

TECHNOLOGIES PLAN

delivering Edney 2020

We are **leaders** of **innovation** and sustainability
We are **EDNEY**

WHY TEACH TECHNOLOGIES?

At the heart of our school are children, and for each of them, opportunity. The opportunity to learn, to grow and to develop knowledge, skills and understandings that will set them on the path to lifelong learning and success.

While technologies have changed over centuries, decades and even years, as the march of change increases at an ever-increasing rate, the constant is the skilled, creative, thoughtful and ingenious individuals who embrace technologies, adapt, create, apply and invent solutions to everyday problems. It is not a skill of using things, it is the ability to think, to adapt and to learn.

We are not teaching technologies. We are supporting thinking, discovery, play and innovation. We are partners in learning, our staff, students, community and school. Together, we're leading innovation.



WHAT ABOUT STEM?

STEM is an acronym for Science, Technology, Engineering and Mathematics. It has caught on in many circles as a focus for attention. We don't teach STEM at Edney, at least, not as its own stand-alone area. We have always taught Science, Technology, Engineering and Mathematics. We'll continue to do so.

Our expert, professional staff have also always identified opportunities to integrate areas of the curriculum where it makes sense to do so. We've always realised that processes are important, that it is sometimes better to know where to look than to have a ready answer.

We value curiosity, ingenuity, play and exploration. We also value covering all of the WA Curriculum and ensuring a broad and balanced approach to teaching and learning. The technologies area of the WA Curriculum has natural integration opportunities not just with the STEM "subjects", but with HASS, Health & Physical Education, The Arts, and general and cross-curriculum capabilities.

To teach just STEM would be too narrow. We're creating innovators who are flexible in their thinking and able to problem-solve in our changing world.

That's why we don't teach STEM.

OUR VISION

We are leaders of innovation and sustainability.

We care for, interact with, protect and enhance our environment, creating active and considerate citizens with the necessary knowledge and skills for success in the 21st Century.



WHY THIS PLAN?

This plan is the lengthiest document in use at Edney Primary School. This is because Technologies are about so much more than computers. It's about the oldest, most precious, most incredible technology in the world - the brain! We're teaching thinking!

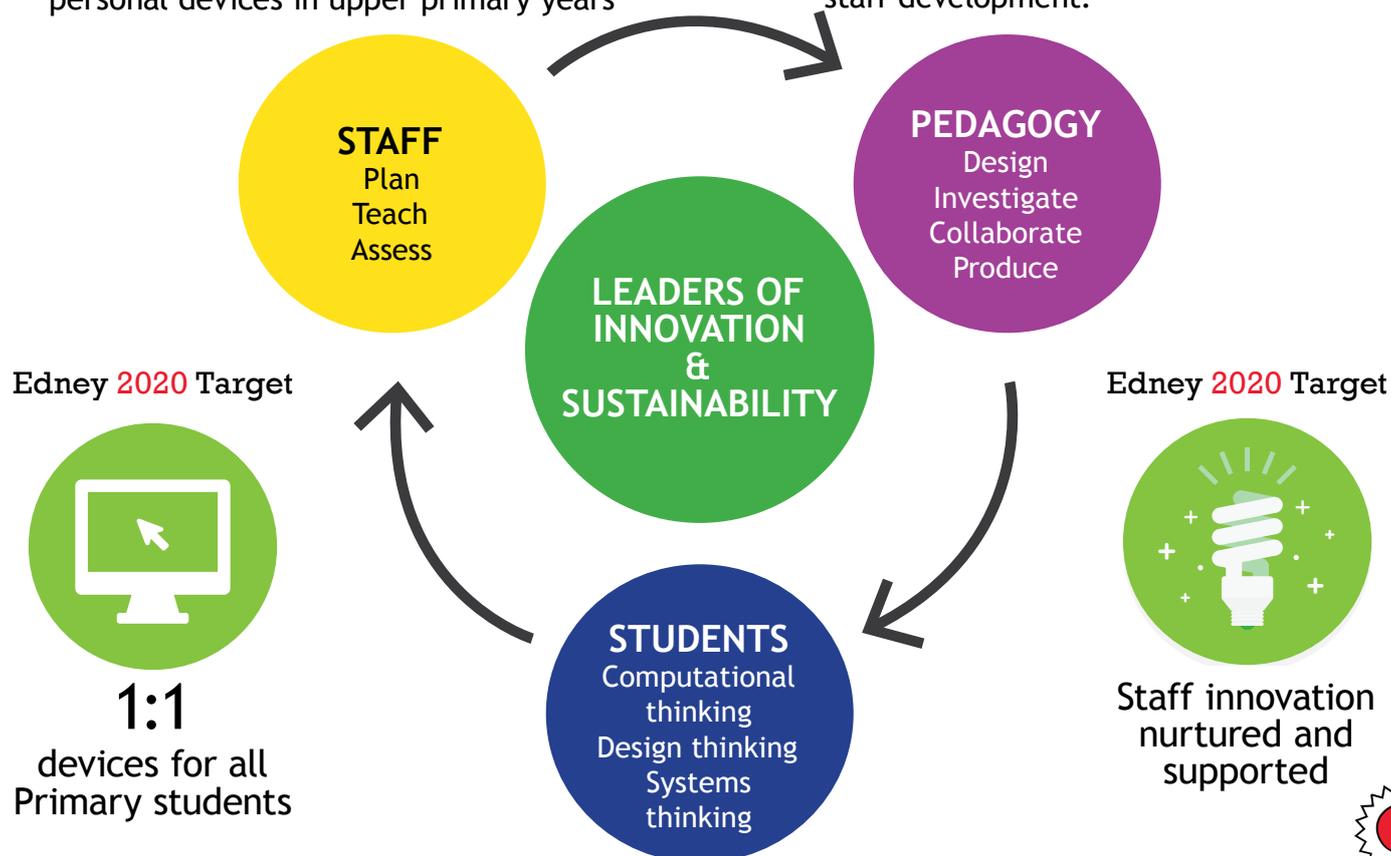
It's a complicated thing to do, so we've laid out the entire Western Australian Technologies Curriculum along with sample lessons, models of instruction, sequences of skills, assessments and activities to give our staff and students all the support that they would like, while maintaining the balance for teacher professional judgement in taking students as far as they can go.

In leading innovation and sustainability, we have developed a safety net, not a cage. There is no limit to what we can do!

LEADING INNOVATION AT EDNEY

By the year 2020 you will see:

- A reliable, stable mix of personal, fixed and portable devices for use by students and staff
- High standard professional learning for staff and development of a professional learning community within the school with a focus on technology
- A scope and sequence for Digital Technologies teaching and learning articulating desired skills and supports for each phase of schooling
- Working towards 1:1 provision of personal devices in upper primary years
- A dedicated solution for Early Childhood classes, particularly Kindergarten and Pre-primary to introduce appropriate technology devices
- Maintaining and expanding the focus on design and technology alongside digital technologies
- All Primary students receiving touch-typing instruction
- Coding and robotics opportunities explored and made available to students, with appropriate support and staff development.



THE TECHNOLOGIES CURRICULUM

The Technologies curriculum is delivered through two distinct but related subjects: Design and Technologies and Digital Technologies. Students will develop skills to manage projects, and apply computational, design and systems thinking to create solutions now, that can be used in the future.

Technologies and society

- The use, development and impact of technologies in people's lives

Technologies contexts

- Technologies and design across a range of technologies contexts:
 - o Engineering principles and systems
 - o Food and fibre production
 - o Food specialisations
 - o Materials and technologies specialisations

Digital systems

- The components of digital systems: hardware, software and networks and their use

Representation of data

- How data are represented and structured symbolically

KNOWLEDGE & UNDERSTANDING

DESIGN AND TECHNOLOGIES

CREATE SOLUTIONS

DIGITAL TECHNOLOGIES

PROCESSES & PRODUCTION SKILLS

Creating solutions by:

- Investigating and defining
- Designing
- Producing and implementing
- Evaluating
- Collaborating and managing

Collecting, managing and analysing data

- The nature and properties of data, how they are collected and interpreted

Digital implementation

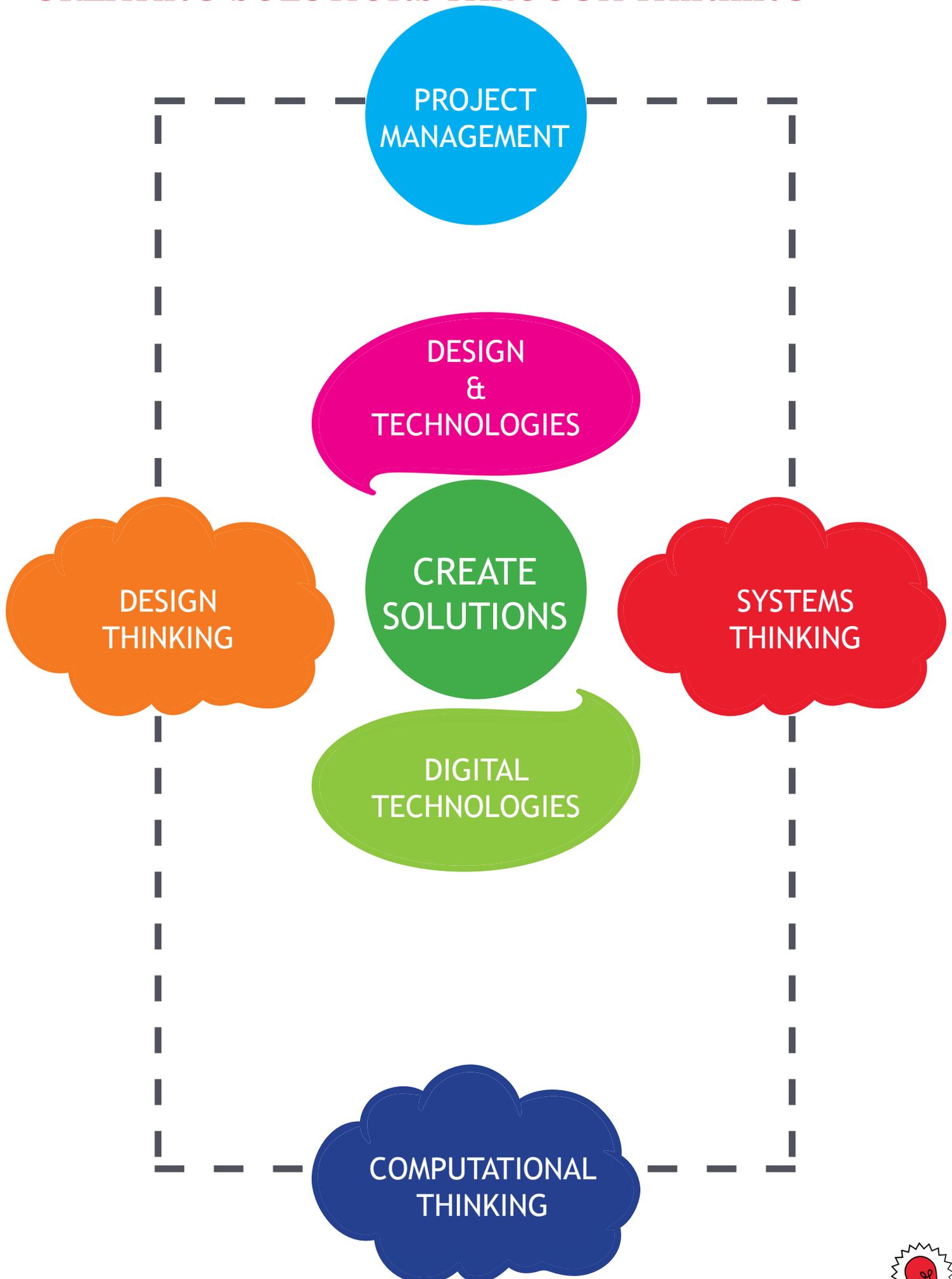
- The process of implementing digital solutions

Creating solutions by:

- Investigating and defining
- Designing
- Producing and implementing
- Evaluating
- Collaborating and managing



CREATING SOLUTIONS THROUGH THINKING



OUR PLAN

Edney 2020 Target

Today we have...

- 10 Samsung Galaxy Tablets
- 120 iPads
- 60 Microsoft Surface Pros
- 96 Desktop PCS
- 3 STEM Kits of robots and accessories
- Various Design & Technology resources, but limited storage or coordination
- 20 E Boards

Status in 2019

300
devices for
440
students



1:1

devices for all
Primary students

We need...

- Staff who are confident in their knowledge of the Technologies curriculum
- Staff who are supported to understand how to implement technologies knowledge, skills and understandings in the teaching and learning program
- A robust, reliable, expandable and sustainable network to support current and emerging devices
- Ongoing professional learning and support for staff
- To build community support, capacity and understanding to begin transition to BYOD to supplement school resources.

On the horizon...

- NAPLAN Online
- Bring Your Own Device
- Establishment of Science Laboratory at Edney
- New and emerging technologies



To achieve the targets of our Edney 2020 Plan, we will...

- Increase the number of personal, fixed and portable devices available to students to a 1:1 ratio using a combination of school-funded and Bring Your Own Device initiatives
- Continue to provide professional learning opportunities and support for all staff, both formally and through professional learning communities, which address staff needs and aspirations and build capacity and understanding of both design and technologies and digital technologies
- Integrate and implement an explicit, yet flexible scope and sequence to underpin the development of Technologies knowledge, skills and understandings for all students from Kindergarten to Year 6.
- Support staff to implement Technologies through the SAMR Model. We are aiming

to teach 'above the line' - moving towards transformation.

ENHANCEMENT

Substitution

Technology acts as a direct tool substitute with no functional change.

Augmentation

Technology acts as a direct tool substitute with functional improvements.

TRANSFORMATION

Modification

Technology allows for significant task redesign.

Redefinition

Technology allows creation of new tasks and solutions, previously inconceivable.



TEACH THINKING

Edney 2020 Target

Technologies are tools that enable us to design, create and evaluate solutions. Technologies will change, innovations will be made, but what will be constant is the need for thinking.

Our role is to explicitly teach and support models of thinking that allow students to be flexible, and able to think, adapt, apply, transfer and transform technologies to create solutions.



All students will achieve a minimum of a C grade in each learning area

PROJECT MANAGEMENT

The responsibility for planning, organising, controlling resources, monitoring timelines and activities and completing a project to achieve a goal that meets identified criteria for judging success.

DESIGN THINKING

Use of strategies for understanding design problems and opportunities, visualising and generating creative and innovative ideas, and analysing and evaluating those ideas that best meet the criteria for success and planning.

SYSTEMS THINKING

A holistic approach to the identification and solving of problems, where parts and components of a system, their interactions and interrelationships are analysed individually to see how they influence the functioning of the whole system. This approach enables students to understand systems and work with complexity, uncertainty and risk.

COMPUTATIONAL THINKING

A problem-solving method that involves various techniques and strategies that can be implemented by digital systems. Techniques and strategies may include organising data logically, breaking down problems into parts, defining abstract concepts and designing and using algorithms, patterns and models.



Having the newest, best and most expensive tools is of little benefit if our students can't think **how** to use them, apply this in new ways and situations and use the tools to transform technologies.



ASSESS

Edney 2020 Target

In the *Western Australian Curriculum: Technologies* the two strands, *Knowledge and Understanding* and *Processes and Production Skills*, are interrelated and inform and support each other. When developing assessment strategies, teachers combine components of the strands in different ways to provide students with opportunities to demonstrate their knowledge and understanding through the practical application of their skills.

The assessment experiences and evidence collected may look different for individual tasks as the assessment strategies should match the design brief and be reflective of individual student's understandings and interpretation of the solution they are creating.



All students will achieve a minimum of a C grade in each learning area



Formal assessment is required for reporting in Design and Technologies and Digital Technologies in student summative reports, issued each semester. In addition, at least one common assessment or moderation task is suggested to be conducted between year levels, phases or the whole school as agreed to assist in strengthening student and staff understanding of the Technologies learning area and inform continued improvement.



INNOVATE

Edney 2020 Target

No one person has all of the good ideas. At Edney, we're cultivating the talents, skills and passions of more than 50 staff, over 440 students and our dynamic community in identifying, pursuing and creating opportunities to create solutions through Technologies.



Staff innovation nurtured and supported

Leadership

- The Edney Primary School Technologies committee are dedicated to providing support, feedback, input and leadership in guiding practice across the school.
- The Technologies committee serves as advisors on the school innovation process and magnifies opportunities, supports trials, risk-taking and improvement.

Staff

Staff innovation initiatives are welcomed, encouraged and supported where they:

- Link to the Edney Primary School Plan
- Will have a measurable impact on staff capacity and student achievement
- Are sustainable and will lead to enduring and ongoing change

The school has established an innovation fund to support projects that meet the above criteria.

Students

Student innovation is shaped and encouraged by:

- Citizenship and leadership initiatives of the Darling Range Learning Community
- Identified teaching and learning opportunities and focus in blocks and classes
- Provision of outstanding resources and supports in Design and Technologies, Digital Technologies and our Primary Science Laboratory.

Community

Community support for innovation is:

- Championed by the Edney Primary School Board
- Acknowledged by the Edney Primary School Board via the School Board Awards program
- Supported by the Forrestfield and High Wycombe Community Bank Branches
- Supplemented by funding from the Edney Primary School P&C.



COMPUTATIONAL THINKING

Computational thinking is a problem-solving process that includes (but is not limited to) the following characteristics:

- Formulating problems in a way that enables us to use a computer and other tools to help solve them;
- Logically organizing and analysing data;
- Representing data through abstractions such as models and simulations;
- Automating solutions through algorithmic thinking (a series of ordered steps)
- Identifying, analysing, and implementing possible solutions with the goal of achieving the most efficient and effective combination of steps and resources; and
- Generalising and transferring this problem solving process to a wide variety of problems.

These skills are supported and enhanced by a number of dispositions or attitudes that are essential dimensions of Computational Thinking.

These dispositions or attitudes include:

- Confidence in dealing with complexity;
- Persistence in working with difficult problems;
- Tolerance for ambiguity;
- The ability to deal with open ended problems; and
- The ability to communicate and work with others to achieve a common goal or solution.

Like many of the dispositions of thinking, Computational Thinking is not exclusive to Digital Technologies - in fact, this process is applicable to a variety of situations and especially offline or unplugged experiences!

It is a useful model of how we process information, identify what is important, relate it to prior knowledge, seek clarification and devise solutions.

The use of Computational Thinking as a process for problem solving across learning areas will encourage flexibility, giving students experience in breaking a challenge down into smaller parts, and having a methodical approach to creating solutions.

DECOMPOSITION

1. DECOMPOSITION
Breaking a problem into smaller pieces.

ABSTRACTION

2. ABSTRACTION
Pulling out specific differences to make one solution work for multiple problems.

PATTERN MATCHING

3. PATTERN MATCHING
Finding similarities between things

ALGORITHMS

4. ALGORITHMS
A list of steps that you can follow to finish a task.

CREATE SOLUTIONS



ICT GENERAL CAPABILITY

While students use technologies to create solutions, where we must teach thinking, Information and Communication Technologies (ICT) are tools that students use in order to share, develop and communicate at school, at home, and later, in work and in life.

The development of ICT skills is not the sole realm of the Digital Technologies Curriculum, in fact, many of the Digital Technologies skills can be taught and practised in ‘unplugged’ environments. The ICT General Capability of the WA Curriculum supports students to become safe, fast, efficient and confident users of ICT.

ORGANISING ELEMENTS

The ICT General Capability is organised into five interrelated elements.

Each of these elements is further broken into sub-elements. In our Technologies Plan, the ICT skills sequence is articulated with a focus on specifically sequencing the computing skills that will be introduced, reinforced and built upon in each year level.

This sequence ensures that students have developed the appropriate skills and dispositions to be able to access, apply, transform and develop solutions across the Technologies contexts.

Applying social and ethical protocols and practices when using ICT

- recognise intellectual property
- apply digital information security practices
- apply personal security protocols
- identify the impacts of ICT in society

Investigating with ICT

- define and plan information searches
- locate, generate and access data and information select and evaluate data and information

Creating with ICT

- generate ideas, plans and processes
- generate solutions to challenges and learning area tasks

Communicating with ICT

- collaborate, share and exchange
- understand computer mediated communications

Managing and operating ICT

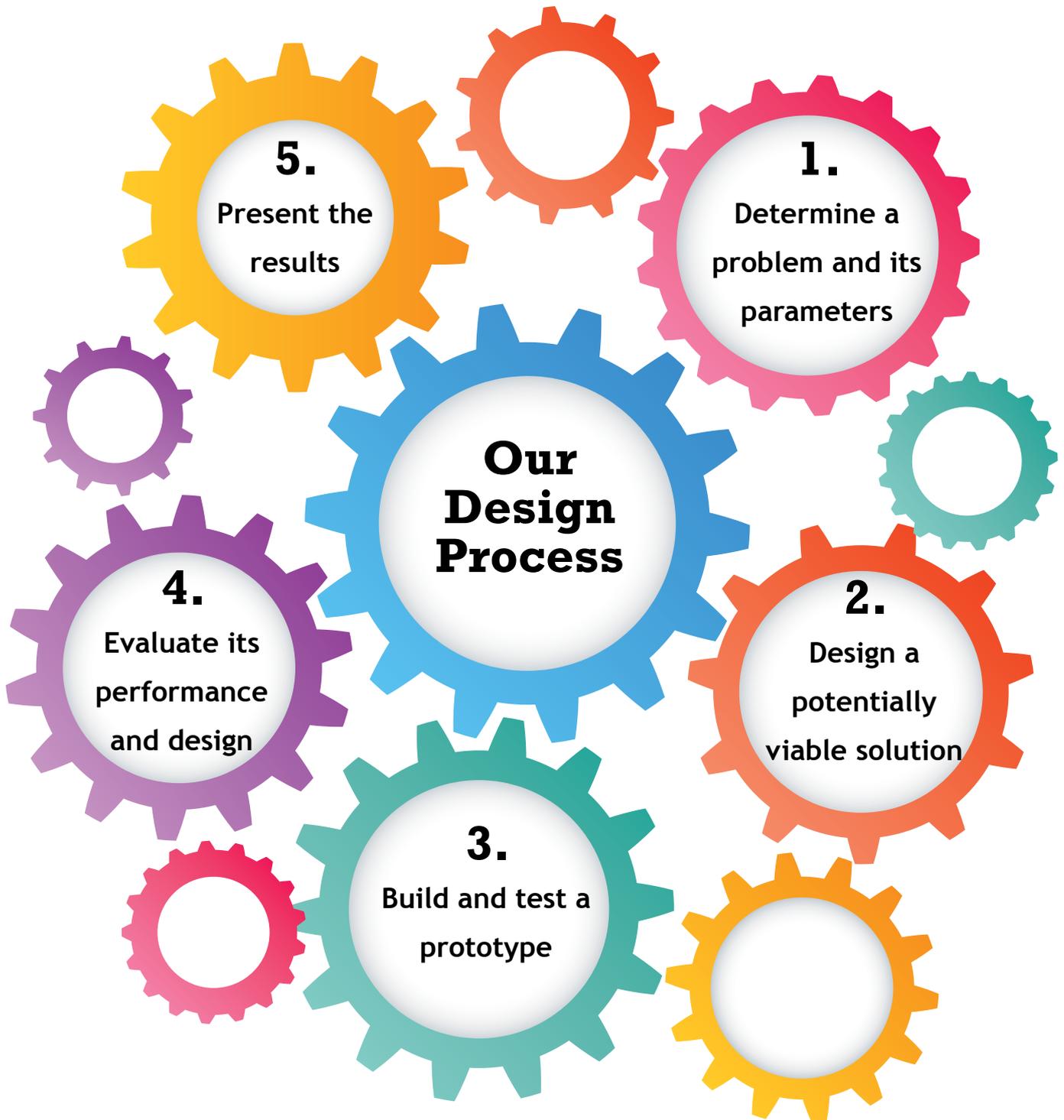
- select and use hardware and software
- understand ICT systems

Our Technologies Plan identifies the key skills to be introduced at each year level. Where a new skill is included for the first time, this is indicated in bold font. It is recommended that staff are aware of the progression of skills and map both forwards and backwards, ensuring that students are given frequent and appropriate opportunity to practise and develop the skills.



DESIGN AND TECHNOLOGIES MODEL

At Edney, we're synthesising the Design and Technologies curriculum with thinking, engineering and critical evaluation skills to give our students and staff a model that unites and exemplifies the seamless integration between each iteration of Design and Technologies Curriculum, making the links from the familiar to the new.



We can see that the Design, Make, Appraise model of the Technology and Enterprise days is still a useful organisational structure, when bookended and surrounded by a problem-solving approach, and the questioning mind of a prospective engineer!



CREATING SOLUTIONS IN DESIGN & TECHNOLOGY

At Edney, the design process is a creative one, where students generate new ideas for further development and evaluate these based on criteria to help them design meaningful solutions to problems posed. Our integrated model supports strategies for understanding design problems and opportunities, visualising and generating creative and innovative ideas, and analysing and evaluating those ideas that best meet the criteria for success in creating solutions.

EDNEY DESIGN PROCESS

DESIGN, MAKE, APPRAISE MODEL

DESIGN AND TECHNOLOGIES PROCESS

Determine a problem and its parameters

- What is the challenge?
- What are the limits?
- How can you solve it?

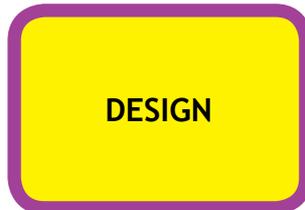


Investigating and Defining

- Exploring opportunities for design
- Creating a sequence of steps to solve a given task
- Identify available resources

Design a potentially viable solution

- Find out what others have done
- Gather materials and play with them



Designing

- Develop and communicate design ideas through describing, drawing or a sequence of steps

Build and test a prototype

- Think up lots of ideas
- Pick one and make a plan
- Make a drawing or model



Producing and Implementing

- Use components and equipment to safely make solutions

Evaluate its performance and design

- Use your plan to build your idea



Evaluating

- Use a combination of personal preferences, as well as self and other designed and agreed criteria to evaluate design processes and solutions developed

Present the results

- Test your idea
- Think about how your design could be improved
- Modify your design and try again



Collaborating and Managing

- Work independently, or with others when required, to safely create and share sequences steps for solutions



TECHNOLOGIES IN KINDERGARTEN AT EDNEY

In Kindergarten, children begin to develop dispositions for learning in both Design and Technologies and Digital Technologies. They develop inquiry skills through planned and play experiences and start to follow short, sequenced steps. Kindergarten children are given the opportunity to explore and use materials and tools to express their ideas and create solutions for simple problems. They explore simple systems and generate and represent ideas in meaningful contexts.

In Kindergarten, students are introduced to Digital Technologies through the use of technologies in play and in teacher-directed activities. They are introduced to gathering and representing basic data.

CONNECTING AND CONTRIBUTING

Work with others to develop skills for communication and inquiry about themselves and their world.

Focus - Develop inquiry and communication skills.

This is evident, for example when children:

- Plan and carry out a few simple sequenced steps when exploring and investigating.
- Use ICT with assistance to collect information and communicate it simply.

LEARNING AND THINKING

Develop a range of skills and processes for learning and thinking.

Focus - Develop problem solving, investigation and inquiry strategies.

This is evident, for example when children:

- Inquire, investigate and attempt to solve problems.
- Engage in creative and inventive ways of thinking and doing.

Focus - Represent ideas, feelings and experiences in creative ways.

This is evident, for example when children:

- Use simple tools and materials to investigate, take apart, assemble, invent, construct, change and represent ideas.

COMMUNICATING

Explore resources, tools and information communication technologies to represent ideas and their thinking.

Focus - Use tools, resources and technologies in play, thinking and learning.

This is evident, for example when children:

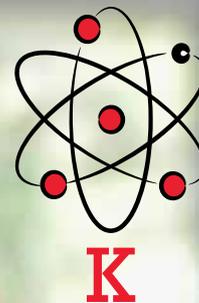
- Use a range of tools, technologies and resources safely and appropriately.
- Explore simple systems such as mechanical systems (pulleys); organisational systems (recipes); environmental (reticulation).
- Create simple information for a purpose using tools, resources and technologies.

Focus - Develop simple ICT skills

This is evident, for example when children:

- Experiment with a range of tools, media, sounds and graphics in ICT play and discovery.
- Develop simple skills to use information and communication technologies.
- Engage with information communication technologies for fun and to promote thinking and learning.
- Use imaginary technologies as props in their play.





SKILLS, STRATEGIES AND RESOURCES

DESIGN AND TECHNOLOGIES

- Using tools such as scissors, hammers etc.
- Using mechanical systems such as pulleys, hinges etc through construction
- Planning
- Talking, drawing, recording
- Construction activities

DIGITAL TECHNOLOGIES

- Bee Bots
- Recording Information using iPads
- iPad OSMO
- Chatterpix - oral language
- Following directions
- Collect simple data
- Class made graphs
- Represent data through drawings
- Creating pretend devices
- Using technology in role play e.g. phone, laptop
- Lego - following directions

TECHNOLOGIES IN PRE-PRIMARY AT EDNEY

DESIGN AND TECHNOLOGIES

Students identify people that produce familiar objects within the community and some simple stages of the production process. In Engineering principles and systems, students move objects in a range of ways and observe their reactions. In Food and fibre production, students connect plant and animal products to their use as food, clothing and/or shelter. In Materials and technologies specialisations, students explore and select materials to use for construction, considering the materials' characteristics.

With all Design and Technology contexts, students explore needs for designing simple solutions. They generate and record design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps. Students safely use given components and equipment, to make simple solutions and evaluate their success using personal preferences.

DESIGN AND TECHNOLOGIES SCOPE AND SEQUENCE

Technologies and society

- People produce familiar products to meet personal and community needs

Technologies contexts

- In Pre-primary, students will have opportunities to create designed solutions in at least one of the technologies contexts below (Food and fibre production includes Food specialisations in Pre-primary)

Engineering principles and systems

- Ways in which objects move: push, pull, bounce, slide, fall, spin, float

Food and fibre production

- Plant and animal products are used in everyday life for food, clothing and shelter

Food specialisations

- Not applicable

Materials and technologies specialisations

- Characteristics of materials can be explored using senses

DIGITAL TECHNOLOGIES

Students label digital systems (hardware and software) and where they are used. They represent data using pictures, symbols and patterns. Students follow safety strategies while they collect and use information from an online source.

In Digital Technologies, students explore needs for designing simple solutions. They generate and record design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps. Students safely use given components and equipment, to make simple solutions and evaluate their success using personal preferences.

Investigating and defining

- Explore needs for design

Designing

- Generate and record design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps

Producing & implementing

- Use given components and equipment to safely make simple solutions

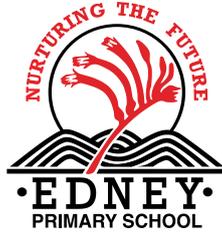
Evaluating

- Use personal preferences to evaluate the success of simple solutions

Collaborating & managing

- Work independently, or with others when required, for solutions.





SAMPLE UNIT OF WORK MATERIALS & TECHNOLOGIES SPECIALISATIONS - IT'S SHOWTIME!

Children explore the characteristics and properties of materials and components that are used to produce designed solutions and design and make a puppet with moving parts to use in a puppet show.

They apply the following processes and production skills:

- investigating materials, technologies for sharing and joining, and how designs meet people's needs
- generating and refining design ideas
- producing a puppet that meets the design brief
- evaluating their design and production processes
- collaborating and managing by working with others; following sequenced steps and sequencing the steps for the project.

SUGGESTED SKILLS, STRATEGIES AND RESOURCES

- Investigating forces - push, pull etc (link to Science)
- Plant and animal products - investigate uses of different products
- Materials - types and uses - what materials are best for a problem?
- Questioning
- Design
- Lego & construction material

DIGITAL TECHNOLOGIES SCOPE AND SEQUENCE

Digital systems

- Digital systems (hardware and software) are used at home, in the school and in the community

Representations of data

- Data can have patterns and can be represented as pictures and symbols

Collecting, managing and analysing data

- Collect and use data of any kind

Digital implementation

- Use data to complete a task
- Engage with information known people have shared in an online environment, and model strategies to stay safe online

Investigating and defining

- Explore needs for design

Designing

- Generate and record design idea through describing, drawing, modelling and/ or a sequence of written or spoken steps

Producing and implementing

- Use given components and equipment to safely make simple solutions

Evaluating

- Use personal preferences to evaluate the success of simple solutions

Collaborating and Managing

- Work independently, or with others when required, for solutions.

SUGGESTED SKILLS, STRATEGIES AND RESOURCES

- Digital technologies hub website
- Hello Ruby (Book)
- Creating a 'pretend' device
- Bee Bots
- Sorting data - e.g shapes or information
- Apps - Chatterpix, Daisy the Dinosaur, Book Creator
- Osmo
- Collect data and make simple graph
- Represent data through drawing
- Giving and following directions (unplugged)

DIGITAL TECHNOLOGIES SKILLS IN PRE-PRIMARY

HARDWARE AND SOFTWARE

A computer is a common digital system. A tablet device, laptop and smartphone are also digital systems. In Pre-primary, students develop understandings of digital systems (hardware and software) when they use some key functions to undertake authentic curriculum tasks. A modelled approach supports students to understand how to match familiar forms of software and hardware with their purpose. Students can use materials such as modelling clay or boxes to construct/ build their own digital systems such as a desktop computer, tablet device, laptop or smartphone.

DATA IS ALL AROUND US

This aspect of digital technologies has strong connections to the Mathematics learning area and can be integrated to make learning more meaningful. Data is all around us in our everyday life and even our own observations inform us. Data can be presented to us as information in the form of numbers such as the time, date, car speed, temperature, or a train timetable. Data can be presented as symbols such as weather icons, visually as pictures or maps, or as text. Often data is presented using a combination of these such as when used to create an infographic. We use the data to make decisions.

Representing data refers to the way data is symbolised, visually treated or provided as audio. For example, data about animals may be represented as images of each animal, emotions may be represented as emojis, and weather data may be represented as icons. Presentation of data deals with the format in which it may be presented, such as in a table, T-chart or Y-chart, a picture graph or a bar graph. We may collect data through observations, photography, audio recordings, video recordings, by survey or from other sources. Data often comes to us unorganised so the first step is to sort the data by common characteristics or attributes, then arrange the data to help make sense and look for patterns, and finally present the data visually.

AN INTRODUCTION TO ALGORITHMS

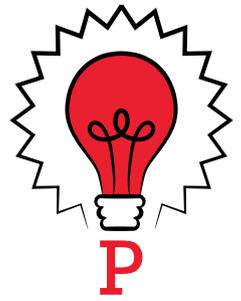
Students should be provided with opportunities to explore algorithms through guided play, including hands-on, kinaesthetic and interactive learning experiences. Students begin to develop their design skills by conceptualising algorithms as a sequence of steps or procedures for carrying out instructions to solve problems or achieve certain things. These skills could include identifying steps in a process or controlling a Bee-Bot. Provide authentic and meaningful ways to introduce students to simple programming while consolidating concepts across other subject areas.

ONLINE SAFETY

It is important when accessing and sharing information online that students are aware of potential dangers and that they behave in a responsible manner. As an extension of classroom rules discuss rules for online safety and acceptable online behaviour. Students plan a retelling of a relevant text and create the story using a familiar presentation software. Explore bookmarked websites to gather information for a class context.



ICT UNDERSTANDINGS AND SKILLS PRE-PRIMARY



MANAGING AND OPERATING ICT

Identifies computer-based technologies:

- keyboard and mouse
- monitor
- printer
- hard drive
- digital camera

Care and appropriate use of computer-based technologies:

- move mouse / pointer / swipe
- click mouse / pointer / touchpad
- identify letters on keyboard
- use special keys e.g. Enter, space
- access and exit software / Apps
- turn computer / device on/off

Understands computer-based terms:

- cursor
- internet
- menu
- open/close program

INVESTIGATING WITH ICT

Can create, open, close and save a document:

- open file
- close file
- use Save

Enters and modifies text:

- enter text
- delete text (letters, words)
- change text size and colour

COMMUNICATING WITH ICT

- Uses ICT to follow or contribute to a simple plan for a solution
- Uses ICT as a creative tool to generate simple solutions, modifications or data representations for personal or school purposes

CREATING WITH ICT

- Uses a draw/paint program
- Identifies tool bar
- Uses a variety of tools eg fill
- Uses colour palette
- Draws a shape or picture
- Deletes an object
- Resizes or rotates an object
- Saves as a picture file
- Uses an iPad

APPLYING SOCIAL AND ETHICAL PROTOCOLS AND PRACTICES WHEN USING ICT

- Follows Edney PS Computer Policy
- Uses ICT appropriately

ACTIVITIES

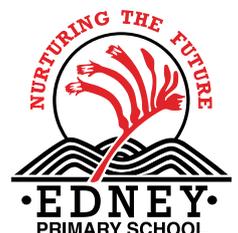
- Starts/shuts down computer
- Produces simple drawings
- Types text
- Changes font size and colour
- Inserts an image
- Points, clicks and drags mouse
- Names parts of computer
- Simple coding - plugged or unplugged

WORK SAMPLES / ASSESSMENTS

- Word typing sample
- Digital artwork
- Digital photograph
- Sound recording
- Drawing of computer

SOFTWARE, WEBSITES & APPS

- Microsoft Word
- Paint
- Book Creator
- iPad Apps



TECHNOLOGIES IN YEAR ONE AT EDNEY

DESIGN AND TECHNOLOGIES

Students identify people that produce familiar products and services and recall some simple stages of the production process. In Engineering principles and systems, students use technology to move objects and observe the reactions. In Food and fibre production, students identify plants and animals used for production and their basic needs. In Materials and technologies specialisations, students observe, explore and select materials to use for construction based on materials' characteristics and behaviours.

With all Design and Technology contexts, students explore opportunities when designing products or solutions. They develop and communicate design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps. Students use given components and equipment and work safely to make solutions. They develop personal preferences to evaluate the success of design processes. Students work independently, or with others, to safely create and share sequenced steps for solutions.

DIGITAL TECHNOLOGIES

Students identify specific features of digital systems (hardware and software) and where they are used in everyday life. They represent data using pictures, symbols and diagrams. Students follow strategies to stay safe online while they select and use a variety of digital tools to present information in an online environment.

In Digital Technologies, students explore opportunities when designing products or solutions. They develop and communicate design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps. Students use given components and equipment and work safely to make solutions. They develop personal preferences to evaluate the success of design processes. Students work independently, or with others, to safely create and share sequenced steps for solutions.

DESIGN AND TECHNOLOGIES SCOPE AND SEQUENCE

Technologies and society

- People produce familiar products and services to meet personal and community needs

Technologies contexts

- In Year 1, students will have opportunities to create designed solutions in at least one of the technologies contexts below (Food and fibre production includes Food specialisations in Year 1)

Engineering principles and systems

- Ways objects can be moved using technology

Food and fibre production

- Plants and animals used for production have basic needs, such as food/nutrients, water, space, protection

Food specialisations

- Not applicable

Materials and technologies specialisations

- Characteristics and behaviours of individual materials used in products

Investigating and defining

- Explore opportunities for design

Designing

- Develop and communicate design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps

Producing & implementing

- Use given components and equipment to safely make solutions

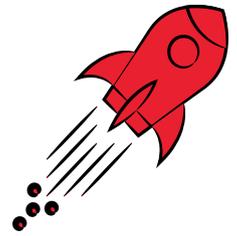
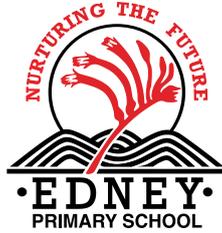
Evaluating

- Use personal preferences to evaluate the success of design processes

Collaborating & managing

- Work independently, or with others when required, to safely create and share sequenced steps for solutions.





1

SYLLABUS, SCOPE AND SEQUENCE

SAMPLE UNIT OF WORK FOOD & FIBRE PRODUCTION - GROW, GROW, GROW!

Children explore how plants and animals are grown for food, clothing and shelter and how food is selected and prepared for healthy eating and design solutions for a farm to enable successful food and fibre production and make a food from garden produce.

They apply the following processes and production skills:

- investigating how food and fibre are grown to meet human needs
- generating and refining design ideas for a functional growing environment
- producing a simple drawing that represents the design
- evaluating their design and presentation processes
- collaborating and managing by working with others and by following sequenced steps for the project.

SUGGESTED SKILLS, STRATEGIES AND RESOURCES

- Questioning
- Solving problems
- Creating solutions
- Designing
- Evaluating
- Diagrams and drawings
- Products
- Services
- Materials
- Systems

DIGITAL TECHNOLOGIES SCOPE AND SEQUENCE

Digital systems

- Digital systems (hardware and software) are used in everyday life and have specific features

Representations of data

- Data can have patterns and can be represented as pictures, symbols and diagrams

Collecting, managing and analysing data

- Present data of any kind using a variety of digital tools

Digital implementation

- Use data to solve a simple task/problem
- Share and publish information with known people in an online environment, modelling strategies to stay safe online

Investigating and defining

- Explore opportunities for design

Designing

- Develop and communicate design ideas through describing, drawing, modelling and/or a sequence of written or spoken steps

Producing and implementing

- Use given components and equipment to safely make solutions

Evaluating

- Use personal preferences to evaluate the success of design processes

Collaborating and Managing

- Work independently, or with others when required, to create and safely share sequenced steps for solutions.

SUGGESTED SKILLS, STRATEGIES AND RESOURCES

- Collecting and understanding data
- Solving problems
- “Hello Ruby” - books
- Digital Technologies Hub

DIGITAL TECHNOLOGIES SKILLS IN YEAR ONE

HARDWARE AND SOFTWARE

A computer is a common digital system. A tablet device, laptop and smartphone are also digital systems. In Pre-primary, students develop understandings of digital systems (hardware and software) when they use some key functions to undertake authentic curriculum tasks. A modelled approach supports students to understand how to match familiar forms of software and hardware with their purpose. Students can use materials such as modelling clay or boxes to construct/ build their own digital systems such as a desktop computer, tablet device, laptop or smartphone.

DATA IS ALL AROUND US

This aspect of digital technologies has strong connections to the Mathematics learning area and can be integrated to make learning more meaningful. Data is all around us in our everyday life and even our own observations inform us. Data can be presented to us as information in the form of numbers such as the time, date, car speed, temperature, or a train timetable. Data can be presented as symbols such as weather icons, visually as pictures or maps, or as text. Often data is presented using a combination of these such as when used to create an infographic. We use the data to make decisions.

Representing data refers to the way data is symbolised, visually treated or provided as audio. For example, data about animals may be represented as images of each animal, emotions may be represented as emojis, and weather data may be represented as icons. Presentation of data deals with the format in which it may be presented, such as in a table, T-chart or Y-chart, a picture graph or a bar graph. We may collect data through observations, photography, audio recordings, video recordings, by survey or from other sources. Data often comes to us unorganised so the first step is to sort the data by common characteristics or attributes, then arrange the data to help make sense and look for patterns, and finally present the data visually.

AN INTRODUCTION TO ALGORITHMS

Students should be provided with opportunities to explore algorithms through guided play, including hands-on, kinaesthetic and interactive learning experiences. Students begin to develop their design skills by conceptualising algorithms as a sequence of steps or procedures for carrying out instructions to solve problems or achieve certain things. These skills could include identifying steps in a process or controlling a Bee-Bot. Provide authentic and meaningful ways to introduce students to simple programming while consolidating concepts across other subject areas.

ONLINE SAFETY

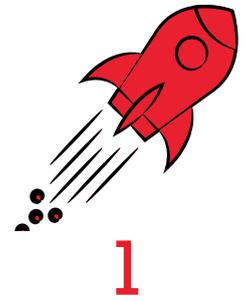
It is important when accessing and sharing information online that students are aware of potential dangers and that they behave in a responsible manner. As an extension of classroom rules discuss rules for online safety and acceptable online behaviour. Students plan a retelling of a relevant text and create the story using a familiar presentation software. Explore bookmarked websites to gather information for a class context.



Year	Number of suns	Number of bees
2010	3	1
2011	4	2
2012	5	3
2013	6	4
2014	7	5



ICT UNDERSTANDINGS AND SKILLS YEAR ONE



MANAGING AND OPERATING ICT

Identifies computer-based technologies:

- keyboard & mouse, monitor, printer, hard drive, camera, **microphone**

Care and appropriate use of computer-based technologies:

- move mouse
- click / double click mouse
- turn Computer on/off
- **log on / log off**
- identify letters on keyboard
- use special keys e.g. Enter, space
- access and exit software
- **print files**
- **manage files** - open, close

Understands computer-based terms:

- cursor
- **software/hardware**
- menu
- open/close program
- **file, save file, edit file**

INVESTIGATING WITH ICT

Creates, opens, closes and saves a document:

- **use pull down menus**
- open and close file
- use Save and Save as

Enters and modifies text:

- inserts & deletes text
- changes font size.
- **copy and paste text**
- **highlight text**
- **change font style**
- change font colour
- **print documents**

Formats documents:

- **change page borders**
- **change page background**

Adds graphics:

- **insert Clipart & Word Art**
- **insert shapes**

COMMUNICATING WITH ICT

- Understands and uses Internet
- Types a specific location into address bar
- Uses back, forward, home and refresh buttons

CREATING WITH ICT

Uses a draw/paint program:

- Identifies tool bar
- Uses a variety of tools eg fill
- Uses colour palette
- Deletes an object
- **Prints a drawing**
- Saves as a picture file
- Uses an iPad

APPLYING SOCIAL AND ETHICAL PROTOCOLS AND PRACTICES WHEN USING ICT

- Follows Edney PS Computer Policy
- Uses ICT appropriately

ACTIVITIES

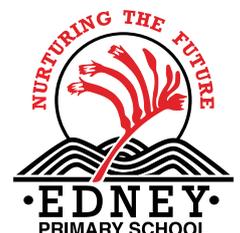
- Starts/shuts down computer
- **Logs on/off computer**
- Produces simple drawings
- Types text
- Changes font size and colour
- Inserts an image
- Points, clicks and drags mouse
- Names parts of computer
- Simple coding - plugged or unplugged

WORK SAMPLES / ASSESSMENTS

- Word typing sample
- Digital artwork
- PowerPoint presentation
- Basic Animation
- Digital Story

SOFTWARE, WEBSITES & APPS

- Typing tournament
- Microsoft Word
- PowerPoint
- Paint
- KidPix
- Book Creator
- iPad Apps



TECHNOLOGIES IN YEAR TWO AT EDNEY

DESIGN AND TECHNOLOGIES

Students identify and exemplify roles of people that design and produce products, services and environments within the community. In Engineering principles and systems, students use a range of forces to move objects and observe the reactions. In Food and fibre production, students make simple connections between healthy living, food and fibre choices. In Materials and technologies specialisations, students develop ideas and make design decisions, considering both the characteristics and properties of materials.

With all Design and Technology contexts, students explore design to meet needs or opportunities. They develop, communicate and discuss design ideas through describing, drawing, modelling and/or sequenced steps. Students use components and given equipment to safely make solutions. They use simple criteria to evaluate the success of design processes and solutions. Students work independently, or collaboratively, to organise information and ideas to safely create and share sequenced steps for solutions.

DIGITAL TECHNOLOGIES

Students use digital systems for a specific purpose making connections between software and hardware. They identify patterns within data to make simple conclusions. Students select, present and use data using a variety of digital tools in an online environment.

In Digital Technologies, students explore design to meet needs or opportunities. They develop, communicate and discuss design ideas through describing, drawing, modelling and/or sequenced steps. Students use components and given equipment to safely make solutions. They use simple criteria to evaluate the success of design processes and solutions. Students work independently, or collaboratively, to organise information and ideas to safely create and share sequenced steps for solutions.

DESIGN AND TECHNOLOGIES SCOPE AND SEQUENCE

Technologies and society

- People design and produce familiar products, services and environments to meet local and community needs.

Technologies contexts

- In Year 2, students will have opportunities to create designed solutions in at least one of the technologies contexts below (Food and fibre production includes Food specialisations in Year 2)

Engineering principles and systems

- Forces create movement in objects

Food and fibre production

- Food and fibre choices for healthy living

Food specialisations

- Not applicable

Materials and technologies specialisations

- Characteristics and properties of materials and individual components that are used to produce design solutions

Investigating and defining

- Explore design to meet needs or opportunities

Designing

- Develop, communicate and discuss design ideas through describing, drawing, modelling and/or a sequence of steps

Producing & implementing

- Use components and given equipment to safely make solutions

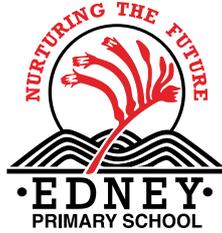
Evaluating

- Use simple criteria to evaluate the success of design processes and solutions

Collaborating & managing

- Work independently, or collaboratively when required, to organise information and ideas to safely create and share sequenced steps for solutions.





SYLLABUS, SCOPE AND SEQUENCE

SAMPLE UNIT OF WORK ENGINEERING PRINCIPLES & SYSTEMS: SPIN IT!

Children explore how technologies use forces to create movement in products and design and make a spinning toy for that is fun and easy for a small child or friend to use.

They apply the following processes and production skills:

- investigating spinning toys from around the world, and analysing how they are made and how they work
- generating and refining design ideas, communicated by simple drawings
- producing a functional product that appeals to another small child or friend
- evaluating their design and production processes
- collaborating and managing by working with others and by sequencing the steps for the project.
- producing a puppet that meets the design brief
- evaluating their design and production processes

DIGITAL TECHNOLOGIES SCOPE AND SEQUENCE

Digital systems

- Digital systems (hardware and software) are used for an identified purpose

Representations of data

- Data can have patterns and can be represented and used to make simple conclusions

Collecting, managing and analysing data

- Present data using a variety of digital tools

Digital implementation

- Use data to solve similar tasks/problems
- Share and publish information in a safe online environment, with known people

Investigating and defining

- Explore design to meet needs or opportunities

Designing

- Develop, communicate and discuss design ideas through describing, drawing, modelling and/or a sequence of steps

Producing and implementing

- Use components and given equipment to safely make solutions

Evaluating

- Use simple criteria to evaluate the success of design processes and solutions

Collaborating and Managing

- Work independently, or collaboratively when required, to organise information and ideas to create and safely share sequenced steps for solutions.

DIGITAL TECHNOLOGIES SKILLS IN YEAR TWO

CHANGES IN TECHNOLOGY

Changes to technology over time has affected many aspects of life. The way we lived in the past is different to the way we live today and this is vastly due to the changes in technology. Technological changes affect the way we work, travel, communicate and play. As students learn about the impact of changing technology they can explore current digital systems and their use. Current digital systems such as computers, smartphones, tablets and laptops have evolved over time. The availability of the Internet provides us with ready access to information anytime, anywhere. We can stay in touch and communicate instantly with friends and family anywhere in the world. Students can consider the impact of these technological changes as they compare a current digital solution with the way this might have been solved in the past.

EXPLORING DATA

At this level we include numeric data which includes data counted in whole numbers, such as numbers of people, and data that is continuous, such as height or weight. Another form of data is categorical data. This data is often a word or a symbol that can be ranked or ordered, such as a temperature scale from cold to hot, and those data that cannot be ranked or ordered, such as eye colour, gender or types of pets. Our focus is how to work with the data in digital form.

Representing data refers to the way data is symbolised, visually treated or provided in audio. Presentation of data deals with the format it may be presented in, such as in a table, chart, or graph.

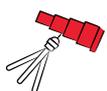
We may collect data through observations, by survey or from other sources. Data often comes to us unorganised, so the first step is to sort the data by common characteristics or attributes; then arrange the data to help make sense and look for patterns; and finally present the data visually.

PRE-PROGRAMMING

While there is no requirement to learn a particular programming language at this level, students do learn some basic computational skills such as working out steps and decisions required to solve simple problems. For example, they can instruct a robotic toy to move in a certain direction. The focus at this level is on designing a sequence of steps. Some students may be ready to learn to use a simple visual programming language specifically designed for young children. An app that enables the user to drag and drop programming blocks can be used to create some simple animations.

STAYING SAFE ONLINE

Passwords are an important aspect of using digital systems and are designed to restrict access to personal files and information. Find out what students know about passwords, including what they are, who uses them, why they are used, why they are kept secret and what a strong password is. Revisit classroom rules about how to behave online in a safe and acceptable manner. Explore instances of cyberbullying and discuss strategies to deal with these situations. Explore how pop-up files might harm a computer. Provide opportunities for students to share ideas in an online space using a suitable classroom context.



ICT UNDERSTANDINGS AND SKILLS YEAR TWO



MANAGING AND OPERATING ICT

Identifies computer-based technologies:

- keyboard & mouse, monitor, printer, hard drive, camera, microphone

Care and appropriate use of computer-based technologies:

- move mouse
- click / double click mouse
- turn computer on/off and log on/off
- identify letters on keyboard
- use special keys e.g. enter, space
- access and exit software
- print files
- manage files - open, close

Understands computer-based terms:

- cursor
- software/hardware
- menu
- open/close program
- file, save file, edit file

INVESTIGATING WITH ICT

Creates, opens, closes and saves a document:

- use pull down menus
- open and close file
- use save and save as

Enters and modifies text:

- inserts & deletes text
- changes font size
- copy and paste text
- highlight text
- change font style
- change font colour
- print documents

Formats documents:

- change page borders
- change page background

Adds graphics:

- insert Clipart & Word Art
- insert shapes

COMMUNICATING WITH ICT

- Understands and uses Internet
- Types a specific location into address bar
- Uses back, forward, home and refresh buttons

CREATING WITH ICT

Uses a draw/paint program:

- identifies tool bar
- uses a variety of tools eg fill
- uses colour palette
- deletes an object
- prints a drawing
- saves as a picture file
- uses an iPad

APPLYING SOCIAL AND ETHICAL PROTOCOLS AND PRACTICES WHEN USING ICT

- Follows Edney PS Computer Policy
- Uses ICT appropriately

ACTIVITIES

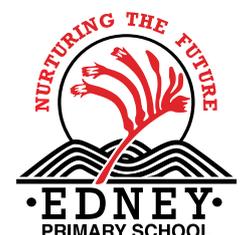
- Starts/shuts down computer
- Logs on/off computer
- Produces simple drawings
- Types text
- Changes font size and colour
- Inserts an image
- Points, clicks and drags mouse
- Names parts of computer
- Simple coding - plugged or unplugged

WORK SAMPLES / ASSESSMENTS

- Word typing sample
- Digital artwork
- PowerPoint presentation
- Basic Animation
- Digital Story

SOFTWARE, WEBSITES & APPS

- Typing Tournament
- Microsoft Word
- PowerPoint
- Paint
- KidPix
- Book Creator
- iPad Apps



TECHNOLOGIES IN YEAR THREE AT EDNEY

DESIGN AND TECHNOLOGIES

Students identify roles people in design and technology have on the community and explore design development processes of products, services and environments. In Engineering principles and systems, students observe and recognise ways applied forces and properties of materials affect the behaviour of objects. In Food and fibre production, students identify equipment and simple processes used in food and fibre production from a range of environments, cultures or time periods. In Materials and technologies specialisations, students select and safely use suitable materials, tools and equipment to create design solutions.

With all Design and Technology contexts, students create a sequence of steps to solve a given task. They develop and communicate ideas using labelled drawings and appropriate technical terms. Students select and safely use appropriate components with given equipment to make a solution. They use criteria to evaluate design processes and solutions developed. Students work independently, or collaboratively to plan, safely create and communicate sequenced steps.

DIGITAL TECHNOLOGIES

Students explore and recognise some differences and the purpose of digital systems and peripheral devices and present data in a variety of ways. Students develop ideas with sequenced steps (algorithms) and branching, using simple software to collect and present data. They work with others to create and communicate ideas and information.

In Digital Technologies, students create sequenced steps (algorithms) to solve a given digital task. They develop and communicate ideas using labelled drawings and appropriate technical terms. Students select and safely use appropriate components with given equipment to make a solution. They use criteria to evaluate design processes and solutions developed. Students work independently, or collaboratively, to plan, safely create and communicate sequenced steps.

DESIGN AND TECHNOLOGIES SCOPE AND SEQUENCE

Technologies and society

- Role of people in design and technologies occupations
- Ways products, services and environments are designed to meet community needs

Technologies contexts

- In Year 3, students will have opportunities to create designed solutions in at least one of the technologies contexts below (Food and fibre production includes Food specialisations in Year 3)

Engineering principles and systems

- Forces, and the properties of materials, affect the behaviour of objects

Food and fibre production

- Types of food and fibre produced in different environments, cultures or time periods, including the equipment used to produce or prepare them

Food specialisations

- Not applicable

Materials and technologies specialisations

- Suitability and safe practice when using materials, tools and equipment for a range of purposes

Investigating and defining

- Create a sequence of steps to solve a given task

Designing

- Develop and communicate ideas using labelled drawings and appropriate technical terms

Producing & implementing

- Select, and safely use, appropriate components with given equipment to make a solution

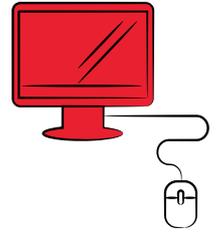
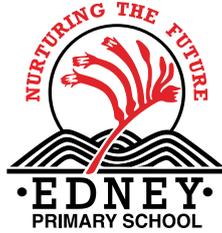
Evaluating

- Use criteria to evaluate design processes and solutions developed

Collaborating & managing

- Work independently, or collaboratively when required, to plan, safely create and communicate sequenced steps.





3

SYLLABUS, SCOPE AND SEQUENCE

SAMPLE UNIT OF WORK FOOD & FIBRE PRODUCTION - WHAT'S FOR LUNCH?

Students investigate food and fibre production and food technologies used in modern and traditional societies. They design and make a lunch item that includes modern and traditional technologies and explore how people in different times developed food and fibre technologies to meet human needs.

Students apply the following processes and production skills:

- investigating by exploring traditional food and fibre production and food technologies
- identifying contemporary technologies for growing food and fibre and preserving and preparing foods
- generating, developing and communicating design ideas for a food product

DIGITAL TECHNOLOGIES SCOPE AND SEQUENCE

Digital systems

- Digital systems and peripheral devices are used for different purposes

Representations of data

- Different types of data can be represented in different ways

Collecting, managing and analysing data

- Collect and present different types of data using simple software to create useful information

Digital implementation

- Use visually represented sequenced steps (algorithms), including steps with decisions made by the user (branching)
- Create and communicate ideas and information safely

Investigating and defining

- Create a sequence of steps to solve a given task

Designing

- Develop and communicate ideas using labelled drawings and appropriate technical terms

Producing and implementing

- Select, and safely use, appropriate components with given equipment to make a solution

Evaluating

- Use criteria to evaluate design processes and solutions developed

Collaborating and Managing

- Work independently, or collaboratively when required, to plan, create and communicate sequenced steps.

DIGITAL TECHNOLOGIES SKILLS IN YEAR THREE

PERIPHERAL DEVICES

A peripheral device is typically a device that is external to a computer and connected either wirelessly or via a cable, although some are internal to the digital system. A way of introducing students to peripheral devices is to start with a desktop computer with no other devices connected. Progressively add devices as the different user needs are introduced. Treasure hunt and 'What am I?' type activities can encourage students to sort and classify peripheral devices and can help reinforce understandings about them. Create task cards that require students to use specific peripheral devices to complete a task. Compare and contrast peripherals that do the same or similar job in different ways.

SECRET MESSAGES AND CODES

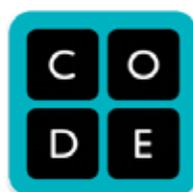
Encoding a word or phrase is an example of representing data in a different way. Introduce encoding and decoding using secret messages. Braille is a system for representing text and other characters using combinations of flat and raised dots on paper so they can be read by touch. Morse Code represents the letters of the alphabet using dots and dashes. A QR code is another way to represent data.

INTRO TO PROGRAMMING

Programming is one process of the larger problem-solving methodology of creating digital solutions. Using a programming language can create a solution to a problem. The starting point for the problem-solving methodology is finding out about (investigating) and working out (defining) the problem. Once the problem has been defined the next step is to represent the solution as a series of steps (an algorithm). The algorithm can highlight any decisions (branching) that need to be made and what pathways might result, as well as how a user might engage and provide input. Algorithms at this level might be described verbally, written as a series of steps, represented on card, drawn or created digitally. The algorithm may then be implemented using a programming solution where students use a visual programming language that involves dragging and dropping programming blocks into a sequence. The final process is to evaluate how well their solution solved the problem.

COMMUNICATE IDEAS AND INFORMATION

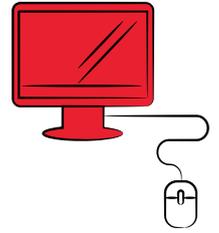
The home is a useful context to study information systems for personal purposes. Use the school library borrowing system as a way to further explore information systems; other examples include online access to anything that requires a large amount of information and resources organised in an easily accessible format. Explore the possible use of information systems within the community. Explore virtual resources that are available globally and have a relevant class context. Students could create their own pseudo virtual tour of the school for a particular purpose.



Code.org



ICT UNDERSTANDINGS AND SKILLS YEAR THREE



3

MANAGING AND OPERATING ICT

Identifies computer-based technologies:

- keyboard, mouse, monitor, printer, speakers, hard drive, digital camera, microphone, headphones, RAM

Care and appropriate use of computer-based technologies:

- mouse skills
- logs on to computer
- uses peripherals
- accesses and exits software
- print files
- names & saves documents in chosen folder
- chooses a printer to print to

Understands computer-based terms:

- cursor
- software/hardware
- open/close program
- drop down menus
- file, save and save as, edit file
- network
- spreadsheet
- cell/row/column
- database

INVESTIGATING WITH ICT

Creates, opens, closes and saves a document:

- retrieve and rename a file

Enters and modifies text:

- enter and delete text
- highlight, copy and paste text
- change font style and colour
- print documents

Formats documents:

- change page orientation
- change page borders and background

Adds graphics:

- inserts Clipart & Word Art
- customises Word Art
- inserts and formats shapes

COMMUNICATING WITH ICT

- Understands and uses Internet
- Types a specific location into address bar
- Uses back, forward, home and refresh buttons

CREATING WITH ICT

Uses a draw/paint program:

- identifies tool bar
- uses a variety of tools eg fill

Create a Slide Show

- inserts text, graphics, sound & transitions.
- presents & prints slide show

Uses an iPad

APPLYING SOCIAL AND ETHICAL PROTOCOLS AND PRACTICES WHEN USING ICT

- Follows Edney PS Computer Policy
- Uses ICT appropriately

ACTIVITIES

- Makes a sign/poster/card using WordArt, clipart and colours.
- Uses drawing tools in variety of online and offline programs
- Conducts web searches
- Records sounds
- Creates digital stories
- Creates a PowerPoint
- Creates simple tables in Excel
- Simple block coding and robotics

WORK SAMPLES / ASSESSMENTS

- Word typing sample
- PowerPoint presentation
- Sound recording
- Videos
- Digital artwork
- Simple Animations
- Digital Stories
- Word Clouds
- Excel spreadsheet & graphs

SOFTWARE, WEBSITES & APPS

- Typing Tournament
- Microsoft Word
- PowerPoint
- Popplet
- Puppet Pals
- Wordle
- Book Creator
- iPad Apps

TECHNOLOGIES IN YEAR FOUR AT EDNEY

DESIGN AND TECHNOLOGIES

Students identify roles people in design and technologies occupations have in the community and ways that products, services and environments are designed and produced to meet community needs, considering sustainability. In Engineering principles and systems, students recognise ways forces and properties of materials, affect the behaviour of a product or system. In Food and fibre production, students identify consumer needs and how technology is used in food and natural fibre production or processing. In Materials and technologies specialisations, students implement safe practices and select suitable materials, systems and components for a range of purposes.

With all Design and Technology contexts, students use sequenced steps to design a solution for a given task. They identify and choose the appropriate resources from a given set. Students develop and communicate design ideas and decisions, using annotated drawings and appropriate technical terms. They select and safely use appropriate components and equipment to make solutions. Students use criteria to evaluate and justify simple design processes and solutions for a given task. They work independently, or collaboratively, to plan, safely create and communicate ideas and information for solutions.

DIGITAL TECHNOLOGIES

Students identify different purposes for digital systems and peripheral devices, recognising they can store and transmit a variety of data. They use simple visual programming, including a sequence of steps (algorithms) and branching, students represent data in a range of ways. They create and communicate ideas and information and use software to collect and represent different types of data, using agreed protocols (netiquette).

In Digital Technologies, students use algorithms (sequenced steps) to design a solution for a given digital task. They identify and choose the appropriate resources from a given set. Students develop and communicate design ideas and decisions, using annotated drawings and appropriate technical terms. They select and safely use appropriate components and equipment to make solutions. Students use criteria to evaluate and justify simple design processes and solutions for a given digital task. They work independently, or collaboratively, to plan, safely create and communicate ideas and information for solutions.

DESIGN AND TECHNOLOGIES SCOPE AND SEQUENCE

Technologies and society

- Role of people in design and technologies occupations
- Ways products, services and environments are designed to meet community needs, including consideration of sustainability

Technologies contexts

- In Year 4, students will have opportunities to create designed solutions in at least one of the technologies contexts below (Food and fibre production includes Food specialisations in Year 4)

Engineering principles and systems

- Forces, and the properties of materials, affect the behaviour of a product or system

Food and fibre production

- Types of technologies used in food and fibre production or processing, including how they are used to help meet consumer needs

Food specialisations

- Not applicable

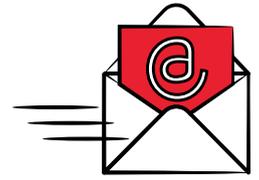
Materials and technologies specialisations

- Suitability and safe practice when using materials, systems and components for a range of purposes

Investigating and defining

- Define a sequence of steps to design a solution for a given task





4

SYLLABUS, SCOPE AND SEQUENCE

SAMPLE UNIT OF WORK MATERIALS & TECHNOLOGIES SPECIALISATIONS - REPURPOSE IT

Students investigate the suitability of materials, systems, components, tools and equipment for specific purposes. They repurpose an item of clothing to create another useful item and explore the role of people in design and technologies occupations as well as factors, including sustainability, that impact on designs that meet community needs.

Students apply the following processes and production skills:

- communicating with clients and critiquing needs or opportunities for designs
- testing materials including fabrics and exploring techniques for shaping and joining them
- identifying examples of recycling, up-cycling, re-using
- generating design ideas for a useful item and communicating them with annotated design drawings

- producing a useful item by selecting relevant tools and resources and using them safely
- evaluating design ideas, processes and solutions
- collaborating and working individually throughout the process
- managing by sequencing production steps.

DIGITAL TECHNOLOGIES SCOPE AND SEQUENCE

Digital systems

- Digital systems and peripheral devices are used for different purposes and can store and transmit different types of data

Representations of data

- Data can be represented in different ways

Collecting, managing and analysing data

- Collect and present different types of data for a specific purpose using software

Digital implementation

- Use simple visual programming environments that include a sequence of

steps (algorithm) involving decisions to be made by the user (branching)

- Create and communicate ideas and information safely, using agreed protocols (netiquette)

Investigating and defining

- Define a sequence of steps to design a solution for a given task
- Identify and choose the appropriate resources from a given set

Designing

- Develop and communicate design ideas and decisions using annotated drawings and appropriate technical terms

Producing & implementing

- Select, and safely use, appropriate components and equipment to make solutions

Evaluating

- Use criteria to evaluate and justify simple design processes and solutions

Collaborating and Managing

- Work independently, or collaboratively when required, to plan, create and communicate ideas and information for solutions.

DIGITAL TECHNOLOGIES SKILLS IN YEAR FOUR

EXPLORING INPUT AND OUTPUT

Digital systems store, process and transmit information in digital form. Connecting other digital components (peripherals) to a digital system enables different functions. This opens up the possibility of using a range of materials for input, allowing creativity in design.

A programming board enables the use of different inputs. Similarly, a snap-together circuit can have components such as a power supply, motor (servos), sensors, lights, buzzers, switches, and Bluetooth connectivity - enabling remote control. The device can often be programmed using a visual programming language, which allows students to integrate understandings of inputs and outputs of digital systems with programming a digital solution.

USE DATA TO SOLVE PROBLEMS

Data is the vital ingredient to creating information and digital solutions. Students should collect different types of data, such as text, numeric, sound and image (still and moving) to answer a meaningful question and then use different software to organise and present data, such as spreadsheets and animation software. Explicitly teach students how to input data into a spreadsheet to organise and present the data. Use different software to present data. Students Explore a range of different formats for presenting data and information.

PROGRAMMING PROJECT

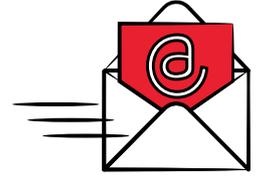
Students should develop an understanding of computer programming as a series of instructions that can change depending on different user inputs or conditions. The focus is on how digital systems follow instructional pathways and how these can be described using flow charts or through the use of visual programming languages. These pathways can be hand drawn, displayed graphically, using cards or manipulated digitally using block-based programming languages.

APPLY PROTOCOLS

Technology is an embedded part of our lives, and it is essential that students understand how to engage responsibly in online spaces. Using the school's ICT agreement as a focus, develop an agreed set of rules and discuss protocols for ICT use. It is important students understand what it means to behave safely online and have an opportunity to explore this in more detail. Discuss the use of personal information or images when communicating online. Empower students with the knowledge of how to act responsibly online and equip them with the tools to know how to deal with cyberbullying behaviour. Use a collaborative online project to apply protocols and manage a task.



ICT UNDERSTANDINGS AND SKILLS YEAR FOUR



4

MANAGING AND OPERATING ICT

- Mouse skills
- Logs on to computer
- Uses peripherals
- Accesses and exits software
- Prints files
- Names and saves documents in chosen folder
- Chooses a printer to print to

Understands computer-based terms:

- cursor, software/hardware, open/close program, drop down menus, file, save and save as, edit file, Network, spreadsheet, cell/row/column, database

INVESTIGATING WITH ICT

- Retrieve and rename a file
- Type, highlight, copy and paste text
- Change font style, size & colour
- Uses wrap text
- Uses undo and redo
- Justifies text
- Uses spell and grammar check
- Uses thesaurus
- Uses find and replace
- Uses keyboard shortcuts
- Understands touch typing
- Print selected portions or whole document
- Print preview
- Changes page orientation
- Changes backgrounds & borders
- Customises Clipart & Wordart
- Inserts and formats shapes
- Inserts file from external drive

COMMUNICATING WITH ICT

- Opens, reads and replies to emails
- Forwards an email
- Adds attachment to email
- Locates specific web addresses
- Effectively uses toolbars and bookmarks
- Uses advanced search features to locate pages and images

CREATING WITH ICT

Uses a draw/paint program:

- Uses a variety of tools

Create a Slide Show:

- inserts text, graphics, sound & transitions.
- presents & prints slide show

Uses a Surface Pro

APPLYING SOCIAL AND ETHICAL PROTOCOLS AND PRACTICES WHEN USING ICT

- Follows Edney PS Computer Policy
- Uses ICT appropriately
- Obeys copyright laws

ACTIVITIES

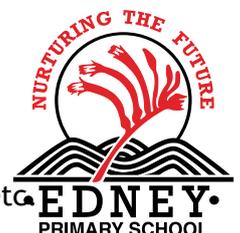
- Makes a sign/poster/card using WordArt, Clipart and colours
- Uses drawing tools in variety of online and offline programs
- Conducts web searches
- Records sounds
- Creates digital stories
- Creates a PowerPoint
- Creates simple tables in Excel
- Block coding and robotics

WORK SAMPLES / ASSESSMENTS

- Word typing sample
- PowerPoint presentation
- Excel spreadsheet and graphs
- Sound recording
- Videos
- Digital artwork
- Simple Animations
- Digital Stories
- Photo video presentations
- Word Clouds
- Emails

SOFTWARE, WEBSITES & APPS

- Typing Tournament
- Microsoft Word
- Microsoft PowerPoint
- Microsoft Excel
- Google Apps
- Paint
- iPad apps
- Word Clouds - Wordle etc.
- Brainstorming Tools - Popplet etc.



TECHNOLOGIES IN YEAR FIVE AT EDNEY

DESIGN AND TECHNOLOGIES

Students identify ways people address and overcome competing considerations when designing products, services and environments. In Engineering principles and systems, students distinguish various ways forces control movement, sound or light in a product or system. In Food and fibre production, students identify ways people in design and technology occupations aim to increase the efficiency of production systems or consumer satisfaction of food and natural fibre products. In Food specialisations, students identify and implement a variety of food and hygiene practices. In Materials and technologies specialisations, students outline and apply suitable and safe practices and are able to classify the characteristics and properties of a range of materials and components.

With all Design and Technology contexts, students define a problem, identify available resources and create sequenced steps to assist in decision making for a given task. They develop and communicate alternative solutions, and use annotated diagrams, storyboards and appropriate technical terms when following design ideas. Students select and apply safe procedures when using components and equipment. They develop negotiated criteria to evaluate and justify design processes and solutions. Students work independently, or collaboratively, to plan, safely develop and communicate ideas and information.

DIGITAL TECHNOLOGIES

Students identify components of digital systems and their basic functions that connect to form networks which transmit data. They represent data using code, as well as using software to collect, store and present data for a specific purpose. Students create design solutions for a user interface and design, follow and represent diagrammatically, a simple sequence of steps (algorithms), involving branching (decisions) and iteration (repetition), implementing and using simple programming. They create and communicate information for online collaborative projects, using agreed social, ethical and technical protocols (codes of conduct).

In Digital Technologies, students define a problem, identify available resources and create algorithms (sequenced steps) to assist in decision making for a given digital task. They develop and communicate alternative solutions, and use annotated diagrams, storyboards and appropriate technical terms when following design ideas. Students select and apply safe procedures when using components and equipment. They develop negotiated criteria to evaluate and justify design processes and solutions. Students work independently, or collaboratively, to plan, safely develop and communicate ideas and information.

DESIGN AND TECHNOLOGIES SCOPE AND SEQUENCE

Technologies and society

- How people address competing considerations when designing products, services and environments

Technologies contexts

- *In Year 5, students will have opportunities to create design solutions in at least one of the technologies contexts below*

Engineering principles and systems

- Forces can control movement, sound or light in a product or system

Food and fibre production

- People in design and technologies occupations aim to increase efficiency of production systems, or consumer satisfaction of food and natural fibre products

Food specialisations

- Food safety and hygiene practices

Materials and technologies specialisations

- Characteristics and properties of a range of materials and components, and the suitability and safe practice of their use

Investigating and defining

- Define a problem, and set of sequenced steps, with users making a decision to create a solution for a given task
- Identify available resources

Designing

- Develop and communicate alternative solutions, and follow design ideas, using annotated diagrams, storyboards and appropriate technical terms

Producing & implementing

- Select, and apply, safe procedures when using components and equipment to make solutions

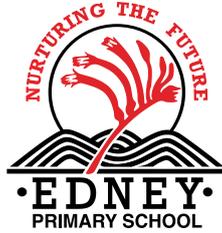
Evaluating

- Develop negotiated criteria to evaluate and justify design processes and solutions

Collaborating & managing

- Work independently, or collaboratively when required, to plan, safely develop and communicate ideas and information for solutions.





5

SYLLABUS, SCOPE AND SEQUENCE

SAMPLE UNIT OF WORK FOOD SPECIALISATIONS - QUENCH

Students investigate the role of food preparation in maintaining good health and the importance of food safety and hygiene. They design a safe and hygienic environment to make a healthy drink that meets a specific need and explore food technology occupations and how people in those roles address factors such as sustainability in the production and delivery of food to meet community needs.

Students apply the following processes and production skills:

- critiquing needs or opportunities for different types of drink
- testing ingredients, equipment and processes
- generating and documenting design ideas for a drink suited to a purpose and client group and a safe hygienic environment for preparing it
- producing a drink by applying safe and hygienic procedures in a designed environment
- evaluating design ideas, processes and solutions against negotiated criteria for success, including sustainability
- collaborating as well as working individually throughout the process

- managing by developing project plans that include resources.

DIGITAL TECHNOLOGIES SCOPE AND SEQUENCE

Digital systems

- Digital systems have components with basic functions that may connect together to form networks which transmit data

Representations of data

- Data is represented using codes

Collecting, managing and analysing data

- Collect, store and present different types of data for a specific purpose using software

Digital implementation

- Design solutions to a user interface for a digital system
- Design, follow and represent diagrammatically, a simple sequence of steps (algorithm), involving branching (decisions) and iterations (repetition)

- Implement and use simple programming environments that include branching (decisions) and iteration (repetition)
- Create and communicate information, including online collaborative projects, using agreed social, ethical and technical protocols (codes of conduct)

Investigating and defining

- Define a problem, and set of sequenced steps, with users making a decision to create a solution for a given task
- Identify available resources

Designing

- Develop and communicate alternative solutions, and follow design ideas, using annotated diagrams, storyboards and appropriate technical terms

Producing & implementing

- Select, and apply, safe procedures when using components and equipment to make solutions

Evaluating

- Develop negotiated criteria to evaluate and justify design processes and solutions

Collaborating and Managing

- Work independently, or collaboratively when required, to plan, develop and communicate ideas and information for solutions.

DIGITAL TECHNOLOGIES SKILLS IN YEAR FIVE

DATA AND INFORMATION

Acquiring data from online sources draws on, and develops, students' digital literacy skills. Digital literacy skills include navigation skills and information management; synthesis and critical assessment; and the ethical and legal use of information. Spreadsheets are useful tools that enable us to manage, analyse and visualise data such as a chart or graph. Data validation is a key skill of using simple formulas to automate calculations. In this sequence, the students' inquiry on a chosen context leads to them to design and create digital information that incorporates a data visualisation such as an infographic.

BINARY NUMBERS

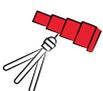
The binary number system plays a central role in how information of all kinds is stored on computers. Understanding binary helps to unravel the mystery of computers, as students begin to understand that binary digits represent on and off. Binary cards can be used to introduce the binary number system. Students can see the connection between binary digits represented as dots and the corresponding decimal number. When cards are placed in sequence students can create a binary number displaying cards as on or off. Students explain how a standard system of encoding is used to represent numbers, text and other special characters.

PROBLEM-SOLVING PROCESSES

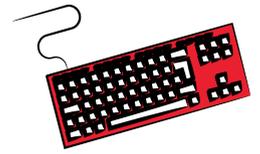
When students are set the task of solving a problem that requires a digital solution, they usually start by investigating and defining the problem. They draw on computational thinking, a problem-solving approach that involves activities such as organising data logically, breaking down problems into components, and designing and using algorithms and models to show how the solution will be developed and how it will appear. As part of designing their solution, students generate ideas and consider the user of their digital system. During the producing and implementing process students typically create their own solution using a visual programming language. Once a digital solution has been created it is important to evaluate it against relevant criteria, such as: Did it entertain the users (if a game)? Can updated data be added so the solution can be used in the future? (Future needs).

DIGITAL CITIZENSHIP

Digital citizenship is about positive and confident engagement with digital technology. A good digital citizen knows how to effectively use digital technologies to communicate with others, participate in society, and create and consume digital content in a safe and responsible manner. Digital citizens are aware that their behaviour online contributes to their own digital footprint. This includes engaging positively, respectfully and ethically when interacting online and making conscious choices and informed decisions about what information is shared, appropriate conduct and use of language. Digital citizens apply these protocols in situations such as interacting in a collaborative learning space, or creating a blog or website where their public profile is displayed.



ICT UNDERSTANDINGS AND SKILLS YEAR FIVE



5

MANAGING AND OPERATING ICT

- Logs on to computer
- Uses peripherals
- Accesses and exits software
- Names and saves documents in chosen folder
- Chooses a printer to print to
- Understands computer-based terms

INVESTIGATING WITH ICT

- Retrieve and rename a file
- Type, highlight, copy and paste text
- Change font style, size & colour
- Uses wrap text
- Uses undo and redo
- Justifies text
- Uses spell and grammar check
- Uses thesaurus
- Uses find and replace
- Uses keyboard shortcuts
- Understands touch typing
- Print selected portions or whole document
- Print preview
- Changes page orientation
- Changes backgrounds & borders
- Customises Clipart & Wordart
- Inserts and formats shapes
- Inserts file from external drive

COMMUNICATING WITH ICT

- Opens, reads and replies to emails
- Adds attachment to email
- **Uses address book**
- Locates specific web addresses
- Effectively uses toolbars and bookmarks
- Uses advanced search features to locate pages and images

CREATING WITH ICT

Uses a draw/paint / graphic design program:

- uses a variety of tools

Create a Slide Show:

- inserts text, graphics, sound & transitions
- presents & prints slide show

Uses a Surface Pro

APPLYING SOCIAL AND ETHICAL PROTOCOLS AND PRACTICES WHEN USING ICT

- Follows Edney PS Computer Policy
- Uses ICT appropriately
- Obeys Copyright laws

ACTIVITIES

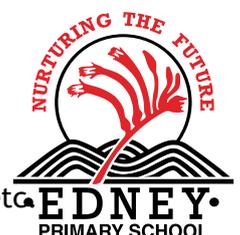
- Makes a sign/ brochure/flyer using a variety of programs or web tools
- Uses drawing tools in variety of online and offline programs
- Conducts advanced web searches
- Records sounds
- Creates videos
- Takes digital images
- Creates digital stories
- Creates an interactive PowerPoint
- Creates interactive puzzles and games
- Creates simple tables and graphs in Excel
- Creates a wiki or webpage using an online program such as Weebly
- **Participates in collaborative activities using Connect**
- Coding and robotics

WORK SAMPLES / ASSESSMENTS

- Brochure
- Interactive presentation
- Excel spreadsheet & graphs
- Sound and video recordings
- Digital artwork
- Animations
- Digital Stories
- Wiki or webpages
- Photo video presentations
- Word Clouds

SOFTWARE, WEBSITES & APPS

- Typing Tournament
- Microsoft Word
- Microsoft PowerPoint
- Microsoft Excel
- Canva
- iPad apps
- Word Clouds - Wordle etc.
- Brainstorming Tools - Popplet etc.



TECHNOLOGIES IN YEAR SIX AT EDNEY

DESIGN AND TECHNOLOGIES

Students identify how people address and overcome competing considerations, including sustainability, when designing products, services and environments for current and future use. In Engineering principles and systems, students connect ways electrical energy and forces can control movement, sound or light in a product or system. In Food and fibre production, students investigate and determine what past, current and future needs are to be considered when designing sustainable food and natural fibre systems for products. In Food specialisations, students identify and consider principles of food preparation and benefits of healthy eating. In Materials and technologies specialisations, students consider suitability of use when defining characteristics, properties and safe handling practices of a range of materials, systems, tools and equipment.

With all Design and Technology contexts, students identify available resources to design a solution for a given task, outlining problem-solving decisions, using sequenced steps. Students develop alternative solutions by designing, modifying and following both diagrammatically and in written text, using a range of appropriate technical terms, technologies and techniques. They select and apply safe procedures when using a variety of components and equipment to make solutions. Students develop criteria collaboratively to evaluate and justify design processes and solutions. They work independently, or collaboratively, considering resources and safety to plan, develop and communicate ideas and information for solutions.

DIGITAL TECHNOLOGIES

Students outline interactions between components and basic functions within digital systems and how they transmit different types of data to form networks. They make a connection between whole numbers being used to represent data within a digital system. They use software to collect, sort, interpret, visually present and manipulate data for a range of purposes. Students use simple visual programming environments to design, modify, follow and represent both diagrammatically, and in written text, algorithms (sequence of steps), involving branching (decisions), iteration (repetition) and consider user input. Students manage, create and communicate information for online collaborative projects, using agreed social, ethical and technical protocols.

In Digital Technologies, students identify available resources to design a solution for a given digital task, outlining problem-solving decisions, using algorithms (sequenced steps). Students develop alternative solutions by designing, modifying and following both diagrammatically and in written text, using a range of appropriate technical terms, technologies and techniques. They select and apply safe procedures when using a variety of components and equipment to make solutions. Students develop criteria collaboratively to evaluate and justify design processes and solutions. They work independently, or collaboratively, considering resources and safety to plan, develop and communicate ideas and information for solutions.

DESIGN AND TECHNOLOGIES SCOPE AND SEQUENCE

Technologies and society

- How people address competing considerations, including sustainability when designing products, services and environments for current and future use

Technologies contexts

- *In Year 6, students will have opportunities to create design solutions in at least one of the technologies contexts below*

Engineering principles and systems

- Electrical energy and forces can control movement, sound or light in a product or system

Food and fibre production

- Past performance, and current and future needs are considered when designing sustainable food and fibre systems for products

Food specialisations

- Principles of food preparation for healthy eating

Materials and technologies specialisations

- Characteristics, properties and safe practice of a range of materials, systems, tools and equipment; and evaluate the suitability of their use

Investigating and defining

- Define a problem, and set of sequenced steps, with users making decisions to create a solution for a given task
- Identify available resources

Designing

- Design, modify, follow and represent both diagrammatically, and in written text, alternative solutions using a range of techniques, appropriate technical terms and technology

Producing & implementing

- Select, and apply, safe procedures when using a variety of components and equipment to make solutions

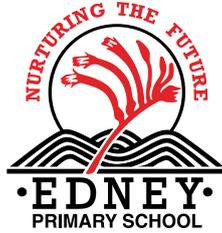
Evaluating

- Develop collaborative criteria to evaluate and justify design processes and solutions

Collaborating & managing

- Work independently, or collaboratively when required, considering resources and safety, to plan, develop and communicate ideas and information for solutions.





6

SYLLABUS, SCOPE AND SEQUENCE

SAMPLE UNIT OF WORK ENGINEERING PRINCIPLES AND SYSTEMS HANDS OFF!

Students investigate how forces or electrical energy can control movement, sound or light in a designed product or system. They produce a prototype electrical security device to protect a personal item or area and explore the role of people in engineering technology occupations in developing solutions for current and future use.

Students apply the following processes and production

skills:

- Investigating by:
- analysing technologies applied in security systems
- testing circuits and devices that control movement, sound or light
- generating and documenting design ideas for security devices using technical terms and graphical representation techniques
- producing a functional prototype by safely using materials, components, tools and techniques
- evaluating design ideas, processes and solutions

- against negotiated criteria for success including sustainability
- collaborating as well as working individually throughout the process
- managing by developing project plans that include resources.

DIGITAL TECHNOLOGIES SCOPE AND SEQUENCE

Digital systems

- Digital systems have components with basic functions and interactions that may be connected together to form networks which transmit different types of data

Representations of data

- Whole numbers are used to represent data in a digital system

Collecting, managing and analysing data

- Collect, sort, interpret and visually present different types of data using software to manipulate data for a range of purposes

Digital implementation

- Design, modify, follow and represent both diagrammatically, and in written text, simple algorithms (sequence of steps) involving branching (decisions) and iteration (repetition)
- Implement and use simple visual

programming environments that include branching (decisions), iteration (repetition) and user input

- Manage the creation and communication of information, including online collaborative projects, using agreed social, ethical and technical protocols

Investigating and defining

- Define a problem, and a set of sequenced steps, with users making decisions to create a solution for a given task
- Identify available resources

Designing

- Design, modify, follow and represent both diagrammatically, and in written text, alternative solutions using a range of techniques, appropriate technical terms and technology

Producing & implementing

- Select, and apply, safe procedures when using a variety of components and equipment to make solutions

Evaluating

- Develop collaborative criteria to evaluate and justify design processes and solutions

Collaborating and Managing

- Work independently, or collaboratively when required, considering resources, to plan, develop and communicate ideas and information for solutions.

DIGITAL TECHNOLOGIES SKILLS IN YEAR SIX

CONNECTING DIGITAL COMPONENTS

Digital systems have internal and external components that perform different functions. For example, external components for inputting data include a keyboard, microphone and stylus. Internal processing components include the central processing unit. External output components include speakers, projector and screen. Data and information storage components include cloud and external devices. Devices can be connected via a network that enables data to be transmitted. Students can explore the use of wireless networks through controlling devices remotely via Bluetooth. This sequence culminates in students designing and creating a digital solution that incorporates data being transmitted via an input device or network.

REPRESENTING IMAGES USING BINARY

Digital images are encoded in binary. Students learn about pixels and the way computers store an image as an array of individual pixels, each of which has a particular colour. Students make connections between the amount of data used by the computer to store, transmit and create an image and the file size of different images (generally, the more pixels and more bits to encode the image, the larger the file size).

CREATING A DIGITAL GAME

Developing an online game provides a useful context for students to apply and develop the problem-solving processes so they can create a digital solution, namely a digital game. This would involve defining the target audience for the game and their needs, designing the rules/ actions and the appearance of the game (interface design). The 'rules' are written as an algorithm that include decisions, options and ways that the users input instructions. This addresses what data is needed for the game and what features the game must perform (functional requirements). Students use a programming language to create the digital solution (a game) and then judge if their solution meets the intended requirements. A potential extension when creating the digital solution is to connect an input device such as a Makey Makey board to create a game controller.

COLLABORATIVE PROJECT

Using a relevant context such as disaster management, students evaluate existing information systems, examine approaches to make information available to the public and assess how well they meet community needs. Students can examine the functioning of one type of information system that could be applied in a new way to meet a community or national need in terms of disaster management. A focus of this inquiry is to collaborate with others to create a digital solution, using agreed protocols.



ICT UNDERSTANDINGS AND SKILLS YEAR SIX



6

MANAGING AND OPERATING ICT

- Logs on to computer
- Uses peripherals
- Accesses and exits software
- Names and saves documents in chosen folder
- Chooses a printer to print to

Understands computer-based terms:

- cursor, software/hardware, open/close program, drop down menus, file, save and save as, edit file, Network, spreadsheet, cell/row/column, database

INVESTIGATING WITH ICT

- Retrieve and rename a file
- Type, highlight, copy and paste text
- Change font style, size & colour
- Uses wrap text
- Uses undo and redo
- Justifies text
- Uses spell and grammar check
- Uses thesaurus
- Uses find and replace
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- Understands touch typing
- Print selected portions or whole document
- Print preview
- Changes page orientation
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- Customises Clipart & Wordart
- Inserts and formats shapes
- Inserts file from external drive

COMMUNICATING WITH ICT

- Opens, reads and replies to emails
- Adds attachment to email
- Uses address book
- Locates specific web addresses
- Effectively uses toolbars and bookmarks
- Uses advanced search features to locate pages and images

CREATING WITH ICT

Uses a draw/paint / graphic design program:

- uses a variety of tools

Create a Slide Show:

- inserts text, graphics, sound & transitions.
- presents & prints slide show

Uses a Surface Pro

APPLYING SOCIAL AND ETHICAL PROTOCOLS AND PRACTICES WHEN USING ICT

- Follows Edney PS Computer Policy
- Uses ICT appropriately
- Obeys Copyright laws
- Cites electronic sources

ACTIVITIES

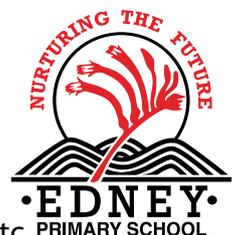
- Makes a sign/ brochure/flyer using a variety of programs or web tools
- Uses drawing tools in variety of online and offline programs
- Conducts advanced web searches
- Records and edits sounds and videos
- Takes digital images
- Creates digital stories
- Creates an interactive PowerPoint
- Creates interactive puzzles and games
- Creates simple tables and graphs in Excel
- Creates a wiki or webpage using an online program such as Weebly
- Participates in collaborative activities using Connect
- Coding and robotics

WORK SAMPLES / ASSESSMENTS

- Brochure
- Interactive presentation
- Excel spreadsheet & graphs
- Sound and video recordings
- Digital artwork
- Animations
- Digital Stories
- Wiki or webpages
- Photo video presentations
- Word Clouds

SOFTWARE, WEBSITES & APPS

- Typing Tournament
- Microsoft Word
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- Microsoft Excel
- Canva
- Word Clouds - Wordle etc.
- Brainstorming Tools - Popplet etc.



We are
EDNEY

AN INDEPENDENT PUBLIC SCHOOL

Edney Primary School
204 Newburn Road
HIGH WYCOMBE WA 6057
(08) 9454 8377

edney.ps@education.wa.edu.au

www.edneyps.wa.edu.au

