2075-2-13

Unit-3

ICTs in Curriculum and Professional Standards

Unit: 3

- ICTs in Curriculum and Professional Standards
- Review of the curriculum framework and professional standards of teachers in relation to ICT use for different subjects
- ICT competencies in different professional standards (eg UNESCO, OECD, EU) and NCED Nepal.

Review of the curriculum framework and professional standards of teachers in relation to ICT use for different subjects

- The education system of Nepal has also been influenced by the changes made by ICT in the global context.
- The Government of Nepal, Ministry of Education, through **National Curriculum Framework (NCF),** has introduced ICT as a subject as well as ICT as a **tool** for instruction in school education.

- The School Sector Reformed Plan 2009 – 2015 emphasized the integration of ICT tools in school teaching and learning activities (MoE, 2009), but it clearly stated that there was no funding for ICT infrastructure and ICT training.
- The ICT in Education Master Plan 2013, the first standard policy document, emphasized the integration of ICT in higher education and school teaching and learning but clearly stated the lack of funding for the project (MoE, 2013).
- The School Sector Development Plan 2016 – 2023 also emphasizes the use of ICT in education and its promotion to change the traditional pedagogy to modern learning strategies, but it also states the lack of funding for the project (MoE, 2016).

- Although the government universities and schools are still waiting for funding support to adopt ICT in their teaching and learning activities, most of the private colleges and schools have already got internet facilities for teachers and students.
- A recent study (Rana, 2018) reported that, although **private colleges and schools have their own plans to manage ICT facilities** and to train their teachers to use ICT, the government does not have a clear strategy for equipping government institutions with ICT infrastructure and for training teachers to use digital technologies.

- Tribhuvan University has also been offering computer related education in various degrees through the Institute of **Science and Technology**.
- Kathmandu University launched Computer Science and Engineering program in 1994.
- Pokhara University established in 1997 has also been offering computer education through the Faculty of Science and Technology.
- Purbanchal University has been offering computer education in various disciplines since 2000 as well.

A brief rundown of Nepal Government's 2078/79 budget in the ICT sector

https://www.gadgetbytenepal.com/nepal-budget-2078-79-ict-sector/

- **Laptop at 1% Interest**
- **University & portal for students**
- **Free internet & SIM**
- **Digitized land-management**:GoN has launched Mero Kitta, NeLIS that digitizes land-related works (www.merokitta.dos.gov.np.)
- **Nagarik app**

ICT curriculum and subjects in Education

- At grade 6,7 and 8 a computer subject is included in the curriculum.
- At grade 9, 10, 11 and 12, the curriculum includes the Computer courses for optional subjects. So, many private schools have been teaching computer subjects.
- At bachelor's and master's levels, ICT specialization courses are designed, e.g. BICTE, CSIT, BCS……
- At BBS and BBA tool, A separate course is designed for the students to study.
- At Bachelor's of education, an elective course (with curriculum) is developed and implemented.

- CT has integrated several streams for secondary education in Nepal. **Computer education is a separate additional subject in secondary level (class 6 to 10).**
- Distance education and open learning division under NCED has been developing some mathematics, science and English curriculum related audio visual documentaries since few years and broadcasting by Radio Nepal and Nepal Television for the support of school students.

ICT competencies in different professional standards (eg UNESCO, OECD, EU) and NCED Nepal.

A competency is the capability to use a set of related knowledge, skills, and abilities required to successfully perform(ompetence has been long understood as a person's ability or capacity to do a job.)

Through the world, ICT has been proved as one of the important tools for promoting education. It has been used in the schools in the following three way:

Communicating and transmitting information related to school administration, as a tool to teaching other subjects, offering **ICT as a separate subject**.

NCED provides training to the in service teacher education program.

Tribhuvan University has Faculty of Education dedicated to teacher education and training.

Recently one course ICT in education is designed and implemented for Bachelor 4- years' program in education.

This course has addressed the proficiency level competencies with some more additional contents that a teacher need to be a capable teacher in 21st century . The subject specific ICT courses are developed for this purpose

However, school curriculum has not included ICT formally but schools themselves utilize some tools for communication, dissemination and providing teaching learning materials to students and reporting student progress to parents

Most of the school education curriculum is silent about this .It is necessary to address this in upcoming reform of the curriculum.

There are Three level of **proficiency** are mentioned

- **basic,**
- **intermediate** and
- **proficient**.

PERFORMANCE INDICATORS: Knowledge and skill of ICT		
Basic	**Proficient**	**Distinguished**
• Use word processors, and spreadsheet to plan and manage lesson activities and students records. • Search and use simple and interactive digital learning materials for instruction . • Use self prepared simple digital materials to complement conventional mode of teaching. • Use subject specific educational software for schools and other online resources. • Encourage students to access e-library and other online resources to acquire relevant information	• Regularly use ICT productivity tools and ICT enhanced instructional techniques (such as digital storytelling, simulations, games, animation, video lesson etc.). • Engage students in e-learning and ICT based projects.	• Promote active, self-directed, collaborative learning culture in schools • Lead and support colleagues to plan student-centered lessons utilizing ICT tools and resources. • Design and demonstrate creative and innovative ICT enhanced learning modules. • Contribute to promoting ICT pedagogy integration through trainings or by organizing appropriate events in professional community.

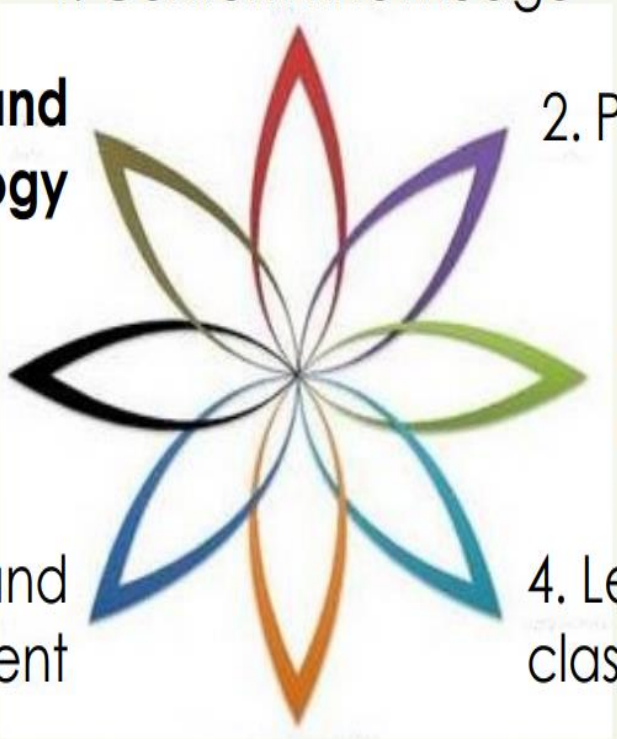
Teacher Competency Framework, 2016

1. Content Knowledge

8. Information and Communication Technology

2. Pedagogical Knowledge

7. Legal Bases and Professional Conduct



3. Knowledge about children/learners

6. Continuous Learning and Professional Development

4. Learning environment and classroom environment

5. Communication and collaboration

UNESCO

The constitution of the United Nations Educational, Scientific and Cultural Organization (UNESCO) was adopted by 20 countries at the London. Conference in November 1945 and entered into effect on 4 November 1946. This organization currently has 195 Member States and 9 Associate Members.

Cont…

The main objective of UNESCO is to contribute to peace and security in the world by promoting collaboration among nations through education, science, culture and communication in order to encourage universal value for justice,

the rule of law, and the human rights and fundamental freedoms for the peoples of the world, without distinction of race, sex, language or religion, by the Charter of the United Nations.

ICT competency standards for teachers: policy framework

The **ICT competency standards for teachers** have been designed by UNESCO and its partners to help educational policy-makers and curriculum developers.

- *UNESCO, in* the context of the ICT improve teachers' practice in all areas of their work.
- Combining ICT skills with innovations in pedagogy, curriculum, and school organization.
- It is also aimed at teachers' use of ICT skills and resources to improve their teaching

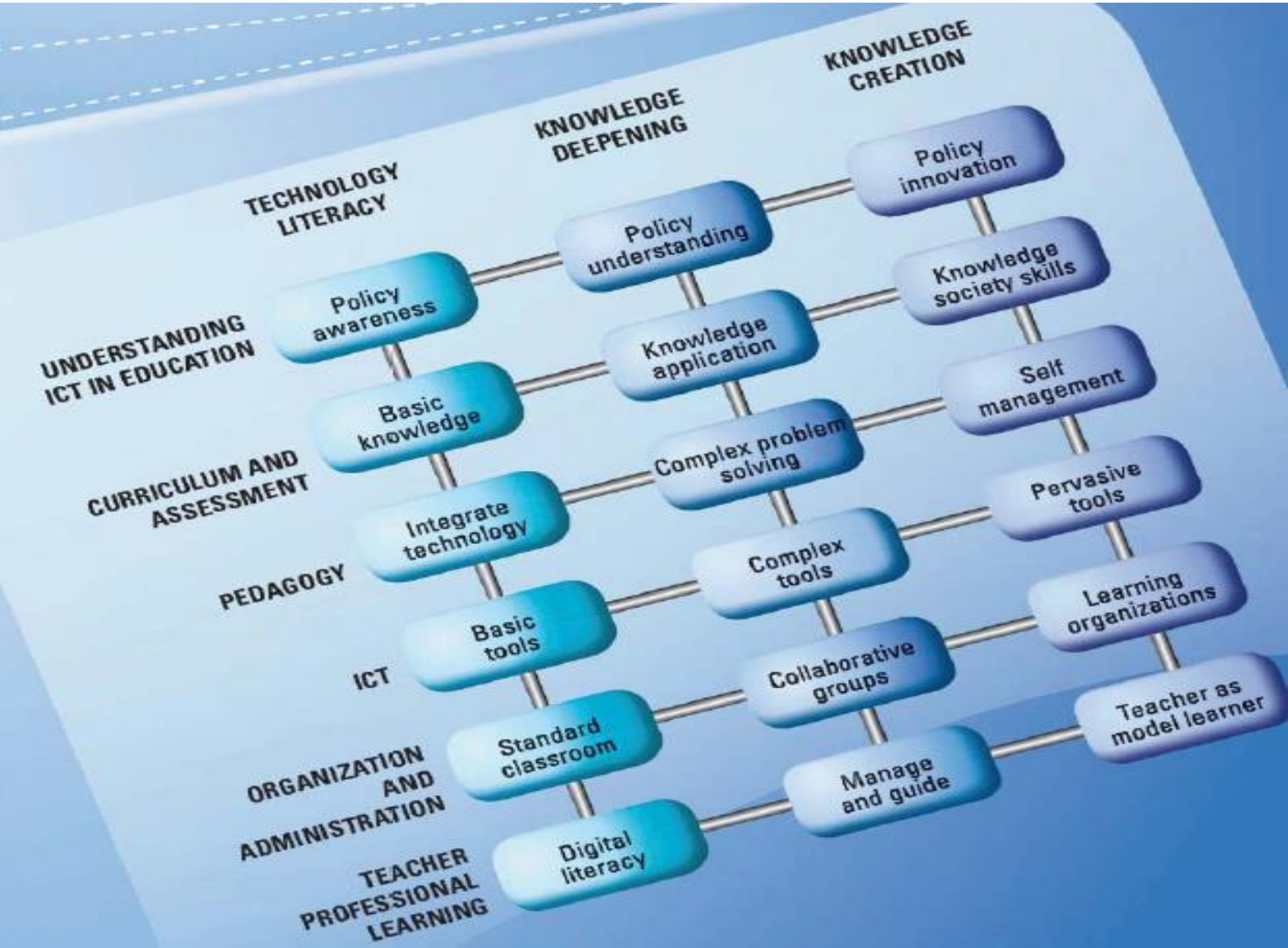
Cont…

"Education for All" (EFA) program, has developed the UNESCO ICT-Competence Framework for Teachers (UNESCO, 2011).

This framework outlines the competencies that teachers need in order to integrate Information and Communication Technologies (ICTs) into their professional practice. The framework aims to provide guidelines and a basic set of qualifications to develop courses for pre-service or in-service teachers, in order to enable teachers to integrate ICT in a pedagogically effective way.

Cont…

The required competencies are defined as the intersections of the three approaches to teaching — **technology literacy**, **knowledge deepening**, and **knowledge creation** — with the six aspects(parts) of a teacher's work, namely, **understanding ICT in education**, **curriculum assessment**, **pedagogy, ICT, organization and administration** and **teacher professional learning**. Therefore, there are 18 modules defined, as the following table (UNESCO, 2011) shows:


TECHNOLOGY LITERACY
KNOWLEDGE DEEPENING
KNOWLEDGE CREATION
UNDERSTANDING ICT IN EDUCATION
CURRICULUM AND ASSESSMENT
PEDAGOGY
ICT
ORGANIZATION AND ADMINISTRATION
TEACHER PROFESSIONAL LEARNING
Policy awareness
Policy understanding
Policy innovation
Basic knowledge
Knowledge application
Knowledge society skills
Integrate technology
Complex problem solving
Self management
Basic tools
Complex tools
Pervasive tools
Standard classroom
Collaborative groups
Learning organizations
Digital literacy
Manage and guide
Teacher as model learner

Cont…

UNESCO's Framework emphasizes that it is not enough for teachers to have ICT competencies and be able to teach them to their students. Teachers need to be able to help the students become collaborative, problem solving, creative learners through using ICT so they will be effective citizens and members of the workforce. The Framework therefore addresses all aspects of a teacher's work: The Framework is arranged in three different approaches to teaching (three successive stages of a teacher's development).

Cont….

The first is **Technology Literacy**, enabling students to use ICT in order to learn more efficiently. The second is **Knowledge deepening**, enabling students to acquire in-depth knowledge of their school subjects and apply it to complex, real-world problems. The third is **Knowledge Creation**, enabling students, citizens and the workforce they become, to create the new knowledge required for more harmonious, fulfilling and prosperous societies.

Three approaches of the framework

1. TECHNOLOGY LITERACY
2. KNOWLEDGE DEEPENING
3. KNOWLEDGE CREATION

Technology literacy

Teacher competences related to the technology literacy approach include basic digital literacy skills and digital citizenship**, along with the ability to select and use appropriate off –the shelf educational tutorials, games, drill (repeat) -and-practice software, and web content in** computer laboratories.

Knowledge deepening:

The pedagogy (teaching) associated with this approach includes **collaborative problem- and project-based learning** in which students explore a subject deeply and bring their knowledge to solve complex, everyday questions, issues, and problems.

Teaching is student-centred and the teacher's role is **to structure tasks, guide student understanding and to support students as they tackle collaborative projects**.

In guiding students' understanding of key concepts, teachers will employ open-ended ICT tools .

Teacher competencies related to the knowledge deepening approach include the ability to :

a) manage information,

b) structure problem tasks, and

c) integrate open-ended software tools and subject-specific applications with student centred teaching methods and collaborative projects in support of students' in-depth understanding of key concepts and their application to complex, real-world problems.

Knowledge creation

The aim of the knowledge creation approach is to increase productivity by creating students, citizens, and a workforce that is continually engaged in knowledge creation, innovation and life-long learning.

Teachers, in this approach, should not only be able to design classroom activities but also participate in the development of programmes within their school.

With this approach the curriculum goes beyond a focus on knowledge of school subjects to **create new knowledge.**

These are skills such as **problem solving**, **communication, collaboration, experimentation, critical thinking and creative expression**.

Cont…

Perhaps the most significant aim of this approach is for students to be able to **create their own learning goals and plans**—to **establish what they already know**, **assess their strengths and weaknesses**, **design a learning plan**, **stay on-task**, **track their own progress**, **build on successes** and **adjust to failures**. These are skills that can be used throughout a lifetime to participate in a learning society.

Cont…

Teachers build a **learning community** in the classroom in which students are continuously engaged in developing their own and each others' learning skills.

A variety of networked devices, digital resources, and electronic environments are used to create and support this community in its production of knowledge and anytime, anywhere collaborative learning.

OECD(Organization for Economic Co-operation and Development)

The Organisation for Economic Co-operation and Development (**OECD**) is an international organization of thirty four countries.

Member countries of **OECD** all have a democratic system of government. They also accept the principle of a free economy. **OECD** is an intergovernmental (**international governmental)** economic organization, founded in 1960 to encourage economic progress and world trade.

OECD

In 1997, the OECD set up a four-year program entitled *Definition and Selection of Competencies : Theoretical and conceptual foundations* (DeSeCo) to develop an international consensus on a set of competencies essential for the 21st century.

Based on the various lists of competencies from different countries' reports, DeSeCo identified three broad categories:

- using tools interactively,
- interacting in heterogeneous groups and
- acting autonomously;

Each of the three categories contains a number of competencies that are summarized in Table 1.

Table 1
Key competencies identified by the DeSeCo project/OECD

CATEGORY	COMPETENCIES
Using tools interactively	-Use language, symbols and text interactively -Use knowledge and information interactively -Use technology interactively
Interacting in heterogeneous groups	-Relate well to others -Cooperate -Manage and resolve conflicts
Acting autonomously	-Act within the big picture, which means to understand and consider the wider context of their decisions and actions. -Form and conduct life plans and personal projects -Assert rights, interests, limits and needs

OECD

The OECD (2005a, p.6) distinguishes three categories of ICT competencies:

'ICT Specialists, who have the ability to develop, operate and maintain ICT systems. ICTs constitute the main part of their job – they develop and put in place the ICT tools for others';

'**Advanced Users :** competent users of advanced, and often sector-specific, software tools. ICTs are not the main job but a tool';

'**Basic Users:** competent users of generic tools (e.g. Word, Excel, Outlook, Power Point) needed for the information society, e-government and working life. Here too, ICTs are a tool, not the main job.'

NCED **Nepal**

The National Centre for Education Development (NCED) is the national agency, within the MOE, that irresponsible for in-service teacher professional development. It is responsible for developing the National Competency Standards for Teachers in Nepal. In reforms for teacher training and professional development programs, NCED related the eighth item to teachers' ICT competencies. NCED went on to develop performance indicators (PIs) for 6 domains with 3 levels namely Basic, Proficient, and Distinguished.

Teacher competency standards: Domains

1. Content Knowledge
2. Pedagogical Knowledge
3. Knowledge about children/learners
4. Learning environment and classroom environment
5. Communication and collaboration
6. Continuous Learning and Professional Development
7. Legal Bases and Professional Conduct
8. Information and Communication Technology

Each competency standard is subdivided into three level

- Basic level
- Proficient level
- Distinguished level

Key Benefits of ICT-based Education:

- Promotes Learning by doing approach
- Enables self-paced learning
- Provides access to wide range of up-to-date learning materials
- Enriches learning through a combination of audio, video, images, text and animation
- Enhances learning through interaction and collaboration
- Provides a platform that engages students

European (EU) e-Competence

The European e-Competence Framework (e-CF) provides a reference of 40 competences as required and applied at the Information and Communication Technology (ICT) workplace for competences, skills and capability levels that can be understood across Europe.

EU

Dimension 1:

e-Competence areas, derived from the ICT business processes PLAN – BUILD – RUN – ENABLE – MANAGE

Dimension 2:

A set of **reference e-Competences for each area**, with a generic description for each competence. **40 competences identified in total** provide the European generic reference definitions of the e-CF 3.0.

Dimension 3:

Proficiency levels of each e-Competence provide European reference level specifications on **e-Competence levels e-1 to e-5**.

Dimension 4:

Samples of **knowledge and skills** relate to e-Competences in dimension .They are provided to add value and context and are not intended to be exhaustive. Whilst competence definitions are explicitly assigned to

dimension 2 and 3 and knowledge and skills samples appear in dimension 4 of the framework, attitude is embedded in all three dimensions.

Government of Nepal

Ministry of Education, Science and Technology

Centre for Education and Human Resource Development

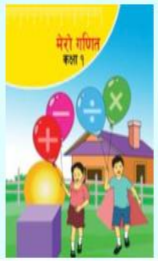
LEARNING PORTAL

1 2 3 4 5 6 7 8 9 10 11 12

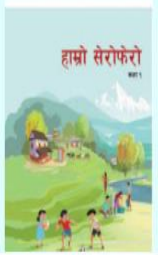
English

नेपाली

Maths



Serofero



नेपाली

Supported by Loona

20 NOV 2021 7:45

मेरोकिरता

Nagarik App

All **Government Services** in Single App

Slide 10

OLE Nepal's E-Pustakalaya
Free & Open Digital Library

All | Search E-Pustakalaya

About | Feedback | Help | नेपाली | Log In

TITLES | AUTHOR | CATEGORIES | LEVEL | GRADE CONTENT

Get It On Google Play

Browse By Categories

- Literatures And Arts
- Course Materials
- Teaching Materials
- Reference Materials
- Other Educational Materials
- Newspapers & Magazines

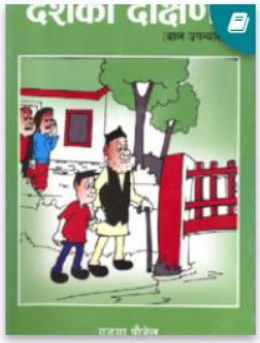
Learn about **COVID-19** and its preventive measures — More >>

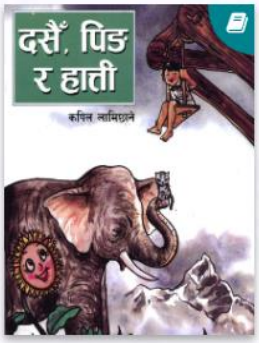
E-Paath Interactive Lessons

Read | Listen | Watch | Practice

Grades 1 2 3 4 5 6 7 8 9 10 More>>

Featured Titles





Educational Softwares