

Learning in the Digital Age



Midlothian Council's Strategy for Digital Learning

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CONTENTS	Page
Purpose and Aim	2
Midlothian’s Vision for Digital Learning	2
Strategy for Digital Learning	2
Consultation and Research	2
Executive Summary	3
Curriculum, Learning and Teaching	5
Leadership and Professional Learning	10
Digital Participation	12
Infrastructure	14
Implementation and Measures of Success	15
Timescales and Milestones	16
Appendix	17



LEARNING IN THE DIGITAL AGE

(a) Purpose and Aim

This document presents Midlothian's vision for learning in the digital age. It sets out our strategy for ensuring that today's learners are equipped with the confidence and skills required for learning, life and work in the 21st century.

(b) Midlothian's Vision for Digital Learning

Midlothian will take full advantage of the opportunities offered by technology to equip our children and young people with the knowledge and digital skills essential for learning, life and work in the 21st century.

(c) Strategy for Digital Learning

Midlothian's Digital Learning strategy is central to the Council's aim of delivering a world class education system. It is closely aligned with Scottish Government's policy and advice on digital learning and it also articulates with key national and local priorities including:

- Scotland's National Improvement Framework for Education (2016)
- The Scottish Attainment Challenge (2016)
- Midlothian's *Delivering Excellence* programme
- Visible Learning

Midlothian's strategy covers 4 key aspects associated with learning in the digital age:

1. Curriculum, learning and teaching
2. Leadership and professional learning
3. Digital participation
4. Infrastructure

In each of these areas we review some of the key considerations, and identify what needs to be done to implement our vision for learning in the digital age.

(d) Consultation and Research

In developing our vision and strategy for learning in the digital age, Midlothian carried out an extensive consultation to establish the views of a wide range of stakeholders including education professionals and classroom practitioners, school leaders, parents, children and young people.

We also sought the views of some of the leading voices in digital learning both nationally and internationally and reviewed the work of other local authorities in this field. We held a series of focus group sessions where we captured many different perspectives, and feedback from stakeholders has helped to shape our vision for digital learning.

Executive Summary

- a) Digital technology is embedded in all aspects of modern life. Today, children, young people, and adults have access to technologies that are transforming how they connect, share, work and play in innovative and exciting new ways. From the rapid growth of the Internet, online services and social networks, to the development of a wide variety of mobile devices and applications, digital technologies offer tremendous opportunities for education.
- b) Innovative use of technology transforms learning and improves educational outcomes for young people. In our schools teachers and learners are making increased use of technology to engage in dynamic learning experiences involving exploration, discovery, collaboration and creation. Learners can access an ever-increasing range of digital tools, resources, and environments that support learning; they can collaborate with others learners far and wide, and learn in a personalised style that best suits their individual needs.
- c) Teachers and other practitioners can access a broad range of resources; network with fellow professionals; collaborate and share approaches to practice; and personalise teaching strategies and methodologies to match specific learner needs.
- d) Midlothian's schools have already embraced a broad range of technologies which support learning and teaching. Learners and teachers are developing skills in using computer programs and software, iPads, digital cameras, robots and web-based applications. The development of Glow (Scotland's online education intranet), Google apps and other web-based tools has created a new and exciting landscape for digital learning which promotes creativity and innovation in schools.
- e) Although the use of learning technology in Scottish schools has grown rapidly in recent years, the prevailing strategy has been for education authorities to determine and provide the technology required, and for teachers and learners to adapt classroom practice accordingly. We have, however, reached a point where learning technology is now so integral to the work of our schools that our teachers and learners require increased flexibility in determining the nature of that technology and how it is deployed.
- f) While decisions about the nature and deployment of technology are important, the key challenge lies in ensuring that Midlothian's young people are equipped with the digital skills required for a rapidly changing world. In the years ahead there needs to be greater focus on the digital skills that young people require to support their learning and to ensure a successful transition to life and work beyond school.
- g) Our schools need to ensure that the curriculum is fit for purpose in the digital age. The development of digital learning should be systematically planned and evaluated, at both school and education authority levels.
- h) As a Council, we need to continue to encourage innovation and embrace new and emerging learning technologies. Technology is changing how young people learn and our classrooms and learning spaces need to more fully reflect this. Learning and

teaching should make increased use of mobile technologies, including tablets, netbooks and smart phones, thus facilitating more flexible approaches to learning. Increasingly it is for teachers and learners to determine which solution is best for the learning activity and select the technology which is most appropriate. This means that schools need to have increased ownership over decisions relating to technology, requiring a move away from providing education establishments with a standardised suite of digital technology to a more flexible 'one-size-fits-one' approach.

- i) Technology can provide a catalyst and a mechanism for improving parental engagement and help to bridge the gap between home and school. Schools should actively encourage the use of social technology to communicate with parents and to share pupils' work and achievements. Although this strategy focuses mainly on the work of schools, there is no doubt that digital technology also has a crucial part to play in family learning and adult education, and it is an increasingly important component of lifelong learning and employability.
- j) In the years ahead it is expected that schools will take increased ownership over decisions relating to technology. Schools should, however, continue to work in partnership with the authority with regard to the provision of digital technologies and to ensure adequate technical support. Midlothian should also seek to work collaboratively with neighbouring education authorities to share expertise and maximise the efficiency and effectiveness of service.
- k) Digital learning must be a key aspect of the professional learning of all staff. We need to support teachers in identifying the benefits of using technology to improve pupil learning and staff should be able to access high quality training in the leadership and application of digital learning. Schools should also adopt a 'digital by default' approach to the production of educational content and resources.
- l) It is also important to recognise that many children possess a powerful computer, tablet or smartphone of their own, but the use of personal devices is often prohibited within schools. This is a situation that needs to change in order to help our children fully develop the range of digital skills they require. Learners and teachers should be able to connect their own technology to school wifi networks to support learning and teaching (usually referred to as *Bring-your-own-Technology*). It is important, however, to ensure that all learners are able to access technologies that support learning, irrespective of socio economic background. Ensuring digital participation is central to Midlothian's vision for digital learning.
- m) We must also ensure that teachers and learners benefit from a broadband infrastructure and school networking system capable of meeting the increasing demands placed upon them. This means having sufficient bandwidth to our establishments, robust and reliable wifi networks within school buildings, and easily accessible technical support.

1. CURRICULUM, LEARNING & TEACHING

(a) Digital Literacy Skills

Digital literacy means having the knowledge and ability to use a range of digital technology tools and media for varied purposes. A digitally literate person can use technology to find and evaluate information, connect and collaborate with others, produce, share and present digital content, ideas and knowledge, and use the Internet and technology tools to achieve academic and personal goals.

Digital literacy is much more than being able to use a computer. It's about knowing when and why digital technologies are appropriate and helpful to the task at hand and when they are not. It's about cultural and social awareness and understanding, and it's also about being creative. The skills associated with digital literacy can be classified under 6 headings.

- Creativity
- Collaboration
- Communication
- Research and Finding Information
- Critical Thinking and Evaluation
- eSafety

Feedback from employers and further/higher education indicates a skills gap when it comes to programming and coding. In the years ahead we need to promote software development, computing science and the skills associated with coding in primary and secondary schools. The promotion of digital skills for learning, life and work in our schools is at the heart of our vision and strategy for digital learning. These skills are elaborated more fully in Appendix 1.

(b) Integrating Personal Technologies

Many learners arrive in school with more computing power on their person than the school is able to provide in the classroom. There is a strong educational argument for enabling pupils to use personal technology devices to support their learning by connecting to the school's wifi network and online learning platforms such as Glow. This connectivity and integration personal devices already happens in many schools throughout the UK and is commonplace in further and higher education

The ICT in Education Excellence Group Report (2013) concluded that there are no significant technical barriers to a connecting learners' own technology in Scottish schools, and that the barriers that do exist are social, organisational and managerial. The majority of pilot studies worldwide show that this has resulted in positive experiences for learners.

Such a policy assumes that the majority of pupils will own their own internet-enabled device and that they are willing to bring it to school and use it for schoolwork. Of course, there will be pupils who for financial or personal reasons do not own a suitable device; and there may be others who own a device but are unwilling to use it in a school context. To address this

issue, and to ensure digital participation for learners from less affluent communities, schools must have a pool of suitable devices for pupils to borrow.

An increasing number of teachers are immersed in digital technology throughout their working and home lives. The technology they use is often much more powerful and their applications more integrated than the devices which are provided in schools. Teaching staff would benefit from being able to integrate their own technology into the classroom and use their devices as part of their teaching. This would also improve the learning experiences of pupils. There is, however, a need to ensure adequate separation and protection for data that must be secure, for example the administrative functions associated with SEEMIS.

If learners and teachers are able to connect their own devices, over time the level of technology required by schools will be significantly reduced. This does not mean that Midlothian Council will stop purchasing and replenishing technology. Schools will continue to require a range of desktops, laptops, netbooks and tablets, the quantity of which depending on the volume and suitability of learners' own devices.

This policy also raises questions about the criterion for lending devices to pupils; about the responsibilities of pupils who borrow a school device, and also about the operational management of both pupil and teacher-owned devices in the classroom. The key technical issue that has to be addressed is the provision of universal wireless network access to the Internet for all schools. This has cost implications, implications for network support and for the broadband capability provided to the school as a whole.

Although there are operational and technical issues relating to learners and teachers connecting their own technology, these are outweighed by the potential significant gains to learning and pupil achievement. The significantly reduced requirement for annual purchasing and replacement of devices will also reduce that financial burden on the Council and allow financial resources to be reallocated to infrastructure – in particular increasing bandwidth and improving wifi networks.

This connectivity is therefore central to our vision and our digital learning strategy.

(c) Emerging Technologies

In some education authorities the technology provided for schools is standardised, ie teachers and learners are provided with an almost identical suite of digital hardware and resources. The rationale for this is to ensure that there is a baseline ICT provision for all pupils, regardless of which establishment they attend and standardisation also makes it easier to manage technical support for schools.

Standardisation, however, places restrictions on creativity and innovation in schools. Many teachers, learners and school leaders believe that schools require more autonomy when it comes to making decisions about which devices, programmes and apps to use to support day-to-day classroom activities. Learners and teachers need to experiment with software and hardware and use technology in innovative ways. It is therefore increasingly important

that schools are able to diversify and embrace emerging technology to explore new ways of learning and teaching.

The most significant change in the technology landscape in schools in recent years has been the increased use of mobile technology including tablets and netbooks. This allows the technology to come to the learner rather than learner to technology. It facilitates a greater number of devices for the same overhead costs and offers new and more flexible ways of working in and around the classroom.

In the near future there will be changes in the way that teachers use technology within day to day learning and teaching. Traditionally teachers share/cast content from a laptop or desktop computer to a large single display (eg a whiteboard) in their classrooms. Technology is now available that allows the teacher to share/cast content to multiple pupil devices, with interactivity taking place on the device instead of solely on the class whiteboard. Learners can also share content with other devices including those belonging to their classmates. In the years ahead this is likely to be an integral feature of digital learning, particularly with the increase in the deployment of mobile technology in schools.

(d) Collaboration

The Scottish Government in partnership with Education Scotland and Midlothian Council provides connectivity to the Glow learning environment for all school-aged learners and teachers. Glow is not the only learning platform, but it is free to schools, offers unlimited storage and contains a wide range of digital tools and resources for teachers and learners to share content and collaborate beyond the walls of their own establishment.

Teachers need to adopt a 'digital by default' approach to the creation and use of learning resources. This requires a change in thinking so that digital becomes the default format for sharing learning activities and resources with learners. The availability of digital versions helps many young people access the curriculum more effectively, for example learners with additional support needs and those unable to attend school. Where resources are being digitized locally, it is essential that the work is shared and not repeated across schools.

(e) Online Security and Safety

Beyond Glow there are many Internet based resources and services that support learning and teaching, for example Google Classroom, Edmodo and Class Dojo. The requirement of schools to carry out privacy impact assessments and a risk assessment on data security and protection, however, makes access to such resources challenging. Although the Headteacher retains the overall responsibility for data protection, the Council should support schools in carrying out the necessary processes and documentation to access the most popular internet services.

Content filtering is essential in any school environment but it must be fit for purpose. Too rigid and it can stifle creativity and reduce access to content essential for learning. Too loose and it risks allowing inappropriate content. Midlothian teachers have always made decisions about content filtering in conjunction with the school and with advice from the

Council's Learning Technology Service. Introducing greater flexibility for schools to adjust filters is an important step in ensuring that decisions relating to online content are supervised primarily by curriculum specialists.

Schools should continue to deliver e-Safety education and ensure that young people know how to stay safe online. The use of single sign-on where possible, and improvements to password protocols enhances online security and delivers a more satisfactory user experience.

ACTIONS

- 1 Schools must ensure that the curriculum is fit for purpose in the digital age. They should continuously review the delivery of digital literacy skills to ensure that learners are developing digital skills for learning, life and work.**
- 2 Midlothian should enable learners and teachers to connect personal devices to school wifi networks as part of day-to-day learning and teaching.**
- 3 Midlothian should continue to encourage innovation and embrace new and emerging learning technologies. Schools should make increased use of mobile technology including tablets, netbooks and smart phones, facilitating more flexible approaches to learning.**
- 4 Schools should have increased ownership over decisions relating to technology, so that teachers and learners determine which technologies are best suited to learning. This requires a move away from providing education establishments with a standardised suite of digital technology and software solutions to a more flexible 'one-size-fits-one' approach.**
- 5 *Glow* will be the major learning platform for Midlothian schools and its features and benefits should be strongly promoted by the Council and schools. A range of other Internet services, such as *Edmodo* and *Google Classroom*, provide additional educational benefit for schools and Midlothian Council should help teachers to access the most popular online resources.**
- 6 Schools should continue to deliver e-Safety education and ensure that young people know how to stay safe online. Improvements should be made to online security, including single sign-on where appropriate, improved access to online resources and enhanced password protection for users. All Schools and staff will take appropriate steps to protect the confidentiality of personal information they access, process or store.**
- 7 Increased opportunities should be provided for learners to engage in software development and computing science in secondary school. Skills associated with digital literacy, including coding and computational thinking, should be promoted in both primary and secondary.**

2. LEADERSHIP AND PROFESSIONAL LEARNING

(f) Leadership of Change

Effective leadership of change is essential in ensuring that education is fit for purpose in the digital age and this requires leadership at all levels within schools. The single most enabling and influential leader of digital learning is the Headteacher. S/he need not be an expert in digital technology, but must have the skills to lead change and promote digital learning strongly throughout the school, whilst ensuring that it takes place within an environment that is safe and legally compliant. This knowledge and understanding can be developed through appropriate professional learning and by drawing on the expertise that already exists within schools.

Although the Headteacher has a key role, leadership of digital learning must exist at all levels within schools and structures should be in place that allow teachers, support staff and young people to initiate and lead change. It should be recognised that many children and young people, as well as newly qualified teachers have highly developed skills and knowledge and are well placed to be leaders of digital learning in our schools.

The increasing importance of digital learning in our schools, together with the ongoing acquisition and maintenance of technology requires careful planning. The development of digital learning should therefore be reflected in whole school and departmental improvement plans, with clearly stated targets, outcomes and timelines. A sustainable financial model also needs to be developed that takes into account the rapidly changing nature of technology and the increasing demand for digital and online learning across the different stages, sectors, subjects and buildings.

Since digital technology is such an important aspect of the work of the school, there needs to be effective communication between schools and service providers. Effective dialogue between school leaders, the education service and service providers at operational, tactical and strategic levels is essential. From a Council perspective increased collaboration with neighbouring education authorities, external agencies and service providers will increase knowledge and expertise, drive up standards and potentially reduce costs.

(g) Quality Assurance and Self Evaluation

It is important to ensure that technology is used appropriately, securely and to the full advantage of learners and teachers. Schools must, therefore, systematically plan and evaluate the quality of digital learning and its impact on learners. Education Scotland's *How Good is our School 4* publication provides national benchmarks against which schools and the authority can assess the quality of digital learning. School attainment information and positive destination data can also provide a wider context for planning and review. Schools should also evaluate the effectiveness of partnership working with, for example, the Learning Technology Service, and Digital Services.

(h) Professional Learning

Career long professional learning is the key to ensuring that teachers and other staff are equipped to implement digital learning approaches effectively. Teachers don't need to possess an in-depth knowledge in digital technologies, but they do require knowledge of the pedagogical changes that the application of technology demands. They also need the skills to manage learning effectively in the digital age, particularly with the increased use of mobile devices in the classroom.

The Council, in partnership with schools and external agencies such as Education Scotland, needs to ensure teachers have access to high quality programmes of professional development and training in relation to digital learning. Teachers and support staff should ensure that the use of digital learning technologies remains a key aspect of their professional learning and the new GTCS arrangements for career long professional learning creates opportunities for practitioner enquiry and Masters level learning.

It is important for teachers to develop local networks to share practice around digital learning. An increasing number of schools are using video to capture and share classroom practice with colleagues, for example through technologies such as *IRIS Connect*. Social media is also becoming an increasingly important mechanism for sharing knowledge and expertise and collaborating with other professionals locally and more widely.

Finally, teachers need to recognise the knowledge and skills that many learners possess and can bring to the learning environment. Some young people, even younger learners, are far more skilled in using certain types of technology than school staff, and teachers should embrace and build upon this knowledge for the benefit of all learners.

ACTIONS

- 8 Digital learning must be a key aspect of the professional learning of all staff. School leaders, teachers and support staff should be able to access high quality training in the leadership and application of digital learning.**
- 9 The development of digital learning should be systematically planned and evaluated at school and Council levels. Education Scotland's *How Good is our School 4* provides national benchmarks against which schools and the authority can assess the quality of digital learning. School attainment information and positive destination data can also provide a wider context for planning and review.**
- 10 Schools should adopt a 'digital by default' approach to the production of educational content and resources. Curriculum development work should be shared in digital format across schools and care taken to avoid duplication.**

3 DIGITAL PARTICIPATION

(i) Reducing the Digital Divide

Digital participation is the term used to describe people's ability to access and use digital technology. Whilst this includes the ability to access the internet, it also encompasses an ever widening range of technologies such as digital televisions, smartphones, and games consoles.

The implications of not being online, often referred to as 'digital exclusion' or the 'digital divide', can impact negatively on an individual's wellbeing, educational attainment, financial situation and employment opportunities.

For young people, digital participation it is essential in developing the skills required for learning, life and work. A significant number of children and young people, however, live in areas of social and economic disadvantage learning where poverty creates and extends the digital divide. For Midlothian Council and its schools the two most critical challenges are:

- (a) ensuring access to devices that support digital learning, and
- (b) overcoming bandwidth/data limitations.

Many young people have access to, although not necessarily ownership of, at least one digital device. A young person in poverty, however, is unlikely to enjoy the same breadth of access to technology, and the functionality of their devices may not readily support learning. The bandwidth available to support fixed broadband and mobile connectivity is typically much lower than for young people from more affluent socio-economic backgrounds. They are also likely to have lower data limits for their mobile devices which places restrictions on, in particular, access to the extensive range of multimedia content that can support learning.

There is a need to close this gap and ensure that all youngsters have appropriate access to mobile devices, bandwidth and data that suits their learning needs. Ensuring digital participation is central to Midlothian's vision for digital learning.

(j) Promoting Inclusion

In our schools, technology makes an increasing difference to the lives of those learners with additional support needs. A wide range of technological solutions are available which enable young people access the curriculum and help them develop the skills required for learning, work and independent living. The technologies involved are often leading edge and need technical support to function well within the classroom. Our special school at Saltersgate, for example, requires enhanced assistive technology provision and technical support to deliver the curriculum.

Digital technology also is a significant enabling factor for those that are unable to attend school due to illness or other reasons. By ensuring that resources are digital by default, learners can access resources outwith timetabled contact. This enhances a learner's ability

to seek and receive support from their peers and teachers, pursue collaborative tasks and generally be less isolated as a learner outwith the classroom.

(k) Parental Engagement

Technology can provide a catalyst and a mechanism for improving parental engagement and help to bridge the gap between home and school. Schools should actively encourage the use of social technology to communicate with parents and to share pupils' work and achievements. Although this strategy focuses mainly on the work of schools, there is no doubt that digital technology also has a crucial part to play in family learning and adult education, and it is an increasingly important component of lifelong learning and employability.

ACTIONS

- 11 The Council and schools will continue to identify innovative ways for learners to access mobile devices that support learning, irrespective of socio economic background.**
- 12 The Council and schools should ensure that access to mobile devices, wifi coverage and capacity, and bandwidth is adequate to support the needs of the learners and teachers.**
- 13 The Council should enhance the technological provision and support for learners with additional support needs.**
- 14 Schools should actively encourage the use of social technology to communicate with parents and to share pupils' work and achievements.**

4 INFRASTRUCTURE

Midlothian's *Digital Strategy* (2016) covers the infrastructure aspects associated with digital learning and reference should be made to that document for more detailed information. The digital programme of work which supports the strategy will ensure that a robust, flexible, sustainable infrastructure will exist to satisfy the following service demands.

- Adequate bandwidth to each establishment and for the authority as a whole, taking into account the inevitable growth in demand for web-based services in the future.
- Wired and wireless connectivity for centrally managed, school managed and user-owned devices.
- Systems to enable learners and teachers to connect their own technology to school wifi networks.
- Cloud-based communication, file storage and collaboration environment, which supports learning across all sectors, and which facilitates connectivity from all major platforms.
- Server infrastructure that provides adequate storage and a range of management applications.
- Secure connection to confidential administrative services.
- Services to support the communications infrastructure, servers and associated services, managed desktops, laptops, printers, as well as more traditional peripherals.

ACTIONS

- 15 School wifi networks should be updated to provide sufficient coverage and capacity to match the needs of establishments. The bandwidth should be sufficient to meet the needs of learning. Systems should be in place to facilitate *Bring your own Technology*.**
- 16 Asset management and investment plans should take account of the individual needs of establishments, school improvement priorities, service plans, future budget provision, and the need for secure access to administrative platforms.**
- 17 Midlothian Council should continue to provide technical support for a broad range of technology in schools. Technical and other support services should be adapted to meet the needs of schools as they take greater ownership, responsibility and accountability in relation to decisions about technology.**

IMPLEMENTATION AND MEASURES OF SUCCESS

In implementing Midlothian's Digital Learning Strategy it is important to identify at the outset what success will look like and what the benefits will be to learners, schools and the Council as a whole.

Digital innovation (HIGIOS 3.3)

Children and young people will be able to work individually and in teams to create digital solutions. As their digital literacy becomes more sophisticated they will be able to embed computation to solve problems. Increasingly they will apply the core principles underpinning digital technologies to develop their own ideas. Their digital skills will be up-to-date with technological advances informed by a range of sources including the expertise of the young people themselves.

Digital literacy (HIGIOS 3.3)

Children and young people will be innovative, confident and responsible in the use of technologies and staying safe online. They will be able to critically examine and make informed choices about the use of digital technology to enhance and personalise learning in school and where appropriate, beyond the school day. They will anticipate and respond to new opportunities and threats caused by digital technology developments now and in the future.

Learning and engagement (HIGIOS 2.3)

Our children and young people will be eager and active participants who are fully engaged, resilient, highly-motivated and interact well during activities. Learners' experiences will be appropriately challenging and enjoyable and well matched to their needs and interests. Learners will be able to exercise choice, including the appropriate use of digital technology, and take increasing responsibility as they become more independent in their learning.

For Schools and Midlothian Council

For schools and for Midlothian Council the Digital Learning Strategy will build workforce capacity in the use of digital technology and ensure high quality professional learning and collaboration for teachers and support staff in schools. It will help to bridge the gap between home and school and promote lifelong learning and employability. It will also promote equity and digital inclusion, whilst ensuring that children and young people from our most disadvantaged communities have access to the technology and digital literacy skills that support full participation in modern society.

TIMESCALES AND MILESTONES

In order to pursue and implement Midlothian Council's Digital Learning Strategy a number of actions will need to be undertaken:

By Q4 2017 Midlothian Council must have:

- Discussed the Digital Learning Strategy at the Corporate Management Team Meeting and agreed the key principles and actions that form the basis of the strategy.
- Agreed a Digital Learning Strategy implementation programme.
- Assigned a Project Lead for implementation of the strategy.
- Shared the strategy with schools and discussed the strategic principles with Headteachers and staff.
- Shared the strategy with other stakeholders and partners, including parents and promoted the key approaches, such as connectivity of learners' and teachers' own technology.
- Commenced work around ensuring that the infrastructure, such as broadband and school wi-fi networks, meets the needs of learners and teachers, particularly in relation to the use of personal technology devices in schools.

During the initial phase of implementation in 2017 Midlothian Council will:

- Review the curriculum in Midlothian schools to ensure the curriculum is fit for purpose in the digital age.
- Commence work with schools to enable learners and teachers to connect personal devices to school wifi networks as part of day-to-day learning and teaching.
- Enable schools to have increased ownership over decisions about which technologies are best suited to learning.
- Commence the deployment of the Technology Skills framework recently published by Education Scotland.
- Planned and commenced delivery of professional learning and training for schools staff.

Appendix

Digital Literacy Skills

Digital literacy means having the knowledge and ability to use a range of digital technology tools and media for varied purposes. A digitally literate person can use technology to find and evaluate information, connect and collaborate with others, produce, share and present digital content, ideas and knowledge, and use the Internet and technology tools to achieve academic and personal goals.

Digital literacy is much more than being able to use a computer. It's about knowing when and why digital technologies are appropriate and helpful to the task at hand and when they are not. It's about cultural and social awareness and understanding, and it's about being creative.

The skills that young people need to develop for learning, life and work can be classified under 6 broad headings.

- a) Creativity
- b) Collaboration
- c) Communication
- d) Research and Finding Information
- e) Critical Thinking and Evaluation
- f) eSafety

(a) Creativity

Becoming digitally literate involves not just being active in exploring digital media but also in creating it. Digital technologies provide an array of exciting opportunities for young people to create their own digital media and online content. Many will already be using digital technologies to document their lives in some way and to create digital outputs by, for example, editing a social networking profile page, manipulating digital images, making films or compiling playlists of songs. Participating and communicating in an increasingly digital world requires the creative ability to effectively utilise these opportunities.

Among other things using digital technologies can facilitate the creation of:

- pictures or illustrations
- websites
- films
- animations
- podcasts
- photos/photo montages
- blogs
- wikis
- online content on social networking sites
- music and song
- audio-visual presentations
- learning diaries

Choosing between these different sorts of creative outputs will require critical thinking skills as students consider what is effective for what purpose. This may involve consideration of how

best to create something that communicates information and meaning in particular cultural and social contexts.

(b) Collaboration

Learning involves dialogue, discussion and building on each other's ideas to create shared understandings. When learners participate in collaborative group work they need to be able to explain and present their ideas and negotiate when those ideas do not align with others in the group. Learning how to collaborate can therefore also help learners to develop skills of debate, cooperation, compromise and listening.

Digital technologies provide multiple opportunities for team work and there are many free web-based tools that have been developed specifically to support collaboration. Glow provides opportunities for learners to collaborate with others to create digital content through blogs, wikis and OneNote digital notebooks. A wiki is a website that can be developed collaboratively by a community of users, allowing any user to easily add and edit content. Wikis make it easy to create a classroom workspace where learners can communicate, collaborate and share content.

Sharepoint enables schools, individual classes and projects to have their own, collaborative online space and Microsoft Lync enables instant web conferences with other users. Microsoft Office 365, also available through Glow, allows text based documents, spreadsheets and presentations to be uploaded and edited collaboratively, enabling a group of students to work on the same document even if they weren't all in the same physical space at the same time.

(c) Communication

Being digitally literate means communicating effectively in a world in which much communication facilitated by digital technology.

The development of smartphone technology has brought opportunities for young people to communicate orally, but also through text and picture messaging, while wifi enabled mobile devices enable young people to access social networking sites, forums, blogs and wikis.

A digitally literate young person is a critical and discerning user of digital communication tools with the knowledge, skills and understanding that enables them to choose the most appropriate communication tool for the task in hand and how to use it effectively.

Communication in the classroom allows learners to share knowledge, ideas and information and present this to others. It can involve choosing appropriate formats, tools and media and thinking about the specific formats, tools and media and how they can be used to convey information and ideas most effectively.

(d) Researching Information

Learners need to be able to find and select reliable and relevant information. This includes an awareness of where it is best to search for information and whether the internet or another method might give the best results.

They need to develop research skills which enable them to select appropriate sources for gathering, classifying and organising information for a particular purpose or activity. They must also be able to critically engage with internet content and judge the value of that information for a given task and evaluate its validity and reliability.

The ability to find and select information involves students critically engaging with the content of material they find on the internet and relating it to the subject knowledge they already have and are seeking to develop. 'Mashing up' is a skill that requires taking knowledge from different sources in order to create something new.

(e) Critical Thinking and Evaluation

A digitally literate student is not just passively receiving information or meaning but also contributing to it, analysing it and shaping it. This requires critical thinking. Critical thinking involves transforming, analysing or processing given information, data or ideas. It means young people using reasoning skills to engage with material, to question, analyse, scrutinise and evaluate it and to create an argument about it. It is about being reflective, interpreting meaning and determining significance in order to make purposeful decisions and make informed sense of the world.

Students need to engage in critical thought in order successfully develop other elements of digital literacy such as creating outputs and choosing which tools and format to use for particular purposes and audiences and developing cultural and social understanding.

Digital technologies can support critical thinking by providing opportunities for students to present an argument, evaluation or analysis. Students might do this in written form by creating a blog, Wiki, presentation or report. They might use visual or audio formats by creating podcasts, films or animations. In each of these cases, the student is practicing their critical thinking skills and developing their digital literacy in order to create and communicate an argument. This means critically engaging not only with subject knowledge but also with how to write and communicate using different technology and media.

(f) E-Safety

E-safety is an important component of digital literacy. Supporting young people to become competent, discerning users of technology is about helping them to develop the skills that allow them to critically question their own and others' technology use. Becoming digitally literate will enable young people to make informed choices that will keep them safe when using digital technologies, including the internet and mobile phones. This covers a wide range of E-safety issues including age appropriate content, predatory behaviour of adults, acceptable use, cyber-bullying, and issues of plagiarism, copyright and virus protection.