

National School Curriculum  
**INSTRUCTIONAL GUIDE**  
**FOR ICT**  
CLASSES VII & VIII



Department of Curriculum and Professional Development  
Ministry of Education, Royal Government of Bhutan



“Your parents, relatives, and friends would be very proud of what you have achieved. At your age, to have completed your studies is your personal accomplishment. Your knowledge and capabilities are a great asset for the nation. I congratulate you for your achievements. Finally, your capabilities and predisposition towards hard work will invariably shape the future of Bhutan. You must work with integrity, you must keep learning, keep working hard, and you must have the audacity to dream big.”

*- His Majesty Jigme Khesar Namgyel Wangchuck*

**National School Curriculum**

# **INSTRUCTIONAL GUIDE**

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## Foreword

The erstwhile Royal Education Council (REC) developed an Adapted and Prioritised curriculum for schools so that students can continue learning during the disruptions caused by the COVID 19 pandemic since March 2020. With the commencement of the 2021 academic session, the new normal curriculum, later renamed as the National School Curriculum (NSC), was embraced as a paradigm shift of education from conventional knowledge-based learning to competency-based, open-source and experiential learning leveraged on digital technologies. In order to facilitate the effective implementation of the curriculum change, Instructional Guides were developed in all subjects, and the teachers were oriented through virtual and short contact modes as per the prevailing pandemic situations. The curricula were aimed at minimising the learning loss for learners as it was designed for implementation in different situations - during school closure or during regular contact instructional hours.

While these measures served as a solution to problems brought about by the pandemic and the global changing trend in education, resilient and more dynamic curricula and instructions remain the current priority of the Government. In cognizance of some of the shortfalls in the provisional edition of Instructional Guides (IG), the Department of Curriculum and Professional Development reviewed and revised the existing Instructional Guides across all subjects with the aim of enforcing the competency-based learning, and making teaching-learning happen ‘anytime anywhere’ commensurate to inclusive education so that all learners are provided with the opportunity to learn at their pace and situation.

The revised Instructional Guides have drawn ideas and inspiration from various educational philosophies and principles, particularly the Delors Report, *Learning: The Treasure Within* (1996). The report prioritises the development of the whole person and not just academic knowledge through the four pillars: “learning to know”, “learning to do”, “learning to be”, and “learning to live together”. Therefore, the New Curriculum and the Instructional Guide is an attempt to transform education from the teaching of “what” to learning of “how” and “why” towards empowering learners with the transversal competencies and the 21<sup>st</sup> century skills and preparing them to be lifelong learners.

It must be noted that the New Curriculum and the Instructional Guide are not just a response to the pandemic, but a culmination of the curriculum reform work for the last four years by the

Department of Curriculum and Professional Development. The school curricula are to be perceived as integrated and based on themes and problems that inspire learners to learn and to live in peace with our common humanity and our common planet. This has the potential for the development of a strong base of knowledge about one's self and about the world, finding the purpose of learning, and being able to participate in the social and political milieu. Thus, this initiative is envisaged to orient our educational process toward nurturing 'nationally rooted and globally competent citizens.

Wish all our learners and teachers life-enriching teaching and learning.

Tashi Delek

A handwritten signature in black ink, appearing to read 'Tashi Namgyal', with a horizontal line underneath it.

Tashi Namgyal

**Director**

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## Introduction

The National School Curriculum for the Information and Communication Technology (ICT) was developed for implementation in schools from the 2021 academic year. One significant change in the curriculum frameworks is the shift of focus from academic standards to competencies. Over the years, standards-based education has become a means of measuring content coverage and test readiness. The shift to competency-based education is aimed at developing and applying competencies - knowledge, skills and dispositions - to new and challenging situations. It emphasises mastery of competencies to help our students successfully navigate their personal journeys in learning, living and working.

In school, students develop and apply ICT competencies through ICT subject-area content and learning experiences which provide opportunities for them to transfer their learning to situations and contexts even beyond the classroom. This shift permeates across the curriculum, pedagogy and assessment, and for this change to make a difference in learning, deliberate attempts must be made in all three aspects.

This instructional guide for the ICT curriculum is conceived with two objectives. The first purpose is to provide examples of how pedagogy and assessment are designed to help students develop the required ICT competencies. It also includes examples of curated online resources that can be used as reference materials for teachers, learning resources for students or assessment tools for use by teachers. The second purpose is to provide a reference for ICT teachers to facilitate the delivery of online lessons during emergencies. The guide contains distinct examples of pedagogy and assessment for non-contact online teaching.

The pedagogy, assessment and resources mentioned for every competency for all class levels are only meant to be suggestive. Teachers are encouraged to modify them, use innovative strategies or create new lessons that are relevant to their students and situations, and can help students develop and master the required competencies.

A salient feature of the guide is the conscious integration of ICT in teaching and learning. This may be in the form of blended learning during normal school settings, or fully online teaching during emergencies such as the current pandemic. The curated digital resources provided in the guide can be applied to both blended learning and online teaching depending on the instructional approach being used by the teacher.

## Purpose of the Instructional Guide

The content in the instructional guide is aligned with the competencies and topics provided in the National School Curriculum for ICT. The instructional guide comprises competencies, topics, learning experiences, assessments and resources that will facilitate teachers to successfully deliver the ICT curriculum. Using a competency and corresponding topic as the pivot, learning experiences and assessments are written towards achieving the competency.

Learning experiences provide suggestive strategies and pedagogies for the delivery of the listed competencies. It has both contact and online teaching strategies. Contact teaching refers to a situation when schools are open, and teaching and learning take place face-to-face in a classroom. Teachers can apply a blended teaching approach for meaningful ICT integration and delivery of lessons. Online teaching refers to a situation where teaching and learning happen online during school closures due to emergencies like pandemics. In such a situation, teachers need to consider relevant pedagogies that are supported by technologies such as the ones given below:

1. Choose an online learning platform such as Google Classroom, Sherig LMS (under development), WeChat, WhatsApp, Telegram, etc. considering the ease of use and appropriateness of the tool for the students. This platform is to be used as a virtual classroom for presentations, discussions, sharing resources, assigning tasks, and assessment of learning.
2. For lesson delivery by teachers, consider the use of video conferencing tools such as Zoom and Google Meet for synchronous teaching, and creation tools such as Microsoft PowerPoint and Camtasia for asynchronous teaching.
3. For assessment purposes, consider the use of tools such as Google Forms and Kahoot to create quizzes, Google Docs, Google Sheets and Google Drawings in Google Classroom to assign tasks for students.
4. For the recording of student performance, consider the use of the grading feature in Google Classroom or spreadsheets such as Google Sheets and Microsoft Excel. The scores from these sources can be transferred to the student progress report as per the assessment criteria.

Suggestive pedagogies, assessments and resources for each competency are listed below. Teachers are advised to refer to the instructions given therein for their lesson planning and effective delivery of the ICT lesson to the learners.

# Class Seven

Students will be able to:

1. deliver an effective presentation using a presentation tool to communicate information or share ideas.
2. record and edit audio using audio editing tools to create audio materials for learning and expressing creativity.
3. apply effective search techniques to gather relevant information from the Internet for learning.
4. demonstrate safe and ethical use of social media for effective communication and collaboration with peers, teachers and others.
5. demonstrate acceptable online behaviours and adopt good practices of personal data protection for a healthy and safe online experience.
6. write algorithms and basic codes to create interactive animations that will enhance creativity and develop coding skills.

## STRAND A – Technology Operation

**COMPETENCY 1:** Students will be able to deliver an effective presentation using a presentation tool to communicate information or share ideas.

### Overview:

Presentations using ICT tools such as MS PowerPoint, Google Slides, Keynote and Prezi have become common practices in organisations to communicate information. Presentation tools allow users to create highly visual presentations to engage viewers and communicate ideas.

Through this competency, students will be able to explore MS PowerPoint or other similar tools to create a presentation to communicate a message. Students will create presentations on their field trips or on concepts they have learned in other subjects in pairs or in groups. They will add multimedia and basic animations, and follow some design principles to make the presentation engaging and relevant.

Topics:	Key Stage Standard	Objectives	Time
<b>PowerPoint Presentation</b> <ul style="list-style-type: none"><li>• Creating a Microsoft PowerPoint presentation.<ul style="list-style-type: none"><li>◦ slides, templates, texts, objects, images, tables, etc.</li></ul></li><li>• Features of a good presentation material<ul style="list-style-type: none"><li>◦ 10-20-30 rules, design principles, etc.</li></ul></li></ul>	A3.1 Design an effective presentation material using presentation software.	7-A3.1.1 Create a presentation material using basic features of presentation software.	400 mins (10 periods)

### Learning experiences:

- Give a short presentation on relevant topics such as “Pema Lingpa of Bhutan”, “Fake News on Social Media”, “Cyberbully” and “Climate Change” using Microsoft PowerPoint. Then show students how you have created the presentation for students to practice later.
- Divide students into groups and ask each group to select interesting topics related to them such as “Youth issue in the 21st century”, “Should students bring mobile phones in school?”, “Teenage love and pregnancy” and “Social media and student’s future”. Then, ask the groups to create a PowerPoint presentation and present their work in the class. Guide students to insert videos, images, diagrams and tables in their presentation.
- Provide students with reading materials on features of a good PowerPoint presentation (contrast, white space, alignment, proximity, consistency) and design principles such as 10-20-30 rules. Ask them to apply these elements in their PowerPoint presentation.

- Make students search the Internet for good PowerPoint templates. Tell them to download a template, modify it by adding their content, apply elements of a good presentation, and make a class presentation.
- Create a video tutorial on creating good presentations using PowerPoint and share it on the class online platform for students to create their PowerPoint presentations.
- Ask students to select a topic they have learned in other subjects and create a PowerPoint presentation. To guide students to create their presentations at home, share weblinks on PowerPoint presentations and design elements through the class online platform.
- Ask students to create a PowerPoint presentation on how they have spent their summer or winter vacation and share their work on the class online platform.

### **Assessment:**

- Grade the PowerPoint presentations submitted by the students based on a rubric.
- Allow students to present their PowerPoint presentations in the class and award grades on both material and presenter.
- Observe and maintain records of students' participation in pairs or groups during sessions on creating PowerPoint presentations.
- Ask students to design a one-page poster using PowerPoint on a relevant theme. Evaluate the poster based on design, layout, message, and use of image, text, shapes and tables.
- Evaluate the PowerPoint presentations submitted by students through the class online platform.
- Ask students to make a PowerPoint presentation through a video conferencing platform such as Zoom or Google Meet by using the screen-sharing feature. Evaluate their presentation based on a rubric.

### **Questions:**

1. Why is Microsoft PowerPoint superior to Microsoft Word for presentation?
2. How is the 10-20-30 rule effective?
3. According to you, what are the most important parts of an effective presentation?

### **Resources:**

1. **Microsoft PowerPoint:** The weblinks provide the resources and information on creating presentations on Microsoft PowerPoint.
  - <https://edu.gcfglobal.org/en/powerpoint/>
  - [https://www.tutorialspoint.com/powerpoint/powerpoint\\_getting\\_started.htm](https://www.tutorialspoint.com/powerpoint/powerpoint_getting_started.htm)
  - <https://ptgmedia.pearsoncmg.com/images/9780735697799/samplepages/9780735697799.pdf>
  - [https://www.youtube.com/playlist?list=PLmkaw6oRnRv\\_qE6EFkCJE-Z73EPksgSd0&ab\\_channel=MikeRussell](https://www.youtube.com/playlist?list=PLmkaw6oRnRv_qE6EFkCJE-Z73EPksgSd0&ab_channel=MikeRussell)

2. **Good Designs in PowerPoint:** The weblinks provide information on elements of good design principles to be followed while creating PowerPoint Presentations.
  - [https://guykawasaki.com/the\\_102030\\_rule/](https://guykawasaki.com/the_102030_rule/)
  - <https://guides.lib.umich.edu/c.php?g=283149&p=1886379>
  - <https://www.youtube.com/watch?v=a5KYIHNKQB8>
  - <https://www.mcgill.ca/skillsets/files/skillsets/powerpointguidelines.pdf>
  - <https://www.rockwaymiddleschool.org/pdf/Power%20Point%20Design%20Principles.pdf>
  - <https://24slides.com/presentbetter/5-design-principles-to-improve-your-presentation-style/>
  
3. **Rubrics:** The weblinks provide rubrics to assess PowerPoint presentations.
  - <https://www.scholastic.com/content/dam/teachers/lesson-plans/migrated-files-in-body/rubic.pdf>
  - [https://na.eventscloud.com/file\\_uploads/1720a372a005351c6c508be7ef5bcb7d\\_PresentationAssessmentRubric.pdf](https://na.eventscloud.com/file_uploads/1720a372a005351c6c508be7ef5bcb7d_PresentationAssessmentRubric.pdf)  
<https://www.kyrene.org/cms/lib2/AZ01001083/Centricity/Domain/968/PowerPoint%20Oral%20Presentation%20Rubric.pdf>

**COMPETENCY 2:** Students will be able to record and edit audios using audio editing tools to create audio materials for learning and expressing creativity.

**Overview:**

One of the key elements of multimedia is audio. Audios in the form of speech, narrations, songs, music, etc. provide a far better experience for the users that audio editing is an important skill in the digital world. Students need to be introduced to the basic audio editing skills using open source tools so that they develop a good foundation in audio editing for creating multimedia content.

Students will be introduced to Audacity- a free audio editing software that allows users to record audios, add multiple audios, remove unwanted sound, mix audios, and improve the quality of the audio. To make learning audio editing meaningful, students have to be provided with real-life projects such as recording their speeches and modifying them, mixing multiple songs for school cultural shows, adding background music, etc.

Topics	Key Stage Standard	Objectives	Time
<b>Audio Editing with Audacity</b> <ul style="list-style-type: none"> <li>● Definition of audio</li> <li>● Recording audio. <ul style="list-style-type: none"> <li>○ recording devices and steps</li> </ul> </li> <li>● Audio recording and editing in Audacity <ul style="list-style-type: none"> <li>○ Features of Audacity Window.</li> <li>○ Recording or importing audio.</li> <li>○ Editing Audio and mixing</li> <li>○ Applying Audio Effects.</li> <li>○ Saving in Audacity</li> </ul> </li> <li>● Audio sharing</li> <li>● Project on audio editing</li> </ul>	A3.2 Edit sound using audio editing software.	7-A3.2.1 Record sound using recording software.  7-A3.2.2 Edit sound using audio editing software.	400 mins (10 periods)

### Learning experiences:

- Demonstrate how to record audios using devices such as phones, voice recorders, and computers, and organise them in folders for editing. Allow students to record their voices and save them on the computer.
- Demonstrate the audio editing process on the projector and explain the key features of Audacity such as splitting, trimming, fading, copying and pasting, adding effects and saving in different audio formats. Then, allow students to practice importing audio and adding basic effects in Audacity.
- Make students listen to audio that has three songs mixed together. Provide the three songs to students and ask them to mix the songs using Audacity to make them sound similar to the sample audio played to them.
- Provide video tutorials on audio editing in Audacity and ask students to go through the resources to record Lozay or Tsangmo or poetry recitations. Ask them to add background music and share it with the class for feedback.
- Introduce different audio-sharing platforms such as SoundCloud, Audiomack, and Spotify to students and ask them to listen to other audio files or upload their original audio files on such platforms.
- Create a PowerPoint presentation on the importance of audio editing skills and job opportunities in the field of audio editings such as sound engineers and music directors. Make students search the Internet for popular national and global figures in the field of music.
- Create a video tutorial on recording and editing audio using Audacity and how to share the edited audio on SoundCloud. Ask students to edit audio and share it on the class online platform.

- Share a few songs and ask students to remix the songs creatively and share them on the class online platform.
- Make students explore SoundCloud and create a playlist of their favourite songs. Ask them to share the link to their playlist on the class online platform.

### Assessment:

- Evaluate the audio editing projects completed by students based on a rubric.
- Observe and maintain a record of students' participation or display of audio editing skills in Audacity.
- Assign group projects to students to create audio projects on concepts related to other subjects such as science experiment reports, field trip reports, motivational speeches and narrating local stories.
- Evaluate the final audio editing projects shared by students through class online platforms based on a rubric.
- Maintain a record of original audio files shared by students on an online platform such as SoundCloud.

### Questions:

1. Why do we need to edit audio?
2. Explain audio editing software?
3. How do you edit audio?

### Resources:

1. **Audacity:** The weblinks provide tutorials on how to record, edit and convert audio in Audacity.
  - <https://www.audacityteam.org/download/>
  - <https://manual.audacityteam.org/>
  - <https://www.buzzsprout.com/learn/audacity-tutorial>
  - <https://hiphopmakers.com/audacity-tutorials>
  - <https://www.instructables.com/Basic-recording-and-editing-with-Audacity/>
  - <https://blog.accusonus.com/audio-clean-up/how-to-use-audacity/>
  - [https://www.youtube.com/watch?v=IXoGmyzNZOY&list=PLqzFFzUAPc7XJjOcH4iPDoIeFHA\\_eyKh](https://www.youtube.com/watch?v=IXoGmyzNZOY&list=PLqzFFzUAPc7XJjOcH4iPDoIeFHA_eyKh)
2. **Rubrics:** The weblink provides a rubric to evaluate Audacity projects.
  - <https://www.rcampus.com/rubricshowc.cfm?code=UX3748C&sp=yes&>
  - [https://casn.berkeley.edu/wp-content/uploads/resource\\_files/Rubric-for-multimedia-assessment.pdf](https://casn.berkeley.edu/wp-content/uploads/resource_files/Rubric-for-multimedia-assessment.pdf)



## STRAND B – Communication and Collaboration

**COMPETENCY 3:** Students will be able to apply effective search techniques to gather relevant information from the Internet for learning.

### Overview:

Applying effective search techniques saves time and allow students to easily find the information and result they actually require. Search techniques such as using boolean operators and wildcards will filter thousands of information to provide the relevant result.

Through this competency, students will see the advantages of using search techniques in looking for information on the Internet. They will practice the search techniques and continue to use them whenever they use the Internet.

Topics	Key Stage Standard	Objectives	Time
<b>Online Search Techniques</b> <ul style="list-style-type: none"><li>• Keywords</li><li>• Boolean operators<ul style="list-style-type: none"><li>◦ AND, OR, NOT</li></ul></li><li>• Wildcard searches ( *,?,,\$)</li><li>• Exact phrase search (using quoted phrase)</li><li>• Searching for information from the Internet.</li></ul>	B3.1 Use search techniques to find information from the Internet.	7-B3.1.1 Use keywords and Boolean operators to refine online search.	120 mins (3 periods)

### Learning experiences:

- Make students browse information on their own from the Internet on topics they have learned in other subjects such as “rate, ratio and percent” and “pattern in Chemistry”. Ask them to make notes.
- Introduce techniques such as using Boolean operators, wildcards, and exact phrases to experience faster and better information search from the Internet. Demonstrate the advantages of using these techniques and allow students to follow the steps.
- Allow the students to use the Internet to search for information on the Bhutanese monarchy. Guide them to apply the online search techniques and ask them to share what they have observed by using search techniques.
- Write the online search techniques on a chart paper with short descriptions for students to refer to and apply every time they visit the Internet for new information.
- Share weblinks or video tutorials on online search techniques through the class online platform and ask students to apply the technique to search for information for their homework.

- Use video conferencing tools such as Zoom or Google Meet to demonstrate how to use techniques to search for relevant information faster.

### Assessment:

- Observe and maintain records of how students are applying techniques to search for information from the Internet.
- Conduct class tests on search techniques such as keyword, Boolean search and wildcards.
- Divide students into groups and assign a task to write a one-page essay on a relevant topic such as “wonders of the world”, “top coding language for children”, and “top cartoon characters”. Instruct them to search for additional information and relevant images from the Internet.
- Create an online quiz using Google Forms on Internet search techniques and share it on the class online platform.
- Start an online discussion using the class online platform on how students are using different Internet search techniques. Maintain a record of students’ participation in the discussion.

### Questions:

1. How are boolean operators used to search information online?
2. What is your favourite search technique?
3. Do you think learning search techniques is important?

### Resources:

1. **Search Techniques.** The weblinks provide basic techniques to find relevant different types of information from the web.
  - <https://www.youtube.com/watch?v=7ond5eF7L-I>
  - <https://www.mindtools.com/pages/article/internet-searching.htm>
  - <https://content.bridgpointeducation.com/curriculum/file/a3575b8c-04d9-4192-a01e-5a6e0b97355b/1/Advanced%20Internet%20Search%20Techniques.pdf>
  - <https://libguides.mit.edu/c.php?g=175963&p=1158594>
  - <https://www.youtube.com/watch?v=L0BF5niVegs>
  - <https://content.bridgpointeducation>.

## STRAND C – Safety and Ethics

**COMPETENCY 4:** Students will be able to demonstrate safe and ethical use of social media for effective communication and collaboration with peers, teachers and others.

### Overview:

Social media is an online platform that facilitates the sharing of ideas, thoughts, and information through virtual networks and communities. Different social media platforms such as Facebook, YouTube, Instagram, TikTok, etc. have billions of users who interact on daily basis.

Students at this class level will be introduced to social media platforms to communicate and collaborate with others to enhance their learning. Students will be informed about the advantages and disadvantages of social media, and will also be taught how to use social media to help them learn and grow as both individuals and part of the online community.

Topics	Key Stage Standard	Objectives	Time
<b>Collaborating in Social Media</b> <ul style="list-style-type: none"><li>• Definition of social media and its features.</li><li>• Examples of social media.<ul style="list-style-type: none"><li>○ Facebook, Twitter, YouTube, WeChat, Messenger, etc.</li></ul></li><li>• Pros and cons of social media</li><li>• Using social media for communication, collaboration and learning (groups, pages, etc.)</li><li>• Safety tips for students on the use of social media</li></ul>	B3.3 Use social media platforms to communicate and collaborate.	7-B3.3.1 Manage a social media account.	120 mins (3 periods)

### Learning experiences:

- Find out students who have or are using social media like Facebook and ask them to share their experiences. Ask them about the benefits and challenges they encountered in using social media. Allow them to share why they have joined social media and how often they use social media.
- Create a PowerPoint presentation on social media, their role in society, its advantages and disadvantages, and how people use it. Highlight how social media can be used (pages and groups) to communicate and collaborate for learning. Invite students to share how they are using social media like Facebook and YouTube to enhance learning.

- Make students search the Internet on how to use social media like Facebook safely. Ask them to list the safety measures to be followed by young people and make a presentation to the class.
- Create a class group on social media for communication and learning purposes. Set ground rules and initiate classroom discussions and share educational resources in the group.
- Share weblinks or video lessons on the safe use of social media through the class online platform, and ask students to write a list of actions they will follow when using social media.
- Conduct a Zoom or Google Meet conference with students to create awareness of the benefits (connecting with friends and family, learning, updating on global news, etc.) and risks (fake news, scamming, blackmail, addiction, cyberbullying, etc.) of using social media like Facebook.

#### **Assessment:**

- Ask students to create a poster using Paint.NET on the topic “Be Safe on Social Media”. Instruct them to add relevant images to the poster. Once completed, ask them to share it on the class online platform for feedback and grading.
- Maintain a record of how each student is participating in the social media group of the class.
- Organize a debate competition in two groups on the theme “Social Media should be banned”. Appoint subject teachers as judges and award marks.
- Assign students to write an essay of 500 words on the benefits and challenges of social media on students. Ask them to explore the Internet for additional information.
- Create an online quiz using Google Forms or Kahoot on social media and safety tips. Share it on the class online platform for students to participate in the test.
- Ask students to use Google Docs or Word to write about their experience of using social media and share it in the class online platform for evaluation.

#### **Questions:**

1. How can you use social media to your advantage?
2. What are the risks involved in using social media?
3. Compare Facebook and Twitter.

#### **Resources:**

1. **Social Media:** The weblinks provide information and resources on social media and its benefits and challenges.
  - <https://medium.com/@clinguen/advantages-and-disadvantages-of-social-media-47cd957b73d5>
  - <https://www.commonsense.org/education/articles/how-to-teach-your-students-to-t>

hink-before-they-post

- <https://www.webfx.com/internet-marketing/social-media-marketing-advantages-and-isadvantages.html>
- <https://www.techmaish.com/advantages-and-disadvantages-of-social-media-for-society/>
- <https://honestproscons.com/social-networking-advantages-and-disadvantages/>
- <https://www.rootsofaction.com/disadvantages-of-social-networking/>
- <https://yourstory.com/mystory/social-media-a-blessing-or-a-curse>
- [https://www.youtube.com/watch?v=soHn6t\\_jjIw&ab\\_channel=TEDxTalks](https://www.youtube.com/watch?v=soHn6t_jjIw&ab_channel=TEDxTalks)
- <https://www.youtube.com/watch?v=Nb9GfRJEVZk>

2. **Safety Measure on Social Media:** The weblinks provide information on safety measures and sample quiz on social media.

- <https://study.com/academy/practice/quiz-worksheet-social-media-safety-tips.html>
- <https://dripdigital.com/how-to-use-social-media-responsibly/>
- <https://www.nortonlifelockpartner.com/security-center/15-social-networking-safety-tips.html>

**COMPETENCY 5:** Students will be able to demonstrate acceptable online behaviours and adopt good practices of personal data protection for healthy and safe online experience.

### Overview:

As regular users of the Internet for various purposes, students share information and personal data on different social media platforms. As thousands of information and personal data get uploaded on the Internet, there are many cases of misused personal data for personal gains. Therefore, students at this level will need to learn about the importance of data protection and acceptable behaviour when online.

Data protection refers to a set of strategies and processes that can be used to secure the privacy, availability, and integrity of data. It is sometimes also called data security. Students will have to be informed not only about data protection but also about advocating good practices for data protection and security.

Topics	Key Stage Standard	Objectives	Time
<b>Online Data Protection</b> <ul style="list-style-type: none"><li>● Definition of personal data</li><li>● Ways to protect online personal data</li><li>● Risks of unprotected data<ul style="list-style-type: none"><li>○ identity theft, cyberbullying, defamation, etc.</li></ul></li></ul>	C3.1 Adopt measures to protect online personal data	7-C3.1.1 Follow measures to protect personal data on social	160 mins (4 periods)

<ul style="list-style-type: none"> <li>● Social Media Policy of Bhutan</li> <li>● Acceptable Use Policy (AUP) of online services</li> <li>● Following acceptable behaviour on the Internet. <ul style="list-style-type: none"> <li>○ Avoiding aggressive and unpleasant sites, respecting bandwidth consumption, refraining from sharing copyrighted materials, etc.</li> </ul> </li> </ul>		<p>7-C3.1.2 Explain the consequences of unprotected online data.</p> <p>7-C3.1.3 Follow acceptable behaviour while using the Internet.</p>	
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**Learning experiences:**

- Make a PowerPoint presentation on personal data (name, age, birthplace, citizenship number, workplace, password, etc.) and ways to protect them in the digital world. Explain the risk or consequences (identity theft, defamation, bullying, etc.) of landing our personal data in the hand of bad people. Ask students to reflect and list their personal data.
- Divide students into groups and ask them to search the Internet for information on measures to protect personal data. Instruct them to make a presentation to the class.
- Demonstrate how to protect personal data on social media such as Facebook by changing the security settings (who can see your post or tags), refraining from sharing personal information, avoiding contact with strangers, etc. Then ask students to change the security setting of their Facebook accounts.
- Share the Social Media Policy of Bhutan 2016 with the students and highlight the code of conduct reflected in the document. Ask students to share what they can and cannot do on social media based on the policy.
- Let students search the Internet on acceptable use policy (AUP) and the importance of demonstrating acceptable behaviours (respect copyright, communicate politely, visit appropriate websites, develop useful skills, connect with good or inspiring people, take breaks from technology, etc.) when using the Internet for socialization, education, and entertainment. Ask them to share their understanding of these concepts with the class.
- Create a video lesson on personal data protection, consequences of unprotected data, and responsible use of online information. Share the video on the class online platform for students to refer to and take notes.
- Assign a project work for students to research measures to protect personal data in the digital world. Ask them to do the project during weekends at home and submit a short report through the class online platform.
- Share the link to the Social Media Policy of Bhutan 2016 on the class online platform. Ask students to refer and share their understanding.

### Assessment:

- Ask students to create an awareness poster on why and how they should protect personal data in the digital world. Evaluate the poster based on a rubric.
- Develop questions and conduct a class test on social media policy, acceptable use policy, and online behaviours.
- Use the class online platform to share a worksheet to identify personal data that cannot be shared on social media or the Internet. Ask students to list the reasons to protect these data.
- Conduct a test using online tools such as Google Forms or Triventy to check students' understanding of the safe and ethical use of data or information from the Internet.
- Ask students to come up with one page write up using Google Docs or Word on why personal data should be secured in the digital world.

### Questions:

1. How can you protect your online data?
2. Why do you think we have a Social Media Policy for Bhutan?
3. What are some of the acceptable behaviours on the Internet that you will encourage in your social media friends?

### Resources:

1. **Personal Data:** The weblinks provide information on how to secure personal data while using the Internet. The links also inform about acceptable online behaviours.
  - <https://www.consumer.ftc.gov/articles/0272-how-keep-your-personal-information-secure>
  - <https://students.unimelb.edu.au/campus-life/policy-and-conduct/appropriate-behaviour-on-social-media>
  - <https://mediawijs.be/tools/poster-step-by-step-how-should-i-protect-my-privacy-on-social-media>
  - <https://digitalguardian.com/blog/101-data-protection-tips-how-keep-your-passwords-financial-personal-information-safe>
  - <https://st-anne-stanley-school.co.uk/wp-content/uploads/2013/01/Acceptable-behaviour-online-parent-handout-DSch.pdf>
  - <https://www.common sense.org/education/digital-citizenship/lesson/private-and-personal-information>
2. **Social Media Policy of Bhutan:** The weblink contains the document Social Media Policy of Bhutan 2016.
  - <https://www.doim.gov.bt/wp-content/uploads/2019/02/RGOB-Social-Media-Policy.pdf>

## STRAND D - Coding

**COMPETENCY 6:** Students will be able to write algorithms and basic codes to create interactive animations that will enhance creativity and develop coding skills.

### Overview:

Algorithms are key areas of computer science that every computer program, at their core, is algorithms written in a programming language that computers can understand. An algorithm, in simple language, is a step-to-step procedure for accomplishing a task.

Students in this level will use algorithms and coding skills to create simple animations using a programming language such as Pyleap and Scratch. They will code to add objects/characters, modify the characteristics of the objects/characters, and add multimedia elements to the animation. Coding to create animations allows students to explore their creative, logical, and algorithmic thinking to expand their understanding of computer science and developing animations.

Topics	Key Stage Standard	Objectives	Time
<p><b>Introduction to Pyleap</b></p> <ul style="list-style-type: none"> <li>● Pyleap library installation</li> <li>● Importing library</li> <li>● Basic structure of Pyleap</li> <li>● Window methods               <ul style="list-style-type: none"> <li>○ set_size(), set_caption()</li> <li>○ window.show_axis()</li> <li>○ window.show_fps()</li> <li>○ window.keep_on_top()</li> <li>○ window.set_quality()</li> </ul> </li> <li>● Window attributes               <ul style="list-style-type: none"> <li>○ window.height, window.width</li> <li>○ window.caption</li> </ul> </li> <li>● Basic drawing functions               <ul style="list-style-type: none"> <li>○ draw(), stroke()</li> </ul> </li> <li>● Geometrical shapes               <ul style="list-style-type: none"> <li>○ Line(), Rectangle(), Circle(), Ellipse(), Triangle(), Polygon()</li> </ul> </li> <li>● Colours (Colour name - RGB, HSL, Hex, etc.)</li> </ul> <p><b>Transformation in PyLeap</b></p> <ul style="list-style-type: none"> <li>● Resizing               <ul style="list-style-type: none"> <li>○ scale, scale_x, scale_y</li> <li>○ height, width</li> </ul> </li> <li>● Rotation - rotation, set_anchor()</li> </ul>	<p>D3.1 Use a GUI library of a programming language to create an animation.</p> <p>D3.2 Use a GUI library of a programming language to create an event-based interactive project.</p>	<p>7-D3.1.1 Use drawing methods to create geometrical shapes.</p> <p>7-D3.1.2 Change colours of objects using a colour system</p> <p>7-D3.1.3 Modify the attributes of an object to transform a geometrical shape.</p> <p>7-D3.2.1 Write codes to add images, text, and audio to create an interactive animation.</p>	<p>2400 mins (60 periods)</p>



<ul style="list-style-type: none"> <li>● Reflection - flip(), v_flip()</li> <li>● Translation - object.x, object.y</li> </ul> <p><b>Multimedia in Pyleap</b></p> <ul style="list-style-type: none"> <li>● Text - Text()</li> <li>● Image - Sprite()</li> <li>● Audio - Audio(), play(), pause()</li> <li>● Mouse and keyboard attributes <ul style="list-style-type: none"> <li>○ mouse.x, mouse.y</li> <li>○ mouse.LEFT, mouse.RIGHT</li> <li>○ key.keyname.pressed</li> </ul> </li> </ul>		<p>7-D3.2.2</p> <p>Set mouse and keyboard attributes to an object to create interactivity.</p>	
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**Learning experiences:**

- Display interesting projects created in Pyleap to excite students and generate curiosity to learn to code. Explain the importance of coding in Pyleap by creating various animations and games to enhance logical and sequential thinking. Ask students to take notes.
- Demonstrate the basic structures and methods to draw different shapes in Pyleap. Explain the window methods (caption, axis, quality) and shape functions (line, rectangle, ellipse, polygon, circle) to create drawings. Then allow students to draw shapes such as houses, vehicles, chorten, and emoticons by combining the shapes and adding colours.
- Divide students into groups and ask them to come up with a drawing in Pyleap by combining shapes and applying different colours. The drawing can be related to concepts learned in other subjects such as the solar system, water cycle, four seasons, and the Bhutan map. Make the groups present their project to the class.
- Demonstrate the step-by-step process (changing x and y coordinates, resizing, rotation) of creating an animation in Pyleap. Let students use appropriate characters, backgrounds and multimedia elements (text, sound, image) to enhance the animation.
- Use PowerPoint presentations to explain object transformation (rotating, resizing, flipping, shifting) in Pyleap by relating them to Mathematics concepts such as reflection, rotation, translation, and dilatation. Demonstrate the functions on the screen and make students follow the steps to create an object animation in Pyleap.
- Create a presentation to explain the fundamentals of computer games and demonstrate the use of mouse and keyboard attributes to control objects in Pyleap. Let students practice the mouse and keyboard controls, and then ask them to explore the Internet for ideas to develop simple games in Pyleap.
- Divide students into groups and let them create a project (art, animation or game) on a topic of their interest. Guide them to plan the project, execute the project in Pyleap, and finally share it in the class.

- Explain the importance of following good programming practices while developing projects in Pyleap. Make students explore the Internet for good programming tips.
- Create and share video lessons on Pyleap installation for students to follow the steps and install the program on their personal computers.
- Create and share video lessons on basic steps to follow in Pyleap coding such as program structure, window setting, saving, and running the program. Assign a simple drawing task for students to create and submit through the class online platform.
- Come up with a video lesson on basic troubleshooting tips (check syntax, read the error messages, run code on every little change, comment-out code, guess and check, etc.) in Pyleap coding for students to refer to whenever they come across issues in their codes.
- Arrange video conferences through Zoom or Google Meet to demonstrate how to create arts, animations and games in Pyleap using various functions and modules. Then ask students to come up with a Pyleap project to be submitted after a week.
- Create video lessons on using mouse and keyboard attributes to control objects in Pyleap. Let students develop a simple game in Pyleap and ask them to share it on the class online platform.

#### **Assessment:**

- Observe and maintain a record of students learning progress in Pyleap coding.
- Conduct practical and theory tests to check students' knowledge and skill in Pyleap coding.
- Conduct class or school competitions on Pyleap coding to check students learning and to motivate them to code more. Award grades and certificates.
- Assign individual or group works to create Pyleap projects and evaluate their work based on a rubric for assessment records.
- Allow students to share their Pyleap projects with friends for evaluation and feedback.
- Create and conduct quizzes on Pyleap coding using online tools such as Google Forms and Kahoot.
- Use rubrics to evaluate Pyleap projects submitted by students through the class online platform.
- Maintain a record of Pyleap projects that are created independently by students at home.

#### **Questions:**

1. What is PyLeap?
2. What are some of the exciting features of Pyleap?
3. Do you think coding in PyLeap would improve your mathematics skills?
4. What is the difference between coding in Pyleap and other programming languages?

## Resources:

1. **Pyleap:** The weblinks contain Pyleap documentation and relevant software for installation on the computers.
  - <http://cs.leaplearner.com/projects/pyleap/en/>
  - <https://software.leaplearner.com/>
  - <https://www.python.org/downloads/>
2. **Good Programming Practices:** The weblinks contain information of good programming practices and ways to fix errors in codes.
  - <https://www.topcoder.com/coding-best-practices/>
  - <https://blog.hartleybrody.com/debugging-code-beginner/>
  - [http://www.cs.rpi.edu/academics/courses/fall18/csci1200/Good\\_Programming\\_Practices.pdf](http://www.cs.rpi.edu/academics/courses/fall18/csci1200/Good_Programming_Practices.pdf)

# Class Eight

Students will be able to:

1. create engaging presentation materials to communicate their ideas effectively.
2. create a short theme-based video using video editing software to communicate a message creatively and appreciate the process of filmmaking.
3. avail online Government to Citizen (G2C) services for them and their parents and appreciate the government's initiative to foster fast and effective public services.
4. create and maintain a personal blog to express their thoughts, emotions and ideas.
5. maintain a positive digital identity and manage their digital footprint when exploring the Internet and communicating with others.
6. write codes to create interactive animations and games that will enhance creativity and develop coding skills.

## STRAND A – Technology Operation

**COMPETENCY 1:** Students will be able to create engaging presentation materials to communicate their ideas effectively.

### Overview:

Multimedia components such as images, videos, and audio play a critical part in presentations to communicate messages. In designing a great PowerPoint presentation, students need to learn to add multimedia elements to enhance the presentation.

At this stage, students will have to create presentations that are based on real-life situations such as presenting on educational field trips, summer vacations activities, creating awareness of cyberbullying, etc. Giving opportunities for students to present on relevant topics to a wider audience will help to build their confidence and communication skills.

Topics:	Key Stage Standard	Objectives	Time
<b>PowerPoint Presentation</b> <ul style="list-style-type: none"><li>• Adding multimedia.<ul style="list-style-type: none"><li>◦ image, video, audio</li></ul></li><li>• Adding visual effects.<ul style="list-style-type: none"><li>◦ transition, animation effects</li></ul></li><li>• Adding hyperlinks</li></ul>	A3.1 Design an effective presentation material using presentation software.	8-A3.1.1 Add multimedia and animation effects to enhance presentation material.	240 mins (6 periods)

### Learning experiences:

- Make a short PowerPoint presentation on relevant topics (“Evolving Bhutanese Culture”, “Dump yard in Thimphu”, “COVID-19 Safety Protocol”, “Meditation for Healthy Living”, etc.) incorporating the multimedia features (image, audio, video), animation and hyperlinks. Demonstrate the steps to add multimedia features in PowerPoint and ask students to follow.
- Show and explain the good design of multimedia elements in PowerPoint such as consistency of animation, quality of images, relevancy of videos, the layout of text, images and videos, and hyperlink features. Then ask students to add animations on multimedia in a PowerPoint presentation.
- Assign a project work in groups for students to create a PowerPoint presentation on a topic they have learned in Science, English, Dzongkha, or Mathematics. Instruct them to add images and videos from the Internet and apply appropriate animations and hyperlinks. Make each group present their work in the class.
- Ask students to browse the Internet for information on how to enhance PowerPoint presentations by adding multimedia, animations, and hyperlinks. Ask them to present their findings to the class.

- Create a short video tutorial on adding multimedia (image, video, and audio), animation, and hyperlinks in PowerPoint, and share it on the class online platform.
- Provide students with weblinks that have video tutorials on how to add multimedia, visual effects, and hyperlinks in PowerPoint presentations. Then, ask them to submit a presentation through the class online platform.
- Conduct a video conference through Zoom and Google Meet to demonstrate how to add multimedia, animation, and hyperlinks in PowerPoint presentations. Then ask students to practice on their own.

### **Assessment:**

- Evaluate the PowerPoint presentations prepared and presented by students individually or in groups by following a rubric.
- Observe and maintain a record of how students are participating and interacting with each other to learn how to create interesting PowerPoint presentations.
- Ask students to create a one-slide PowerPoint animation using the entrance, emphasis, exit, and motion effects on a relevant theme (water cycle, food chain, greenhouse effect) and evaluate it based on a rubric.
- Assign a task for students to create a quiz in PowerPoint using the hyperlink feature and conduct the quiz among the students in the class. Evaluate the quiz on both content and PowerPoint skills applied in the presentation.
- Evaluate PowerPoint presentations shared by students through the class online platform and provide gradings based on a rubric.
- Conduct video conferencing through Zoom or Google Meet to allow students to make their PowerPoint presentations on a relevant topic.

### **Questions:**

1. What is multimedia?
2. What makes your presentation engaging?
3. How do you use PowerPoint to share your ideas?
4. What are some of the benefits of adding animations and multimedia to a presentation?

### **Resources:**

1. **PowerPoint Presentation:** The weblinks explain how to add multimedia and enhance the design of PowerPoint slides.
  - <https://www.youtube.com/watch?v=wPbylymgQEs>
  - [https://www.youtube.com/watch?v=Vn\\_bR1AIV-s](https://www.youtube.com/watch?v=Vn_bR1AIV-s)
  - <https://www.bettercloud.com/monitor/the-academy/7-ways-to-enhance-your-powerpoint-presentation-with-multimedia/>
  - <https://business.tutsplus.com/tutorials/what-is-powerpoint-multimedia-presentation--cms-29332>

2. **Adding Visual Effects:** The weblinks have tutorials on how to add transitions and animation effects in PowerPoint presentation.
  - <https://www.youtube.com/watch?v=gGIMRszR8fA>
  - [https://www.youtube.com/watch?v=kw\\_udjD2xwo&ab\\_channel=GCFLearnFree.org](https://www.youtube.com/watch?v=kw_udjD2xwo&ab_channel=GCFLearnFree.org)
  - <https://business.tutsplus.com/articles/powerpoint-animation-tips-and-tricks--cms-27552>
3. **Adding Hyperlinks in PowerPoint:** The weblinks provide information on how to add hyperlinks to objects in PowerPoint slides.
  - <https://www.ispringsolutions.com/blog/how-to-add-a-hyperlink-to-a-powerpoint-presentation>
  - <https://edu.gcfglobal.org/en/powerpoint/links/1/>
4. **Rubrics to Assess Presentations:** The weblinks display the rubric for assessing PowerPoint presentations.
  - [www.teachersofindia.org/en/article/assessment-tool-rubric-assessing-powerpoint-presentation](http://www.teachersofindia.org/en/article/assessment-tool-rubric-assessing-powerpoint-presentation)
  - [http://www.hnhsd.org/teachers/wpcontent/uploads/2013/08/PowerPoint\\_Rubric.pdf](http://www.hnhsd.org/teachers/wpcontent/uploads/2013/08/PowerPoint_Rubric.pdf)

**COMPETENCY 2:** Students will be able to create a short theme-based video using a video editing software to communicate a message creatively and appreciate the process of filmmaking.

**Overview:**

Many of us watch videos regularly for education or entertainment using the Internet. Online video sharing platforms like YouTube have millions of active users daily. Becoming video content creators on YouTube platforms has brought enormous benefits in terms of finance, network, and positive impact on society.

From the early stage of schooling, students need to learn video editing skills to become content creators in the digital age. Under this competency, students will learn to record videos, edit them, and share them online for comments and feedback for improvement. They will learn to use basic video editing software or applications to create an engaging video based on a theme. They will be informed about the benefits of video editing and also inspire to create better content.

Topics	Key Stage Standard	Objectives	Time
<b>Editing Video</b> <ul style="list-style-type: none"> <li>Recording videos using different equipment - digital camera, webcam, mobile, etc.</li> <li>Transferring of recordings to computer - cable, wireless, memory card, etc.</li> <li>Video editing - import, effects, trim, captions, audio, publish, file formats, etc.</li> <li>Sharing videos online</li> <li>Project on video editing (Music video, social issues, study tips, etc.)</li> </ul>	A3.3 Produce a short video using video editing software.	8-A3.3.1 Add multimedia and video effects to create a short video using video editing software.	480 mins (12 periods)

### Learning experiences:

- Make a PowerPoint presentation on the importance of video-making skills in the digital world to express opinions, teach lessons, tell stories, record events, advertise things, and for possible job opportunities. Explain the process involved (planning, recording, editing, and sharing) and infrastructures (camera, mic, computers, software, speaker, etc.) required to make a video. Ask students to share their experiences of videos they liked and why.
- Demonstrate the process (planning, recording, editing, sharing) of making a short video on a relevant topic such as “21st century skills for Students”, “First Day in School”, and “Lockdown experiences in Bhutan” to the students. Use open-source software or applications to edit the videos. Then ask them to create videos in pairs or groups.
- Demonstrate how to edit a video using relevant tools (trim, crop, split, sequence, cut, paste, transition, titles, speed, colour, etc.) in a video editing software and allow students to practice these tools on their own.
- Share resources on video editing and ask students to come up with a short video in groups after referring to the resources.
- Assign a major project for students to create an awareness video on topics related to students such as “work hard to get promoted in school and life”, “good friends are key to happy school life”, “drugs take life before death”, “check what you see on social media”, “read to grow” and “value time”.
- Create and share video tutorials on recording, editing, and sharing a video through the class online platform. In the tutorial, show how to record videos using a digital camera or smartphone, edit videos using an open-source software or apps, and share the final video on the video-sharing platform like YouTube. Then ask students to create a short video.



- Share relevant online resources on video recording and editing through the class online platform for students to refer to and come up with their own videos.
- Initiate an online discussion on the class platform to discuss issues and challenges encountered by students in recording and editing videos. Encourage students to share their problems and suggest solutions to problems they have resolved.

### Assessment:

- Use projectors to show students' video to the class and evaluate it based on a rubric.
- Evaluate the videos submitted by students in groups by following criteria.
- Give a situation such as a student misusing information and bullying others through the Internet. Then ask them to create a video based on the situation. Evaluate and identify the best video for awarding prizes.
- Ask students to write a brief report using Google Docs or Word on their journey of learning to edit videos. Instruct them to reflect and share their challenges and learnings.
- Use a rubric to evaluate the video project submitted by students through the class online platform.

### Questions:

1. What are the processes involved in video editing?
2. How do you make your video interesting?
3. Do you think video editing skills could earn you a living?

### Resources:

1. **Video Editing:** The weblinks provide guides and tutorials on video making and editing.
  - <https://extension.colostate.edu/docs/comm/video-handbook2.pdf>
  - [https://www.youtube.com/watch?v=t6yQwLuoO3w&ab\\_channel=KevinStratvert](https://www.youtube.com/watch?v=t6yQwLuoO3w&ab_channel=KevinStratvert)
  - <https://www.youtube.com/watch?v=PCMcyYAtRzw>
  - [https://www.youtube.com/watch?v=30s-vPccI8A&list=PLWs4\\_NfqMtoxaZPPJpfbWfXZM6SRDQJ2b](https://www.youtube.com/watch?v=30s-vPccI8A&list=PLWs4_NfqMtoxaZPPJpfbWfXZM6SRDQJ2b)
2. **Video Editing Tools:** The weblinks provide the option to download free video editing tools.
  - <https://www.openshot.org/download/>
  - <https://inshot-editor.en.uptodown.com/android/download>
  - <https://shotcut.org/download/>
  - <http://www.videosoftdev.com/free-video-editor>
3. **Rubrics:** The weblinks provide the sample of rubrics to evaluate the video projects.
  - [https://www.liberty.edu/media/1251/Educators%20for%20tomorrow\\_rubric.pdf](https://www.liberty.edu/media/1251/Educators%20for%20tomorrow_rubric.pdf)
  - <https://www2.uwstout.edu/content/profdev/rubrics/videorubric.html>

## STRAND B - Communication and Collaboration

**COMPETENCY 3:** Students will be able to avail online Government to Citizen (G2C) services for them and their parents and appreciate the government's initiative to foster fast and effective public services.

### Overview:

Royal Government of Bhutan provides various online services to the citizens to ease the burden of time and resources in availing the services. Services related to census, taxes, transport, passport, education, employment, and others are provided through G2C initiative.

Students need to be informed about the online G2C services and make them avail the services related to census and education so that they understand and experience the benefits of G2C services. Further, teachers will have to provide opportunities for students to create awareness of the G2C service to their parents and communities.

Topics	Key Stage Standard	Objectives	Time
<b>Online Government Services</b> <ul style="list-style-type: none"><li>• Definition of Government to Citizen services</li><li>• G2C services in Bhutan<ul style="list-style-type: none"><li>◦ RSTA,</li><li>◦ Citizenship, Security clearance, Land tax, Passport</li></ul></li><li>• Benefits of G2C services to society</li><li>• Project - using G2C service<ul style="list-style-type: none"><li>◦ Supporting parents to use online services</li><li>◦ awareness on online services</li></ul></li></ul>	B3.1 Use search techniques to find information from the Internet.	8-B3.1.1 Use relevant online Government to Citizen services in Bhutan.	120 mins (3 periods)

### Learning experiences:

- Introduce online Government to Citizen services to the students and explain the list of services such as security clearance, RSTA, citizenship, land tax, passport and others. Allow students to explore the services through the G2C website and share their experiences.
- Make students visit the G2C website and initiate a discussion on what are the services available on the website and how these services will benefit the citizens of Bhutan.

- Demonstrate the use of the Census service on the G2C website to check your correct name, permanent address, and household number. Make students also check their personal information from the census.
- Arrange a role-play activity where a student is nominated as the ambassador of the G2C services representing the government. The other students act as common people without any knowledge of the services. Ask the ambassador and the people to interact and discuss the services and their benefits. Guide the students to realize the use of technology for fast and efficient services to people.
- Create a PowerPoint Presentation on online G2C services and share it on the class online platform for students to refer to and explore the services on their own.
- Conduct video conferences using Zoom and Google Meet to show and explain the different services that can be availed by the students and their parents. Inform students to share the information with their parents and help them avail of some of the services.
- Instruct students to help parents to install G2C apps on their mobile phones and explore the services.

#### **Assessment:**

- Ask students to maintain a list of services they or their parents have availed from the G2C website. Make them record the date and purpose of availing of the services and how it has benefitted them.
- Create an awareness poster or a video on G2C service to inform the general people about the services and how they can help to serve the citizens faster and better.
- Ask students to make a list of G2C services they have availed of or shared the information with parents, siblings, and neighbours. Instruct them to submit the list in the class online platform.
- Assign students to write a short report using Google Docs or Word on services available on the G2C website, and share it on the class online platform.

#### **Questions:**

1. Why would the government also provide services online?
2. What are some of the G2C services?
3. How will you reach out about the G2C services to people who are not aware of the services?
4. Find out how many of your friends have used the G2C services and request them to share their experiences of availing of the services.

#### **Resources:**

1. **G2C Services:** The weblinks provide the information and resources on G2C services.
  - <https://www.citizenservices.gov.bt/web/guest/home>
  - <https://core.ac.uk/download/pdf/11241963.pdf>

**COMPETENCY 4:** Students will be able to create and maintain a personal blog to express their thoughts, emotions, and ideas.

**Overview:**

The access to the Internet and availability of multiple platforms to express an individual’s ideas and experiences provide a great opportunity for students to connect and express themselves. Blogging is one such platform where students can maintain a diary-style journal, referred to as posts, to express their opinions, feeling, and experiences.

Providing opportunities for students to maintain a personal blog on Bloggers or WordPress allow them to enhance their writing and communication skills. English teachers may ask students to write blog posts as part of their writing assignments and make other students drop comments and feedback. The experience of maintaining a blog at this stage will help students connect with like-minded people and inform them about the benefits of blogging in the long run.

Topics	Key Stage Standard	Objectives	Time
<p><b>Maintaining a Blog</b></p> <ul style="list-style-type: none"> <li>● Definition of a blog and blogger</li> <li>● Examples of popular local and foreign blogs.</li> <li>● Features of a blog (post, multimedia, share, comments)</li> <li>● Creating and maintaining a personal blog (Blogger, WordPress, etc.)</li> <li>● Video blog (vlog) - examples</li> <li>● Practices of a good blogger</li> <li>● Project - Maintaining a personal blog</li> </ul>	B3.2 Maintain personal blogs to enhance learning.	8-B3.2.1 Create a personal blog on topics of interest.	200 mins (5 periods)

**Learning experiences:**

- Create a PowerPoint presentation on the definition of blogs, bloggers, and the purpose of maintaining a blog in the digital world. Give some examples of top national and international bloggers, and explain how their blogs are reaching out to people across the world.
- Demonstrate how to create a blog using free hosting sites such as Bloggers or WordPress and make students follow the steps to create their own blogs. Show them how to select a theme, add images and write their opinions to make their first blog post. Ask the students to share their blogs and make comments on others' blog posts.
- Show some examples of different types of blogs (food, technology, news, travel, fitness, fashion, education, music, etc.) and ask students to observe and list some of the common

elements (images, personal narrative, attractive themes, good write-ups, acknowledging others works, etc.) in these blogs.

- Instruct students to explore the Internet to look for an idea or topic and gather relevant images to write a post on their blog. Ask them to share their blog and comment on their friends' blogs.
- Share weblinks and resources on creating and maintaining a blog in Bloggers or WordPress. Ask them to create their blogs and share them on the class online platform.
- Assign a task for students to blog about their summer vacation or a recent trip to a new place and share it on the class online platform for comments and feedback.

### **Assessment:**

- Evaluate blogs posted by students based on the quality of content and multimedia elements that are used to enhance the content. Record the number of blogs posted by each student within a month.
- Observe and list the comments and suggestions made by students on other blogs. The list will show students' participation and contribution to the online forum.
- Evaluate the blogs maintained by students and shared through the class online platform using a rubric.
- Assign students to write a blog post on their experience of starting and maintaining a blog and share it on the online class platform. Evaluate the post based on a rubric.

### **Questions:**

1. What is blogging?
2. What are the benefits of blogging?
3. Make a plan to create your own blog.
4. Mention some of the popular Bhutanese bloggers. What are the reasons for their popularity?

### **Resources:**

1. **Introduction to Blogging:** The weblinks provide information on blogging and how to create and maintain a personal blog in Bloggers or WordPress.
  - <https://firstsiteguide.com/what-is-blog/>
  - <https://moz.com/beginners-guide-to-social-media/blogging>
  - <https://www.wpbeginner.com/start-a-wordpress-blog/>
  - <https://www.instructables.com/Creating-a-Blog-using-Bloggercom/>
  - <https://neilpatel.com/blog/the-ultimate-guide-to-writing-blog-posts-that-rank-in-googles-top-10/>

2. **Examples of Popular Bhutanese Blogs:** The weblinks are blogs maintained by popular Bhutanese bloggers.
  - <https://www.passudiary.com/>
  - <https://denkarsgetaway.com/>
  - <https://dorji-wangchuk.com/>
  - <http://www.phubdorjiwang.com/>
  
3. **Rubrics:** The weblinks provides rubrics for evaluating student blogs and also creating and using rubrics for assessment.
  - <https://www2.uwstout.edu/content/profdev/rubrics/blogrubric.html>
  - [https://www.ffc8.org/cms/lib/CO01900636/Centricity/Domain/728/21\\_Blog\\_Rubric.pdf](https://www.ffc8.org/cms/lib/CO01900636/Centricity/Domain/728/21_Blog_Rubric.pdf)
  - <https://timhorgan.files.wordpress.com/2011/02/blogging-rubric.pdf>

## STRAND C – Safety and Ethics

**COMPETENCY 5:** Students will be able to maintain a positive digital identity and manage their digital footprint when exploring the Internet and communicating with others.

### **Overview:**

Maintaining a positive digital identity has become very important in terms of finding a job or connecting with the right people or community. The digital identity of a person is any personal data existing online that can be traced back to that person. Some examples of a person’s digital identity are photos he uploaded to social media, posts or comments he wrote, his online bank accounts, and even his search engine history.

Through the lessons on digital identity and digital footprint, students will be informed about the benefits of a positive digital identity and how to maintain one. They will evaluate their digital identity and look for ways to improve or develop a good digital identity.

Topics	Key Stage Standard	Objectives	Time
<b>Positive Online Identity</b> <ul style="list-style-type: none"> <li>• Definition of positive online identity</li> <li>• Benefits of maintaining positive online identity</li> <li>• Ways to maintain positive online identity.               <ul style="list-style-type: none"> <li>○ posts, share links, comments, language, online friends, avoid sharing fake news or rumours, etc.</li> </ul> </li> </ul>	C3.2 Follow ways to maintain positive online behaviour and identity	8-C3.2.1 Adopt ways to maintain positive online identity.  8-C3.2.2 Explain the effect of digital footprint.	160 mins (4 periods)

<ul style="list-style-type: none"> <li>● Project - Evaluating your online identity</li> </ul> <p><b>Managing Digital Footprint</b></p> <ul style="list-style-type: none"> <li>● Definition of digital footprint</li> <li>● Impacts of digital footprint <ul style="list-style-type: none"> <li>○ relationships and career prospects</li> </ul> </li> <li>● Ways to reduce negative digital footprints</li> <li>● Project - Checking your digital footprint</li> </ul>			
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**Pedagogy:**

- Create a PowerPoint presentation on what is Digital Identity and why we should maintain a positive digital identity as regular consumers of digital information and services. Explain the ways to maintain a positive digital identity on the Internet. Ask students to take notes and check their digital identity by searching their names on the Internet.
- Initiate a class discussion where students share how they interact on social media like Facebook and other online platforms. Tell them to share their last three posts or comments made on social media, and ask them to analyse or reflect on how others would have felt about them based on those posts or comments.
- Assign a project work where students explore the Internet to search for information on online identity and digital footprint. Ask them to list the measures to maintain a positive online identity and make a presentation to the class.
- Let students evaluate their friends' social media accounts and find out whether their accounts show positive or negative online identities. Ask them to give suggestions to each other on how to improve their online identity.
- Share relevant online resources (video, images, or weblinks) on ways to maintain a positive online identity for students to explore more and learn on their own.
- Prepare a PowerPoint presentation to explain the digital footprint and its impacts on individuals in the real world. Share stories and real-life situations where digital identity and digital footprints have impacted people in terms of job, promotion, relationships, business, and others.
- Create a video lesson on positive online identity and its benefits in both the digital and real-world, and share it on the class online platform. Instruct students to check their digital identity and reflect on how to develop a positive online profile.
- Share weblinks on digital footprint and its impacts on individuals through the class online platform. Ask them to share information on their digital footprints with their siblings and parents.

- Conduct a video conference through Zoom or Google Meet on online identity and digital footprint, and ask students to check their digital identity.

### Assessment:

- Ask students to make a presentation of their research on online identity and digital footprint. Evaluate the presentation on the content and explanation.
- Make students create a poster or video on digital footprint and evaluate the work based on a rubric.
- Give a set of questions (MCQ, matching, short questions, fill in the blanks, true or false) on why we should maintain a positive digital identity and digital footprint in the digital world.
- Ask students to write a blog on how to maintain a positive digital identity. Evaluate the blog based on the content and use of relevant multimedia.
- Conduct an online quiz using Google Forms or Kahoot on digital identity and digital footprint. Record their scores in the class online platform.
- Maintain records of students' participation in online discussions on digital identity and digital footprints.

### Questions:

1. How can you maintain a positive online identity?
2. How could people misuse your digital footprint?
3. Come up with a plan of action to inform your community about the digital footprint and the importance of maintaining a positive online identity.

### Resources:

1. **Positive Online Identity:** The weblinks provide information on positive online identity.
  - <https://www.jumio.com/what-is-a-digital-identity/>
  - <https://www.learninghub.ac.nz/developing-an-online-identity/>
  - [http://uploads.weconnect.com/mce/d5155d043a8e6ffa4385a64df15a176f4752551/school/147-15\\_ISTE\\_2015\\_EdTekWhitepaper\\_Student\\_Identity.pdf](http://uploads.weconnect.com/mce/d5155d043a8e6ffa4385a64df15a176f4752551/school/147-15_ISTE_2015_EdTekWhitepaper_Student_Identity.pdf)
  - <https://www.youtube.com/watch?v=uJzuDcyR0WM>
2. **Digital Footprint:** The weblinks provide documents and videos on the digital footprint.
  - <https://blog.reputationx.com/digital-footprint>
  - [https://www.internetsociety.org/wp-content/uploads/tutorials/What\\_is\\_a\\_Digital\\_Footprint/presentation\\_content/external\\_files/What\\_is\\_a\\_Digital\\_Footprint.pdf](https://www.internetsociety.org/wp-content/uploads/tutorials/What_is_a_Digital_Footprint/presentation_content/external_files/What_is_a_Digital_Footprint.pdf)
  - <https://www.internetsociety.org/wp-content/uploads/2017/08/Digital20Footprints20-20An20Internet20Society20Reference20Framework.pdf>
  - <https://us.norton.com/internetsecurity-privacy-clean-up-online-digital-footprint.html>
  - <https://au.hudson.com/insights/article/how-to-manage-your-digital-footprint>



- <https://www.youtube.com/watch?v=7bRZdUtmH8k>
- <https://www.abc.net.au/cm/lb/11131352/data/digital-footprint-%25E2%2580%2593-teacher-resource-%28pdf%29-data.pdf>

## STRAND D – Coding

**COMPETENCY 6:** Students will be able to write codes to create interactive animations and games that will enhance creativity and develop coding skills.

### Overview:

With the advancement in technology over the years, the ability to code has become increasingly important. Coding help students develop their analytical skills and problem-solving abilities. Through coding in schools to create animations and games, students get involved in groups to expand their logical and algorithmic thinking.

Through the development of games and animation using a programming language/platform such as Pyleap, Scratch, or CodeMonkey, students get informed about computer science and coding concepts in particular. They will learn about variables, loops, lists, objects, functions, events, and others in doing game and animation projects. Such projects will widen their understanding of game development and ignite them to think of pursuing careers as animators and game developers.

Topics	Key Stage Standard	Objectives	Time
<b>Interactive Projects in Pyleap</b> <ul style="list-style-type: none"> <li>• x, y attributes</li> <li>• Loop, Increment</li> <li>• Condition - use conditions to keep objects within the Pyleap window.</li> <li>• Collision - collide()</li> <li>• Opacity – setting visibility</li> <li>• List - using lists to create a complex drawing and apply colours</li> <li>• Function <ul style="list-style-type: none"> <li>○ Defining function, calling function</li> <li>○ Restart option, stop()</li> </ul> </li> <li>• Variable <ul style="list-style-type: none"> <li>○ Local and global variable</li> <li>○ Variable naming convention</li> <li>○ Creating score</li> </ul> </li> <li>• Mouse events <ul style="list-style-type: none"> <li>○ on_move(), on_press(), on_release(),</li> </ul> </li> </ul>	D3.1 Uses a GUI library of a programming language to create an animation.  D3.2 Use a GUI library of a programming language to create an event-based interactive project.	8-D3.2.1 Apply functions in an interactive project.  8-D3.2.2 Use multiple events to add interactivity to a game.	2400 mins (60 periods)

<ul style="list-style-type: none"> <li> <ul style="list-style-type: none"> <li>on_right_press(),</li> <li>on_right_release(),</li> </ul> </li> <li>• Keyboard events <ul style="list-style-type: none"> <li>○ key.keyname.on_press()</li> <li>○ key.keyname.on_release()</li> </ul> </li> <li>• Random module - choice(), randint(), etc.</li> <li>• Major Project in Pyleap</li> </ul>			
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**Learning experiences:**

- Demonstrate Pyleap projects (drawings, games, animations) that use lists, loops and opacity. Then, guide students to create similar projects. Ask them to think of new ideas or concepts they learned in other subjects to express their creativity through coding.
- Make a PowerPoint presentation to explain variables, conditions and collisions in Pyleap. Demonstrate a project incorporating these elements and let students develop a project.
- Demonstrate a game that uses key and mouse events, functions, and random modules. Divide students into groups and ask them to develop a similar game. Guide them to follow good programming practices such as planning, writing algorithms, putting comments, and testing in chunks.
- Share project ideas on creating animations and games in Pyleap such as car racing, maze games, music player, water cycle, and calculator. Let students choose an idea and ask them to code in Pyleap. Support them to create the project by making them collaborate with friends and explore the Internet. Then, ask them to present their work in the class.
- Give a presentation on the importance of following good programming practices while developing projects in Pyleap. Inform that these practices will help them to become better coders and can handle bigger coding projects in the future.
- Create and share video tutorials on how to create Pyleap animations or games that require mouse or keyboard events. Ask students to create a game or animation and submit it within a week.
- Share a video lesson on using variables and lists in Pyleap projects. In the video, explain the difference between the two with examples. Then, ask students to create a simple Pyleap animation that incorporates lists and variables.
- Conduct video conferences using Zoom or Google Meet to explain functions and control flow structures to decompose programs in Pyleap. Then, ask students to complete a Pyleap task that uses functions and control flow structures.
- Share weblinks and materials on different ideas to create animations and games in Pyleap through the class online platform. Let students explore those ideas and ask them to come up with a Pyleap project.

**Assessment:**

- Evaluate students' Pyleap projects based on a rubric.
- Conduct class tests to check students' understanding of coding concepts in Pyleap.
- Conduct practical tests on Pyleap to assess students' coding knowledge and skills.
- Organize coding competitions in the class or school to enhance creativity and motivate students to celebrate coding. Award scores and prizes.
- Use online interactive assessment tools such as Kahoot and Triventy to conduct quizzes in the class in an engaging and fun way.
- Assign a major project in Pyleap to complete individually at the end of the term. An exhibition may be conducted in the school on students' projects for other teachers and students to appreciate and promote coding. Evaluate the projects based on a rubric and record the mark for reflection in the progress report.
- Ask students to submit their Pyleap projects on the class online platform. Assess their work based on a rubric. Identify some of the best projects and share it with other students for comments and sharing ideas.
- Keep a record of the number of Pyleap projects submitted by students through the class online platform. Evaluate the projects based on a rubric.
- Ask students to make a presentation of their Pyleap projects to the class through a video conferencing platform such as Zoom and Google Meet. Evaluate their work based on a rubric.
- Assign a task to students to write about their Pyleap coding experience using Google Docs or Word. Ask them to reflect on the challenges they faced and how they managed to overcome the challenges and became better coders. Use a rubric to evaluate the work.
- Ask students to maintain a blog using Bloggers or WordPress to journal their coding journey. Encourage them to write regularly and use relevant multimedia (images and videos) to express their reflections creatively. Evaluate their blog based on both the quantity and quality of the blog posts.

**Questions:**

1. Compare animation and game development in PyLeap.
2. Do you believe that game development would enhance your creativity?
3. List some of the important features of PyLeap critical for game development.
4. How did the development of games and animation in Pyleap help you to improve your thinking and problem-solving skills?

**Resources:**

1. **Pyleap:** The weblinks contain Pyleap documentation and relevant software.
  - <http://cs.leaplearner.com/projects/pyleap/en/>

- <https://software.leaplearner.com/>
  - <https://www.python.org/downloads/>
2. **Rubrics:** The weblinks provide sample rubrics to evaluate coding projects.
- [https://assessment.fiu.edu/resources/rubrics-and-curriculum-maps/\\_assets/rubrics/Computer%20Programming%20Grading%20Rubric%20-%20California%20State%20University%20Long%20Beach.pdf](https://assessment.fiu.edu/resources/rubrics-and-curriculum-maps/_assets/rubrics/Computer%20Programming%20Grading%20Rubric%20-%20California%20State%20University%20Long%20Beach.pdf)
  - <https://matthew-brett.github.io/cfd2019/projects/rubric>
  - <https://www.rcampus.com/rubricshowc.cfm?sp=yes&code=NX4B34B&>
  - <https://cdn-educators.brainpop.com/wp-content/uploads/2017/06/CreativeCodingRubric.docx.pdf>
3. **Good Programming Practices:** The weblinks contain information on good programming practices to become better programmers.
- <https://www.artima.com/weblogs/viewpost.jsp?thread=331531>
  - <https://www.topcoder.com/coding-best-practices/>
  - <https://dzone.com/articles/13-practices-that-make-you-a-good-programmer>

## Annexure

### Annexure 1: Class-wise period and time allocation

The period allocation for classes PP to XII ICT curriculum are as per the revised instructional time allocation notified by the Ministry of Education in March 2020.

<b>Class</b>	<b>No. of Periods per Week (40 mins per period)</b>	<b>Total Period in Year (30 weeks)</b>	<b>Total Time (in mins)</b>
PP	2	60	2400
I	2	60	2400
II	2	60	2400
III	2	60	2400
IV	2	60	2400
V	2	60	2400
VI	2	60	2400
VII	3	90	3600
VIII	3	90	3600
IX	3	90	3600
X	3	90	3600
XI	3	90	3600
XII	3	90	3600

## Annexure 2: Key stage-wise assessment matrix

The table below provides an overview of assessment weighting for five key stages. Assessment at each key stage is broken down into four modes of assessment as specified in the ICT Curriculum Framework.

Sl#	Assessment Area	Mode	Classes PP-III	Classes IV-VI	Classes VII-VIII	Classes IX-X	Classes XI-XII
			Weighting %	Weighting %	Weighting %	Weighting %	Weighting %
1	Participation and completion of classwork. (face-to-face or online) <i>(Formative assessment)</i>	Observation, Conversation	10	10	10	10	10
2	Participation and completion of homework. (face-to-face or online) <i>(Formative assessment)</i>	Observation, Conversation	10	10	10	10	10
3	Planning, research, documentation, creation and presentation of digital artefacts including coding projects. <i>(Formative assessment)</i>	Assessment of Digital Artefacts	80	60	50	40	30
4	Theory and/or Practical Test (unit, mid-term and annual exams) <i>(Summative assessment)</i>	Testing	0	20	30	40	50
Total			100	100	100	100	100

### Annexure 3: Breakdown of assessment weightings in two terms

The table below provides the breakdown of weightings in four areas of ICT assessment for two terms. ICT teachers are required to keep daily records of observations and conversations with learners during and after school, provide projects or tasks to create digital content, and conduct examinations at the end of each term.

Key Stage	TERM I				TERM II			
	Class Activity (observation & conversation)	Home Activity (observation & conversation)	Digital Artefacts (digital products)	Testing (examinations)	Class Activity (observation & conversation)	Home Activity (observation & conversation)	Digital Artefacts (digital products)	Testing (examinations)
I	CFA			-	CFA			-
II	5	5	20	10	5	5	40	10
III	5	5	20	10	5	5	30	20
IV	5	5	10	20	5	5	30	20
V	5	5	10	20	5	5	20	30

### Annexure 4: Progress report format for key stage III

At the end of the year, students' record of formative and summative assessment in ICT will be reflected in the progress report given below. To complete the report, ICT teachers are required to maintain a record of assessments carried out through observation, conversation, digital artefacts and testing in two terms.

SUBJECT WISE ACADEMIC TRANSCRIPT							
Subject	TERM I			TERM II			GRAND TOTAL (Total I + Total II)
	CA	Mid Term Examination	Total I	CA	Annual Examination	Total II	
Dzongkha							
English							
Mathematics							
ICT							
General Science							
History							
Geography							
	Percentage			Percentage			
	Position			Position			
	Attendance			Attendance			
	Total no. of students			Total no. of students			
Signature of Parent/Guardian:				Signature of Parent/Guardian:			
Signature of Class Teacher:				Signature of Class Teacher:			
The detailed criteria for the continuous assessment (CA) and the examinations for each subject should be based on the guidelines provided in the syllabus/guidebook for each subject.							



## Annexure 5: Sample digital artefact with rubric

### SAMPLE DIGITAL ARTEFACT ICT Curriculum | Class VII

**Title:** Colourful Dzong

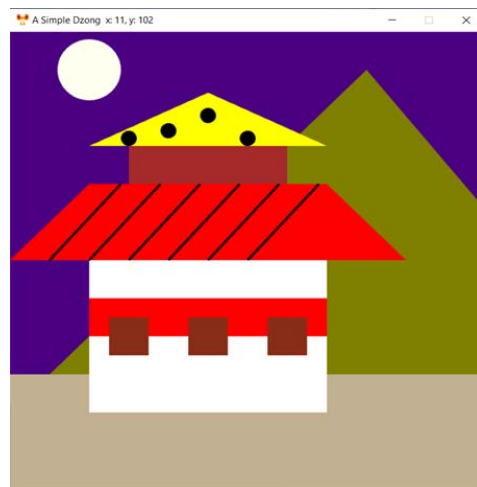
**Artefact Number:** 1

**Tools to be used:** Pyleap Coding

**Objective:** Use drawing methods in Pyleap coding to draw a Dzong.

**Instruction:**

1. Refer to chapter four of your Bhutan History textbook on *Dzongs – Centres and Administration and Religion* to get information on Dzongs in Bhutan.
2. Select one of the Dzongs from the list and draw the Dzong using Pyleap coding.
3. Use Pyleap methods to add colours and shapes and make the Dzong look better and similar.
4. Save the work. The teacher may project the drawings on the screen.



**Assessment Rubric**

Area	1	2	3	Score
<b>Shapes</b>	Less than 3 different shapes are used in the drawing	Less than 5 different shapes are used in the drawing	More than 5 different shapes are used in the drawing.	
<b>Code</b>	Few coordinates are set correctly. No comments are used in the code	Most coordinates are set logically and correctly. No comments are used in the code	All coordinates are set logically and correctly. Comments are used in the code	
<b>Colours in the drawing</b>	Less than 3 colours are used in the drawing.	Less than 5 colours are used in the drawing.	More than 5 colours are used in the drawing	
<b>Creativity</b>	No element of creativity is seen. Only common shapes have been used	Some elements of creativity are seen. Some unique shapes are used.	Unique and creative ideas are used. Different shapes are used to make the drawing realistic.	
<b>The overall look and design of Dzong</b>	The drawing is incomplete. Disoriented shapes. Poor colour choice.	The drawing is complete. Few shapes are not arranged properly. Few colours are not relevant.	The drawing is complete and visually attractive. Perfect arrangement of shapes and good choice of colours.	
<b>Total</b>				