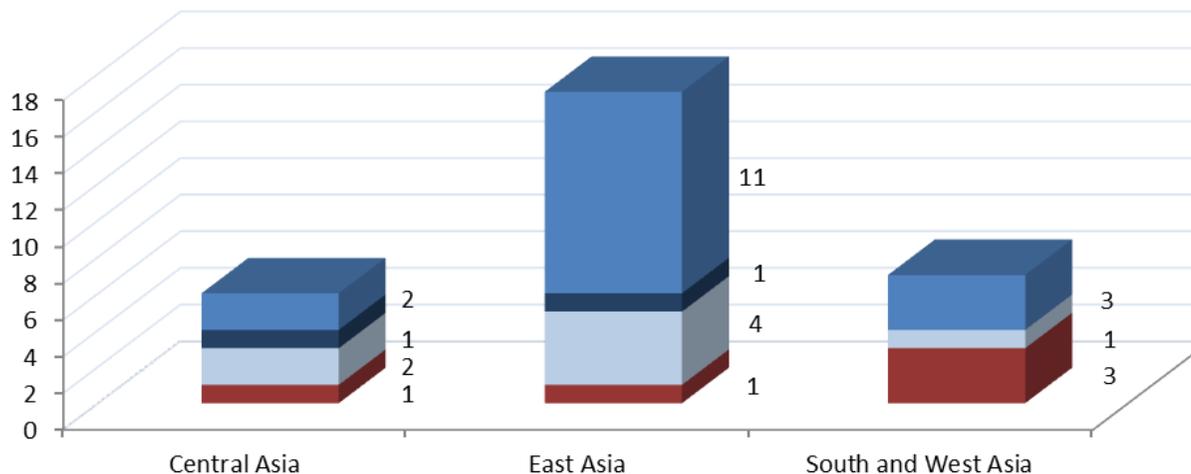
Section E1 — Gen. information

Section E2 — Policy
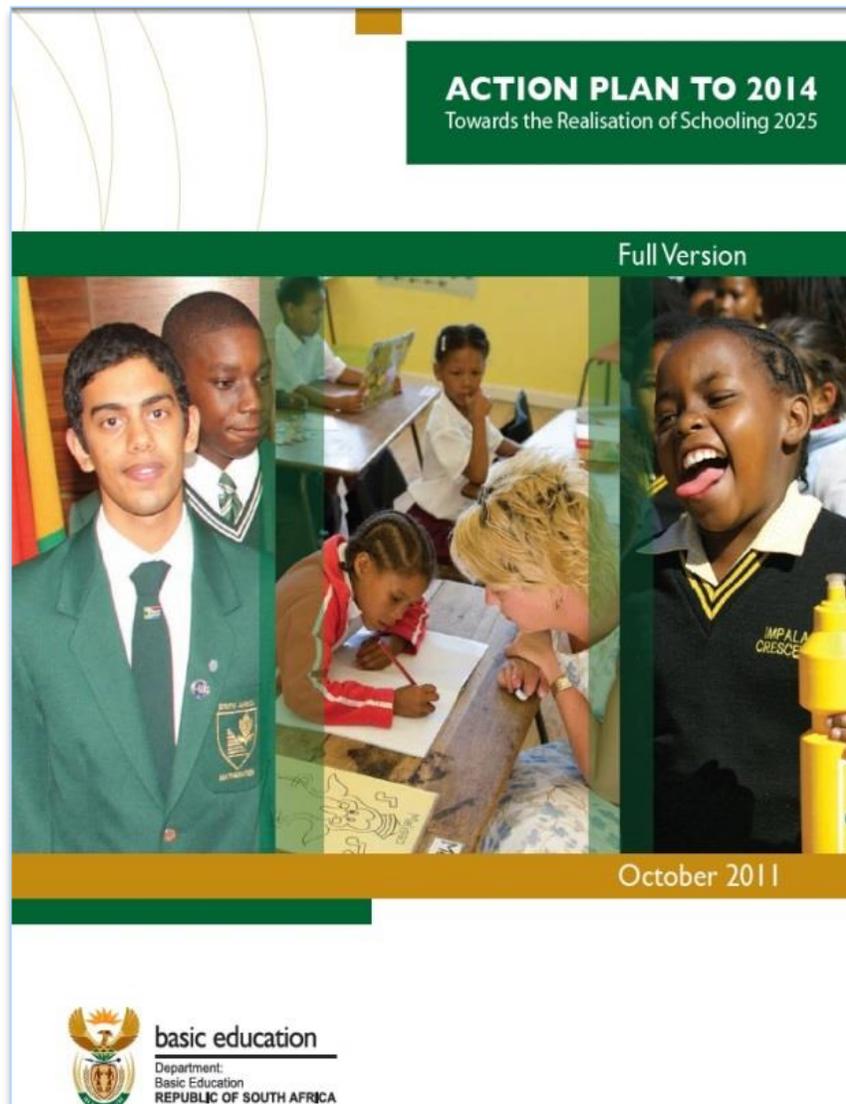
Curriculum

Section E3 — ICT Infrastructure

Section E4 — Enrolment

Section E5 — Computers

Section E6 — Teachers

ACTION PLAN TO 2014
Towards the Realisation of Schooling 2025

Full Version

October 2011

basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

UNESCO

UNESCO
INSTITUTE FOR STATISTICS

INSTITUTE *for* STATISTICS

COMMUNICATION *and* INFORMATION
STATISTICS

3. **Does the education curriculum include a course on the following?** *(Choose from the drop-down menu. Please select a response for all levels).*	Primary (ISCED 1)	Lower secondary (ISCED 2)	Upper secondary (ISCED 3)
Basic computer skills			
Computing/ coding skills			

Indicate "yes", "no" or "information not available".

CURRICULUM refers to the design, planning and sequencing of teaching and learning processes. It includes a statement of purpose, contents, activities and learning practices, as well as the modalities for assessing pupils' achievements.

BASIC COMPUTER SKILLS

Basic computer skills courses cover the most common usages of a computer, including a majority or all of the following: understanding the basic notions of computer manipulation; managing computer files, word processing, using spreadsheets and databases; creating presentations; finding information and communicating using computers; and being aware of social and ethical implications of Internet use.

Basic computer skills may be taught as a separate subject or integrated into other subjects. A common standard applied by a growing number of countries is the International Computer Driving Licence (ICDL) assessment system, which is derived from the European Computer Driving Licence (ECDL).

UNESCO

UNESCO
INSTITUTE FOR STATISTICS

INSTITUTE *for* STATISTICS

COMMUNICATION *and* INFORMATION
STATISTICS

COMPUTING

Computing course refer to the instruction of system design, computer programming, coding, data processing, networks, operating systems, and software development. It does not include computer hardware design, construction and production. Computing courses are typically taught at the post-secondary and tertiary levels (ISCED 4-8), but some schools may also teach computing (mainly computer programming) in upper secondary education (ISCED 3).

4. Indicate for which subjects, official curriculum recommends the use ICTs to support teaching and learning
(Choose from the drop-down menu. Please select a response for all items at all levels).

	Primary (ISCED 1)	Lower secondary (ISCED 2)	Upper secondary (ISCED 3)
All subjects			
Of which:			
Mathematics			
Natural Sciences			
Social Sciences			
Reading, writing and literature			
Second Languages			
No subjects			

Indicate "yes", "no" or "information not available".

- **MATHEMATICS**

It is the aof study including algebra, arithmetic, calculus, geometry, statistics and trigonometry.

- **NATURAL SCIENCES**

It is a field of study including astronomy, biology, chemistry, environmental science, physics, and physical science.

- **SOCIAL SCIENCES**:

It is a field of study including history, geography, social studies, civics/citizenship education, humanities, philosophy, community studies, and economics.

- **READING, WRITING AND LITERATURE**

Language instruction intended for fluent speakers of the national, official or local languages, with a focus on literature and linguistics.

- **FOREIGN LANGUAGES**

It is instruction in second languages from the perspective of the learner with a focus on grammar and vocabulary and perhaps culture.

5. According to official curriculum, indicate the total annual intended instructional time (in hours) for students for the following ISCED levels:

	Primary (ISCED 1)	Lower secondary (ISCED 2)	Upper secondary (ISCED 3)
Annual intended instructional time for students			
Of which:			
Basic computer skills or computing courses			
Using ICT (across the curriculum)			
Of which:			
Using computers (across the curriculum)			

ANNUAL INTENDED INSTRUCTION TIME

The number of hours per year that pupils are instructed according to the compulsory and flexible part of the intended curriculum. The total number of intended instruction hours per year is calculated by multiplying the total number of classroom sessions per year by the duration of one session.

The intended curriculum is the subject matter content, as defined by the government or the education system. The intended curriculum comprises compulsory subjects, as well as the flexible part of the curriculum (subjects of the intended curriculum).

How to calculate intended instructional time ?

Intended instructional time (hours per year)

= ((Periods per day) * (Period duration)/ 60 minutes)) * (**Instructional days per school year**)

Whereas **Instructional days per school year** is calculated as

= ((Weeks per school year) * (Days per school week)) – (Non-instructional days per school year)

EXAMPLE :

= ((5 periods per day) * (45 minutes / 60 minutes)) * (190 instructional per year)

Whereas

= ((40 weeks per year) * (5 Days per week)) - (10 non-instructional days per year)

= 712.5 annual intended instructional hours

UNESCO
UNESCO
INSTITUTE FOR STATISTICS
INSTITUTE *for* STATISTICS

COMMUNICATION *and* INFORMATION
STATISTICS

NON-INSTRUCTIONAL DAYS are days in the school week or year (not including weekends) devoted to non-instructional activities, including examination periods, holidays, festivities, teacher development, in-service training days, or other special days when students are not expected to be in school.

6. **Indicate whether accredited teacher training programme(s) include courses on:** *(Choose from the drop-down menu. Please select a response for all items at all levels).*	Primary (ISCED 1)	Lower secondary (ISCED 2)	Upper secondary (ISCED 3)
Teaching basic computer skills or computing courses			
Using ICT to support teaching other curricular subjects			
Using assistive technologues to teach children with learning disabilities			

ASSISTIVE TECHNOLOGIES

Assistive technology refers to any item, piece of equipment, or product system, whether acquired commercially, modified, or customized, that is used to increase, maintain, or improve functional capabilities of individuals with disabilities

LEARNING DISABILITY

A physical or mental condition that limits a person's movements, senses, or activities, which in turn hinder learning.

WHAT IS MEASURED ?

❖ **Indicator prioritization :**

Conceptual domains	Indicator label	Indicator
Political/ curricular commitment	TBD	Proportion of intended instructional time in basic computer skills or computing courses
	TBD	Proportion of intended instructional time using ICT (across the curriculum)
	TBD	Proportion of intended instructional time using computers (across the curriculum)

SUMMARY

You have learned …

- ❖ Objectives
- ❖ International commitments
- ❖ Questionnaire – Sections on policy and curriculum
- ❖ Concepts & definitions
- ❖ What is measured ?

Thank you

http://www.uis.unesco.org