



United Nations  
Educational, Scientific and  
Cultural Organization

Bangkok Office  
Asia and Pacific Regional Bureau  
for Education

# UNESCO Training Guide on ICT Multimedia Integration for Teaching and Learning





**UNESCO Training Guide**  
on ICT Multimedia Integration  
for Teaching and Learning

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## Acronyms

<b>RDC</b>	Resource Distribution Centre
<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization
<b>ICT</b>	Information and Communications Technology
<b>CD-ROM</b>	Compact Disc – Read-Only Memory
<b>TPACK</b>	Technological, Pedagogical and Content Knowledge
<b>GB</b>	Gigabyte(s)
<b>RAM</b>	Random Access Memory
<b>HDD</b>	Hard Disk Drive
<b>DVD-ROM</b>	Digital Videodisc – Read-Only Memory
<b>PC</b>	Personal Computer
<b>USB</b>	Universal Serial Bus
<b>ISD</b>	Instructional Systems Design
<b>JFIT</b>	Japan Funds-in-Trust
<b>KFIT</b>	Korea Funds-in-Trust
<b>G-77</b>	Group of 77
<b>RDTC</b>	Resource Distribution and Training Centre
<b>LAN</b>	Local Area Network



# Acknowledgements

***The UNESCO Training Guide on ICT Multimedia Integration for Teaching and Learning***

is a webwork of possibilities, pedagogies and practices across institutions within Asia and the Pacific that was initiated by UNESCO Bangkok. To span the gaps across countries, UNESCO Bangkok spun universities together to share a common vision for teacher training on ICT integration.

The University of the East (UE) was fortunate to have been entangled in the intricate network of the Next Generation Teachers Project (NextGen) in 2007 through the leadership of then Head of UNESCO's ICT in Education Office, Mr Fengchun Miao. Lessons learned from the Peer Coaching training team led by Mr Les Foltos transformed the dynamics of ICT teaching and training in UE through the support of the former Dean of the UE College of Education, Ms Justina Evangelista. Special thanks goes to the current Dean of the UE College of Education, Ms Evelina Vicencio, for inspiring the UE Resource Distribution Center (RDC) to reach more than 1000 teachers in a span of 4 years since its establishment in 2009. Her vast network continues to expand the reach of the UE RDC in its efforts to train teachers and distribute free ICT and multimedia resources from UNESCO Bangkok.

We are grateful for the active involvement of Cynthia Grace Diaz and Rachel Anne Declaro, writers, instructional specialists and teacher trainers from the University of the East, who devoted their resourcefulness to match UNESCO's resources in the development of the Guide. We are also thankful to all those who have refined the content of the training during the international pilot testing and review at the Regional Training Workshop for Teacher Education Institutions-Resource Distribution Centres organized by UNESCO on July 5 to 6, 2012, in Bangkok, Thailand. The review panel included Termit Kaur Ranjit Singh (Universiti Sains Malaysia), Van Hien Nguyen (Hanoi National University of Education), Jennifer Lin (South China Normal University), Ajantha Nimirathna (Ruwanpura National College of Education), Senapaty Hrushikesh (Regional Institute of Education, NCERT), Bakhtiyor Namazov (UNESCO Tashkent) and Elenita Que (University of the Philippines). Locally, the Guide was pilot-tested during the 3rd Next Generation of Teachers Conference held in Puerto Princesa, Palawan, Philippines on October 23 to 25, 2012. All of the participants' comments in these fora helped the authors in the final calibration of the Training Guide. Our gratitude goes to UE President Ester Albano-Garcia for motivating the authors to validate the training design through a content analysis of participants' feedback, the results of which were then presented to an international audience during the Association of Southeast Asian Institutions of Higher Learning (ASAIHL) conference held in Manila, Philippines on December 6 to 7, 2012.



The Training Guide would not have been possible if not for the initiative of our partners in UNESCO Bangkok, namely Ms Molly Lee, former APEID Coordinator, and Ms Jonghwi Park, Programme Specialist in ICT in Education. Their openness for connecting with the UE RDC was the first thread that formed the basis for the rest of this webwork. Heartfelt thanks goes to Hartfried Schmid, Information Officer, and Maria Melizza Tan, Programme Officer for ICT in Education. Their strong grip anchored and framed the project from its inception through its completion. Finally, we thank Mr Gwang-Jo Kim, Director of the UNESCO Asia and the Pacific Regional Bureau for Education, for cinching this web so it could freely spiral to teachers all over Asia and the Pacific.

To all of those who have shared their web of insights to this work, a resounding *Salamat po!*

# Introduction

Using Information and communications technology (ICT) in teaching and learning is no longer just an option in this digitally connected world. Realizing the needs for the effective professional development for teachers from the region, UNESCO Asia-Pacific Regional Bureau for Education (UNESCO Bangkok) has been in the forefront of ICT in Education programmes, projects, and activities in the region, providing member states with technical assistance in the areas of policy guidance, information exchange, research, and teacher training.

One of the major outputs from these projects is a collection of seven CD-ROMs that contains quality educational resources for ICT-integrated teaching and learning. The seven CD-ROMs have been distributed to 124 countries worldwide, supported with trainings through the well-established network of Teacher Education Institutions (TEIs) across the Asia-Pacific region, namely UNESCO Resource Distribution and Training Centres (RDTCs).

In connection with this, the ***UNESCO Training Guide on ICT Multimedia Integration for Teaching and Learning*** has been developed to help educators and trainers in conducting a teacher training workshop on the application of these resources. It is meant to supplement the distribution of CD-ROMs by building the capacities of users in enhancing the teaching-learning experience through the effective and appropriate use of ICT.

The Guide details six sessions spread over a three-day period. Each session includes varied training activities and a host of supplementary materials (e.g., planning checklists, activity sheets, presentations) designed to keep participants engaged throughout the programme, as well as to equip the facilitator with everything she/he needs.

- [Session 1](#) provides an overview of the entire programme, including the goals and objectives of the training, an introduction to training routines, and a brief background on the ICT resources.
- [Session 2](#) reviews instructional design principles that are essential in crafting good lessons.
- [Session 3](#) clarifies participants' understanding of key ICT ideas and recaps the various instructional media available for classroom use, including multimedia.
- [Session 4](#) enumerates factors to consider in selecting appropriate instructional materials, as well as various points in the lesson where multimedia resources may be integrated.
- [Session 5](#) allows participants to navigate through the UNESCO CDs and provides hands-on practice in integrating selected resources to enhance an existing lesson plan.

- **Session 6** gives opportunities for peer feedback, revision, and showcasing of enhanced lessons. Assessment opportunities are interspersed throughout the programme.

When combined with the free CDs, the UNESCO Training on ICT Multimedia Integration is a complete package. Nonetheless, there is much room for adaptation and customization, to ensure that the training delivered is culturally sensitive and context-appropriate. An extra session is also provided for the Training of Trainers (ToT), to ensure the sustainability of the RDTCs.

Although the training is designed for whole-group workshops, users are free to adapt this material to more informal setups, such as small group settings and one-on-one peer coaching sessions. It is highly recommended that the training suggested in this handbook be given to recipients of the CDs prior to distribution.

Technical support is available to all users of this Training Guide via the Trainers' Online Portal, which can be found at UNESCO Bangkok's Education Community (<http://ict.unescobkk.org>). Feedback from recipients of the Guide and UNESCO CDs are greatly appreciated.

Lastly, we would like to use this opportunity to express our sincere gratitude to the authors of this Guide, Ms. Cynthia Grace Diaz and Ms. Rachel Anne Declaro, both from the University of the East, Manila, Philippines. We would also like to thank the members of the RDTC network and participants of recent Multimedia training workshops who gave us valuable input in improving this Guide during the workshops.

### **ICT in Education Team**

UNESCO Asia and Pacific Regional Office for Education  
Bangkok, Thailand

## PRE-TRAINING REQUIREMENTS

### Trainer Preparation

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The most important resource of any training or workshop is the trainer himself/herself. For this specific training workshop, he/she must be equipped with the following:

- **basic computing skills, which include knowledge of simple computer functions and commands, desktop applications, web browsers and online tools. Some knowledge of troubleshooting would be helpful.**
- **an arsenal of pedagogical techniques and strategies to effectively deliver content.**
- **familiarity with the material that he/she is sharing – in this case, the UNESCO Bangkok ICT in Education Teacher Training CD series. Prior to training, he/she must be aware of the various types of resources available as well as their use and application in the classroom.**

Nevertheless, this Guide may be freely used by anyone who is willing to familiarize himself/herself with the essential knowledge and skills required of a trainer prior to training others.

### Participant Information

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It is important to gather as much data as necessary about the participants so trainers could customize the training design to match the needs of their audience. This can be done at least 2 weeks before the training. The following questions must be answered:

- **Who will participate?**
- **How many will participate?**
- **What are their subject areas? Grade levels taught? How many years have they been teaching?**
- **Which specific resources available in the UNESCO CDs match the participants' subject areas and levels?**
- **What ICT skills do the participants already possess?**
- **What are the needs and attitudes of the participants towards ICT?**

It is best to ask participants to answer some tools such as data sheets and surveys, a summary of which will help inform the training design (**see attached sample – Annex A**). Online survey software and questionnaire tools such as [www.surveymonkey.com](http://www.surveymonkey.com) or Google Forms may be used to facilitate this step. Trainers also have the option of using the data sheet as a pre-training and post-training tool.

## Training Design

This training programme was designed using the Technological, Pedagogical and Content (TPACK) Framework (Mishra and Koehler, 2006) derived from Pedagogical Content Knowledge (Shulman, 1986). The framework emphasizes that effective teachers should not only possess mastery of their subject areas (content knowledge) nor teaching strategies and techniques (pedagogical knowledge), but also of appropriate technological tools and resources (technological knowledge). These three aspects are integrated and work in synergy to create a multi-faceted type of knowledge. It is as important to contextualise TPACK; that is, to understand its implications and applications in one's immediate environment. This is the kind of layered understanding that must be cultivated in teachers and learners, which is what this Guide aims to do.

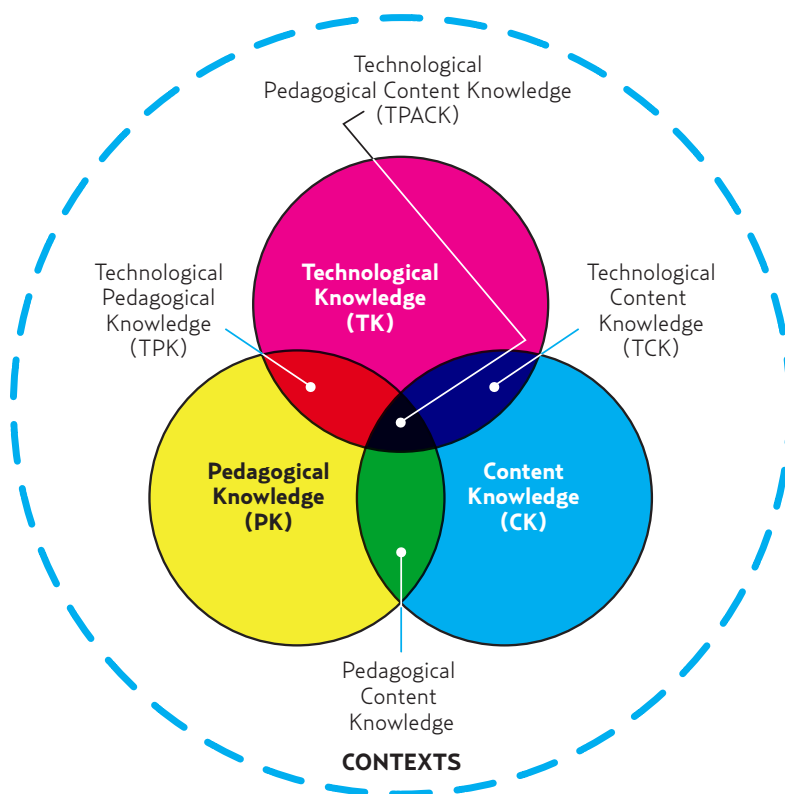


Figure 1: The Components of TPACK  
Reproduced by permission of the publisher, © 2012 by tpack.org

When placed in context, this training MAY be conducted for a variety of intents and purposes. The trainer must then take this into account and adjust the workshop accordingly. The following should be considered:

- **Why is there a need to conduct training at this time? (rationale)**
- **What does the training intend to achieve? (learning objectives)**
- **What will the training focus on? (topics)**
- **How will the participants apply the knowledge they have learned? (target applications/outcomes)**

Trainers must also remember to balance activities. There should be ample time devoted to hands-on exercises, input sessions, collaborative work, and even mealtimes and health breaks. They must also consider which session to prioritize and emphasize. This means being open to re-sequencing and/or re-programming the sessions when necessary. Trainers must also prepare a number of icebreakers and energizers as they may be needed depending on the length, time and extent of the training sessions.

### **Training Management**

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Mapping out activities early on helps make the training more efficient. Tasks before, during and after the workshop must be identified and delegated to persons concerned. Nevertheless, this management plan must still be highly flexible to accommodate unexpected occurrences. A Training Management Checklist (Annex B) is a valuable tool in ensuring the smooth flow of the workshop .

### **Manpower**

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Trainers must enlist the help of a core group in the planning, organization, implementation and evaluation of the workshop. Most essential to the training are the following:

- A co-facilitator (if possible)**
- Technical support staff to handle basic setup and troubleshooting**
- Logistical support staff to assist throughout the training**

Trainers may refer to the Training Management Checklist (Annex B) for a more specific breakdown of tasks per committee.

## Training Site Setup

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Since the training involves hands-on activities, this requires the availability of a venue, certain equipment and materials as well as the accomplishment of specific tasks, all of which are listed in the checklist below:

- Reserved venue for the duration of the workshop (U-shaped or classroom set-up)**
- Reliable internet connection**
- A separate venue for meals and health breaks**
- Participant Desktop computer or laptop (ideally one for each participant)**
  - Windows operating system (note: current set of CDs are Windows-based)
  - Internet or wi-fi enabled
  - Minimum of 2GB RAM
  - Minimum of 120GB HDD
  - CD- or DVD-ROM drive or USB port
  - Headphones or earphones
- Extension cords with multiple outlets (for laptop users)**
- Trainer Desktop computer or laptop**
  - same as participant PC requirements
  - Electronic timer
  - Presentation files (on Instructional Design, Types of ICT Resources, Multimedia Integration Links)
  - Video clips on Multimedia
  - Audio jack
  - Speakers
- Auto-/remote clicker**
- Printer networked to at least one computer**
- LCD Projector connected to the trainer's computer**
- White screen**

- White board/flip chart
- Microphone and sound system (optional)
- Workshop materials (Please refer to Annex A for details.)
- Set of UNESCO CDs per participant

### For those using a computer laboratory

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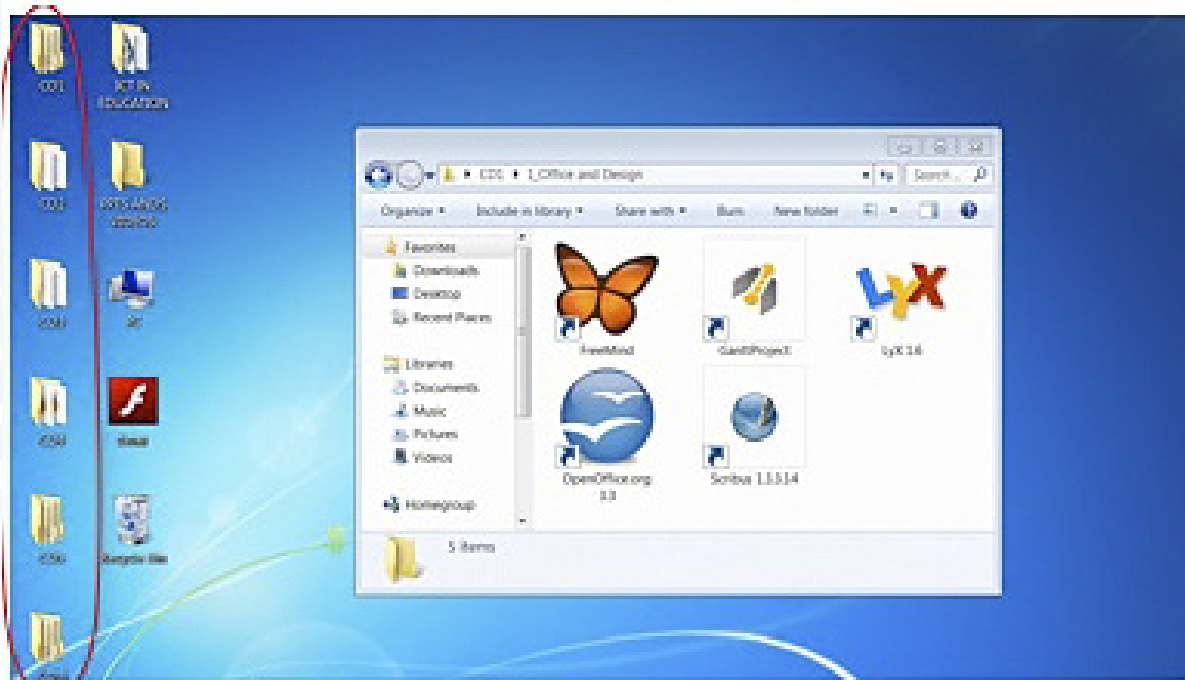
- Installation of all setup files and plug-ins per CD.** The CDs require the installation of setup files and plug-ins which may not be previously installed in the computers to be used. These files are already included in the CDs and can be run from the same. However, running them during the actual workshop could hamper the dynamics of the training because the CD applications may take time to load. Installing these applications in the computer terminals beforehand saves on time and ensures the smooth flow of the training.

It is essential for participants to know how to perform the installations themselves. However, for training purposes, a demonstration would suffice – this will be discussed at length in the succeeding session. A detailed description of the installation procedure can be found in **Session 4, Activity 2.1, no. 3.**

- Proper organization of desktop shortcuts per CD.** It is not enough to place the application shortcuts on the desktop. Doing so would clutter the screen, thereby distracting participants. For a common reference, shortcuts of installed applications and copied CD contents must follow a uniform arrangement. Shortcuts should be placed in folders labeled according to the CDs that they appear in. For example, all shortcuts from the Free Software for Educators CD should be placed in a desktop folder labeled CD1. Shortcuts should also be grouped in subfolders according to their arrangement in the CD (see screen shot below), where there are 5 applications (excluding Freemind) inside the CD1 subfolder **1\_Office and Design.**

If the participants are bringing their own laptops to the training, the same installation process mentioned above applies, especially to laptops with CD drives. In the absence of CD drives, a faster way of installing the programs would be to transfer the setup files per CD to a USB flash drive, which could then be plugged in and installed per laptop. The trainer may opt to conduct a pre-workshop session to accomplish this.





## Workshop Online Portal

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Online support for workshop trainers and participants is available via UNESCO's Education Community at <http://ict.unescobkk.org/>. To be part of this online community, trainers and participants must simply register in this online portal in order to start engaging in the group activities and posting messages in the various fora. Trainers should allocate time prior to the training for participants to complete this step.

The Group, entitled **Training on Multimedia Resources**, encourages workshop trainers, participants, and self-trained CD users to share their experiences in using and applying the resources in their actual classes. The sub-group for trainers, entitled **Multimedia Trainers' Space**, provides a venue for trainers to share and exchange ideas, experiences, tips, and feedback regarding the training workshops they have conducted.

**Korean Funds-in-Trust Education Community**

Home Activity Blogs Events **Groups** KISP Dashb

**Training on Multimedia Resources**

Private Group active 20 minutes ago ago

UNESCO Bangkok Learning Series on Information and Communication Technology (ICT) in Education

This online group is open to all trainers and participants of the Training on Multimedia Resources. This is a training workshop designed to guide teachers and teacher educators in effectively integrating/using UNESCO-Bangkok's pool of multimedia resources and tools in their respective classes.

This training workshop is conducted through the duly accredited UNESCO Bangkok Resource Distribution Centers (RDCs) and selected UNESCO Field Offices in Asia and the Pacific.

Your email status is No Email ([Get email updates](#))

Home Admin Forum Docs 0 Events 0 Members 1 Member Groups Send Invites Email Options

RSS Show: Everything

**Korean Funds-in-Trust Education Community**

Home Activity Blogs Events **Groups** KISP Dashb

**Multimedia Trainers' Space**

Private Group active 1 minute ago ago

Module 1: Essentials  
Module 2: Resource Point  
Module 3: Structure Making  
Module 4: Resource Point  
Print Certificate

This sub-group is reserved for the trainers of the Training on Multimedia. It provides a venue for trainers to share and exchange ideas, experiences, tips, and feedback regarding the training workshops they have conducted.

Your email status is No Email ([Get email updates](#))

Home Admin Forum Docs 0 Events 0 Members 1 Member Groups Send Invites Email Options

RSS Show: Everything

## SUGGESTED TRAINING TIMETABLE

The following tables show the important components of the training programme implemented on a 3-day schedule; However, the duration of the training can be adjusted according to your needs. A sample 2-day schedule as well as recommended supplementary activities for longer training schedules are attached as Annex C.

### 3-DAY SCHEDULE

#### Day 1 Schedule

Time	Description	Estimated Duration (per activity)
8:00 – 8:30	<b>Session 1: Welcome and Introductions</b>	
	Activity 1: Introductions and Norm-setting	10 minutes
	Activity 2: Presentation of the Training Design, Objectives and Routines	10 minutes
	Activity 3: Background on the UNESCO Bangkok ICT in Education Resources	10 minutes
8:30 – 9:40	<b>Session 2: The Elements of Good Instructional Design</b>	
	Activity 1: Review of Instructional Systems Design (ISD) Models	15 minutes
	Activity 2: The Perfect Fit: Syncing Objectives, Activities, Materials and Assessment in a Lesson	15 minutes
	Activity 3: Group Critique on a Poorly-done Lesson	20 minutes
	LESSON BOOSTER: Assessing My Lesson for Goodness-of-Fit. Big-group sharing of selected participants	10 minutes 10 minutes
9:40 – 10:10	<b>Session 3: Defining ICT (Part 1)</b>	
	Activity 1: What is ICT?	15 minutes
	Activity 2: ICT in Education: Why Integrate?	15 minutes
10:10 – 10:30	Health Break	20 minutes

10:30 – 12:00	<b>Session 3: Defining ICT (Part 2)</b> Activity 3: Challenges to Integration ..... Activity 4: Presentation of Various ICT Media ..... LESSON BOOSTER: Choosing My Media Format/s	40 minutes 40 minutes 10 minutes
12:00 – 13:00	Lunch Break	1 hour
13:00 – 15:30	<b>Session 4: Selecting ICT Resources (Part 1)</b> Activity 1: Criteria for Selection ..... Activity 2.1: Survey of Available UNESCO ICT in Education Resources	45 minutes 1 hour 45 minutes
15:30 – 15:50	Health Break	20 minutes
	<b>Session 4: Selecting ICT Resources (Part 2)</b> Activity 2.2: Access Points for ICT Integration in Learning Plans ..... LESSON BOOSTER: Finding ICT Access Points in My Lesson	45 minutes 10 minutes
16:45 – 17:00	Synthesis of Day 1 and Reflective Feedback	15 minutes

**Day 2 Schedule**

Time	Description	Estimated Duration (per activity)
8:00 – 8:30	Opening Activities and Recapitulation	30 minutes
8:30 – 10:00	<b>Session 5: Hands-on Integration of ICT Resources (Part 1)</b> ..... Activity 1: Navigating through Resources	1 hour 30 minutes
10:00 – 10:20	Health Break	20 minutes
10:20 – 12:00	Activity 1: Navigating through Resources (cont'd.) ..... LESSON BOOSTER: Noting Relevant Resources	1 hour 10 minutes 30 minutes
12:00 – 13:00	Lunch Break	1 hour

### Day 2 Schedule *continued*

13:00 – 15:30	Activity 2: Selecting Relevant Resources	2 hours 30 minutes
15:30–15:50	Health Break	20 minutes
15:50–16:45	Activity 2: Selecting Relevant Resources (cont'd.)	25 minutes
	LESSON BOOSTER: Integrating Resources into My Lesson	30 minutes
16:45–1700	Synthesis of Day 2 and Reflective Feedback	15 minutes

### Day 3 Schedule

Time	Description	Estimated Duration (per activity)
8:00 – 8:30	Recapitulation	30 minutes
8:30 – 10:00	<b>Session 6: "Share and Care" – Showcasing of Lessons</b>	
	Activity 1: Gallery Walk	30 minutes
	LESSON BOOSTER: Adding Final Touches to My Lesson	1 hour
10:00 – 10:20	Health Break	20 minutes
10:20 – 12:00	Activity 2: Showcasing Selected Works	1 hour 40 minutes
12:00 – 13:00	Lunch Break	1 hour
13:00 – 14:30	Activity 2: Showcasing Selected Works (cont'd.)	1 hour 30 minutes
14:30 – 15:10	<b>Session 7: Planning My ICT in Education Training</b> <i>(for Trainers' Training only)</i>	
	Activity 1: Goal-setting and Determining Audience	20 minutes
	Activity 2: Training Practicum Guide	20 minutes
15:30 – 17:00	<b>Synthesis of Day 3 and Reflective Feedback</b>	15 minutes
	Commitment Statement	10 minutes
	Evaluation of the Training	15 minutes
	Closing Ceremonies and Awarding of Certificates	50 minutes

## DAY 1 SESSIONS

### Session 1: Welcome and Introductions

<b>Overview</b>	This session allows trainers and participants to get acquainted. An outline of the training program is also presented. Participants discuss what to expect and what is expected of them. This establishes common goals and rules within the group. A pairing scheme is introduced to facilitate sharing during sessions. A brief background of the UNESCO ICT in Education Resources gives participants a better idea of the focus and content of the workshop.
<b>Venue</b>	Computer laboratory with internet connection
<b>Duration</b>	30 minutes
<b>Learning Objectives</b>	<ul style="list-style-type: none"> <li>• To establish rapport among trainers and participants</li> <li>• To be familiar with the training program, objectives and routines</li> <li>• To enumerate and commit to group norms and expectations</li> <li>• To assign clock partners</li> </ul>
<b>Materials</b>	<ul style="list-style-type: none"> <li>• whiteboard</li> <li>• 5 pieces of whiteboard markers</li> <li>• Clock partners sheets (<b>Annex C</b>)</li> <li>• 2 pieces of poster paper or kraft paper for the norm-setting</li> <li>• double-sided tape</li> </ul>

### Session Activities

#### Activity 1: Introductions and Norm-setting (10 minutes)

1. For more formal introductions, invite the College Dean or an administrative official to welcome all the participants to the workshop. The trainer can then be introduced by an assigned emcee. Otherwise, the trainer can introduce himself/herself using a presentation slide, or through some other creative manner as he/she sees fit.
2. To introduce the participants to one another, make use of a group dynamics activity such as the one described below:

Forced Analogy. Participants must look for an everyday object from their bag or from within the vicinity that best describes himself/herself. An analogy with this object shall serve as their introduction. For instance:

*I'm Cynthia, from the University of the East, Manila, Philippines, and I'm like dust – now you see me, now you don't!*

3. Prompt participants to collectively establish norms that will govern the group throughout the entire training program. These include time management, acceptable behaviour during sessions, dos and don'ts, among others. Write down these norms on poster paper or kraft paper and post it in a prominent area of the room. Recap these norms at the start of each training day.

## Activity 2: Presentation of the Training Design, Objectives and Routines (10 minutes)

---

1. Use the presentation that outlines the training agenda and objectives. Each slide contains a pictorial representation of one training objective. Ask participants to guess each objective, then click to reveal the accompanying text.



*Tip for Trainers* Make sure to practice with the presentation beforehand as some slides contain animation that require several clicks; Be careful not to reveal the learning objective (text) prematurely.

2. **Learning Objectives:** At the end of the workshop, participants are expected –
  - i. to have a broader yet more refined knowledge of ICT;
  - ii. to increase and/or update their awareness of the resources available in the UNESCO CDs;
  - iii. to enhance existing unit and lesson plans by identifying possible points of integration for the resources;
  - iv. to identify the needs of their particular teaching-learning contexts while keeping their areas of specialization in mind;
  - v. to effectively select appropriate resources using available tools; and
  - vi. to plan and eventually implement a training programme for their respective institutions.
- **Managing Training Routines.** Explain that certain strategies will be used throughout the training workshop to facilitate and enhance learning. Brief participants on the Clock Partners pairing strategy, buzz sessions, small group discussions, parking lots, lesson boosters and recap sessions, as explained below:



**Clock Partners.<sup>1</sup>** Distribute the Clock Partners sheets (**Annex D**).

Explain that this affords a quick pairing scheme that ensures interaction with four or more different partners. For this workshop, participants must find partners for four (4) time slots: 3:00, 6:00, 9:00 and 12:00. Remind everyone that as they jot down different names for each of the slots, their names must also appear on their partner’s sheet on the same time slot to signify agreement. For example, If Cynthia is Rachel’s 3:00 partner, then Rachel’s name should appear on Cynthia’s 3:00 slot, while Cynthia’s name should also be written on Rachel’s 3:00 slot. During the sessions, trainer/s will announce the pairs that will work together on specific tasks, i.e. 3:00 partners. Participants must refer to their clock partners sheets and pair up accordingly.



**Buzz Sessions.** For quicker pairings, ask participants to partner with a seatmate for a buzz session. Buzz sessions must be brief (about 2 to 3 minutes only) and must directly address the task at hand.



**Parking Lots.** Poster paper or Kraft paper are posted all around the training venue. These serve as parking lots for participant insights, questions and answers, suggestions and comments written on sticky notes. Participants may park their notes at any given time throughout the workshop and may also be instructed to do so at certain sections of the training. Trainers are responsible for regularly checking the parking lots and addressing concerns and issues promptly.



**Lesson Boosters.<sup>2</sup>** At certain points of the training, participants are given a chance to apply the insights they have gained in enhancing their own lessons with ICT resources. This hands-on activity allows participants to work on their own lesson plans in stages to ensure completed products at the end of the training programme.

Remind participants to finish each Lesson Booster activity as subsequent tasks build on earlier ones.

**Recap sessions.** Subsequent training days must begin with a recapitulation of previous topics for no more than 15 minutes. Varied recap strategies will be used from day to day. Whatever the activity, participants are expected to synthesize information in a comprehensive and creative manner.

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1 Automobile car white clipart: <http://www.clker.com/clipart-map-symbols-automobile-car-white.html>, alarm clock clipart: <http://www.clker.com/clipart-16479.html>, bee clipart: <http://www.clker.com/clipart-30445.html>  
 2 Rocket [http://www.123rf.com/photo\\_14583405\\_blue-rocket-ship-vector-cartoon-illustration.html](http://www.123rf.com/photo_14583405_blue-rocket-ship-vector-cartoon-illustration.html)



### Activity 3: Background on the UNESCO Bangkok ICT in Education Resources (10 minutes)

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Use the following points in providing a background on the UNESCO Bangkok ICT in Education Teacher Training CD series. The history of the training institution as a UNESCO Resource Distribution Centre may be included. Present this in a manner befitting the context of the training workshop.

- o One of the main thrusts of the ICT in Education section of UNESCO Bangkok is to increase awareness of and access to the educational applications of technology among stakeholders in the field.
- o To further their advocacy, they have been partnering with several institutions such as the Japanese Funds-In-Trust (JFIT), UNESCO G-77, the China South-South Cooperation Fund in Education for the ICT in Education Teacher Training Project in the Asia-Pacific Region, and the Korea Funds-In-Trust (KFIT) Facilitating the Effective ICT-Pedagogy Integration Project.
- o The result of these partnerships is a collection of resources ranging from modular training programmes to electronic tools and free software, made available to educators since 2006. These materials were compiled in CD-ROMs, with permission from resource developers and owners. These "may be used and copied freely, and distributed among educators, students, and any others who would like to use them." These free CDs may be obtained from schools and universities that serve as duly accredited Resource Distribution Centres (RDCs) in various parts of the Asia-Pacific Region.
- o However, the materials will best serve their purpose in the hands of users who can integrate their knowledge of instructional design, pedagogy, and multimedia; hence, this Training. Note: the current versions of the CD series are in English and Windows-based.

## Session 2: The Elements of Good Instructional Design

<b>Overview</b>	In Session 2, participants are reminded that the core of good teaching is sound instructional planning. Various instructional systems design (ISD) models are reviewed and their common elements underscored. The session ends with a lesson critique, following the principles discussed.
<b>Venue</b>	Computer laboratory with internet connection
<b>Duration</b>	1 hour and 10 minutes
<b>Learning Objectives</b>	<ul style="list-style-type: none"> <li>• To describe ISD models and identify common elements among them</li> <li>• To collaborate with others in evaluating a lesson or project plan</li> <li>• To assess and enhance one’s lesson using the principle of The Perfect Fit</li> </ul>
<b>Materials</b>	<ul style="list-style-type: none"> <li>• Clock partners sheet (<b>Annex D</b>)</li> <li>• Presentation on ISD models</li> <li>• Presentation on The Perfect Fit</li> <li>• Sample learning plan printouts—flawed and enhanced (<b>Annex E</b>)</li> </ul>

### Session Activities

#### Activity 1: Review of Instructional Systems Design (ISD) Models (15 minutes)

1. Present the group with this statement: **ICT integration is the core of effective instruction.** Ask who among the group agrees/disagrees. Elicit that, while ICT has a positive impact, it is not the end-all and be-all of teaching and learning. Instruction is enhanced by ICT, but can still be effective even without it. Ask, “what then is at the core of effective instruction?” The answer – a sound instructional plan that integrates the different elements of instruction into a cohesive whole.
2. Using the **ISD Models presentation**, proceed with the review of various instructional systems design models: ADDIE, ASSURE, Dick and Carey, Dick and Reiser (Gustaffson & Branch, 2002). Ask participants to compare and contrast these ISD models. Guide participants to the conclusion that while the models differ in organization and format, they possess basic elements common to all. Enumerate these elements on the board.

3. Ask: Given these elements, what guiding principle should we follow to ensure effective instruction? The answer lies in the next presentation. Preface it by explaining that it is the relationship between the elements of a lesson, no matter what the ISD model used, which impacts instruction.

### Activity 2: The Perfect Fit (15 minutes)

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- Give the presentation on **The Perfect Fit**. Call attention to the importance of aligning objectives, activities, materials and assessment, especially while discussing examples in the Powerpoint presentation. Trainers have the option to provide more localized examples to concretize the concept under study.



*Tip for Trainers: For better engagement, give sample situations and scenarios that are culture-responsive and relevant to the participants' teaching experiences to make examples more relatable.*

### Activity 3: Group Critique on a Poorly-done Lesson (20 minutes)

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- Distribute copies of the **Sample learning plan worksheet** by Richardson & Hanny (**Annex E-1**) while projecting the same on the white screen. Using the principle of The Perfect Fit, the group must identify flaws in the plan, explain why these are flaws, and make revisions to improve the plan. Afterwards, an enhanced version of the lesson (**Annex E-2**) is presented by the trainer. Again, trainers have the option to present a more localized sample lesson.



#### LESSON BOOSTER: Assessing My Lesson for Goodness-of-Fit (10 minutes)

*Ask participants to look at the learning plans that they were asked to bring. Do the lesson components (objectives, activities, assessment) match and are they well-aligned? Instruct them to assess the soundness of their plans based on the planning principle discussed, and to make adjustments when necessary.*



Then, direct participants to meet with their 3:00 partners and exchange feedback on their respective lessons. As you mill around the room during this sharing activity, arrange with some participants to share with the whole group what they discussed. Call out the names of these selected participants one after the other and use the remainder of the session (10 minutes) for the group sharing. .

## Session 3: Defining ICT

<b>Overview</b>	In this session, participants define, describe, and explain the importance of ICT, which is requisite to its effective application in education. Advantages and challenges to integration are also discussed. In addition, the different features of each type of ICT media/technology are introduced.
<b>Venue</b>	Computer laboratory
<b>Duration</b>	2 hours
<b>Learning Objectives</b>	<ul style="list-style-type: none"> <li>• To define ICT</li> <li>• To classify which media are part of ICT</li> <li>• To weigh the benefits and challenges of integrating ICT in teaching and learning</li> <li>• To identify the different types of ICT media and technologies, including the features, advantages, and limitations of each</li> </ul>
<b>Materials</b>	<ul style="list-style-type: none"> <li>• whiteboard</li> <li>• whiteboard markers</li> <li>• UNESCO Bangkok E-learning Series on Information and Communication Technology (ICT) in Education CD-ROM (Module 1)</li> <li>• video clips on traditional media, multimedia, computers, and the Internet</li> <li>• Human Scattergories word strips (<b>Annex F</b>)</li> <li>• Prizes for Human Scattergories winners</li> <li>• presentation on ICT media and technologies</li> <li>• printouts of Feature Analysis Matrix (<b>Annex G</b>) and answer key</li> </ul>

## Session Activities

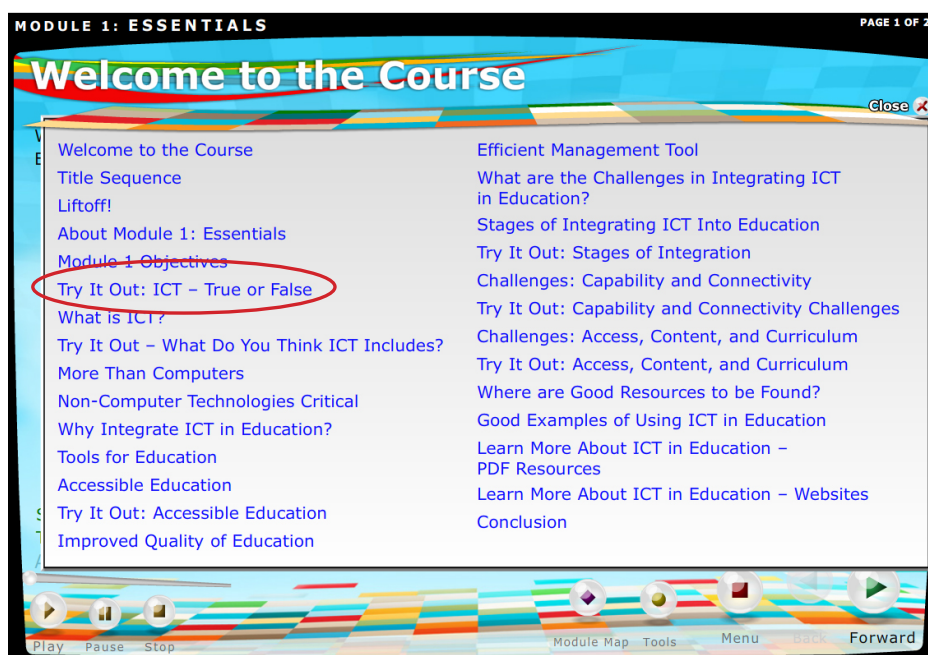
### Activity 1: What is ICT? (15 minutes)

1. **Chalk Talk Protocol.** Begin the session with this whole-group brainstorming activity. In this task, nobody speaks; instead, ideas are written in a semantic map. Provide a key word (ICT) to be placed at the centre of the map. Participants may freely approach the board and jot down their ideas.

To add depth and variation to the activity, assign tasks according to their row or table number, i.e., Row 1 writes down topic-related ideas, Row 2 asks questions about the

ideas previously written, Row 3 answers questions they can answer, Row 4 connects related ideas. If ideas are still limited, repeat certain tasks and switch assignments per round of grouping. Provide a stimulus when needed. At the end of the silent protocol, highlight certain responses that will be covered, as well as those which will be addressed in later sessions.

2. Explain the importance of having a clear and common understanding of what ICT is in order to use it properly and effectively. The next task should check if the participants possess accurate knowledge of ICT.
3. State that to accomplish the goals for this session, the group will go through some parts of Module 1 of the UNESCO Bangkok E-learning Series on Information and Communication Technology (ICT) in Education CD-ROM. Explain briefly what the CD is about by reading the inside flap. Tell the group that while the CD will be used for this session, each of the participants will bring home a copy at the end of the programme, where they can go through the entire module and receive a certificate after completing the course.
4. Open Module 1 on the trainer's computer and direct the group to the wide screen. Make sure that the audio is turned **off** if you wish to strictly control the pace of the discussions. Click on **Module Map** and go to **Try It Out: ICT—True or False**. Go through the items and the answers together.



5. After completing the activity, take a quick poll via show of hands to know who among the participants had the same misconceptions on ICT at one point or another. The trainer must raise his/her hand as well if this applies. Given some more time, call on some of those with raised hands to share.
6. Click forward to proceed to **What is ICT?** Continue until the topic **Non-Computer Technologies Critical**. Provide short explanations when necessary.
7. Explain that because of these mixed beliefs regarding ICT, it is ever more important to spread correct information about it. Reiterate the invitation printed on the CD sleeve to share these resources with colleagues, maybe even to students and to other interested parties.



*Tip for Trainers: Since this activity is trainer-directed, choose which parts of the E-learning Series CD-ROM to highlight and which to skim over, depending on what sections participants need to discuss further.*

### Activity 2: ICT in Education: Why integrate? (15 minutes)

1. Continue with Module 1 of the CD. Click **Forward** to go to **Why Integrate ICT in Education?** After completing the first page, ask the group to do a quick brainstorm on how ICT has improved the various sectors of society (business, government, industry, civic). End the brainstorm with education. Compare participants' answers with those found in the succeeding slides.
2. Click **Forward to Tools for Education**. Proceed with the module until the **Efficient Management Tool** page. As the advantages of ICT are being discussed, the trainer may give short, illustrative examples.

### Activity 3: Challenges to Integration (40 minutes)



1. Call the group's attention to the challenges/obstacles to ICT integration written in the Silent Protocol brainstorm.



Ask them to buzz with their seatmate for two minutes on the challenges their respective institutions face in ICT integration.

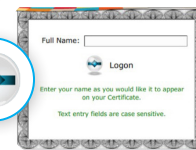
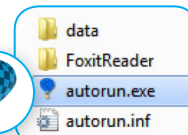
2. Click **Forward to What are the Challenges in Integrating ICT in Education?** Click on the **question mark** and have participants buzz with their seatmate again for answers.
3. Continue with **Stages of Integrating ICT Into Education** until **Try it Out: Access, Content and Curriculum**. The trainer must act as moderator in the discussion of key points and exercise responses. Focus on the specific challenges detailed in the module by selecting the linked ballast bags on the **Challenges** pages.

## FOR TRAINING OF TRAINERS:

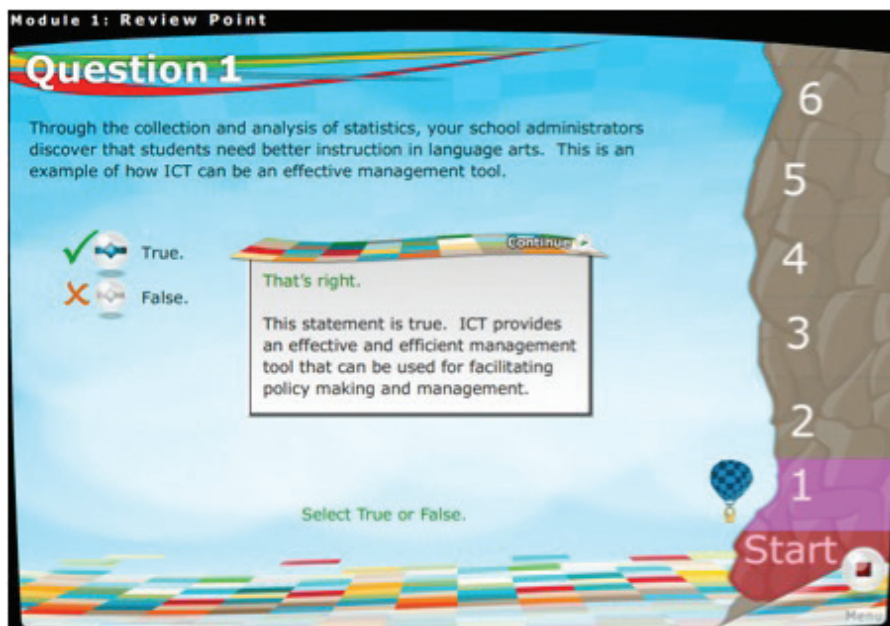
After viewing the abovementioned pages, ask participants to jot down 3 of the most pressing challenges their institutions are facing on a sticky note and to keep it as a reference for the planning session (Session 7, Annex G).

4. At this point, instruct the participants to open the module on their computers. A folder labeled ICT in Education should already be on the desktop for quick access to the CD contents. Ask them to perform the following steps:

- i. Click the **ICT in Education** folder on the desktop.
- ii. Click the **autorun** file with this icon. 
- iii. Enter your name in the space provided.
- iv. Click **Logon** icon. 
- v. Click **Forward**.
- vi. Click the **Skip Introduction** link.
- vii. Click **Module 1: Essentials** and continuously click the Forward button until the end of the module.



Click **Menu** and then click **Module 1: Review Point**. To check what they have learned from the moderated presentation of Module 1, ask participants to accomplish the Review Point individually. Remind participants to turn off their speakers, or to use headphones, if available.



## Activity 4: Presentation of various ICT media and technologies (40 minutes)

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### 1. Human Scattergories (10 minutes)

Be sure to prepare larger versions of the word strips from **Annex F**. Note that you may make your own set.

Each participant will be handed a word strip containing an example of an instructional material, i.e., printout of a short story. The goal is to find other participants with a similar instructional format and to form a group. When the group is complete, its members must come up with a general category that classifies their materials. They must post their group heading and word strips on the board. The first group to complete the task wins a prize. Use participant responses in the previous activity to jumpstart the presentation of the types of ICT media and technologies.

### 2. Open the **presentation on ICT media and technologies**. (10 minutes)

- i. Define media as a mode or format of presenting information, or a “carrier of information between a source and a receiver” (Smaldino, Russell, Heinich, & Molenda, 2005) and **technology** as tools and processes that apply knowledge in performing tasks (Newby et al, 2006). Also, distinguish the term **media** from **materials** (the latter being more specific instructional tools)—i.e., printed text is an instructional medium, but Chapter 5 of the Science textbook used in one’s class is an instructional material. Provide more concrete examples to differentiate concepts.
- ii. Present the following **traditional, non-electronic formats** as the initial forms of instructional media: (categories from Newby et al, 2006)
  - **Text (textbooks, printouts, worksheets, manuals, pamphlets)**
  - **Printed visuals (posters, photos, illustrations, comics, maps, graphs)**
  - **Displayed visuals (chalkboards, bulletin boards)**
  - **Real objects and models**

Note that these formats are not part of ICT as per Module 1, but these must still be discussed, especially since these media are still usable content formats, and can easily be transformed to the electronic formats mentioned below.



iii. Enumerate the ICT media and technologies according to the following categories:

- **Projected visuals (overhead transparencies, presentation slides)**
- **Audio media (radio, podcasts, audiotapes, voice recordings)**
- **Video media (motion pictures)**
- **Multimedia and other computer-based media (programmes and applications)**
- **Internet media (online resources), including web tools**

iv. Present the introductory video for multimedia (<http://www.youtube.com/watch?v=Je3bUf2l6bl>), the main media format on which the training will focus.

v. Emphasize that ICT media may overlap; for example, an online programme may be multimedia and internet media at the same time.

3. **Feature analysis.** Distribute the Feature Analysis Matrix worksheets (adapted from Newby, et al, 2006) (**Annex G-1**). Explain that media selection involves the consideration of how its features match the learners' context, the learning environment, the content, and the learning plan. To analyze the features of each medium, participants must read the learning requirements listed in Column 1 of the matrix and tick the media column/s that address each. (10 minutes)



After the allotted time, ask participants to meet with their 6:00 partner (see clock partners sheet) to check their matrices against each other's work, and after some minutes, against the distributed answer key (Annex G-2). If time allows, have the group discuss their output and come to a consensus. (10 minutes)



#### **LESSON BOOSTER: Choosing My Media Format/s (10 minutes)**

*Ask participants to review their lesson plans. Which of the features listed in the Feature Analysis Matrix match their context? Which media format/s (text, visuals, realia, audio, video, multimedia, web) would meet the demands of their subject matter and their respective learning situations? Ask them to pencil this into their lesson plans as marginal notes.*

## Session 4: Selecting ICT Resources

<b>Overview</b>	During this session, the trainer introduces criteria for selecting ICT resources. Participants are given time to navigate through the UNESCO CDs and install at least one resource application into their computers. The trainer then presents possible points of integration of resources into the participants' projects or lessons.
<b>Venue</b>	Computer laboratory
<b>Duration</b>	3 hours 25 minutes
<b>Learning Objectives</b>	<ul style="list-style-type: none"> <li>• To use a criteria in selecting appropriate resources</li> <li>• To navigate through the UNESCO ICT in Education Resources</li> <li>• To install a resource application in a computer</li> <li>• To identify possible ICT integration points in a project or lesson</li> </ul>
<b>Materials</b>	<ul style="list-style-type: none"> <li>• Qwhiz Show Presentation</li> <li>• ICT Integration Checklist printouts (Annex H)</li> <li>• UNESCO Bangkok E-Learning Series on Information and Communication Technology (ICT) in Education CD-ROM</li> <li>• UNESCO ICT Teacher Training Series CDs 1-6</li> <li>• File on CD content and application descriptions</li> <li>• Presentation on Access Points</li> <li>• 3 sheets of kraft paper, preferably of varied colors, each labeled 3, 2 and 1 respectively</li> <li>• double-sided tape</li> <li>• desktop shortcuts</li> </ul>

## Session Activities

### Activity 1: Criteria for Selection (45 minutes)

1. **"Qwhiz Show"**. In this activity, participants act as game show contestants and identify the factors to consider in ICT integration using the clues presented by the trainer. The first participant to identify each correct answer wins a prize. Use the **Qwhiz Show presentation**.

Give a brief explanation for each of the following factors as they appear on the slide. Use the ICT Integration Checklist (Annex H) as a guide for discussion.

o **Learner's Context**

- State the need to account for learner's general characteristics (age, grade level, gender, socioeconomic status), (special) needs, motivation, skills (including technology literacy), attitudes, values, culture, language and environment that directly impact learning.

o **Teacher's Context**

- Mention the importance of selecting ICT resources which teachers are familiar with and are capable of using.

o **Accessibility**

- Issues such as costs, availability of infrastructure and other relevant resources, and resource-learner ratio are also to be considered in selection. Emphasize the benefits of using open educational resources along with observing respect for fair use and copyright guidelines.

o **Pedagogical Use**

- Teachers need to identify the purpose for using a specific resource in a lesson or project as this dictates when and where appropriate ICT should be integrated. Emphasize that the medium/material should complement and support the other elements of instructional design (objectives, activities, and assessment). Remind everyone that the best way to avoid ICT abuse is by means of responsible use.

o **Content**

- The material itself should be accurate as well as appropriate to the level and language of learners. Its organization, density, and complexity of ideas should likewise be suitable. Even the quantity of resource to be used should be considered vis-à-vis time constraints and information load.

o **Quality**

- Given the variety of resources, teachers should select materials that are of high quality depending on its nature, i.e., sound clips should be clear and audible; while video clips, sharp and vivid.

o **Learning Environment**

- The class size, space and characteristic of the learning venue should also play an important role in media selection.

o **Medium (Feature analysis of various media)**

- Emphasize the need for the medium to address the criteria previously mentioned.

*Ask participants to buzz in pairs about which three of the criteria presented should be considered as most important.*



2. Distribute the **ICT Integration Checklist (Annex H)**, which serves as a tool in checking the appropriateness of the selected ICT resource. It also presents the criteria in the form of questions, with a remarks section that allows users to note important details. Give the participants a few minutes to browse the checklist. Open the floor for Question and Answer (Q & A).
3. **Integration Scenario.** Now it is time for participants to use what they have learned in making decisions on ICT integration. They will be given a scenario to work on, and using the ICT integration checklist along with the other information they have gathered from earlier sessions, they must select the appropriate ICT resource for the given situation.

- o Explain that once again, the group will go through some parts of the **UNESCO Bangkok E-learning Series on Information and Communication Technology (ICT) in Education** CD-ROM, specifically Module 2. Reiterate the invitation to go through the entire 2-module CD in order to receive a certificate after completing the course.



- o Open Module 2 on the trainer's computer and direct the group to the wide screen. Make sure that the audio is turned **off** if you wish to strictly control the pace of the discussions. Click on **Teacher-Instructor** to view the decision-making scenario. Go through the scenario together and facilitate the discussion until you reach the **Conclusion: Teacher Scenario** page. During the discussion, make sure to elicit the participants' justification for their ICT selection—ask them to explain the reasons behind their choices.

## Activity 2.1: Survey of Available UNESCO ICT in Education Teacher Training CD Series

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(1 hour 45 minutes)

1. **Navigation of UNESCO CDs.** Ask the participants to check their desktop for the following folders: ICT IN EDUCATION, CD1, CD2, CD3, CD4, CD5 and CD6. Explain that folders represent the complete set of free UNESCO CD-ROMS:

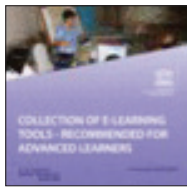


- ICT IN EDUCATION–UNESCO Bangkok E-Learning Series on Information and Communication Technology (ICT) in Education
- **CD1** – Free Software for Educators (green)
- **CD2** – Multimedia Resources (red orange)
- **CD3** – Web Tools for Educators (blue)
- **CD4** – Directory of ICT Resources for Teaching and Learning of Science, Mathematics and Language (yellow orange)
- **CD5** – Collection of E-Learning Tools Recommended for Learners Age 3-13 (red violet)
- **CD6** – Collection of E-Learning Tools Recommended for Advanced Learners (purple)

### NOTE

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Make sure that at this point, technical support should have installed all applications EXCEPT Freemind, and should have placed and organized desktop shortcuts into their proper folders.



### Collection of E-Learning Tools. Recommended for Advanced Learners

This CD-ROM contains a collection of free e-learning tools suitable for advanced learners and useful for instructed learning and self-learning. The e-learning tools on the CD-ROM are divided into the following categories: Geography & Astronomy, Language Learning, Mathematics, Science, Programming and Memorizing.



### Collection of E-Learning Tools. Recommended for Learners Age 3-13

This CD-ROM contains a collection of free e-learning tools suitable for children age 3-13. They are useful for instructed learning and self-learning. We highly recommend guiding very young children in the usage of the software. The e-learning tools on the CD-ROM are divided into the following categories: Educational Suites, Language Learning, Mathematics, Arts & Graphics, Computer Literacy and Geography & Astronomy.



### Directory of ICT resources for Teaching and Learning of Science, Mathematics and Language

The Directory contains a set of ICT-based resources for teaching and learning of science, mathematics and language for secondary-level students, including simulations, video clips, interactive learning objects for quizzes, animation, and other kinds of multimedia learning activities.



### Web-tools for Educators

This CD-ROM offers about 50 web-based applications which are potentially useful for all types of education activities. Every application has its own tutorial explaining the educational potential and the technical installation.



### Multimedia Resources

A collection of clip art, Powerpoint backgrounds, icons, pictures, music, flash applets for teachers to produce their own materials or lesson plans.



### Free Software for Educators

This CD-ROM contains free (open source) software which may help educators to produce their own ICT based learning objects, learning materials and classroom resources. About 30 applications are included, categorized into Office & Design, Internet, Educational Tools, Audio and Video, Graphics & Animation and Utilities.



### E-Learning Series on Information and Communication Technology (ICT) in Education

**Module 1:** ICT in Education Essentials: provides learners with essential information about ICT in education and aims to promote common understanding about the topic in the education sector.

**Module 2:** ICT in Education Decision Making: helps learners to consider the different factors involved in choosing the appropriate technology to use in a particular education setting. The two modules were especially designed for policymakers, educational planners, school administrators, education specialist and educators, in general.

2. Show the group copies of the UNESCO CDs one at a time. Talk about the ICT in Education eLearning series and its variety of uses, which includes individual online instruction, as well as moderated discussions for faculty and student development. Explain to the participants that they can print out a certificate after successfully answering the assessment questions at the end of the two modules. In order to be certified by UNESCO Bangkok, one can submit his certificate along with his name, institution, and country to [ict.bkk@unesco.org](mailto:ict.bkk@unesco.org). His name will then be posted on [www.unescobkk.org/education/ict-in-education-projects/capacity-building/certificates/](http://www.unescobkk.org/education/ict-in-education-projects/capacity-building/certificates/)
3. Direct the participants to the wide screen. Using the trainer's computer, demonstrate the installation of the application Freemind. This should not have been previously installed. Ask participants to simultaneously install the application with you, following these steps:

- i. Insert CD1 into the CD drive of the computer.
- ii. Click **Run free\_software.exe.**
- iii. Click **Office and Design**
- iv. Click **Freemind**
- v. At the lower right corner of the interface, click Installation.
- vi. Click **FreeMind–Windows–Installer–0.9.0\_RC\_6–max–java–installer–embedded.**
- vii. When the *User Account Control* interface asks if you want to allow the programmes to run, click **Yes.**
- viii. When the Select Setup Language interface asks what language to use, select your language of choice and click Yes.
- ix. When the *Setup Wizard* is displayed, click **Next** to continue installation.
- x. On the *License Agreement* interface, choose **I accept the agreement** and click **Next.**
- xi. Click **Next** again.
- xii. When prompted to *select destination location*, choose a specific folder; otherwise, simply click **Next.**
- xiii. When prompted to *select start menu folder*, choose a specific location; otherwise, simply click **Next.**
- xiv. When prompted to *select additional tasks*, tick the appropriate boxes; otherwise, simply click **Next.**
- xv. On the *Ready to Install* page, click the **Install** button.
- xvi. On the *Information* page, click **Next.**
- xvii. Tick the *Launch Freemind* box and click **Finish.**



Explain to the participants that the installation procedures for Windows-based applications are the same for all CDs and that such procedures should be taught to teachers to whom the UNESCO ICT in Education Resources will be distributed.

Provide participants with the application descriptions (file provided) then give them time to go over the list.

**ACTIVITY 2.2:** Access Points for ICT integration. (45 minutes)

Note that ICT Integration requires teachers to know when and where to integrate resources into one's lesson or project plan. Use the **Access Points presentation** to give the audience an idea of the possible integration points within the learning plan. These include motivation and lesson introductions, presentation and information, application, drill and practice, assessment, and synthesis and closing. Selected resources from various CDs will be shown throughout the presentation and will serve as samples of integration.



*Tip for Trainers: Take advantage of the participant data available - feature resources in the presentation that match participants' subject areas and levels taught.*







### LESSON BOOSTER: Finding ICT Access Points in My Lesson (10 minutes)

Ask participants to accomplish the following:

1. Determine in which part/s of their lesson could ICT be integrated;
2. From the demonstration, take note of resources which they may be able to use in their own lesson. Have them add these to the marginal notes in their lesson plans. After going over the list of application descriptions, they may spend the rest of the session browsing through CD contents to verify which ones are usable for their plans.

### Synthesis of the Day and Reflective Feedback

**3–2–1 Parking Exit.** Using a sticky note, participants will jot down at least 3 points they learned from the day's workshop (1). In another note (2), they will state 2 questions left hanging in their minds. Lastly in another note (3), they will write at least 1 suggestion for improvement. Ask the participants to post the sticky notes, by categories, on the Parking Lot sheets on the wall. Select sticky notes that could be shared to or answered by the group. 15 minutes)

1  
Give us more time for hands-on activities.

2  
• When will we have another training like this?  
• Are there other resources coming soon with the training guide?

3  
• I don't need to be an expert in order to integrate ICT.  
• There are many PowerPoint presentations available.  
• I don't need the internet to use multimedia.

## DAY 2 SESSIONS

### Opening Activities and Recapitulation

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Welcome the participants and open the day with a recap strategy called Meet your Match. Explain the mechanics listed below and facilitate the distribution of word strips before beginning the activity. Note that trainers must prepare as many word pairs as there are participants. Prepare 2 prizes for the recap activity. (30 minutes)

#### MEET YOUR MATCH – ICT ACRONYM RECAP

**Materials:** word strips, prizes

**Mechanics:**

- o Below are examples of word pairs that should be written on matching puzzle pieces in the form of word strips (NOTE: each pair should be cut into two separate strips). There should be as many puzzle pieces as there are participants. Add more word pairs if necessary.
  - king–queen
  - brother–sister
  - prince–princess
  - groom–bride
  - yin–yang
  - spoon–fork
  - husband–wife
  - stallion–mare
  - wizard–witch
  - nephew–niece
- o Each participant will be given a puzzle piece. The goal is to look for the person who has the piece that matches his/her own word.
- o Each pair then recaps yesterday’s sessions to each other by giving new words that correspond to the letters I, C and T. The pair has to expound on their answers. The first pair to complete the puzzle and finish the recap wins a prize.

## Session 5: Hands-On Integration of ICT Resources

<b>Overview</b>	This session will allow participants to explore the content in the UNESCO CDs and identify the resources that can be integrated into their own lessons.
<b>Venue</b>	Computer laboratory
<b>Duration</b>	6 hours 35 minutes
<b>Learning Objectives</b>	<ul style="list-style-type: none"> <li>• To identify resources relevant to ICT and multimedia integration in instruction</li> </ul>
<b>Materials</b>	<ul style="list-style-type: none"> <li>• ICT Integration Checklist (Annex H) – used in Session 4</li> <li>• UNESCO Bangkok ICT in Education Teacher Training Series</li> <li>• CD Feedback forms (Annex I)</li> <li>• Sticky notes</li> <li>• Soft copies of participants' lessons or project plans</li> </ul>

### Session Activities

#### Activity 1: Navigating through Resources (2 hours 40 minutes)

1. Allow teachers to navigate through the installed programs that were briefly mentioned the day before. This will give them the opportunity to independently run the applications installed in their computers and navigate through applications more freely and extensively.



It might help if the trainer makes himself/herself available to give technical support and advice to participants during this activity. Note: the trainer has to be familiar with most, if not all, the applications in the CD series.

Make sure that participants have enough time to explore the CDs. If necessary, model the navigation of applications by projecting the exploration activity to the whole group on the white screen. This enables teachers to keep their focus on the task at hand. Keep a list of resources as a guide in the navigation of resources.



2. This is the best time to also ask the teachers to get hold of their CD Feedback Forms so they can evaluate each resource as they navigate through them. Inform them that the CD Feedback Forms need to be submitted at the end of this activity and that such are prerequisites for receiving the Certificates of Participation later on

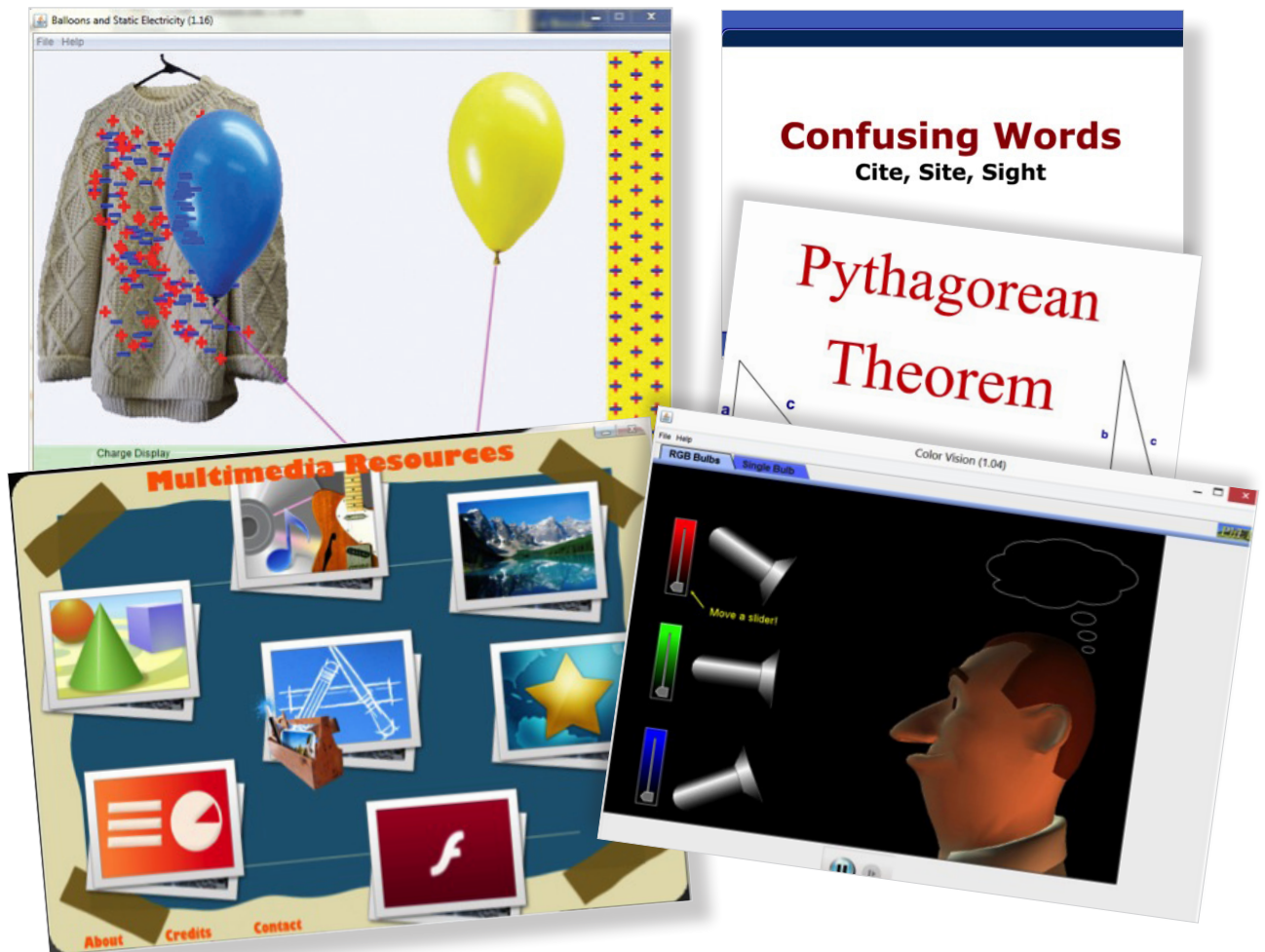


*Tip for Trainers: The CD Feedback Form may be converted into an online form via SurveyMonkey, Google Forms, or some other application for automated collation and results.*



### LESSON BOOSTER: Noting Relevant Resources (30 minutes)

As participants go through the UNESCO Resources, remind them to habitually revisit their lesson plans and take note of what the lesson needs in terms of ICT integration, along with the media type/s and access points that they have previously identified. With these in mind, participants must list the relevant resources that could possibly fit their lesson.



## Activity 2: Selecting Relevant Resources (2 hours 55 minutes)

---

- Using the ICT Integration Checklist (Annex H) that was distributed during Session 4, participants decide which specific resources are appropriate to their lesson or project plans. Ask them to note down what these are for later integration into the lesson or project. Remind them to select resources or tools that will truly impact learning.



### LESSON BOOSTER: Integrating Resources into My Lesson (30 minutes)

*Ask participants to open soft copies of their lesson or project plans.*

*Given their notes from previous activities, instruct them to integrate the resource/s into specific portions of the lesson or project using red font. Participants will type in a brief explanation of their choice and how the selected resource will be used in their lesson or project. Stress the importance of making the lesson plan clear and understandable. Any reader should be able to make sense of the plan without requiring explanations from the author. The plan needs to be able to stand on its own for later assessment.*

## Synthesis of the Day and Reflective Feedback

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**3–2–1 Parking Exit.** Using a sticky note, participants will jot down at least 3 points they learned from the day's workshop. In another note, they will state 2 questions left hanging in their minds. Lastly in another note, they will write at least 1 suggestion for improvement. Ask the participants to post the sticky notes, by categories, on the Parking Lot sheets on the wall. Select sticky notes that could be shared to or answered by the group. (15 minutes)

## DAY 3 SESSIONS

### Opening Activities and Recapitulation

---

**(30 minutes) Trainer to customize**

### Session 6: “Share and Care” – Showcasing of Lessons

<b>Overview</b>	During this session, participants collaborate with their clock partners in order to improve their learning plans and gain new insights from peer feedback and modeling.
<b>Venue</b>	Computer laboratory
<b>Duration</b>	4 hours 40 minutes
<b>Learning Objectives</b>	<ul style="list-style-type: none"> <li>• To give and receive constructive insights on one’s learning plan</li> <li>• To finalize the learning plan in collaboration with one’s peers</li> <li>• To gain new ideas from peer sharing and coaching</li> <li>• To showcase the finalized lesson before the group</li> </ul>
<b>Materials</b>	<ul style="list-style-type: none"> <li>• Wow and Wonders Protocol</li> <li>• Participants’ individual soft copies of lessons or projects</li> <li>• Sticky notes</li> <li>• Presentation on lesson/s to be showcased</li> <li>• Clock Partners Sheet</li> </ul>

### Session Activities

#### Activity 1: Gallery Walk (30 minutes)

---

1. Participants will go through the works of their peers one at a time in round robin fashion. On the trainer’s signal, all participants will move one seat to the left onto the next workstation. Use the **Wow and Wonders Protocol** by asking them to make constructive insights, i.e., “Wow, the ICT resource you integrated in your lesson/project really targets your first objective.” They can also give suggestions by starting with “I wonder if...” Participants may use as many sticky notes for their wows and wonders.



*Tip for Trainers: If time is limited, participants may view the works of their 4 clock partners instead.*

2. Encourage the participants to provide concrete suggestions on multimedia activities, specific resources from the UNESCO CDs or supplementary websites that they know of. Ask them to comment in a concise manner as opposed to simply saying "Great!" Tell them that specific suggestions are more helpful than general feedback.

✓ Wow! The game you chose is a great way to introduce your lesson!  
I bet the kids will enjoy it!

X  
Wow!  
The game is nice.  
Good job!

✓  
I wonder if the language is too difficult for your young learners.



### **LESSON BOOSTER: Adding Final Touches to My Lesson (1 hour)**

After having heard from their peers, participants must now incorporate the helpful feedback into their enhanced lesson plans. They may also add/change ICT resources included in their lessons upon recommendations they have received subject to their review.

## Activity 2: Showcasing of Lessons (3 hours 10 minutes)

---

- Ask participants to share their lesson or project plans to the whole group. Provide the group with guidelines for presentation.
  - o Keep the presentation brief and concise. It is very important to keep to the allotted time to ensure that all participants are able to showcase their work.
  - o The purpose of the showcase is to show how your lesson has become better after incorporating ICT resources and activities. Hence, a “before-and-after” method of presentation would be best. Introduce your original lesson, show the changes you have made and explain the rationale behind them, and demonstrate the ICT resources that you have chosen to add to your lesson. Emphasize how the inclusion of ICT resources has improved your lesson.
- The training group is encouraged to collect the enhanced versions of the participant’s lesson plans to form part of a pool of “model lesson plans” for the participants to refer to in the future (may even be made accessible to participants from other workshops by various RDCs in the region).



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UNESCO Multimedia Training in Puerto Princesa, Philippines, November 2012

*NOTE: For Trainers’ Training Workshops, please refer to Annex J for the session activities.*



## Synthesis of the Day and Reflective Feedback


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**Unfinished Sentences.** Instruct the participants to complete sentence starters provided, such as "I enjoyed...", "One thing that was not clear to me is...", "I would like to learn more about...", or "The most beneficial session for me was..." with the use of color-themed sheets. Ask for volunteers to share. (15 minutes)

## Preparing the Commitment Statement

---

Ask participants to prepare for their respective post-training activity by individually composing a one-line commitment statement on a sticky note. (10 minutes)



*I commit to speaking up in our next faculty meeting and sharing what I have learned from this training with my colleagues.*

This refers to a complete, concrete, clear and concise resolution that each participant can commit to as an application of what has been learned in the workshop. Stress that the statements need not be grandiose; simple and doable statements are preferred. For instance: "I commit to speaking up in our next faculty meeting and sharing what I have learned from this training with my colleagues."

Encourage the participants to build a community of practice by regularly communicating (online/offline) with the rest of the group to share good practices and lesson plans.

## Evaluation of the Training

---

- Collect the UNESCO CD feedback forms (Annex H) from the participants, if hard copies were provided. Distribute the Training Workshop Evaluation Sheets (sample provided as Annex K) and ask participants to accomplish the same. Note that the Evaluation Form may be converted into an online form via SurveyMonkey, Google Forms, or some other application for automated collation and results. (15 minutes)

## Closing Ceremonies and Awarding of Certificates

---

**(50 minutes)**

- Facilitate the **Making Connections** strategy, which includes the reading of commitment statements. Participants and organizers will be asked to form a circle. Each one will be asked to read his/her commitment statement. After doing so, a red yarn will be tied

around his/her forefinger. Pass the yarn to the opposite side of the circle and repeat the same procedure until everyone has committed and connected themselves to the others.

The web connections which have been formed in the middle of the circle will then be lowered and pasted over a huge sheet of poster paper or kraft paper. Participants are then requested to release the yarn wound around their fingers. The art form and their commitment statements on paper will later on be scanned to produce a digital collage.

- For more formal ceremonies, ask an administrative official or the college dean to grace the occasion, give the closing remarks, and award the certificates to the participants and the trainer.
- Have a group photo. Thank and congratulate everyone for successfully completing the two-day training-workshop.

## WORKS CITED

- Garmston, R. J. & Wellman, B. 1999. *The Adaptive School: A Sourcebook for Developing Collaborative Groups*. Norwood, MA: Christopher-Gordon Publishers, Inc.
- Gustaffson, K.L. & Branch, R.M. 2002. *Survey of Instructional Development Models*, 4th ed. ERIC Clearing House on Information and Technology.
- Mishra, P., & Koehler, M. J. 2006. *Technological Pedagogical Content Knowledge: A New Framework for Teacher Knowledge*. *Teachers College Record* 108 (6), 1017-1054.
- Newby, T. J., Stepich, D. A., Russell, J. D., & Lehman, J. D. 2006. *Educational Technology for Teaching and Learning* (3rd ed.). Upper Saddle River, New Jersey: Merrill.
- Richardson, K. W., & Hanny, R. (n.d.). *A Webquest for Administrators*. Retrieved January 28, 2013, from Using Technology to Align Curriculum website: <http://www.ivyrun.com/lessonplanquest/>
- Shulman, L. S. 1986. *Those who understand: Knowledge Growth in Teaching*. *Educational Researcher*, 15(2), 4-14.
- Smaldino, S. E., Russell, J. D., Heinich, R., & Molenda, M. 2005. *Instructional Media and Technologies for Learning* (8th ed.). Upper Saddle River, NJ: Prentice Hall.
- TPACK Framework* [Image]. 2011. Retrieved from <http://tpack.org>

## Participant Data Sheet

### I. PERSONAL INFORMATION

Full Name (First, Middle Initial, Last)	
Position	
School/Institution	
Subject Area/s Taught	
Level/s Taught	
Years of Teaching Experience	
Email Address/es	
Telephone Numbers	

### II. TECHNOLOGY SKILLS AND ATTITUDES SURVEY

(taken from the eSkwela Training Needs Analysis for Learning Facilitators – ICT Competency Assessment with permission)

Read the statements below and check the box/es for those that apply.

#### a. BASIC COMPUTER OPERATION

I can:

- operate a computer
- operate other computer peripherals (please check):
  - printer
  - scanner
  - digital camera
  - USB flash drive
  - earphones/microphone/speaker
  - projector
- install software programs
- troubleshoot basic problems (e.g. computer hangs) with computer and peripherals

## b. FILE MANAGEMENT

---

I can:

- open a file
- edit a file
- save a file
- delete a file
- create a folder
- rename a folder
- organize folders
- manage directory paths and network locations
- share folders

## c. WORD PROCESSING

---

I can:

- compose a document
- edit a document (cut, copy, paste, insert)
- change fonts
- do page layout (set margins, page orientation, paper size)
- insert headers, footers and page numbers
- bullets and numbering
- mail merge
- insert comments
- track changes
- insert footnotes and endnotes
- generate table of contents

## d. USE OF SPREADSHEET

---

I can:

- create simple spreadsheet
- generate charts/graphs
- use spreadsheet formatting tools
- apply formulas

- use functions
- use cell referencing
- sort data
- do referencing across sheets and/or files
- print spreadsheet

#### f. USE OF GRAPHICS

---

I can:

- insert images into documents
- scan images using a scanner
- do basic graphic editing (i.e. crop, adjust brightness/contrast)
- use of special graphics software (i.e. Photoshop, Gimp)

#### g. SLIDE PRESENTATION

---

I can:

- create a simple slideshow using a presentation application (i.e. Powerpoint, Impress)
- use animation and transition tools in a presentation application
- insert multimedia elements such as sound and video clips in a slideshow
- insert hyperlinks
- print handouts and notes of a slide presentation

#### h. USE OF WORLD WIDE WEB (WWW)

---

I can:

- browse the World Wide Web
- use search engines to obtain information from the internet
- bookmark websites
- download files from websites
- upload files to websites
- create web pages using web development software
- publish web pages on the WWW

## i. USE OF E-MAIL

---

I can:

- send and receive e-mail messages
- send multiple messages cc, bcc and/or bulk mailing
- create and use e-mail signatures
- attach files to e-mail messages
- filter e-mail messages
- manage e-mail folders
- manage e-mail address book

## j. USER GENERATED CONTENT

---

I use:

- group sites (e.g. Yahoo Groups, Google Groups)
- blogs
- discussion forums
- social networking sites (e.g. Friendster, Facebook, Multiply)

## PEDAGOGICAL DOMAIN

---

### A. EDUCATIONAL RESOURCES

I use the following resources in **teaching**:

*Communication Tools*

- E-mail
- Chat
- Discussion Forum
- Group site (e-groups, mailing lists)
- Social networking sites (e.g. Friendster, Facebook)
- Others (please specify: \_\_\_\_\_)

*Educational Resources*

- Blogs
- Wikis
- Online test/quiz
- Online survey
- E-books/Online books
- Video on demand (e.g. Youtube)
- Podcast
- Audio/Video CDs
- Digital Encyclopedia (e.g. Encarta)
- Digital Games
- "Intel Teach" Educational Tools
- Learning Management System (e.g. ATutor, Moodle)
- Electronic Gradebooks
- Interactive Maps
- Others (please specify: \_\_\_\_\_ )

**B. TEACHING STRATEGIES**

Which of the following strategies do you use in teaching? If you use the strategy without ICTs, tick column 2. If you use the strategy with ICTs, tick column 3. You may tick both columns if applicable.

Strategy	Without ICTs	With ICTs
Think Pair Share		
Round Robin		
Self-Reflection/Journals/Essay		
Jigsaw		
Concept Mapping		
Rank and Order (Peer Assessment)		
Written Reports/Term Papers		
Surveys/Interview		

Strategy (continued)	Without ICTs	With ICTs
Letters		
Brochures		
Posters/Collage		
Newsletters		
Presentations/Oral Report		
Scripts/Narratives		
Poetry/Songs		
Choral Recitation		
Role Play/Skit/Radio Play		
Debate		
Round Table Discussion/Focus Group Discussion		
Others (please specify: _____)		

### C. EVALUATION TOOLS AND STRATEGIES

Which of the following strategies do you use to assess learning? If you use the strategy without ICTs, tick column 2. If you use the strategy with ICTs, tick column 3. You may tick both columns if applicable.

Strategy	Without ICTs	With ICTs
Objective Exam		
Essay Exam		
Oral Exam		
Portfolio		
Peer Evaluation		
Self Evaluation		
Rubrics/Checklist/Scoring Guide		
Others (please specify: _____)		



### III. ICT EXPERIENCE AND TRAINING

Complete the information requested below
ICT-related trainings completed
ICT certifications and/or degrees obtained
Other ICT-related involvements/ experience

### IV. ICT ATTITUDES SCALE

Check the appropriate column that reflects your beliefs regarding ICT.

Statements	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
ICT is an essential tool for 21st century learning.					
There can be good teaching even without the use of ICT.					
ICT plays an important role in the professional development of teachers.					
I am comfortable in using various ICT tools.					
I spend time trying to learn how to use new ICT tools.					
New technologies are intimidating.					
I feel embarrassed when students are better at computers than me.					
I discuss ICT trends with peers and colleagues.					
I actively participate in educational technology trainings.					
Technologies are complicated and time-consuming to use in the classroom.					

## ANNEX B

## Training Management Checklist

*Note: Trainers may disregard certain items that may not be applicable to their training context.*

### Before Training

- Prepare a general training plan and budget proposal
- Seek approval for the training, including the proposed budget
- Confirm availability of co-facilitator and staff on set training dates
- Reserve the venue for the duration of the training, plus an extra day before the training for setup; Describe the layout of the room
- Send invitations to participants, which include information packets (participant information sheets, pre-training surveys and list of important reminders)
- Create committees and organize a meeting with the following support staff to brief them regarding their tasks:
  - Co-facilitator
  - Attendance Coordinator
  - Registration Committee Head
  - Reception Committee Head
  - Food Committee Head
  - Documentation Head
  - Clerical Personnel
  - Technical Personnel
- Send letter to Security Department for the entry of participants (c/o Reception Head)
- Send letter to Maintenance Office for preparation and cleanup of training site, including meal rooms, registration area, restrooms, etc.
- Send letter to the Marketing or Public Relations Office for the issuance of press releases in major dailies and to arrange for documentation of the training via official photographer
- Confirm number of participants (c/o Attendance Coordinator)
- Collect and summarize participant information sheets and survey forms
- Note which UNESCO resources to present during training, grouped by specializations and/or levels; modify training accordingly

- Finalize Training Agenda and Program
- Send an e-mail blast to participants two days prior to the training, reminding them of the training details (date, time, and location) and requirements (i.e., to bring a lesson plan; c/o Attendance Coordinator)
- Invite guests included in the Program Opening
- Assign an emcee for the Program Opening
- Assign a person-in-charge (i.e., the Registration Committee Head) to collect fees in case the training requires payment
- Prepare the following materials and paperwork: (c/o Clerical Personnel)
- Registration sheets
- Summary Sheet of participant information (include names, organizations, positions, subjects and levels taught, and contact information)
- Participant Kit, each of which contains:
  - Name tag or ID
  - Training Agenda or Programme
  - Workshop Materials:
    - Presentation handouts
    - Clock Partners sheet
    - Anticipation Guide
    - Learning Activity Checklist
    - UNESCO Feedback form
    - Training Evaluation forms or exit papers
    - Sticky notes
    - Blank pad
    - Pen/Pencil
- Workshop Supplies:
  - Poster papers or kraft papers
  - Sticky notes
  - Paper
  - Stapler
  - Double-sided tape
  - Markers
  - Erasers
  - Pens
  - Yarn

- Certificates of Participation
- Certificates of Appreciation (for organizers and volunteers)
- Prepare first-aid items
- Finalize menu plan and food delivery schedule (c/o Food Committee)
- Finalize food distribution system, prepare/distribute food stubs (c/o Food Committee)
- Setup Registration table (c/o Registration Committee)
- Brief Reception Committee on their tasks: welcoming guests, ushering people to their respective places, showing the way to facilities (i.e., restrooms), assisting Registration and Food Committees in their various tasks.
- Assign special ushers to monitor the arrival of key guests in the Opening Program.
- Instruct the Documentation Committee to coordinate with Public Relations Office regarding the photo coverage of the event.
- Assign someone for the video coverage (optional)
- Prepare video camera, extension cord and tripod
- Request, setup and test equipment in the training site
- Request and arrange fixtures in the training site
- Prepare other supplies and materials (i.e., prizes like candy or promotional items/souvenirs for games or trivia)
- Test the A/C units and lighting in the venue
- Check computer units to be used, including keyboards, mice and internet connections (c/o Technical personnel)
- Check directories for inappropriate content; clean desktop (c/o Technical personnel)
- Install UNESCO CDs in each computer unit (c/o Technical personnel)
- Prepare the UNESCO Online Community to be accessed offline in case of internet failure
- Prepare Trainer PC and test run presentations, video clips and applications

### During Training

- Always arrive at least 30-60 minutes before the time.
- Check that Registration Table is manned and ready with registration sheets, pens, Participant Information Summary (to serve as Master List) and kits.
- Check that committee members and heads are in their assigned posts.
- Begin the programme on time.
- Distribute handouts
- End sessions on time.
- Food deliveries must arrive at least ten minutes before each meal and health break (c/o Food Committee)
- Usher participants to restrooms, mealrooms
- Distribute food
- Distribute certificates of appreciation and participation
- Collect evaluation and feedback forms
- Cover the event by photo and/or video

### After Training

- Make sure that the venue is left clean.
- Return all borrowed/reserved equipment.
- Liquidate expenses and submit a financial report to the office concerned.
- Have an end-of-project meeting with the entire organizing body.  
Analyze good vs. negative outcomes. Propose solutions.
- Assign someone to collate and summarize the results of the workshop evaluation.
- Assign someone to make a write-up of the event for publication.
- Assign someone to develop pictures.
- Collect all training documentation and prepare a dossier for submission to UNESCO, the host institution, and for your personal file.
- Organize a victory celebration to thank everyone! (optional)

## Sample 2-Day Training Schedule

### DAY 1

Time	Description	Estimated Duration
8:00 – 8:30	<b>Session 1: Welcome and Introductions</b>	
	Activity 1: Introductions and Norm-setting	10 minutes
	Activity 2: Presentation of the Training Design, Objectives and Routines	10 minutes
	Activity 3: Background on the UNESCO Bangkok ICT in Education	10 minutes
8:30 – 9:30	<b>Session 2: The Elements of Good Instructional Design</b>	
	Activity 1: Review of Instructional Systems Design (ISD) Models	15 minutes
	Activity 2: The Perfect Fit: Synching Objectives, Activities, Materials and Assessment in a Lesson	15 minutes
	Activity 3: Group Critique on a Poorly-done Lesson	20 minutes
	LESSON BOOSTER: Assessing My Lesson for Goodness-of-Fit, Big-group sharing of selected participants	10 minutes 10 minutes
9:40 – 10:10	<b>Session 3: Defining ICT (Part 1)</b>	
	Activity 1: What is ICT?	15 minutes
	Activity 2: ICT in Education: Why Integrate?	15 minutes
10:10 – 10:30	Health Break	20 minutes
10:30 – 12:00	<b>Session 3: Defining ICT (Part 2)</b>	
	Activity 3: Challenges to Integration	40 minutes
	Activity 4: Presentation of Various ICT Media	40 minutes
	LESSON BOOSTER: Choosing My Media Format/s	10 minutes
12:00 – 13:00	Lunch Break	1 hour
13:00 – 15:30	<b>Session 4: Selecting ICT Resources (Part 1)</b>	
	Activity 1: Criteria for Selection	45 minutes
	Activity 2.1: Survey of Available UNESCO ICT in Education Resources	10 minutes
15:30 – 15:50	Health Break	20 minutes

15:50 – 16:35	<b>Session 4: Selecting ICT Resources (Part 2)</b> Activity 2.2: Access Points for ICT Integration in Learning Plans	45 minutes
16:35 – 16:45	..... <b>LESSON BOOSTER: Finding ICT Access Points in My Lesson</b>	10 minutes
16:45 – 17:00	Synthesis of Day 1 and Reflective Feedback	15 minutes

## DAY 2

Time	Description	Estimated Duration (per activity)
8:00 – 8:30	Opening Activities and Recapitulation	30 minutes
8:30 – 9:30	<b>Session 5: Hands-on Integration of ICT Resources (Part 1)</b> Activity 1: Navigating through Resources ..... <b>LESSON BOOSTER: Noting Relevant Resources</b>	1 hour 30 minutes
10:00 – 10:20	Health Break	20 minutes
10:30 – 12:00	<b>Session 5: Hands-on Integration of ICT Resources (Part 2)</b> Activity 2: Selecting Relevant Resources ..... <b>LESSON BOOSTER: Integrating Resources into My Lesson</b>	1 hour 10 minutes 30 minutes
12:00 – 13:00	Lunch Break	1 hour
13:00 – 14:30	<b>Session 6: Peer Coaching and Showcasing of Lessons</b> Activity 1: Gallery Walk ..... <b>LESSON BOOSTER: Adding Final Touches to My Lesson</b> ..... Activity 2: Showcasing Selected Works	
14:30 – 15:10	<b>Session 7: Planning My ICT in Education Training</b> Activity 1: Goal-setting and Determining Audience ..... Activity 2: Training Practicum Guide	45 minutes 10 minutes
15:10 – 15:30	Health Break	20 minutes
15:30 – 17:00	<b>Synthesis of Day 2 and Reflective Feedback</b> Commitment Statement ..... Evaluation of the Training ..... Closing Ceremonies and Awarding of Certificates	

## Recommended Supplementary Activities

Listed below are other activities that can be added to supplement the training programme should there be more time (i.e., training can be stretched into a 4- or 5-day period).

- **In-depth discussion of the TPACK Framework** – a closer look at the framework on which the training design was based might help participants clarify goals and expectations.
- **Teachers Panel** – Prior to the showcasing of lessons, participants may be grouped according to their area of specialization/level taught in which they will take turns presenting their ICT-enhanced lesson to a “panel” of their peers. The panel must act as a devil’s advocate of sorts to compel the presenter to defend their instructional decisions in the planning of the lesson. Afterwards, the panel may also provide suggestions. The homogenous grouping will be beneficial in providing more content-specific and relevant feedback.
- **Demonstration Festival** – After the showcasing of enhanced lessons, the trainer may select several exemplary works and ask the participant-makers of those plans to demonstrate their lessons. This will allow other participants to truly visualize ICT at work in the classroom.
- **Individual consultation sessions** – While the rest of the group is busy refining their work, the trainer may choose to meet with participants individually in short, 10- to 15-minute consultation sessions. This will give the trainer an opportunity to provide more intensive attention and more specific suggestions to each participant. In the same manner, each participant will be able to ask the trainer questions specific to his/her lesson plan.
- **Lecturettes on ICT integration and Special Topics** – Short lectures can be given to show when, where and how to integrate ICT with a certain objective/philosophy/trend in mind, akin to the Access Points presentation found in Session 4 of the training. Examples: Integrating ICT to develop critical and creative thinking; ICT supporting constructivist approaches; ICT and active learning strategies.



- **Additional activities in the Education Community** – Time can be devoted to building a stronger online presence and community among participants. The Education Community, particularly the Teaching With Multimedia Group, may serve as a platform for the following:
  - o recapitulation activities at the start of each training day
  - o reflective feedback at the end of each training day
  - o a discussion forum where topics that arise from the training can be examined—for example: “When should ICT not be integrated in a lesson?”
  - o a venue for peer evaluation and sharing where teachers having ICT integration-related troubles could ask for help from other participants, or where lesson exemplars can be featured
  - o a news board where participants can share updates or situationers on the status of their ICT-related efforts

## Clock Partners Sheet

### Clock Buddies

Look for four other participants to discuss with for the duration of the workshop.  
List down their names in the corresponding time slots.

A central clock face is surrounded by four empty rectangular boxes for names. The boxes are positioned at the 12, 3, 6, and 9 o'clock positions. The clock face is light blue with a darker blue border and has tick marks for the hours. The hands of the clock are also light blue.

## Sample Learning Plan Worksheet

Learning Plan by Karen Work Richardson

from <http://www.ivyrun.com/lessonplanquest/sci4.htm> under Creative Commons License (with Attribution–NonCommercial–ShareAlike 2.0 Generic)

	Sample Learning Plan	Comments
<b>Objectives</b>	<p>1. The student will investigate and understand how weather conditions and phenomena occur and can be predicted. Key concepts include weather factors (temperature, air pressure, fronts, formation and type of clouds, and storms); and meteorological tools (barometer, hygrometer, anemometer, rain gauge, and thermometer).</p> <p>2. I will focus on weather conditions and a more technical understanding of the tools and methods used to forecast future atmospheric conditions. It is intended that students will learn about science investigation, reasoning, and logic skills (4.1) in the context of the key concepts presented in this standard.</p>	
<b>Instructional Activities</b>	<p><b>Day 1.</b> Watch live telecast of the Weather Channel – 20 minutes, followed by my explanation of what was seen.</p> <p>.....</p> <p><b>Homework</b>– Watch weather report on 6 o'clock news Channel 17, and then read chapter on weather.</p> <p>.....</p> <p><b>Day 2.</b> Video– Weather and the Farmer</p> <p>.....</p> <p><b>Day 3.</b> Field trip to Channel 17.</p> <p>.....</p> <p><b>Day 4.</b> Class discussion of field trip.</p>	
<b>Evaluation</b>	<p><b>Day 5.</b> Textbook test for Chapter on Weather.</p>	

## ANNEX F

## Sample Enhanced Learning Plan

	Sample Learning Plan	Comments
<b>Objectives</b>	<p>1. The student will investigate and understand how weather conditions and phenomena occur and can be predicted. Key concepts include weather factors (temperature, air pressure, fronts, formation and type of clouds, and storms); and meteorological tools (barometer, hygrometer, anemometer, rain gauge, and thermometer).</p> <p>2. I will focus on weather conditions and a more technical understanding of the tools and methods used to forecast future atmospheric conditions. It is intended that students will learn about science investigation, reasoning, and logic skills (4.1) in the context of the key concepts presented in this standard.</p>	<p>1. After watching an animated movie, the student will be able to organize key concepts about weather in a worksheet provided.</p> <p>2. The student will be able to analyze and report data found on weather maps.</p> <p>3. The student will be able to design an investigation in which actual weather data are gathered using meteorological tools and compared against weather predictions.</p>
<b>Instructional Activities</b>	<p><b>Day 1.</b> Watch live telecast of the Weather Channel – 20 minutes, followed by my explanation of what was seen.</p> <p><b>Homework</b> – Watch weather report on 6 o'clock news Channel 17, and then read chapter on weather.</p> <p><b>Day 2.</b> Video – Weather and the Farmer</p> <p><b>Day 3.</b> Field trip to Channel 17.</p> <p><b>Day 4.</b> Class discussion of field trip.</p>	<p><b>Day 1.</b> Watch live telecast of the Weather Channel – 20 minutes as an introduction to the unit; Explain the study guide to be completed after viewing the Brainpop video on weather. Show the video and discuss students' completed worksheets.</p> <p><b>Homework</b> – Watch weather report on 6 o'clock news Channel 17 and take note of the weather data given, then read chapter on weather.</p> <p><b>Day 2.</b> Teacher demonstrates the use of meteorological instruments—like the thermometer, barometer, and rain gauge—and compares their recorded results with the predictions from last night's weather report (students'</p>

continued

<p>Instructional Activities</p>	<p>Day 1. Watch live telecast of the Weather Channel – 20 minutes, followed by my explanation of what was seen.          .....          Homework – Watch weather report on 6 o'clock news Channel 17, and then read chapter on weather.          .....          Day 2. Video – Weather and the Farmer          .....          Day 3. Field trip to Channel 17.          .....          Day 4. Class discussion of field trip.          .....</p>	<p>homework). Data is recorded in Day 1 of students' online Weather Journal. (<a href="http://www.brainpop.com/science/weather/weather/activity/">http://www.brainpop.com/science/weather/weather/activity/</a>)          .....          Homework – record weather prediction for Day 2 of the Weather Journal          .....          Day 3. Invite a resource person: Channel 17 weather reporter to talk about how to read data on weather maps and to give tips on weather reporting. Use interactive weather maps from The Weather Channel (<a href="http://www.weather.com/maps/matype/satelliteworld/asia-satellite_large_animated.html">http://www.weather.com/maps/matype/satelliteworld/asia-satellite_large_animated.html</a>)          .....          Upload one weather map on-screen which students can practice reading. Continue gathering data for Day 2 of the Weather Journal.          .....          Homework – record weather prediction for Day 3 of the Weather Journal.          .....          Day 4. Complete data gathering for Day 3 of the Weather Journal and ask students to summarize their findings. Discuss the importance of accurate weather prediction and show clips from video– weather and the farmer.</p>
	<p>Day 5. Textbook test for Chapter on Weather.</p>	<p>Day 5. Using the resource speaker's talk and map reading exercises, ask students to prepare a classroom weather report to be presented in class. Submit Weather Journal printout and worksheet to be included in student portfolio.</p>

## ANNEX F

## Human Scattergories

### Sample Word Strips

These are sample items that trainers may use in the Human Scattergories activity. 40 ITEMS (including the media types in the top row) are listed below. Simply select items according to the number of trainees (first row included) and have the items printed and cut into strips with a height of about 3 inches each. Trainers may also choose to come up with their own examples.

Text	Printed Visuals	Projected Visuals	Real Objects
Ninth-grade Science textbook	A line graph	Presentation slides	A frog for dissection
Worksheet with long division exercises	Illustrations of things beginning with P	Transparencies for overhead projector	Different types of rocks
Instruction manual on assembling a bicycle	Photographs of primitive cave paintings	Negatives for a slide projector	Ingredients for chocolate cupcakes
E-book of Edgar Allan Poe's "The Cask of Amontillado"	Map of Asia	Fossil specimens on a document camera	A flag of your country
Study guide for Shakespeare's "Romeo and Juliet"	"Peanuts" Comic strip		
	Poster on recycling		
	Diagram of the water cycle		
Audio	Video	Multimedia	
podcast	TV commercial	UNESCO Bangkok e-Learning Series on ICT in Education	
Audiobook of a novel	"An Inconvenient Truth," a Documentary on Global Warming	Powerpoint presentation using sound, text and images	
Audiotapes for Learning Korean Language	Cooking Demo from Youtube	Angry Birds computer game	
Music track on a CD	Short film clip		
Recording of a famous speech	A taped episode from the National Geographic Channel		

## Feature Analysis Matrix worksheet

### FEATURE ANALYSIS MATRIX

(adapted from Newby et al. 2006)

Features		Media								
		Text (printed)	Visuals (printed)	Visuals (printed)	Real Objects	Audio	Video	Multimedia	Web	
<b>Number of users</b>	Appropriate for individual use									
	Appropriate for small group use									
	Appropriate for large group use									
<b>Portability</b>	Can be easily moved or transferred									
	Can be used after the lesson or as a reference or guide									
<b>Flexibility</b>	Presentation sequence can easily be changed									
	Allows key words/drawings to be added during the lesson									
<b>Playback</b>	Can be replayed									
	Interactive: Requires user input and provides feedback									
	Can be used independently of the instructor									
<b>Learners' reading ability</b>	Requires good readers									
	Accommodates non-native speakers									
	Presents high-quality, realistic images									
<b>Media features</b>	Can reproduce an exact sound									
	Can show slow motion, including sequential motion									
	Allow observation of dangerous processes; real-life reenactments									
	Allows learners to touch actual objects									
<b>Accessibility</b>	Requires equipment									
	Location									
	Time	Allows interaction at a distance (distance learning)								
		Used synchronously (real time)								
	Used asynchronously (with time delay)									





## ICT Integration Checklist

CRITERIA	✓ or X	REMARKS
<b>Learner's Context</b>		
Is the resource appropriate for my students' age, level, and backgrounds?		
Does it match their skill level? Does it accommodate their learning styles?		
Does it accommodate special needs my students have?		
Is it parallel with the attitudes, values, and culture my students have?		
Does the resource match the situation in which I will teach?		
<b>Teacher's Context</b>		
Am I familiar with this type of ICT?		
Am I capable of using this resource?		
Can I operate the equipment necessary in using this resource?		
If not, is there someone who can help me with it?		
<b>Accessibility</b>		
Can I/the school afford this resource?		
Is the necessary equipment available?		
How many units/copies of this resource do I have? (If applicable)		
Is the ratio of resource to students at least satisfactory?		
Is there an open resource similar to this resource which I could use instead?		
Does the use of this resource respect copyright and fair use policies?		
Is this resource safe to use? Does it come from a secure and reputable source?		
<b>Pedagogical Use</b>		
Is there a place for this resource in my lesson plan? Will it serve a specific purpose?		
Is the use of this resource aligned with my objectives?		
Is the use of this resource aligned with my evaluation?		
Does this resource match my instructional method?		
Does this resource match my instructional activities?		
<b>Content</b>		
Is the content accurate?		
Is it in a language that my students will understand?		
Are the ideas well-organized?		
Is the density and complexity of ideas just right for the level I am teaching?		
How much of the resource will I use? Do I need to use the whole resource?		
If not, what parts of the resource will I use?		
<b>Quality</b>		
Are the text/visuals/sound and video clips of the resource high-quality?		
Is it readable/visible/audible from the ends of my venue?		
<b>Learning Environment</b>		
Is the resource appropriate to my class size?		
Is the resource appropriate to the space where I will teach?		
<b>Medium</b>		
Is the resource in a suitable media format?		
Do the features of this medium address the other factors mentioned above?		



## CD Feedback form

People requesting any of these materials should answer this form. Please return this to the "ICT in Education Resource Centre" or email to [ict.bgk@unesco.org](mailto:ict.bgk@unesco.org)

Name:
Email address:
Institution:

Please rate the materials after you have used them. 1 is the lowest score and 5 as the highest.

Quality				Quality	
Usefulness				Usefulness	
Quality				Quality	
Usefulness				Usefulness	
Quality				Quality	
Usefulness				Usefulness	
Quality					
Usefulness					

Do you plan to use the CDs to train/teach others?

.....

Who is your target group and how many?

.....

Did you find any errors such as programmes not running in the CDs?

.....

Please identify so we can fix or delete.

.....

Can you suggest a website or software that will be useful for teachers and students?

.....

Do you have other ideas how to develop similar tools and materials that will be useful in your school/institution?

.....

## Session 7: Trainer's Session

Session 7: Planning my ICT in Education training (for Training of Trainers only)

<b>Overview</b>	This session includes concretizing a training program to be implemented in the participants' home country and institutions. Teachers are guided in the planning and committing to a practical application of the lessons learned in the training-workshop.
<b>Venue</b>	Computer laboratory
<b>Duration</b>	1 hour
<b>Duration</b>	<ul style="list-style-type: none"> <li>To design a training program for teachers in their own locality</li> <li>To commit to the implementation of a training practicum in one's home institution</li> </ul>
<b>Objective</b>	<ul style="list-style-type: none"> <li>Pre-training Requirements Checklist</li> <li>Training Plan Template on all desktops</li> <li>Networked printer with ink</li> <li>Blank sheets of paper</li> <li>Sticky Notes from Session 3 (challenges to ICT Integration)</li> </ul>

## Session Activities

### Activity 1: Goal-setting and Determining Audience (20 minutes)

- Tell the participants to list down their training goals and type of audience for the training. Suggest other applications of faculty and/or student training, such as through faculty development, student-teacher workshops, integration in ICT and/or educational technology courses. Mention the need to be realistic and objective in their training plans so as to be able execute these without too many approvals required of big events. It is all right to start small and eventually expand the training to involve more people.

## Activity 2: Training Plan Template (20 minutes)

---

- Instruct participants to open the Training Plan Template document on their desktops. Ask participants to fill in the applicable fields to come up with their Training Plan. Explain that by writing down a projected timetable, prospective manpower, and necessary adjustments that contextualizes the training, this Plan shall serve as the initial blueprint of their Training of Teachers back home, so as to be recognized not only as a Resource Distribution Centre (RDC), but as a Resource Distribution and Training Centre (RDTC). Participants from the same institution/s must accomplish this task together.
- Upon completing the plan, ask them to print two (2) copies, one of which will be submitted to UNESCO Bangkok, while the other will be kept for their reference. It is important that the printer in the training site is accessible to all computer terminals via a Local Area Network (LAN).

## Training Plan Template

<p>.....</p> <p>(title)</p> <p>Training Plan</p>	
Host Institution	
Estimated Budget	
Project Coordinator	
Facilitator/s	
Trainee/s	
Training Objectives	
Training Venue	
Training Schedule	
Tasks to be Accomplished by the Trainee	
Committee Heads <ul style="list-style-type: none"> <li>• Attendance</li> <li>• Registration</li> <li>• Reception</li> <li>• Food and Drinks</li> <li>• Documentation</li> <li>• Clerical</li> <li>• Technical</li> </ul>	
Training Curriculum	
Evaluation Tools	

## ANNEX K



## SAMPLE TRAINING EVALUATION FORM

Training Evaluation Sheet

Course title:
Date:
Venue:

I. Which sessions are most beneficial to you? You may select (•) as many as you want:

<b>Teaching with Multimedia</b>	
<input type="checkbox"/>	Session 2: The Elements of Good Instructional Design
<input type="checkbox"/>	Session 3: Defining ICT
<input type="checkbox"/>	Session 4: Selecting ICT Resources
<input type="checkbox"/>	Session 5: Hands-on Integration of ICT Resources
<input type="checkbox"/>	Session 6: Share and Care – Showcasing of Lessons
<input type="checkbox"/>	Session 7: Planning My ICT in Education Training

Explain your choice/s:

II. Encircle the number which best indicates your level of agreement with each item.

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. The Training Workshop was interesting to me.	1	2	3	4
2. The Training Workshop was useful to me.	1	2	3	4
3. The Training Workshop was relevant to me.	1	2	3	4
4. The Training Workshop was relevant to the needs of our country.	1	2	3	4
5. My understanding about ICT–Pedagogy Integration is more focused.	1	2	3	4
6. I gained new insights on ICT–Pedagogy Integration.	1	2	3	4
7. I learned new teaching pedagogy skills.	1	2	3	4
8. The pace of the Training Workshop was appropriate.	1	2	3	4
9. The Resource Persons were knowledgeable on the workshop content.	1	2	3	4
10. The Resource Persons were facilitative and interacted well with the participants.	1	2	3	4
11. The Resource Persons presented the topics clearly and in an organized manner.	1	2	3	4
12. Overall, the Training Workshop met my expectations.	1	2	3	4

III. Please answer the following items

1. Any further comments on the Resource Persons?

2. How can we improve the Training Workshop for future runs?  
Please be specific with your suggestions.

3. Do you have any final comments regarding this Training Workshop?

**Thank you for answering!**

## LIST OF UNESCO ICT RESOURCES

**CD 1 Free Software for educators**

Free Software for Educators is an extensive collection of quality software, which is ready for installation in your computer.

**Office and Design**

<b>Freemind</b>	A mind mapping application used to generate, visualize, structure and classify ideas
<b>GanttProject</b>	A free and easy to use Gantt chart- based project scheduling and management tool
<b>Lyx</b>	A document processor with a writing approach based on the structure of your documents and not simply their appearance
<b>Open Office</b>	An office software suite for word processing , spreadsheets, presentations, graphics, databases and more
<b>Scribus</b>	A powerful software that helps you create great looking documents of all kinds
<b>Internet</b>	
<b>Firefox</b>	A web browser praised for making the web fun and easy. It has security, speed and new features that will change the way you use the web
<b>HTTrack</b>	An easy-to-use offline browser utility, allowing you to download websites from the internet to a local directory
<b>KompoZer</b>	A complete web authoring system that combines web file management and easy to use WYSIWYG web page editing
<b>RSSOwl</b>	Lets you gather, organize, update and store information from any compliant source in a convenient, easy-to-use interface; save selected information in various formats for offline viewing and sharing and much more
<b>Thunderbird</b>	A safe, fast and easy email. The Thunderbird email client includes intelligent spam filters, powerful search and customizable views.



Educational Tools	
<b>CourseLab</b>	Brings you to the power of creating web-based training, software application simulations, computer-based training and interactive e-learning content
<b>eXe</b>	eLearning XHTML editor or eXe assists teachers and academics in the design, development and publishing of web-based learning and teaching materials without the need to become proficient in web designing application
<b>Hot Potatoes</b>	The suite includes 6 applications enabling you to create interactive, multiple-choice, short-answer, jumbled-sentence, crossword, matching/ordering and gap-fill exercises for the World Wide Web
<b>Wink</b>	A tutorial and presentation creation software primarily aid at creating tutorials on how to use a software
Graphics and Animation	
<b>Blender</b>	A software program for 3D modeling, animation and rendering
<b>Draw</b>	A program to draw structured diagrams
<b>Gimp</b>	A versatile graphics manipulation package used to process digital graphics and photographs
<b>Inkscape</b>	A vector graphics editor
Audio and Video	
<b>Audacity</b>	An easy to use audio auditor and recorder
<b>Linux Multimedia Studio</b>	Allows you to produce music with your computer
<b>Muse Score</b>	A music composition and notation software
<b>Songbird</b>	A customizable music player with many interesting features
<b>VLC Media Player</b>	A highly portable multimedia player for various audio and video formats
Utilities	
<b>7-Zip</b>	A file archive with a high compression ratio
<b>ClamWin</b>	An antivirus program for Microsoft Windows

<b>DVD Flick</b>	Simple but powerful DVD authoring tool. It can take a number of video files stored in your computer to turn them into DVD that will play back on your DVD player, media center or home cinema set
<b>InfraRecorder</b>	A CD/DVD burning solution for Microsoft Windows
<b>The Sage</b>	A powerful English Dictionary and Thesaurus

## CD 2 Multimedia Resources

When creating local teaching and learning materials, teachers often need to incorporate multimedia such as clip art, presentation backgrounds and audio clips. This CD-ROM is a collection of such multimedia resources compiled by the UNESCO ICT in Education Team.

## CD 3 Web Tools for Educators

Contains web-based tools that are useful for people in the field of education. In particular, this CD-ROM contains software that teachers can use to enhance teaching and learning, and software that administrators can use to improve productivity.

<b>Communicate with other teachers and students</b>	Online Forum	phpBB
	Chat	GT Chat Web Huddle
	Conference Management	Open Conference System
	Learning Management System	ATutor JLI-Just Learn It Moodle Sakai
<b>Communicate with other students</b>	Online Forum	phpBB
	Chat	GT Chat Web Huddle
	Conference Management	Open Conference System
	Learning Management System	ATutor JLI-Just Learn It Moodle Sakai
	Mailing List	Phplist
	Web Log	Nucleus Wordpress

<b>Demonstrate complex concepts in interesting ways</b>	Simulation	Physic Education Technology (Phet)
<b>Find teaching resources</b>	Learning Management System	ATutor JLI-Just Learn It Moodle Sakai
	Online Forum	phpBB
<b>Get other teachers' ideas and opinions about teaching issues</b>	Collaborative Management	eGroupware PHP-Calendar Project Alumni Scoop
	Online Forum	phpBB
	Weblog	Nucleus Wordpress
	Chat	GT Chat Web Huddle
	Online Survey	phpESp PHPSurvey
<b>Help students develop their team work skills</b>	Collaborative management	eGroupware PHP-Calendar Project Alumni Scoop
	Online forum	phpBB
	Wiki	Mediawiki Tiki wiki
	WebQuest	PhpWebQuest

<b>Help students learn to use the internet responsibly</b>	WebQuest	PhpWebQuest
	Weblog	Nucleus Wordpress
	Wiki	Mediawiki Tiki wiki
	Content Management System	Drupal PHP-Nuke Typo3
	Online Forum	phpBB
<b>How to manage student records (attendance, assessment, etc. )</b>	School Management	Open Admin for Schools
<b>Improve Student's writing</b>	Online forum	phpBB
	Content Management System	Drupal PHP-Nuke Typo3
	Weblog	Nucleus Wordpress
	Wiki	Mediawiki Tiki wiki
	Chat	GT Chat Web Huddle
	Mailing List	Phplist
<b>Improve student's research skills</b>	Online survey	phpESp PHPSurvey
	Online forum	phpBB
	Weblog	Nucleus Wordpress
	Wiki	Mediawiki Tiki wiki

<b>Manage student participation and assignment</b>	Learning Management System	ATutor JLI-Just Learn It Moodle Sakai
<b>Motivate students to learn</b>	Simulation	Physics Education Technology (Phet)
	WebQuest	PhpWebQuest
<b>Organize my picture and graphic files</b>	Picture management	Coppermine Gallery
<b>Prepare a website for my class</b>	Wiki	Mediawiki Tiki wiki
	Weblog	Nucleus Wordpress
	Content Management System	Drupal PHP-Nuke Typo3 Site@School
<b>Provide Distance Education</b>	Learning Management System	ATutor JLI-Just Learn It Moodle Sakai
<b>Send out class e-newsletter</b>	Mailing list	phplist
	Content management System	Drupal PHP-Nuke Typo3 Site@School

<b>Write collaborative document with colleagues or students</b>	Content management System	Drupal PHP-Nuke Typo3 Site@School
	Wiki	Mediawiki Tiki wiki
<b>Encourage teachers to collaborate with each other</b>	Collaborative Management	eGroupware PHP-Calendar Project Alumni Scoop
<b>Find website templates for school</b>	Content Management System	Drupal PHP-Nuke Typo3 Site@School
	Weblog	Nucleus Wordpress
<b>Get funding</b>	Commerce and Finance	osCommerce Zen Cart
	Issue tracking	Open Ticket Request System
	Online Forum	phpBB
<b>Help visitors find information on our website</b>	Search engine	phpdig
<b>Improve communication with parents and others</b>	Online Forum	phpBB
	Chat	GT Chat Web Huddle
	Content Management System	Drupal PHP-Nuke Typo3
	Mailing List	phplist
	Weblog	Nucleus Wordpress
	Wiki	Mediawiki Tiki wiki
	Conference management	Open Conference System

<b>Maintain or get in touch with school alumni</b>	Collaborative management	eGroupware PHP-Calendar Project Alumni Scoop
<b>Manage Human resources</b>	School Management	Open Admin for Schools
<b>Manage documents</b>	Document management	Autoindex DSpace EPrints Greenstone Koha Owl TurboDBadmin
<b>Manage enquiries</b>	Issue Tracking	Open Ticket Request
<b>Manage projects</b>	Project management	DotProject PHPProject
<b>Manage school events</b>	Issue Tracking	Open Ticket Request
<b>Manage student records</b>	School Management	Open Admin for Schools
	Document management	Autoindex DSpace EPrints Greenstone Koha Owl TurboDBadmin
<b>Manage the school database</b>	School Management	Open Admin for Schools
	Document management	Autoindex DSpace EPrints Greenstone Koha Owl TurboDBadmin

<b>Prepare a School calendar</b>	Collaborative Management	eGroupware PHP-Calendar Project Alumni Scoop
<b>Prepare a timetable for teachers</b>	School Management	Open Admin for Schools
<b>Prepare a workplan</b>	School Management	Open Admin for Schools
<b>Publish an online academic journal</b>	Online journal	Open journal system
<b>Track teacher's attendance</b>	School Management	Open Admin for Schools
<b>Develop a school database</b>	Document management	Autoindex DSpace EPrints Greenstone Koha Owl TurboDBadmin
<b>Help teachers communicate more effectively</b>	Chat	GT Chat Web Huddle
	Learning management system	ATutor JLI-Just Learn It Moodle Sakai
	Mailing list	phplist
	Weblog	Nucleus Wordpress
	Collaborative management	eGroupware PHP-Calendar Project Alumni Scoop
<b>Help teachers to do survey</b>	Online Survey	phpESP PHPSurvey



<b>Help to broadcast the school news</b>	Content management System	Drupal PHP-Nuke Typo3
	Weblog	Nucleus Wordpress
	Wiki	Mediawiki Tiki wiki
	Mailing list	phplist
<b>Help visitors find information on our website</b>	Search engine	phpdig
<b>Improve School network</b>	Search engine	Phpdig
	Local server	EasyPHP
<b>Keep track of visitors to our website</b>	Web counter	BBClone
<b>Set up a school website</b>	Content Management System	Drupal PHP-Nuke Typo3
	Wiki	Mediawiki Tiki wiki
	Weblog	Nucleus Wordpress
	Learning Management System	ATutor JLI-Just Learn It Moodle Sakai
	Online Forum	phpBB
<b>Create a website</b>	Content Management System	Drupal PHP-Nuke Typo3
<b>Do a survey</b>	Online Survey	phpESP PHPSurvey

<b>Encourage more teachers to learn about using ICT in teaching</b>	Online Forum	phpBB
	Chat	GT Chat Webhuddle
	Mailing List	phplist
	Weblog	Nucleus Wordpress
	Wiki	Mediawiki Tiki wiki
	Learning Management System	ATutor JLI-Just Learn It Moodle Sakai
<b>Help visitors find information on our website</b>	Search engine	Phpdig
<b>Improve communication with my colleagues and school representatives</b>	Online Forum	phpBB
	Content management System	Drupal PHP-Nuke Typo3
	Mailing list	phplist
	Collaborative management	eGroupware PHP-Calendar Project Alumni Scoop
<b>Manage conference participants</b>	Conference management	Open conference management
<b>Manage enquiries</b>	Issue tracking	Open ticket request system
<b>Manage image and image files</b>	Picture management	Coppermine Gallery

<b>Manage my documents</b>	Document management	Autoindex DSpace EPrints Greenstone Koha Owl TurboDAdmin
<b>Manage projects</b>	Project management	DotProject PHPProject
<b>Publish an e-newsletter</b>	Mailing list	phplist
	Content management system	Drupal PHP-Nuke Typo3

## CD 4 Directory of ICT Resources for Teaching and Learning of Science, Mathematics and Language

"ICT Resources for Teaching and Learning", contains a collection of ICT-based resources to be used in science, mathematics and language teaching and learning.

### English

<b>Numerals, Alphabets and Letters</b>	Clarifying the Use of Numerals, Alphabets and Letters
<b>Cite, Site and Sight</b>	Clarifying the Use of Cite, Site and Sight
<b>Coarse and Course</b>	Clarifying the Use of Coarse and Course
<b>Affect and Effect</b>	Clarifying the Use of Affect and Effect
<b>It's and Its</b>	Clarifying the Use of It's and Its
<b>Lose, Loose and Loss</b>	Clarifying the Use of Lose, Loose and Loss
<b>May be and Maybe</b>	Clarifying the Use of May be and Maybe
<b>Past and Passed</b>	Clarifying the Use of Past and Passed
<b>Principal and Principle</b>	Clarifying the Use of Principal and Principle
<b>There, They're and Their</b>	Clarifying the Use of There, They're and Their

<b>Then and Than</b>	Clarifying the Use of Then and Than
<b>To, Too and Two</b>	Clarifying the Use of To, Too and Two
<b>You're and Your</b>	Clarifying the Use of You're and Your
<b>They're, There and Their</b>	Clarifying the Use of They're, There and Their
<b>Identification of incorrect sentence structure</b>	Clarifying about the Identification of incorrect sentence structure
<b>Raise and Rise</b>	Clarifying the Use of Raise and Rise
<b>Already and All Ready</b>	Clarifying the Use of Already and All Ready
<b>Online English Grammar</b>	
<b>Lesson Plans Online</b>	
<b>Borrow vs. Lend</b>	Clarifying the Use of Borrow and Lend
<b>Personal Pronouns</b>	Description about the Use of Personal Pronouns
<b>Personal Pronouns 1</b>	Exercise 1
<b>Personal Pronouns 2</b>	Exercise 2
<b>Personal Pronouns/ Possessive Case 1</b>	Exercise 1
<b>Personal Pronouns/ Possessive Case 2</b>	Exercise 2
<b>Compound Nouns</b>	Exercise and Content to teach about Compound Nouns
<b>Modifiers and Nouns</b>	Clarifying the Use of Modifiers and Nouns
<b>Possessive Nouns</b>	Practice on Possessive Nouns
<b>Plural Possessive</b>	Words with Ordinary Spelling
<b>Plural Possessive Nouns 1</b>	Exercise 1
<b>Plural Possessive Nouns 2</b>	Exercise 2
<b>Special Nouns</b>	Clarifying the Use of Special Nouns

<b>Special Nouns Exercise</b>	Practice on Special Nouns
<b>Indefinite Pronouns/ Possessive Case 1</b>	Quiz 1
<b>Indefinite Pronouns/ Possessive Case 2</b>	Quiz 2
<b>Interactive Activities for ESL Students</b>	
<b>Interactive Activities for Students</b>	
<b>Parts of Speech</b>	Identifying the Different Parts of Speech
<b>Possessive Nouns</b>	Practice in Possessive Nouns
<b>The Use of Modifiers</b>	Clarifying the Use of Modifiers
<b>Subject-Verb Agreement</b>	Subject-Verb Agreement 1 – Practice 1
<b>Subject-Verb Agreement 2</b>	Subject-Verb Agreement 2 – Practice 2
<b>Commas in series</b>	Clarifying the Use of Commas in series – nouns, verbs, adjectives
<b>Commas in series – adjectives</b>	Clarifying the Use of Commas in series – adjectives
<b>Commas in series – adjectives</b>	Clarifying the Use of Commas in series – adjectives
<b>Commas in series – nouns</b>	Clarifying the Use of commas in series – nouns
<b>Homophones</b>	Homophones – To, Too and Two
<b>Singular &amp; Plural Nouns ending in an "s" sound</b>	Singular & Plural Nouns ending in an "s" sound
<b>Plural nouns - words ending in v</b>	Plural nouns - words ending in v
<b>Plural nouns - words ending in f and fe</b>	Plural nouns - words ending in f and fe
<b>Plural nouns - words ending in o</b>	Plural nouns - words ending in o
<b>Noun-Pronoun agreement 1</b>	Noun-Pronoun agreement 1
<b>Noun-Pronoun agreement 2</b>	Noun-Pronoun agreement 2

<b>Interactive Quizzes 1</b>	
<b>Interactive Quizzes 2</b>	
<b>Archived Interactive Quizzes</b>	
<b>MATH – Algebra</b>	
<b>Intro Unit 1</b>	Introduction to Lesson 1
<b>Lesson 1</b>	Real numbers & algebraic expressions
<b>Intro Unit 2</b>	Introduction to Lesson 2
<b>Lesson 2</b>	Simplifying expressions
<b>Intro Unit 3</b>	Introduction to Lesson 3
<b>Lesson 3</b>	Solving equations 1
<b>Intro Unit 4</b>	Introduction to Lesson 4
<b>Lesson 4</b>	Solving Equations 2
<b>Lesson 5</b>	Powerpoint Presentation – Lesson 5 – Writing Linear Equations
<b>Lesson 6</b>	Powerpoint Presentation – Lesson 6 – Linear Equations
<b>Lesson 7</b>	Powerpoint Presentation – Lesson 7 - Graphs
<b>Lesson 8</b>	Powerpoint Presentation – Lesson 8 – Rational Exponents
<b>Lesson 9</b>	Lesson 9 – Solving Equations with Absolute Values
<b>Lesson 10</b>	Lesson 10 – Graphing Linear Equations
<b>Lesson 11</b>	Introduction to Lesson 11 Slopes in Graphs and Equations
<b>Lesson 12</b>	Introduction to Lesson 12 Linear and Nonlinear Equations
<b>Lesson 13</b>	Introduction to Lesson 13 Finding the Equation in the line
<b>Lesson 14</b>	Introduction to Lesson 14 Parallel and perpendicular lines; inequalities
<b>Lesson 15</b>	Introduction to Lesson 15 Systems of linear equations & their graphs

<b>Lesson 16</b>	Introduction to Lesson 16 Solving systems of linear equations by substitution
<b>Lesson 17</b>	Introduction to Lesson 17 Solving systems of linear equations by elimination
<b>Lesson 18</b>	Introduction to Lesson 18 Rate, work, digit, and coin problems
<b>Lesson 19</b>	Introduction to Lesson 19 System of Linear inequalities cell
<b>Indices</b>	Indices and exponential form – exploratory
<b>Indices</b>	Indices and exponential form – exploratory ( $a^{-n} \times a^{-m}$ )
<b>Indices</b>	Indices and exponential form – exploratory - $(Ax^{-m}y^{-n})^{-0}$
<b>Indices</b>	Indices and exponential form – exploratory - $(A b^{-m})^{-n}$
<b>Indices</b>	Indices and exponential form – exploratory - $A(x^{-m}/y^{-n})^{-p}$
<b>Indices</b>	Indices and exponential form – simplify ( $a^{-n} \times a^{-m}$ )
<b>Indices</b>	Indices and exponential form – simplify ( $a^{-n} / a^{-m}$ )
<b>Indices</b>	Indices and exponential form – simplify $(a^{-n})^{-m}$
<b>Indices</b>	Indices and exponential form – simplify ( $a^{-n} \times b^{-n}$ )
<b>Indices</b>	Indices and exponential form – simplify ( $a^{-n} \times a^{-m}$ )
<b>Indices</b>	Indices and exponential form – simplify ( $a^{-n} / a^{-n}$ )
<b>Indices</b>	Indices and exponential form – simplify ( $a^{-n} / a^{-m}$ )
<b>Indices</b>	Indices and exponential form – simplify ( $a^{-1/n} \times a^{-1/n} \times a^{-1/n}$ )
<b>Indices</b>	Indices and exponential form – simplify ( $a^{-2/n} \times a^{-2/n} \times a^{-2/n}$ )
<b>Function</b>	Communicative and distributive law in algebra
<b>Word problems</b>	An Introduction to Word Problems
<b>Word problems</b>	Identifying key words to solving word problem
<b>Exponents</b>	Exponents – Calculating exponents

<b>Factorization</b>	Factorization - By completing the square
<b>Factorization</b>	Factorization - Factorizing $Ax^2 + bx + c$
<b>Factorization</b>	Factorizing by difference of two squares
<b>Expression</b>	Power Point Presentation – Simplifying Expressions
<b>Factorization</b>	Whole lesson on Factorization techniques
<b>Factorization</b>	Power Point Presentation – Prime Factorization
<b>Factorization</b>	Poisson and normal Approximations to Binomial Distribution
<b>Number System</b>	Algebraic expansion using various techniques
<b>Mensuration</b>	Part of a Circle
<b>Mensuration</b>	Finding radius when area of sector is given
<b>Mensuration</b>	Finding area of segment and rectangle
<b>Mensuration</b>	Finding area of segment
<b>Mensuration</b>	Finding curved surface of cone
<b>Mensuration</b>	Finding curved surface of cone 2
<b>Mensuration</b>	Finding Length of Arc
<b>Mensuration</b>	Finding Length of Arc 2
<b>Mensuration</b>	Surface area of Sphere
<b>Mensuration</b>	Surface area of Sphere 2
<b>Number System</b>	Scientific Notation - Converting Numbers Larger than 1 to Scientific Notation
<b>Number System</b>	Converting Numbers Smaller than 1 to Scientific Notation
<b>Number System</b>	Scientific Notation Converting Scientific Notation to Ordinary Numbers
<b>Number System</b>	Scientific Notation - What is It?



<b>Number System</b>	Simplifying Square Roots
<b>Simultaneous equation</b>	Simultaneous Equation – Solving Systems of Linear Equations Using the Addition or Subtraction Method
<b>Simultaneous equation</b>	Simultaneous Equation – Solving Systems of Linear Equations Using the Substitution Method
<b>Number system</b>	Number System – Addition of Positive and Negative Numbers
<b>Math-Calculus</b>	
<b>Intro Unit 1</b>	Introduction to Lesson 1
<b>Lesson 1</b>	Lesson 1: Functions and Function Notations
<b>Intro Unit 2</b>	Introduction to Lesson 2
<b>Lesson 2</b>	Lesson 2: Absolute Value & Piece-Wise Defined Functions
<b>Unit 3 Simulation</b>	Lesson 3: Simulation – Simulation Derivatives
<b>Lesson 3</b>	Lesson 3: Inequalities
<b>Unit 4 Simulation</b>	Lesson 4: Simulation – Simulation-Application Derivatives
<b>Lesson 4</b>	Lesson 4: Composition and Combination of Functions
<b>Lesson 5</b>	Introduction to Lesson 5: Exponential and Logarithmic Functions
<b>Lesson 6</b>	Introduction to Lesson 6: Transformation of Functions
<b>Lesson 7</b>	Introduction to Lesson 7: Trigonometric Functions
<b>Lesson 8</b>	Introduction to Lesson 8: Power, Polynomial and Rational Functions
<b>Lesson 9</b>	Introduction to Lesson 9: Intuitive Definition of Limit
<b>Lesson 10</b>	Introduction to Lesson 10: Algebraic techniques to finding Limits
<b>Lesson 11</b>	Introduction to Lesson 11: One-Sided Limits
<b>Lesson 12</b>	Introduction to Lesson 12: Infinite Limits
<b>Lesson 13</b>	Introduction to Lesson 13: Limits at Infinity

<b>Lesson 14</b>	Introduction to Lesson 14: Limits of Special Trigonometric Functions
<b>Lesson 15</b>	Introduction to Lesson 15: Continuity
<b>Lesson 16</b>	Introduction to Lesson 16: Definition of the Derivative
<b>Lesson 17</b>	Introduction to Lesson 17: Differentiation Rules
<b>Lesson 18</b>	Introduction to Lesson 18: The Chain Rule
<b>Lesson 19</b>	Introduction to Lesson 19: Derivatives of Exponential Function
<b>Lesson 20</b>	Introduction to Lesson 20: Derivatives of Logarithmic Function
<b>Lesson 21</b>	Introduction to Lesson 21: Derivative of Inverse Function
<b>Lesson 22</b>	Introduction to Lesson 22: Differentiability and Continuity
<b>Lesson 23</b>	Introduction to Lesson 23: Implicit Differentiation
<b>Lesson 24</b>	Introduction to Lesson 24: Logarithmic Differentiation
<b>Lesson 25</b>	Introduction to Lesson 25: Tangent and Normal Lines
<b>Lesson 26</b>	Introduction to Lesson 26: Position, Velocity, and Acceleration
<b>Lesson 27</b>	Introduction to Lesson 27: Related Rates
<b>Lesson 28</b>	Introduction to Lesson 28: Relative extrema and first derivative test
<b>Lesson 29</b>	Introduction to Lesson 29: Concave and second derivative test
<b>Lesson 30</b>	Introduction to Lesson 30: Absolute extrema and organization
<b>Lesson 31</b>	Introduction to Lesson 31: Rolle's rules and the mean value theory
<b>Lesson 32</b>	Introduction to Lesson 32: Differentials
<b>MATH – Geometry</b>	
<b>Angle</b>	Animation to show angle bisector
<b>Triangles</b>	Congruence 1
<b>Triangles</b>	Congruence 2
<b>Triangles</b>	Congruence 3

<b>Triangles</b>	Congruence 4
<b>Triangles</b>	Congruence 5
<b>Triangles</b>	Congruence 6
<b>Triangles</b>	Pythagorean Theorem
<b>Triangles</b>	Labeling of triangle
<b>Transformation</b>	Reflection
<b>Transformation</b>	Reflection Construction
<b>Coordinate</b>	Find the distance between two points
<b>Coordinate</b>	Calculate gradient
<b>Coordinate</b>	Calculate midpoint
<b>Coordinate</b>	Plotting points on a graph
<b>Coordinate</b>	Plot $y=2x+(-c)$ - simulation
<b>Coordinate</b>	Plot $y=2x+ c$ – simulation
<b>Coordinate</b>	Plot $y=2x+1$ -animation
<b>Coordinate</b>	Plot $y=-1x$ -animation
<b>Coordinate</b>	Plot $y=1x$ -animation
<b>Coordinate</b>	Plot $y=-mx$ -simulation
<b>Coordinate</b>	Plot $y=mx$ -simulation

<b>GeoGebra</b>	<p>GeoGebra is dynamic mathematics software that joins geometry, algebra and calculus. It is developed for mathematics learning and teaching in schools by Markus Hohenwarter at Florida Atlantic University.</p> <p>On the one hand, GeoGebra is a dynamic geometry system. You can do constructions with points, vectors, segments, lines, conic sections, as well as functions, and change them dynamically afterwards.</p> <p>On the other hand, equations and coordinates can be entered directly. Thus, GeoGebra has the ability to deal with variables for numbers, vectors, and points, finds derivatives and integrals of functions, and offers commands like Root or Extremum.</p> <p>These two views are characteristic of GeoGebra: an expression in the algebra window corresponds to an object in the geometry window and vice versa</p>
<b>Graph</b>	A graphing tool for plotting graphs-Need to install software
<b>MATH – Mixed</b>	
<b>Mensuration</b>	Mensuration-Circle and properties
<b>Mensuration</b>	Cube and its properties
<b>Mensuration</b>	Rectangular cube and its properties
<b>Mensuration</b>	Right circular cylinder and its properties
<b>Mensuration</b>	Sphere and its properties
<b>Mensuration</b>	Regular square solid and its properties
<b>Mensuration</b>	Right circular cone and its properties
<b>Mensuration</b>	Trapezoid and its properties
<b>Drawing</b>	draw graphs of $y = -2x - 2$
<b>Drawing</b>	draw graphs of $y = 3x - 2$
<b>Drawing</b>	draw graphs of $y = 2x - 2$
<b>Enlargement</b>	Enlargement by k-factor-simulation
<b>Functions</b>	Evaluating six different trigonometry functions

<b>Enlargement</b>	Enlargement by k-factor-animation
<b>Enlargement</b>	Enlargement by negative K factor
<b>Transformation</b>	Video showing rotation
<b>Ratios</b>	Evaluating trigonometric ratios
<b>Triangles</b>	Pythagorean Theorem for special triangles
<b>Lines</b>	Constructing perpendicular bisector
<b>Science – Biology</b>	
<b>Substrate of Enzyme</b>	Animation to show how substrate locks with the enzyme
<b>Heart- Animation</b>	Flow of blood in heart.
<b>Artery- Animation</b>	Flow of blood from artery to capillaries
<b>Reflex action</b>	Animation to show action
<b>Digestion</b>	Movement of bolus
<b>Guard cells Animation</b>	Change of size of guard cells depending on light
<b>Eye Structure</b>	Animation: Working eye
<b>Capillary Action Animation</b>	Working of capillaries depending on size of capillary
<b>Diffusion-</b>	Animation of diffusion
<b>Cell Division</b>	Animation to show cell dividing
<b>Cell Behavior</b>	Animation to show cell in different types of liquid
<b>Absorption by villus</b>	Animation to show the actions of villus absorbing nutrients
<b>Audiograms</b>	Lesson to explain audiograms and our hearing
<b>Audiology</b>	Different methods of audiological testing
<b>Cell membrane</b>	How cell membrane is constructed
<b>Tissue Identification</b>	Identifying different types of tissue
<b>Vein</b>	Animation to show flow of blood in a vein

<b>Virus</b>	Explains how virus is formed and its characteristics
<b>Alveolus</b>	Animation-Shows how the exchange of gasses in alveolus
<b>Photosynthesis</b>	General overview of photosynthesis
<b>Photosynthesis</b>	Quiz, experiment and logic
<b>Physical and Chemical Change</b>	Explains the physical and chemical change of the world
<b>Enzymes</b>	Animation-substrate and enzyme extraction
<b>Host Defence</b>	Explains how host defends itself against infection
<b>Brain</b>	Describes how brain works develops
<b>Menstrual cycle</b>	Animation to show the menstrual cycle works
<b>Microscope</b>	Animation to show how plant cell behaves in different liquids
<b>Plant cell</b>	Shows some common apparatus found in the lab (1)
<b>Bacteria</b>	Explain the different components of a prokaryote
<b>Protein Synthesis</b>	Explain the process involved in protein synthesis
<b>Antibiotic</b>	Explain the scientific method of experimentation
<b>Scientific Method</b>	Animation to show antibiotic susceptibility
<b>Scientific Equipment</b>	Simulation to show how a microscope works
<b>Neural Synapses</b>	Explain the physiological events at the neural synapses
<b>Food Pyramid</b>	Explaining the different components of a food pyramid
<b>Conjugation</b>	Explains how bacteria can exchange genetic materials
<b>Acquired Immunity</b>	Different types of acquired immunity
<b>Evolution</b>	Explains evolution process
<b>Transport of Materials</b>	Transport of materials in plants
<b>Mitosis and Meiosis</b>	Mitosis and meiosis
<b>Body Parts</b>	Interactive body parts

<b>Body Parts</b>	Overview of different parts of the body
<b>Body Parts</b>	Parts of the body-simple descriptions
<b>Brain</b>	Interactive body-brain
<b>Cardio-Vascular System</b>	Cardio-vascular system
<b>Circulatory Heart Model</b>	Construct a heart circulatory heart model
<b>Dissection of the Eye</b>	Dissection of the eye
<b>Eye-Structure</b>	Structure of an eye
<b>Female Reproductive organs</b>	Female reproductive organs
<b>Female Reproductive organs</b> (side view)	Female reproductive organs (side view)
<b>Female Reproductive organs</b> (front view)	Female reproductive organs (front view)
<b>Heart</b>	Anatomy of the heart
<b>Heart</b>	Anatomy of the heart
<b>Heart</b>	Assemble the heart
<b>Heart</b>	Labeling the parts of the heart (1)
<b>Heart</b>	Labeling the parts of the heart (1)
<b>Heart circulation</b>	Animation of blood flow in the heart
<b>Heart circulation</b>	Animation of the blood flow in the heart (2)
<b>Heart-quiz</b>	Question about heart
<b>Human Digestion</b>	Explain the process of digestion in human
<b>Human Skeleton</b>	Identifying parts of human skeleton
<b>Liver</b>	Structure and function of the liver
<b>Male Reproductive organs</b>	Male reproductive organs

<b>Male Reproductive Organs</b>	Male reproductive organs (front view)
<b>Nerves</b>	The propagation of nervous impulse
<b>Nutrition and Teeth</b>	Nutrition and teeth
<b>Reproductive Organs</b>	Male and female reproductive systems
<b>Reproductive Organs Quiz</b>	Question about the reproductive system
<b>Support and Locomotion</b>	Explains how skeletal system works to support locomotion
<b>Teeth</b>	Teeth-parts and characteristics
<b>Animal Fertilization</b>	Explains the process of fertilization
<b>Blood and Body Fluids</b>	Explain the process involve
<b>Breathing</b>	Review on quiz on breathing
<b>Circulation</b>	Arteries, veins, and capillaries
<b>Excretion</b>	Explains the process of excretion
<b>Growth Graphs</b>	Graphs showing different stages of growth
<b>Human Development</b>	Growth and development of human being
<b>Human Reproduction</b>	Explains in pictures
<b>In-Vitro Fertilization</b>	Pictures showing IVF
<b>Menstruation</b>	Menstruation
<b>Puberty-Boy</b>	Stages of puberty in boy
<b>Puberty-Girl</b>	Stages of puberty in girl
<b>Living Things</b>	Process living things
<b>Biological Molecules</b>	Explains the different structures of various food groups
<b>Food Chain</b>	Food chains
<b>Food Molecules</b>	Explains how food are made of-protein, carbohydrates, lipids
<b>Lipids</b>	Explains different types of lipids



<b>Mammalian Nutrition</b>	Explains and shows examples of mammalian nutrition
<b>Nutrition</b>	Healthy eating
<b>Protein Synthesis</b>	Explains the process of synthesis of protein
<b>Flower-parts</b>	Labeling of parts of a flower
<b>Habitat-garden</b>	Garden habitat –plants and organisms
<b>Light Dependent Reaction</b>	Light dependent reaction
<b>Light Dependent Reaction</b>	Explains the light dependent reactions
<b>Photosynthesis</b>	Explains the process of photosynthesis
<b>Photosynthesis</b>	Photosynthesis-advanced explanations
<b>Photosynthesis</b>	Chemical reaction during photosynthesis
<b>Plant hormones</b>	How growth is affected by hormones
<b>Plant transport</b>	Explains the process of transportation in plants
<b>Plants</b>	Plant -parts and function
<b>Plants- Plants cells</b>	Naming of parts
<b>Enzyme</b>	Enzymes as biological catalysts
<b>Homeostasis</b>	Describes how the human body maintains a constant body temperature
<b>Actin and Myosin</b>	Explain the build-up process
<b>Anaerobic respiration</b>	Explains the process of anaerobic respiration
<b>Animal Cell</b>	Structure of animal cell
<b>Asthma</b>	What is asthma
<b>Cancer</b>	Some facts and information about cancer
<b>Cell and DNA</b>	Structure of cell and DNA
<b>Cell Membranes</b>	Osmosis and diffusion
<b>Cell Structure</b>	An overview of cell structure

<b>Cell Structure (2)</b>	An overview of cell structure
<b>Common Cold</b>	Q and A about colds
<b>Dihybrid Inheritance</b>	Dihybrid inheritance refers to the simultaneous inheritance of two characteristics
<b>Diseases</b>	Description and causes of diseases through micro-organism
<b>Drugs and Nervous System</b>	Describes how Nervous system is affected during Drug Addiction
<b>Evolution</b>	Mammal maker-simulation to show evolution of mammal
<b>Food Chain</b>	Food Chains
<b>Genetic Engineering</b>	Explains and shows examples
<b>Photosynthesis</b>	Explains the process of photosynthesis
<b>Photosynthesis</b>	Photosynthesis advanced explanation
<b>Plasma membrane</b>	Explains the process shows examples
<b>Structure of cell</b>	Structure of cell
<b>Support and Locomotion</b>	Explains how skeletal system works to support
<b>Tobacco inside the body</b>	Shows the harmful effects of tobacco-vivid pictures
<b>Transportation through cell membrane</b>	Explanation of different processes e.g osmosis, diffusion
<b>Science-Physics</b>	
<b>Electricity</b>	Introduction to electricity
<b>Electric Circuit</b>	Current flow in series and parallel electric circuits
<b>Electric Flow</b>	Flow of electrons
<b>Electric Flow</b>	Flow of electrons in a bulb
<b>Electric Flow</b>	Flow of electrons-Edison's effect
<b>Electric Flow</b>	Flow of electrons-Buzzer

<b>Voltage</b>	Voltage measurement
<b>Electric Bell</b>	Explore the relationship between magnetic field and electric bell
<b>Current flow</b>	Current flow in primary and secondary circuit
<b>Simple Pendulum</b>	Activity enables you to explore the factors that can affect T, the period of oscillation of the pendulum
<b>Waves</b>	Introduction to waves; refraction and diffraction
<b>Waves</b>	Waves and our universe
<b>Electricity</b>	Principles of electricity
<b>Electrical Circuits</b>	Two different types of circuits
<b>Satellites</b>	Pictures of satellites
<b>Photoelectric</b>	Animation
<b>Generating Electricity</b>	To explain how kinetic energy can produce electric energy
<b>Kinetic and Potential Energy</b>	Exploring examples of the two different types of energy
<b>Forces</b>	What are forces, inertia, gravity, newton's laws, projectile motion?
<b>Forces in Fluids</b>	Fluid pressure, buoyancy, hydraulics, Bernoulli's principles
<b>Motion</b>	Velocity, acceleration, momentum
<b>Construction of Free Body Diagram</b>	Applying Newton's law of motion
<b>Gravitation</b>	Simulation of different gravitation forces with training manual
<b>Lever</b>	Animation of action of lever
<b>Gears-</b>	Animation of gear movements
<b>Inclined Plane</b>	Animation to show wedge as part of inclined plane
<b>Gas laws</b>	Boyles, Charles law
<b>Heat Transfer</b>	Different mode of heat transfer, -conduction, convection, and radiation

<b>Specific Heat Capacity</b>	Simulation of experiment
<b>Eclipse</b>	Eclipse of a Moon
<b>Light Exploration</b>	Explore light properties through different media
<b>Properties of Light</b>	Understand the difference between reflection, diffraction, and dispersion.
<b>Light Mirrors</b>	Angle of reflection in mirrors
<b>Refraction</b>	Angles of refraction-glass block
<b>Refraction</b>	Angles of refraction-diagrammatic
<b>Absorption of Light</b>	Interactive lesson on absorption of light with different materials
<b>Dispersion of Light</b>	Animation to show dispersion of light
<b>Eclipse of Moon</b>	Animation to show eclipse of moon
<b>Lunar Eclipse</b>	Simulation of lunar eclipse
<b>Reflection</b>	Simulation of reflection
<b>Magnetism</b>	Properties of magnet and magnetism
<b>Magnetic Forces</b>	Magnets and electromagnets
<b>Mass</b>	Difference between mass and weight
<b>Volume</b>	Measuring volume using measuring cylinder
<b>Atmospheric Pressure</b>	Simulation of change altitude and atmospheric pressure
<b>Gas Lab</b>	Animation of various gas laws
<b>Solid, Liquid and Gas</b>	Animation to show how particles are moving within each medium- Gas
<b>Solid, Liquid and Gas</b>	Animation to show how particles are moving within each medium-Solid
<b>Solid, Liquid and Gas</b>	Animation to show how particles are moving within each medium-Liquid
<b>Newton's Law</b>	Explains Newton's first law

<b>Newton's Law</b>	Explains Newton's second law
<b>Motion Graphs</b>	Using graphs to explain motion
<b>Positive and Negative Velocity</b>	Change of velocity from positive to negative
<b>Engine Simulation</b>	Simulation of engine on thrust, load, and mechanics of designing engine
<b>Engine Simulation</b>	Simulation of flight engine on distance, altitude, and engine thrust
<b>Pulley</b>	Animation of pulley pulling a flag
<b>Rocket Modeller</b>	Simulation that allows the in out of various variables to design a model rocket
<b>Roller Coaster</b>	Simulation of roller coaster- input various such as speed, friction, mass and gravity
<b>Aperture</b>	Simulation of aperture size and shutter speed
<b>Zoom lens</b>	Simulation of zoom lens
<b>Sound-</b>	Characteristics of sound
<b>Waves</b>	Characteristics of waves in light sound and colour
<b>Anatomy of the Ear</b>	Internal structure of the ear
<b>Science-Chemistry</b>	
<b>Additional Polymerization</b>	Animation of polymerisation processes of different organic compounds
<b>Condensation Polymerization</b>	Animation of polymerisation processes of different organic compounds
<b>Covalent Bonds</b>	Formation of covalent bonds in a number of molecules
<b>Diffusion of Gas</b>	Animation of diffusion of gas
<b>Rate of Diffusion</b>	Animation to show different rates of diffusion
<b>Indicators</b>	Colours of different indicators with different ph

<b>Ionic Compounds</b>	Formation of different ionic compounds
<b>Rate of Reaction</b>	Simulation of change of rate of reaction with temperature
<b>Name of Compounds</b>	Exercise in the naming of organic compounds
<b>Rusting of Iron</b>	Simulation of experiment to show rusting of iron
<b>Ammonia</b>	Testing of Ammonia gas
<b>Carbon Dioxide</b>	Testing of carbon dioxide gas
<b>Diffusion</b>	Reaction of Ethene
<b>Copper Oxidation</b>	Simulation of Copper Oxidation
<b>Ethene</b>	Simulation on Diffusion
<b>Electrolysis</b>	Purification of Copper through Electrolysis
<b>Oxygen</b>	Testing on Oxygen Gas
<b>Energy Diagrams</b>	Showing on Energy Difference through Diagram
<b>Sodium Chloride</b>	Structure of a Sodium Chloride crystal
<b>Caesium Chloride</b>	Structure of Caesium Chloride Crystal
<b>Dry Ice</b>	Sublimation of Dry Ice
<b>States of Matter</b>	Animations about the Three States of Matter
<b>Metallic Bonding</b>	Simulation about Metallic Bonding
<b>Dust Particle</b>	Simulation about Dust Particles
<b>Molecular Structures</b>	Giant Molecular Structures
<b>Na OH</b>	Reactions of Cations in Na OH
<b>Ammonium Hydroxide</b>	Reactions of Cations in NH <sub>4</sub> OH
<b>Iodine</b>	Sublimation of Iodine
<b>Distillation</b>	Animation about Distillation
<b>Sulphur Dioxide</b>	Testing on Sulphur Dioxide
<b>Potassium and Sodium</b>	Simulation about the Relativity between K and Na

<b>Rate of Reaction</b>	Simulation about the rate of reaction
<b>Reversible Reaction</b>	Simulation about effect of temperature of rate of reaction
<b>Temperature Rate</b>	Simulation about reversible reaction
<b>Catalyst Rate</b>	Effects on Catalyst rate of reaction
<b>HCL</b>	Simulation about HCL
<b>Strong and Weak Acids</b>	Simulation about strong and weak Acids
<b>Concentration Rate</b>	Simulation of the effect of concentration on rate of reaction
<b>Greenhouse Effect</b>	Simulation about the greenhouse effect
<b>Atomic Structure and Atomic Bonding</b>	Examining atomic structure and ionic bonding
<b>Formulae</b>	Using mathematical principles to solve chemical reactions
<b>Double Replacement Reactions</b>	When cations and ions switch places
<b>Ion Charges</b>	Identifying ion charges
<b>Periodic Table of Elements</b>	Learning the elements in the periodic table of elements
<b>Lab Safety</b>	Presentation about the rules and regulations in a laboratory
<b>Structure of an Atom</b>	Simulation about the structure of an atom
<b>Unknown Silver Chloride</b>	Determine the concentration of silver ions in a silver nitrate solution
<b>Acids, Bases and Solutions</b>	Powerpoint Presentation about acids, bases and solutions
<b>Acids and Bases</b>	Powerpoint Presentation about some examples of acids and bases
<b>Chemical Equations</b>	Power Point Presentation about balancing chemical equations
<b>Balancing Equations</b>	Powerpoint Presentation about approaches to balancing chemical equations
<b>Purification</b>	Powerpoint Presentation about purification on copper models
<b>Metals</b>	Powerpoint Presentation about the periodic table and metals

<b>Ionic Bonding</b>	Powerpoint Presentation about Ionic Bonding Part 1
<b>Ionic Bonding</b>	Powerpoint Presentation about Ionic Bonding Part 2
<b>Naming Salts</b>	Powerpoint Presentation about Naming Salts
<b>Water</b>	Powerpoint Presentation about the Properties of Water
<b>Halogens</b>	Powerpoint Presentation about the Properties of Halogens
<b>Periodic Table</b>	Powerpoint Presentation about the Characteristics of the Periodic table of Elements
<b>Chemicals</b>	Powerpoint Presentation about a Game in General Chemistry
<b>Colloids and Dye</b>	Powerpoint Presentation about Colloids and Dye
<b>Atomic Model</b>	Powerpoint Presentation about some historical aspect of atomic model
<b>Chemical Change</b>	Powerpoint Presentation about patterns of chemical change
<b>Matter</b>	Powerpoint Presentation about changes in state of matter
<b>Virtual Lab Software</b>	Virtual lab software for performing simulation and experiments. Need this for most activities listed.
<b>Dilution Problem</b>	Dilution of glucose solution
<b>Dilution Problem</b>	Preparation of a stock solution from a concentrated acid.
<b>Sucrose Problem</b>	Molarity, molarity, mass , percent, mole fraction
<b>Making Solutions from Solids</b>	Making solutions from solids-different concentration
<b>Metal Density Problem</b>	Identify unknown metal from their density
<b>Liquid Density problem</b>	Identify unknown liquid from their density
<b>Alcohol Density Problem</b>	Determine the concentration of an alcohol solution
<b>Carrying out Titration</b>	Learn how to read a burette reading; learning about the procedures in carrying out a titration
<b>Setting out Titration</b>	How to set up apparatus for titration
<b>Effects of Temperature</b>	Temperature and the solubility of salts



<b>Solubility Product</b>	Determine the solubility product constant ( $K_{sp}$ ) for various solids.
<b>Solubility of CuCl</b>	Determine the solubility of CuCl at different temperature
<b>Solid, Liquid and Gas</b>	Describes the solid, liquid and gas state of matter and explain their inter conversion in terms of kinetic particle theory and of energy change involved understand the changes represented by a cooling curve
<b>Strong Acid</b>	Strong Acid and Base Problems
<b>Weak Acid</b>	Weak Acid and Base Problems
<b>Determining of the pH Scale</b>	The method of successive dilution was demonstrated using HCl, NaOH, a pH meter and universal indicator solution.
<b>Standardizing of NaOH: Acid-based Titration</b>	A collection of question and exercises to complete before performing an acid/base titration.
<b>Determining the pKa and concentration ratio of a protein in solution</b>	Design an experiment to determine the pKa and concentration ratio of a protein in solution.
<b>Unknown acid-base problem</b>	In this exercise the student will graph the titration curve of an unknown acid and base to determine their pKa's and concentration
<b>Creating a buffer solution</b>	An exercise to design a buffer solution with specific properties
<b>DNA-Dye binding: Equilibrium and buffer solutions</b>	Students examine equilibrium and buffer solutions in a biological setting.
<b>Energy Change</b>	Describes the meaning of enthalpy change in terms of exothermic and endothermic reactions. Represents energy change by energy profile diagrams including reaction enthalpy change and activation energies.

## CD 5 Collection of E-Learning Tools Recommended for Learners Age 3-13

The UNESCO Bangkok ICT in Education Programme has created this CD-ROM which contains a collection of free e-learning tools suitable for children age 3-13. They are useful for instructed learning and self-learning.

The e-learning tools on the CD-ROM are divided into the following categories: Educational Suites, Language Learning, Mathematics, Arts & Graphics, Computer Literacy, and Geography & Astronomy.

### Educational Suites

#### Child's Play

Child's play is oriented toward home users although it can be used in a kindergarten setting.

#### GCompris

GCompris is an educational software suite for children aged 2 to 10.

### Language Learning

#### JLetters

JLetters assists children with learning the English alphabet and becoming more aware of the appearance of letters

#### Learn Letters

Learn Letters teaches children to know and make the 26 letters of the English alphabet.

#### Roxie's ABC Fish

Roxie's ABC Fish offers an enjoyable edutainment game in which children easily learn their ABCs and numbers

#### Sebran's ABC

It's never too early for your child to become familiar with letters and numbers. Sebran's ABC's colourful pictures, pleasant music, and gentle games teach letters, numbers, simple mathematics, and rudiments of reading

### Mathematics

#### 2+2

2+2 Mathematics for Kids is a program aimed to help children's education in the area of basic mathematical skills

#### Kid's Abacus

Kid's Abacus is a mathematics program that will help children to learn numbers and counting with visual graphics

<b>Tux of Math Command</b>	Tux of Math Command is a mathematics drill game for kids aged 4 to 10.
<b>Tux Math Scrabble</b>	Tux Math Scrabble is a maths version of classic word game "Scrabble" (Trademark of Hasbro, Inc) which challenges kids to construct compound equations and to consider multiple abstract possibilities.
<b>Block CAD</b>	Block CAD is a program for building virtual models with Lego™-like bricks
<b>Kea's Coloring Book</b>	The Kea Coloring Book is a fun and easy-to-use coloring book.
<b>Leah's Farm Coloring Book</b>	Children will have great fun with Leah's Farm Coloring Book
<b>Tux Paint</b>	Tux Paint is a drawing program for children ages 3 to 12 with a variety of tools such as paint brush, rubber stamp, line tool, shape tool, text and label tools, and many special effects tools ('Magic' tools).
<b>Computer Literacy</b>	
<b>Kiran's Typing Tutor</b>	Kiran's Typing Tutor teaches children typing skills and lets them improve their speed in a very easy way within the shortest possible time
<b>Little Wizard</b>	Children can learn computer development environment through Little Wizard.
<b>Open Office 4 Kids</b>	OOo4Kids is a fully functional office suite for kids 7-12 years of age
<b>Scratch</b>	Scratch is a programming language that makes it easy to create interactive stories, animations, games, music, and art – and to share your creations on the web.
<b>Tux Typing</b>	Tux Typing provides two different games for practicing kids' typing

Geography and Astronomy	
<b>Solar System 3D Simulator</b>	Solar System 3D Simulator is a software application that generates a realistic solar system model and planets in three dimensions on the PC using advanced physics formulas. It can display the planets and their orbits, the sun and the moon.
<b>World Wind</b>	World Wind lets you zoom from satellite altitude into any place on Earth

## CD 6 Collection of E-Learning Tools Recommended for Advance Learners

The UNESCO Bangkok ICT in Education Programme has created this CD-ROM which contains a collection of free e-learning tools suitable for advanced learners. They are useful for instructed learning and self-learning.

The e-learning tools on the CD-ROM are divided into the following categories: Geography & Astronomy, Language Learning, Mathematics, Science, Programming and Memorizing.

Language Learning	
<b>Hot Potatoes</b>	The Hot Potatoes suite includes six applications enabling to create interactive multiple-choice, short-answer, jumbled-sentence, crossword, matching/ordering and gap-fill exercises for the world wide web
<b>Eclipse Crossword</b>	Eclipse Crossword is an easy way teacher to create professional crossword puzzles in seconds.
<b>Sephonics</b>	Sephonics is a program that will teach you the English phonetic alphabet, which is a subset of the International Phonetic Alphabet
<b>Selingua</b>	Selingua is a vocabulary training program with built-in dictionaries – more than 2,000 words in each of the following languages: English (both American and British).
<b>Selingua Columns</b>	Play a 'Tetris'-style game for learning French, German, Spanish or Swedish.

Mathematics	
<b>GeoGebra</b>	GeoGebra is a dynamic mathematics software for all levels of education that joins arithmetic, geometry, algebra and calculus.
<b>Graph</b>	Graph assists users to draw mathematical graphs in a coordinate system
<b>GraphCalc</b>	GraphCalc provides an all-in-one solution from everyday arithmetic to statistical analysis, from betas to Booleans, from cubes to calculus, from decimals to derivatives
<b>Maxima</b>	Maxima is a system for the manipulation of symbolic and numerical expressions, including differentiation, integration, Taylor series, Laplace transforms, ordinary differential equations, systems of linear equations, polynomials, and sets, lists, vectors, matrices, and tensors
Science	
<b>PhET</b>	PhET provides fun, interactive, research-based simulations of physical phenomena.
<b>Phun</b>	Phun is an educational, entertaining and somewhat addictive piece of software for playing around in a 2D physics sandbox in a cartoony fashion
<b>Solve Elec</b>	Solve Elec helps users to experiment with various electrical circuits in easy settings.
<b>Virtual Lab Simulation</b>	The virtual laboratory allows students to select from hundreds of standard reagents and manipulate them in a manner that resembles that of a real lab.
Geography and Astronomy	
<b>Atlas of World History</b>	This map animation software is an interesting way to visualize history!
<b>Celestia</b>	Celestia is a space simulation that lets you explore our universe in three dimensions.

<b>Seterra</b>	Seterra is a challenging educational geography program with 70 different exercises.
<b>StatPlanet</b>	StatPlanet is a free data visualization tool that lets you discover facts about world development using colour maps and graphs.
<b>Programming</b>	
<b>Robot Prog</b>	With Robot Prog you can learn programming bases by means of gradual levels.
<b>Alice</b>	Alice is a freely available teaching tool designed to be a student's first exposure to object-oriented programming.
<b>Memorizing</b>	
<b>Mnemosyne</b>	Mnemosyne Project is a sophisticated free flash-card tool which optimizes your learning process. It is also a research project into the nature of long-term memory.
<b>Teach 2000</b>	Teach2000 helps users to memorize a foreign language, topography or even the history of Italy by date.

# UNESCO Training Guide on ICT Multimedia Integration for Teaching and Learning

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