Naace
Advancing education through ICT
ICT Framework
Version 0.2
<table>
<thead>
<tr>
<th>Version Number</th>
<th>Date of issue</th>
<th>Author(s)</th>
<th>Brief Description of Change</th>
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<tbody>
<tr>
<td>0.1</td>
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<tr>
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<td>Naace Curriculum Team</td>
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Welcome to the Naace ICT Framework. We hope you find it useful when developing your own existing curriculum, identifying areas that may need additional support or input and in moving forward with ICT. This framework takes aspects of technology in EYFS and shows how this can be built on to develop children’s learning experiences as they progress through Key Stages 1 and 2 into Key Stage 3. This develops a coherent, firm basis for a rigorous Key Stage 4 curriculum.

Aims to develop digital wisdom lie at the heart of the learning experience, with features of Third Millennium Learning sweeping through each of the three themes and five areas, alongside a focus on the development of higher order thinking skills.
Rationale for ICT

ICT is a broad subject that equips learners to use technology effectively in their lives – whether it is for personal, educational, community, social or business purposes. It equips them to understand the tools they are using, the skills to make wise decisions, the confidence to use technology as a means to finding innovative solutions to problems that would otherwise be unachievable or have less effective or less efficient solutions. Learners, who will ultimately be our leaders and agents for change, should understand ICT, be enabled to design tools for action and be able to think creatively about where ICT can support interventions.

ICT empowers learners throughout the curriculum by providing skills and potential solutions, allowing them to do things that wouldn’t otherwise be possible. Many aspects of ICT need to be taught discretely in order that learners gain a greater insight into the tools and skills available – so equipping them to use them creatively in different contexts. Opportunities to embed aspects of ICT throughout the curriculum are the responsibility of ALL teachers/facilitators – these provide opportunities for contextual problem solving and application of ICT skills and knowledge, but it cannot be assumed that skills can be “caught” in the process or that learners will have sufficient skills or insight for problem solving and creative approaches without them being “taught” discretely. There needs to be a systematic approach to teaching ICT in order to ensure that ALL aspects are learnt effectively. A systematic, holistic approach will equip learners for the digital lives that they are leading now and which will continue to evolve throughout their life times.

ICT has the potential to be one of the most powerful enablers of transformation that we possess. With excellent teaching and intelligent use of the curriculum, our learners will be able to use ICT to make invaluable contributions to society.
The Naace ICT Framework

The Naace ICT Framework provides an audit and planning tool to enable schools to deliver a broad and balanced ICT curriculum and provide a clear progression from EYFS to Key Stage 3. It provides a firm basis for KS4 studies. Whilst some suggestions are given about fleshing out the framework and about approaches to teaching and learning, there is sufficient flexibility and choice for a school to develop and personalise the curriculum so that it best meets the needs of their learners within their local context. However it is important that schools recognise that in order to deliver a broad and balanced ICT curriculum, they need to include all five areas of the curriculum framework in their provision. Naace recognises that this may require further CPD for staff to ensure they are competent and confident to teach all areas effectively.

This framework will be supported with a detailed explanatory document and with a toolkit of resources, research and examples of how aspects can be delivered in the classroom.

Features of Third Millennium Learning – culture, attitudes, pedagogies, environment and tools, use of higher order thinking skills – should sweep through each of the strands and areas for learning.
Early Years Foundation Stage

The Three Themes of the Naace ICT Framework and Five Areas

See below
Digital Skills

Digital Technologies

Digital Life

Safe and Responsible Use

Technology in the World

Digit Wisdom

Digital Literacy

Third Millennium environment and tools

Suggested Areas of Knowledge

Proposed Themes

Third Millennium culture pedagogies and attitudes in wider school community

Developing Learners – Higher Order Thinking Skills, PLTs, ISTE nets, Bloom

NB Every Area of the Framework contributes to all Three Themes
Developing confident, independent, discerning, safe, responsible users with transferrable skills.

Purposeful and creative use of a wide range of technologies; choosing technology for a purpose.

Developing an awareness of a wide range of technologies. Understanding that technologies have been designed.
# Early Years Foundation Stage

## The Five Areas of the Naace ICT Framework

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<th>Digital Literacy</th>
<th>Digital Skills</th>
<th>Technology in the World</th>
<th>Technologies and how they work</th>
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<tr>
<td>Online identities</td>
<td>Digital Communication - online and offline</td>
<td>Recognising technologies</td>
<td>Technologies (computers and devices containing a computer)</td>
</tr>
<tr>
<td>Finding information</td>
<td>Sharing information</td>
<td>How technology helps us at home, school and work</td>
<td>Technologies store Information (Data)</td>
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<tr>
<td>Using ICT to help learning</td>
<td>Producing media</td>
<td>Introduction to features of web pages</td>
<td>Programming Programs</td>
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<td>Creating and sharing content</td>
<td>Control</td>
<td>Navigating web pages</td>
<td>Networks and the World Wide Web</td>
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<tr>
<td>Gaming</td>
<td>Collecting real world data</td>
<td>How technology has changed lives and the world</td>
<td>Evolution of technologies</td>
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<tr>
<td>Impact of ICT on our lives</td>
<td>Problem solving</td>
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<tr>
<td>Developing confidence and ability to transfer skills</td>
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### Respect and etiquette
- Sharing information and data safely
- Responsible use
- Online safety
- Ownership of information and data
- Offline safety
- Environmental issues
- Health and safety
Key Stage 1 and Key Stage 2

The Three Themes of the Naace ICT Framework and Five Areas

See below
Digital Skills

Technology in the World

Safe and Responsible Use

Digital Life

Digital Tools

Digital Wisdom

Digital Literacy

Third Millennium culture pedagogies and attitudes in wider school community

Third Millennium environment and tools

Developing Learners – Higher Order Thinking Skills, PLTs, ISTEnets, Bloom

Suggested Areas of Knowledge

Proposed Themes

NB Every Area of the Framework contributes to all Three Themes
Key Stage 1 and 2
The Three Themes of the Naace ICT Framework

Digital Life

Developing confident, independent, discerning, safe, responsible users with transferrable skills.

Digital Tools

Using digital artefacts and tools; creating digital artefacts.

Digital Technologies

Understanding, designing and evaluating the working and design of technologies for a purpose.
Key Stage 1 and 2
The Five Areas of the Naace ICT Framework

Digital Literacy
- Online identities
- Social Networking
- Creating and sharing content
- Gaming
- Using ICT to help learning
- Finding, retrieving and validating information
- Impact of ICT on Society including scope, scale and nature of ICT evolution

Digital Skills
- Digital Communication - offline & online
- Sharing Information (inc. presentations)
- Producing and editing media
- Simulations
- Modelling
- Control
- Programming
- Collecting, analysing, evaluating real-world data
- Problem solving
- Transferability of skills

Collaboration
- Communication
- Web Design
- Creative industries, inc. media and games creation
- E-commerce
- ICT specific jobs
- How other jobs use ICT
- Evolution and impact of technology

Technologies
- Technologies (computers and devices containing a computer)
- Information/Data storage
- Sequences (Algorithms)
- Programming
- Programs
- Game and apps creation
- Networks, the Internet and World Wide Web
- Evolution of technologies, computers and computing

Respect and etiquette
- Responsible use
- Online safety
- Offline safety
- Health and safety

Sharing information and data safely
- Ownership of information and data
- Environmental issues
Key Stage 3

The Three Themes of the ICT Framework and Five Areas

See below
Every Area of the Framework contributes to all Three Themes.
Key Stage 3
The Three Themes of the Naace ICT Framework

**Digital Life**
Developing confident, independent, discerning, safe, responsible users with transferrable skills.
- Communications
- Services
- Ethics and Legalities
- Past, current, emerging and future tools and uses

**Digital Tools**
Using digital artefacts and tools for enquiry-based learning; creating digital artefacts.
Researching, designing, creating, problem solving, prototype preparation, modelling, evaluating, improving, communicating ideas

**Digital Technologies**
Understanding of the working and design of digital technologies and systems.
Programming, logic, technical knowledge, data storage, networks, features/design/life cycle of systems, design processes
# Key Stage 3

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<td>Data storage</td>
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<td>Creating and sharing content</td>
<td>Editing media</td>
<td>Programming</td>
</tr>
<tr>
<td>Gaming</td>
<td>Modelling – CAD</td>
<td>Algorithms</td>
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<tr>
<td>Using ICT for learning</td>
<td>Modelling – games</td>
<td>Game and apps creation</td>
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<tr>
<td>Finding, retrieving and validating information</td>
<td>Modelling – spreadsheets</td>
<td>ICT Systems life cycle</td>
</tr>
<tr>
<td>Impact of ICT on Society including scope, scale and nature of ICT evolution</td>
<td>Control, data logging and programming</td>
<td>Systems Design</td>
</tr>
<tr>
<td>Business software</td>
<td>Problem solving</td>
<td>User-centred design</td>
</tr>
<tr>
<td>Industry applications of programming to solve problems</td>
<td>Business software</td>
<td>Embedded systems</td>
</tr>
<tr>
<td>Transferable skills</td>
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<td>Industry standards</td>
</tr>
<tr>
<td>Collaboration</td>
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<td>Evolution and impact of computing</td>
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<td>Problem solving</td>
<td>Evolution and impact of work practices/tools</td>
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### Respect and etiquette
- Responsible use
- Online safety
- Offline safety
- Health and safety

### Legal issues/Legislation
- Copyright
- Data protection
- Hacking
- Environmental issues
Teaching and Learning

Strategies used should move beyond basic levels in Bloom’s taxonomy so that higher order thinking skills are developed (see left) and enable learners to develop features identified by ISTEnets and PLTs (see right).
Design Processes

For Digital Tools and Technologies

Learner should use design processes when creating digital artefacts, digital solutions and digital systems.
Definitions

• Third Millennium Schools
• Digital Artefacts
• Digital Literacy
• Digital Wisdom
Culture, attitudes and pedagogies
Responses to technology by whole school community are positive, creative and demonstrate a willingness and open-ness to use technology to enhance learning, teaching, assessment and communication with all stakeholders.

Developing Learners
Third Millennium schools promote approaches to teaching and learning that encourage higher level thinking skills. Pedagogies may promote the higher levels of Bloom’s taxonomy, or ISTEnets for students, or PLTS (Personal Learning and Thinking Skills). Tech-empowered, constructivist approaches are used.

Environment and tools
The physical environment and availability of a wide range of tools supports learning across the curriculum, is conducive to developing effective teaching and learning opportunities and supports the creative use of technology.

Features often seen in Third Millennium Schools
- Embedded technology
- Invisible technology
- Technology enabled learning
- Technology empowered learners
- Personalisation through tech
- Range of tools
- Technology enabled assessment
- Technology enabled parental involvement
- Independent learning
- Collaborative learning
- Exploration in learning
- Dynamic learning
- Thinking skills
- Celebrated achievements
- Data to inform and improve
- Flexible teaching and learning spaces to support flexible approaches to learning experiences
- Clear impact of tech on outcomes
- Vision for lifelong learning journeys
- Tech- captured learning experiences
Digital Artefacts

Digital artefacts include information prepared or shared in digital forms e.g. photos, videos, digitally prepared text, multimedia, databases, websites, presentations, music, e-books, programs, coding, etc.
“... those capabilities which fit an individual for living, learning and working in a digital society”
JISC

“... the confident and critical use of ICT for work, leisure, learning and communication” EU

“Digital Literacy is a complex and contested term... goes beyond a focus on the individual technical competence and functional skills needed in order to operate digital tools; it refers to the more subtle and situated practices associated with being able to create, understand and communicate meaning and knowledge in a world in which these processes are increasingly mediated via digital technologies.” - Futurelab

Some of these aspects of ICT may be developed, consolidated and applied through other curriculum areas such as Maths, MFL, Science, etc but in order to be digitally literate across the curriculum, skills need to be taught in a focused way.

Digital Wisdom

Digital wisdom is the ability to make considered, conscious decisions about the use of technology inside and outside school or a working environment.

A “digitally wise” person knows how to use tools, software, hardware, programming – whether online or offline – effectively and creatively in a range of contexts, to solve problems, to be productive, to communicate effectively, to find information, to stay safe and understands when it is appropriate to use them. They are able to determine which tool will be the best for the task and develop a coherent and comprehensive range of transferrable skills, technical knowledge and understanding that can be appropriately applied in study, work and home life.
Contact

For more details please see
www.naace.co.uk/naace_curriculum

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Naace welcomes comment on its proposals for this Framework