<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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<tr>
<td>0.1</td>
<td>5/4/12</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 five areas of knowledge skills and understanding.
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 has the potential to be a powerful enabler of transformation, equipping our learners to make invaluable contributions to society. To do this, they need to understand the tools they are using, develop the skills to make wise decisions and gain 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 also empowers learners when they are studying other aspects of the curriculum by providing skills and tools that allow them to do things more effectively, efficiently or 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 they can be used creatively in different contexts. Opportunities to embed aspects of ICT throughout the curriculum, with contextual problem solving and application of ICT skills and knowledge, are the responsibility of ALL teachers/facilitators, 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. The context for developing skills and understanding helps provide a clear purpose for using ICT and reinforces the concept that technology can support learning, whatever curriculum area they are working in. There needs to be a systematic approach to teaching ICT in order to ensure that ALL aspects are learnt effectively and with sufficient depth.

The holistic approach to equip learners for their current and future digital lives will develop their ability to use digital tools wisely and effectively when communicating, collaborating, problem solving and creating.
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.
The Framework Foundations

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

Using digital artefacts and tools for enquiry-based learning; creating digital artefacts.

Understanding of the working and design of digital technologies and systems.

Just as a three legged stool would topple over if one of the legs was missing, the Foundations of the Naace ICT Framework are all needed in order to provide a balanced ICT learning experience.
Safe and Responsible Use

Skills
Including programming

Technology in the World

Digital and Responsible Use

Digital Literacy

Technical Understanding
Including computer science

Digital Wisdom

Every Area of the Framework involves learning about the tools, the technologies behind them, their evolution and impact.

Third Millennium Learning
Culture, pedagogies, environment, tools, developing higher order thinking skills
### Early Years Foundation Stage

**The Five Areas of the Naace ICT Framework**

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<th>Digital Literacy</th>
<th>Skills</th>
<th>Technology in the World</th>
<th>Technical Understanding</th>
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<td>Online identities</td>
<td>Digital Communication - online and offline</td>
<td>Recognising technologies</td>
<td>Technologies (computers and devices containing a computer)</td>
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<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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<td>Using ICT to help learning</td>
<td>Producing media</td>
<td>Introduction to features of web pages</td>
<td>Programs and programming</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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<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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<td>Impact of ICT on our lives</td>
<td>Problem solving</td>
<td>Developing confidence and ability to transfer skills</td>
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**Respect and etiquette**
- Responsible use
- Online safety
- Offline safety

**Safe and responsible use**
- Health and safety
- Sharing information and data safely
- Ownership of information and data
- Environmental issues
## 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

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

#### Technology in the World
- 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

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

#### Safe and Responsible Use
- 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 Five Areas of the Naace ICT Framework

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

Skills
- Digital Communication
  - Communicating online
  - Producing media
  - Editing media
  - Modelling – CAD
  - Modelling – games
  - Modelling – spreadsheets
  - Control, data logging and programming
  - Problem solving
- Business software
  - Industry applications of programming to solve problems
  - Transferable skills
  - Collaboration
  - Communication
  - Web Design
  - Creative industries, inc. media and games creation
  - E-commerce
  - Work related learning/training
  - ICT specific jobs
  - ICT based jobs
  - Evolution and impact of work practices/tools

Technology in the World
- Electronic devices
  - Networks
  - Data storage
  - Programming
  - Algorithms
  - Game and apps creation
  - ICT Systems life cycle
  - Systems Design
  - User-centred design
  - Embedded systems
  - Industry standards
  - Evolution and impact of computing

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

- Legal issues/Legislation
  - Copyright
  - Data protection
  - Hacking
  - Environmental issues
Third Millennium Learning

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, design process 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 assessment
- 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
- Support flexible approaches to learning experiences
- Clear impact of tech on outcomes
- Vision for lifelong learning journeys
- Tech- captured learning experiences
Developing Higher Level Thinking Skills

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).
Pedagogies – Using Design Processes

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

• Digital Artefacts
• Digital Literacy
• Digital Wisdom
Digital Artefacts

• From the Latin phrase *arte factum*, from *ars* skill + *facere* to make

• From the Oxford English dictionary, the definition of an artefact is an object made by a human being, typically one of cultural or historical interest. Another definition is that it is observed in scientific experiments or investigations, not naturally present but occurring as a result of preparative or investigative procedures.

• A digital artefact is made by a human being with skill or art. Although digital content is produced using technology tools and applications, it is "made with skill" and may result from preparative or investigative procedures. Learners need to be taught both the knowledge and skills required to create high quality "artefacts" that can compete against the best in the world. 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 transferable skills, technical knowledge and understanding that can be appropriately applied in study, work and home life.

“Digital wisdom is a twofold concept, referring both to wisdom arising from the use of digital technology to access cognitive power beyond our innate capacity and to wisdom in the prudent use of technology to enhance our capabilities. Because of technology, wisdom seekers in the future will benefit from unprecedented, instant access to ongoing worldwide discussions, all of recorded history, everything ever written, massive libraries of case studies and collected data, and highly realistic simulated experiences equivalent to years or even centuries of actual experience. How and how much they make use of these resources, how they filter through them to find what they need, and how technology aids them will certainly play an important role in determining the wisdom of their decisions and judgments. Technology alone will not replace intuition, good judgment, problem-solving abilities, and a clear moral compass. But in an unimaginably complex future, the digitally unenhanced person, however wise, will not be able to access the tools of wisdom that will be available to even the least wise digitally enhanced human.” Prensky
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