



Early years curriculum materials

# Learning about technology



**Queensland  
Government**



**Queensland  
Studies Authority**  
*Partnership and Innovation*

## Active learning processes: Investigating technology

Children think and enquire by:

- investigating technology and considering how it affects everyday life.

### Suggestions for planning

With children, teachers plan for learning across the five contexts by constructing experiences relevant to local settings, or drawing on the following examples, in which children:

- identify technology as products or ways of doing things (artefacts, systems, services, processes and environments)
- investigate products of technology and make connections with ways products are used in everyday life (e.g. candles, electric lights, emails and computers)
- investigate ways technology is used in their local areas (systems such as garbage collection, factories that manufacture goods, designed environments e.g. parks; mobile phone network.)
- reflect on and discuss how technologies affect people's lives
- use a range of technologies, including computers, to support their interactions with others
- investigate ways that information and communication technologies can be used to communicate (email, telephone, television, internet, radio).

### Suggestions for interacting

Teachers create interactions relevant to local settings or draw on the following examples:

- use explicit language to support children to reflect on technologies and the impact of using them
- give children every opportunity and encouragement to use different technologies
- question and challenge children's thinking about technologies, and the use of those technologies in their everyday life
- work collaboratively with children to make different products using different processes
- provide opportunities to learn and use information and communication technologies to meet personal or learning needs
- challenge stereotyping and question bias related to the roles people take when using technologies
- help children to think about the ways technologies may change and the impact this may have on them, their families and others
- inquire together about technologies, their impacts, and the ways they are developed and used by different people
- break down tasks into parts to help children interact with familiar technologies in a range of contexts
- think aloud to model ways to solve problems using technologies.

### Suggestions for monitoring and assessing

In relation to this learning statement, teachers may look for evidence that the child:

- talks about and creates own products and systems from their observations and use of technology, asking for help when needed
- in discussions, identifies ways in which technology helps people in everyday life
- is willing to use information and communication technologies to meet personal or learning needs
- with prompts, can use computers for different purposes in the learning environment.



*Teachers monitor a child's learning in relation to the learning statements as they:*

- *observe and analyse what the child is doing*
- *listen to and reflect on what the child says*
- *interact with the child*
- *record annotations*
- *communicate with partners including children, parents/carers and others.*

*Teachers gather evidence about a child's learning through the five learning contexts: play, real-life situations, investigations, routines and transitions, and focused learning and teaching.*

### Suggestions for reflecting

Adults and children might reflect on the following questions relevant to this learning statement:

- What things did we use today that have been made by another person?
- Who uses these things and what do they use them for?
- How can we be responsible when we use these things?
- Was there a better way of getting this job done?



*Teachers also reflect on their practice, in terms of decision making and the five key components, in order to continually improve both their judgments about children's learning, and their planning for future learning experiences.*

## Learning statement

Children think and enquire by:

- investigating technology and considering how it affects everyday life.

For children, engaging with technology means designing, creating, using, envisioning, responding to and reflecting on the designed world, and thinking about the impact artefacts, processes, systems, services or environments have on people and places.

The term *technology* is sometimes used to describe computers or information and communication technologies. In the learning overviews, the term *technology* is used more broadly, and includes the different products that make up the designed world.

The term *product* is often used to describe an artefact that has been designed and developed by people, such as a piece of furniture or a telephone. In the learning overviews, *products that result from technology* also include processes, systems, services and environments, as shown in the table.

Artefact	Things that are made by people from materials or resources	Furniture, tools, clothing
Process	Ways people manipulate, change or work with resources	Sewing fabric, cutting paper, gluing plastic, melting butter, cooking ingredients, firing clay
System	Ways of organising people or components to make things work or happen	Roster for watering the garden, garbage collection system, telephone network
Designed environment	Interior or exterior places that are designed by people	Garden, playground, learning environment, dramatic play area, fish tank
Service	When people provide or make available artefacts, processes, systems or designed environments to meet a particular purpose or need	Tuckshop, local play ground, recycling station, postal delivery, class restaurant

The development of artefacts, processes, systems and environments, and the delivery of services will impact on people and places in different ways. The impact may be positive or negative depending on the people involved, the outcome of developing and using technology in a particular way, and the perspective of the people involved. For example, one impact of a garbage system is that homes and towns are free of waste. However, the storage and disposal of garbage causes pollution somewhere else, and can harm animals and plants in that area.

Learning context	Location	Planning example and learning experiences
<p><b>Play</b></p>	<p>Dramatic play – post office</p> <p><i>The post office provides a meaningful social context in which children can learn. The learning experiences could be coordinated to take place over an extended period of time.</i></p>	<p><b>Identifying technology as products or ways of doing things (artefacts, processes, systems , services and environments)</b></p> <ul style="list-style-type: none"> <li>- identify products in the post office and their purposes — stamps for making sure mail is paid for, post box for collecting mail, components in the delivery system</li> </ul> <p><b>Investigating ways that information and communication technologies can be used to communicate</b></p> <ul style="list-style-type: none"> <li>- use email and conventional post to send messages to friends and family and identify advantages/ disadvantages of postal versus electronic mail</li> </ul> <p><b>Working collaboratively with children to make different products using different processes</b></p> <ul style="list-style-type: none"> <li>- design a class post office including the placement of furniture and signs</li> <li>- design and make products for the post office and link them to a purpose <ul style="list-style-type: none"> <li>▪ roster to organise people to work</li> <li>▪ system for sorting and delivering mail</li> <li>▪ make mail boxes</li> <li>▪ stamps for letters</li> </ul> </li> <li>- record and communicate designs by making drawings or taking photographs</li> <li>- discuss some of the different ways they could make their products</li> <li>- when visiting the local post office/mail centre compare their products and the ways they are made with those used in the post office</li> </ul> <p><b>Investigating ways technology is used in their local areas</b></p> <ul style="list-style-type: none"> <li>- visit the local post office to see how mail is collected, sorted and processed</li> <li>- count the Australia Post boxes in their local area</li> <li>- sort some of the mail that comes to the school and why it would be sent</li> </ul> <p><b>Reflecting on and discussing how technologies affect people’s lives</b></p> <ul style="list-style-type: none"> <li>- make a graph of the ways parents use the post office — to buy stamps, send letters, pay bills, buy gifts, buy stamps to collect</li> </ul> <p><b>Using a range of technologies, including computers, to support their interactions with others</b></p> <ul style="list-style-type: none"> <li>- design post cards on computer for sale in the post office</li> </ul> <p><b>Investigating ways that information and communication technologies can be used to communicate</b></p> <ul style="list-style-type: none"> <li>- set up an email terminal or fax machine in the post office</li> </ul>

Learning context	Location	Planning example and learning experiences
<b>Play</b>	Sand pit — pulleys  <i>Using pulleys in the sand pit could be part of the activities planned by observing interactions with children.</i>	<b>Identifying technology as products or ways of doing things (artefacts, processes, systems , services and environments)</b> <ul style="list-style-type: none"> <li>- look at different types of pulleys in a handling collection</li> <li>- pull a pulley apart to see what it is made of</li> <li>- use a pulley to lift different sized objects and then try lifting them without a pulley</li> <li>- comment on how useful a pulley is</li> </ul> <b>Working collaboratively with children to make different products using different processes</b> <ul style="list-style-type: none"> <li>- join components together so pulleys can be used to lift objects in the sand pit</li> <li>- record how the pulleys were used using photographs and comment on how useful they were</li> </ul> <b>Investigating ways technology is used in their local areas</b> <ul style="list-style-type: none"> <li>- identify places where pulleys may be used including workshops, supermarkets, playgrounds</li> </ul> <b>Investigating ways that information and communication technologies can be used to communicate</b> <ul style="list-style-type: none"> <li>- use the computer and a digital camera to make a poster that shows the components used to make the pulley work in the sand pit — rope, bucket, hook to secure bucket to rope, pulley, person to pull the rope etc.</li> </ul>
<b>Real-life situations</b>	Gardening  <i>Growing a garden is a long-term negotiated project that could take place over a term or a school year.</i>	<b>Identifying technology as products or ways of doing things (artefacts, processes, systems , services and environments)</b> <ul style="list-style-type: none"> <li>- talk about gardens as systems for growing food and plants or as environments that people can design</li> <li>- identify products gardeners may use — tools, clothing, commercial fertilizer or seeds etc.</li> </ul> <b>Describing products of technology that were used in the near and far past, and making connections with ways products may currently be used</b> <ul style="list-style-type: none"> <li>- look at the different types of technology for watering gardens — watering cans, hoses, different sprinklers, automatic watering systems and their components, irrigation</li> </ul> <b>Working collaboratively with children to make different products using different processes</b> <ul style="list-style-type: none"> <li>- design a class garden for growing flowers or food</li> <li>- identify the steps involved in making the garden and record them (preparing area, planting and caring for plants, harvesting and using the produce)</li> <li>- children make and care for the garden</li> </ul> <b>Investigating ways technology is used in their local areas</b> <ul style="list-style-type: none"> <li>- identify the different ways gardens are used and cared for in the local area</li> <li>- identify services for gardens or related to gardens (garden centre, nursery, lawn mowing, fruit and veg shop)</li> </ul> <b>Reflecting on and discussing the ways individuals or groups of people use technologies differently</b> <ul style="list-style-type: none"> <li>- investigate different types of gardens or places where people grow plants</li> </ul> <b>Using a range of technologies, including computers, to support their interactions with others</b> <ul style="list-style-type: none"> <li>- take daily photos of the garden with the digital camera to keep a record of how the garden grows</li> </ul> <b>Investigating ways that information and communication technologies can be used to communicate</b> <ul style="list-style-type: none"> <li>- visit websites about gardening and communicate with other gardeners via email</li> </ul>
	Discussion about a blackout in the local	<b>Identifying technology as products or ways of doing things (artefacts, processes, systems , services and environments)</b>

Learning context	Location	Planning example and learning experiences
	<p>area</p> <p>This could be a brief discussion that would build on children's interest in a blackout, followed by some activities.</p>	<ul style="list-style-type: none"> <li>- discuss the electricity supply system and identify it as a type of technology</li> <li>- identify some of the components in the system — power station, overhead wires and power poles, substations, power outlets and switches in houses and buildings etc.</li> <li>- discuss products that use electricity — lights, refrigerator, computer, Playstation, television, oven</li> <li>- discuss how people did things without electricity — cooled food, cooked food, made light, entertainment</li> </ul> <p><b>Investigating ways technology is used in their local areas</b></p> <ul style="list-style-type: none"> <li>- identify the components of the electricity supply system in their local area — power stations, overhead wires and power poles, substations, power outlets and switches in houses and buildings etc.</li> <li>- identify ways people use electricity</li> </ul> <p><b>Reflecting on and discussing the ways individuals or groups of people use technologies differently</b></p> <ul style="list-style-type: none"> <li>- talk about places where people do not have access to electricity or may have trouble accessing electricity — remote Queensland, countries with different infrastructure from Australia</li> <li>- describe ways of doing things without electricity</li> </ul> <p><b>Using a range of technologies, including computers, to support their interactions with others</b></p> <ul style="list-style-type: none"> <li>- visit web sites about electricity</li> </ul>
<p><b>Investigations</b></p>	<p>Make a handling collection of telephones for children to investigate</p> <p><i>This activity could take place over a week, and could provide an introduction to a planned unit of work, or a negotiated project.</i></p>	<p><b>Identifying technology as products or ways of doing things (artefacts, processes, systems , services and environments)</b></p> <ul style="list-style-type: none"> <li>- identify observable changes in the products over time</li> </ul> <p><b>Investigating ways technology is used in their local areas</b></p> <ul style="list-style-type: none"> <li>- investigate how many telephones each child has in their family</li> <li>- investigate telephones that were used many years ago and compare them to telephones in current use</li> </ul> <p><b>Using a range of technologies, including computers to support their interactions with others</b></p> <ul style="list-style-type: none"> <li>- make a PowerPoint presentation of their own handling collection using photographs or images from the internet</li> </ul> <p><b>Investigating ways that information and communication technologies can be used to communicate</b></p> <ul style="list-style-type: none"> <li>- describe how telephones help us to communicate</li> </ul>
<p><b>Routines and transitions</b></p>	<p>System for sending orders to the tuckshop.</p> <p><i>This could be a brief discussion or a series of activities organised over a week in order to develop a new system for delivering food.</i></p>	<p><b>Identifying technology as products or ways of doing things (artefacts, processes, systems , services and environments)</b></p> <ul style="list-style-type: none"> <li>- describe the tuckshop orders as part of a system for delivering food</li> <li>- identify some of the components of the system and how it operates — order basket, orders placed in the basket, someone to deliver the orders, tuckshop fills the orders, basket is retrieved from the tuckshop, orders are distributed</li> </ul> <p><b>Investigating ways technology is used in their local areas</b></p> <ul style="list-style-type: none"> <li>- identify other places that have systems of delivering food and discuss how their systems work</li> <li>- reflect on how effective they think this system is and suggest alternative ways to get orders to the tuckshop</li> </ul>
<p><b>Focused learning</b></p>	<p>Examples of how focused learning</p>	<p><b>Using explicit language to support children to reflect upon technologies and the impact of using them</b></p> <ul style="list-style-type: none"> <li>- asking questions that challenge children's thinking about advantages and disadvantages of electronic mail</li> </ul>

Learning context	Location	Planning example and learning experiences
<p><b>situations</b></p>	<p>situations may support children's learning in the contexts above.</p> <p><i>These examples would take place over varying timeframes</i></p>	<ul style="list-style-type: none"> <li>over the postal service <ul style="list-style-type: none"> <li>▪ What special equipment would people need for electronic mail?</li> <li>▪ Are there things that could not be sent by electronic mail?</li> <li>▪ Are there people or groups of people who could not use electronic mail?</li> </ul> </li> </ul> <p><b>Investigating products of technology and making connections with ways products are used in everyday life</b></p> <ul style="list-style-type: none"> <li>- supporting children to use information technology <ul style="list-style-type: none"> <li>▪ faxing a document to the school</li> <li>▪ using a photocopier to copy a drawing</li> <li>▪ using a digital camera to photograph a friend</li> <li>▪ emailing a family member</li> <li>▪ modelling techniques for processing materials <ul style="list-style-type: none"> <li>• showing children how to cut paper to achieve different effects when making a card</li> <li>• demonstrating how to safely use cooking utensils when making a cake</li> <li>• assisting children to hammer nails into wood when making a picture frame at the woodwork table</li> </ul> </li> </ul> </li> </ul> <p><b>Questioning and challenging children's thinking about technologies and use of those technologies in everyday life</b></p> <ul style="list-style-type: none"> <li>- asking children different questions when they are investigating a handling collection <ul style="list-style-type: none"> <li>▪ How are these two products different?</li> <li>▪ Do you think that this product does the job any better?</li> <li>▪ What people would not be able to use this product?</li> </ul> </li> </ul> <p><b>Working collaboratively with children to make different products using different processes</b></p> <ul style="list-style-type: none"> <li>- supporting children to use software to make a postcard for sale in the post office</li> <li>- helping children to record and present ideas on web pages</li> <li>- working alongside children to help them write and send an email to a relation</li> </ul> <p><b>Challenging stereotyping and questioning bias related to the roles people take when using technologies</b></p> <ul style="list-style-type: none"> <li>- providing resources that represent diverse people using a range of technologies in meaningful ways</li> <li>- organising opportunities for children to meet with people from diverse cultures and to talk to them about how they use technology</li> </ul> <p><b>Inquiring together about technologies and the ways they are developed and used by different people and the impacts they have made</b></p> <ul style="list-style-type: none"> <li>- talking with children about some of the things they like and dislike about technology</li> <li>- helping children to find out how things are made and how things work</li> </ul> <p><b>Breaking down tasks into parts to help children to interact with familiar technologies in a range of contexts</b></p> <ul style="list-style-type: none"> <li>- organising children to work in groups to investigate and use different technologies</li> <li>- helping children to work together to design or make different artefacts, processes, systems, services or environments</li> </ul> <p><b>Thinking aloud to model ways to solve problems using technologies</b></p> <ul style="list-style-type: none"> <li>- talking through their thinking with children as they are involved in making or designing things</li> <li>- using words such as artefacts, processes, systems, services or environments to describe the range of products that children are using</li> <li>- verbalising their thinking to make clear to children how they are going to solve a problem</li> </ul>

