



EUREKA!
the national children's museum

digiPlaySpace

Teachers' Guide



tiff.
presents digi
PlaySpace™



What is digiPlaySpace?

digiPlaySpace is an award-winning immersive digital art experience, from acclaimed international artists, highlighting the power of creative technology.

Showcasing a variety of multi-media installations, digiPlaySpace is all about learning through collaborative discovery, open exploration and **Play**. digiPlaySpace is designed to stimulate imaginations; inspiring and unlocking creative potential. Children will apply cross-curricular skills and knowledge whilst interacting with the technology, including: coding robots; problem solving; creating music with electrical circuits; and dancing to create stop motion video. digiPlaySpace is not artwork to stand and admire but is totally in keeping with our ethos of **engaging** and **challenging** children whilst also ensuring visitors **learn** and **play** together through shared experiences.

What will a visit to the gallery provide for your class?

digiPlaySpace is a different kind of exhibition to those we already have at Eureka! Whilst it's interactive (just like everything else), the focus is on creativity and digital technologies. It covers large areas of the curriculum including computing, music and creativity, sometimes all in one exhibit! It challenges pupils to think differently about art, and interactions with the digital world, and encourages your class to play and create in a way they might not have done before. Suitable for all Primary phases and early KS3, digiPlaySpace can challenge the most able learners whilst introducing others to basic computing curricular.



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**ARTS COUNCIL
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General EYFS Links

We've highlighted the specific Early Learning Goals from the Early Years Foundation Stage linked to digiPlaySpace below:

**Personal, Social and Emotional Development:
Making Relationships ELG**

Children play co-operatively taking turns with others. They take account of one another's ideas about how to organise their activity.

**Personal, Social and Emotional Development:
Self-confidence and self-awareness ELG**

Children are confident to try new activities, and say why they like some activities more than others. They are confident to speak in a familiar group, will talk about their ideas, and will choose the resources they need for their chosen activities. They say when they do and don't need help.

**Communication and Language:
Understanding ELG**

Children follow instructions involving several ideas or actions. They answer 'how' and 'why' questions about their experiences and in response to stories or events.

**Physical Development:
Moving and Handling ELG**

Children show good control and co-ordination in large and small movements. They move

confidently in a range of ways, safely negotiating space. They handle equipment and tools effectively.

**Understanding the World:
Technology ELG**

Children recognise that a range of technology is used in places such as homes and schools. They select and use technology for particular purposes.

**Expressive Arts and Design:
Exploring and using media and materials ELG**

Children sing songs, make music and dance, and experiment with ways of changing them. They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

**Expressive Arts and Design:
Being Imaginative ELG**

Children use what they have learnt about media and materials in original ways, thinking about uses and purposes. They represent their own ideas, thoughts and feelings through design and technology, art, music, dance, role-play and stories.





Key Curriculum Links

We've highlighted the specific links from Key Stages 1 & 2 to digiPlaySpace below

Computing

Key stage 1

Pupils should be taught to:

- understand what algorithms are; how they are implemented as programs on digital devices; and that programs execute by following precise and unambiguous instructions
- use technology purposefully to create, organise, store, manipulate and retrieve digital content
- recognise common uses of information technology beyond school

Key stage 2

Pupils should be taught to:

- design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts
- use sequence, selection, and repetition in programs; work with variables and various forms of input and output
- use technology safely, respectfully and responsibly;
- Use logical reasoning to predict the behaviour of simple programmes

Art & Design

All pupils:

- produce creative work, exploring their ideas and recording their experiences
- evaluate and analyse creative works using the language of art, craft and design
- know about great artists, craft makers and designers, and understand the historical and cultural development of their art forms

Design & Technology

All pupils:

- develop the creative, technical and practical expertise needed to perform everyday tasks confidently and to participate successfully in an increasingly technological world

Key stage 1

Design

- generate, develop, model and communicate their ideas through talking, drawing, templates, mock-ups and, where appropriate, information and communication technology

Make

- select from and use a range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing]

Evaluate

- explore and evaluate a range of existing products

Technical knowledge

- build structures, exploring how they can be made stronger, stiffer and more stable explore and use mechanisms [for example, levers, sliders, wheels and axles], in their products

Key stage 2

Design

- generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design

Evaluate

- investigate and analyse a range of existing products
- evaluate their ideas and products against their own design criteria and consider the views of others to improve their work

Technical knowledge

- understand and use electrical systems in their products [for example, series circuits incorporating switches, bulbs, buzzers and motors]

- apply their understanding of computing to program, monitor and control their products
- understand and use mechanical & electrical systems in their products

Music

Key stage 1

Pupils should be taught to:

- play tuned and untuned instruments musically
- experiment with, create, select and combine sounds using the inter-related dimensions of music

Key stage 2

Pupils should be taught to:

- improvise and compose music for a range of purposes using the inter-related dimensions of music

Physical Education

Key stage 1

Pupils should be taught to:

- perform dances using simple movement patterns.

Key stage 2

Pupils should be taught to:

- perform dances using a range of movement patterns



Room Racers

Use everyday objects to create a racetrack and race a virtual car to see who makes it past the finish line first.

Artist: Lieven Van Velthoven

EYFS: Children play co-operatively taking turns with others and take account of one another's ideas about how to organise their activity. They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

KS1 & 2: Curriculum links: Computing, Design & Technology.

Further info:

- This installation uses infrared cameras and motion capture technology to mix real life objects with virtual gaming.
- Top tips:**
 - Move the objects to change the racetrack.
 - This is a competitive game where participants can score points against each other, as well as racing round the track.



Creatures

Jump, dance and play to create colourful animations as your movements are transformed into larger-than-life characters right in front of you.

Artist: Éstudio Ruim

EYFS: Children dance and play collaboratively.

KS1 & 2: Curriculum links: Physical education, Art & Design, Computing.

Further info:

- The exhibit uses optical motion capture technology with tracking cameras situated above.
- Movement is analysed digitally and transferred to the 2D characters in real time.
- Sound is also triggered as you move towards the screen.
- Once you hold hands with another person the computer programme does not distinguish your body from the other person's so will make one larger creature.

Top tips:

- Encourage the children to swap places and see what happens on the screen.



Virtual Growth

Interact with this light installation and watch as the light traces around the graphic backdrop and your body.

Artist: Lieven Van Velthoven

EYFS: Children play co-operatively taking turns with others.

KS1 & 2: Curriculum links: Physical education, Art & Design.

Further info:

- This installation works by using a highly sensitive infrared camera in combination with motion capture technology.
- The digital camera detects even slight contrasts in colours and a beam of coloured light is projected back at the screen and participants
- As the line of coloured light continues to extend and trace around the participant a detailed illustration is created.
- Participants are able to act as a conduit for the line of light by holding hands and watching the light pass between them.

Top tips:

- Move slowly with a few children at a time in front of the screen to watch the light illustration begin.



Wanderment

Journey through an immersive 3D environment of thousands of moving particles in this single-player experience.

Artist: Andrew Wang

EYFS: Children follow instructions involving several ideas or actions.

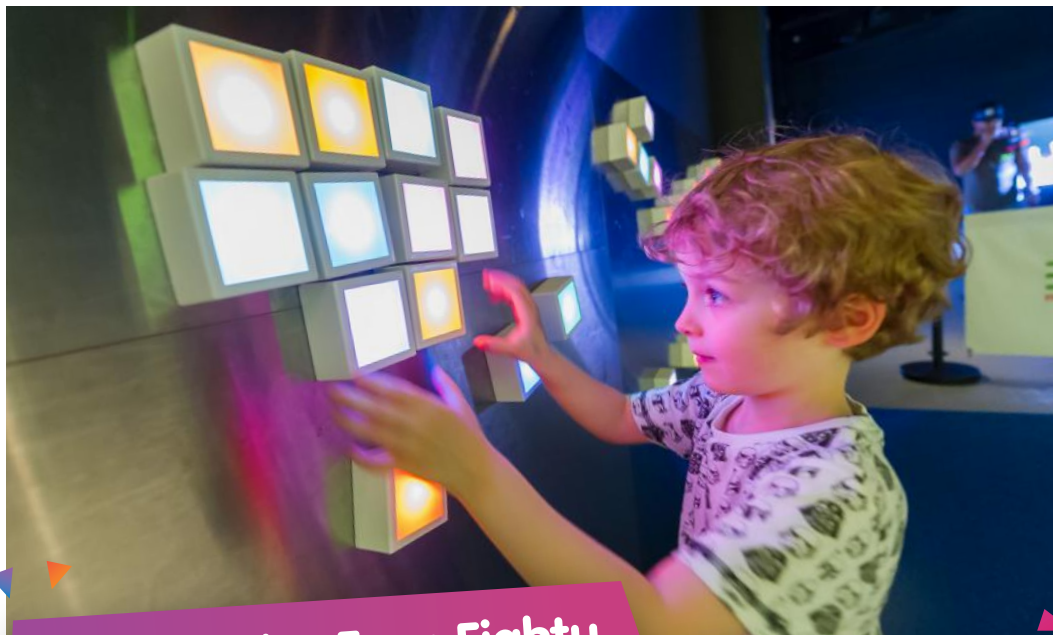
KS1 & 2: Curriculum links: Art & Design.

Further info:

- This installation is a visualisation of echo location used by some animals to negotiate their environment.
- This immersive digital artwork is inspired by abstract art and pointillism

Top tips:

- By using the joystick, participants can explore the digital world, avoiding the obstacles to find the house.
- Although only one participant can control the joystick at time, this exhibit is engaging for a group to watch.



Six-Forty by Four-Eighty

Use your body to rearrange and transfer colours across these incredibly smart pixels to create patterns and animations.

Artist: Marcelo Coelho

EYFS: Children play co-operatively, taking turns with others and take account of one another's ideas about how to organise their activity. They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

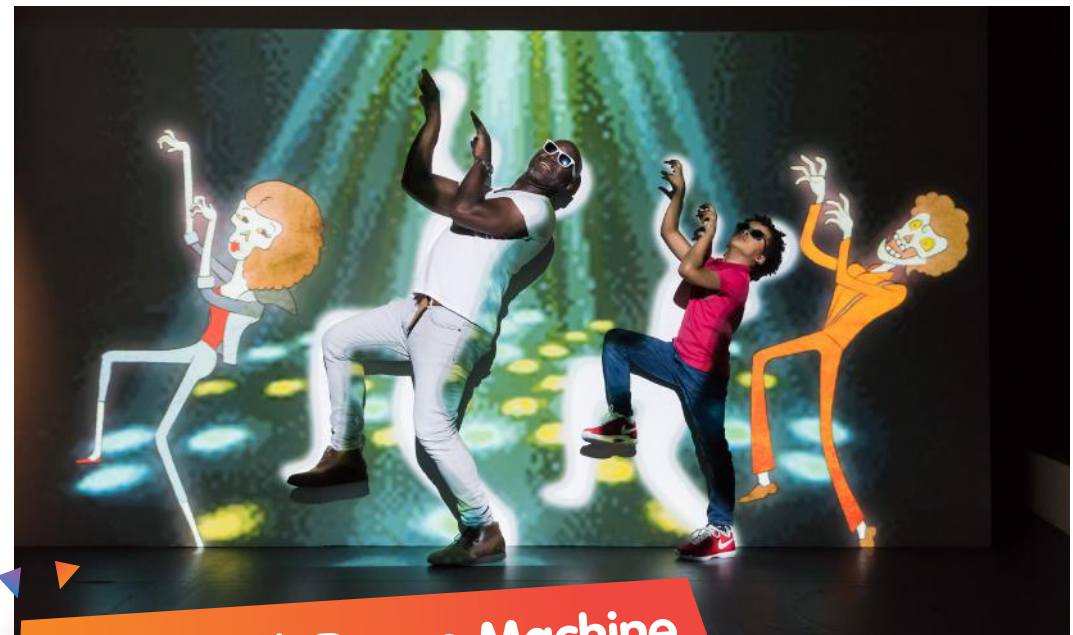
KS1 & 2: Curriculum links: Art & Design, Computing.

Further info:

- This installation works by using the participants' own bodies to complete an electronic circuit. Participants act as conduits for electrical energy which passes through them to change the colour of a pixel by touching one pixel and then another consecutively.

Top tips:

- Two children can experiment by holding hands, each touching one pixel and seeing if the colour changes. As the voltage of the electricity is low, this will only work with a maximum of two children.
- As the pixels are sensitive participants only need to press lightly.



Pop n' lock Dance Machine

Learn about stop motion animation as you step into the spotlight and dance like a pro in this interactive video art installation.

Artist: Catshrine

EYFS: Children move collaboratively, showing good control and co-ordination

KS1 & 2: Curriculum links: Physical education, Art & Design.

Further info:

- Stop motion or stop frame animation is created by capturing images one frame at a time using simple photography.
- Participants move between the frames so that once the sequence of images is played back rapidly it creates the illusion of movement.
- The installation has a range of simple to complex routines to match the developmental stage.
- Stop motion animation has a long history in film, with the first recorded use in 1897, and is still used to create animated TV programmes today.
- During quiet periods only, films can be emailed to schools.



Trackoons

Play against your friends and family as you race through downtown Toronto as an animated raccoon in this imaginative game for up to eight people.

Artist: Gabby DaRienzo and Andrew Carvalho

EYFS: Children play co-operatively taking turns and follow instructions involving several ideas or actions.

KS1 & 2: Curriculum links: Computing.

**JUST
FOR FUN!**



Cubelets

This installation will be staffed by a Eureka! Enabler who will be able to guide and explain the best way to build the robots and the theory behind them.

Create your own robot using colour-coded magnetic cubelets that can be snapped together to make an endless variety of robots with no wiring or programming required.

Artist: Modular Robotics

EYFS: Children play co-operatively taking turns with others. They take account of one another's ideas about how to organise their activity.

KS1 & 2: Curriculum links: Computing, Design & Technology.

Further info:

- This exhibit is an opportunity to use the logic and principles of coding in a hands-on way, as each colour-coded cubelet has a different function.
- Children can learn how to programme using different cubelets to make robots that move, light-up and respond to sensors.
- Suitable for children at all ability levels as pupils can make their robots as simple or complex they want.

Top tips:

- All robots need a battery cubelet to work and work best with a mix of different coloured cubes. Once you've built a simple robot, use the red cubelet to get your robot to do the opposite action.



SimAntics

Become an ant eater in this surreal two-player simulation game as you control the ant eater's tongue through a network of ant tunnels.

Artist: Liselore Goedhart and Tom Francis

EYFS: Children play co-operatively taking turns and follow instructions involving several ideas or actions.

KS1 & 2: Curriculum links: Computing.

JUST
FOR FUN!



Ototo Sound Lab

Connect anything conductive to this powerful little circuit board and create your own unique musical instrument.

Artist: Dentaku, founded by sound artist Yuri Suzuki and interaction designer Mark McKeague.

EYFS: Children make music and experiment with ways of changing it. They safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function.

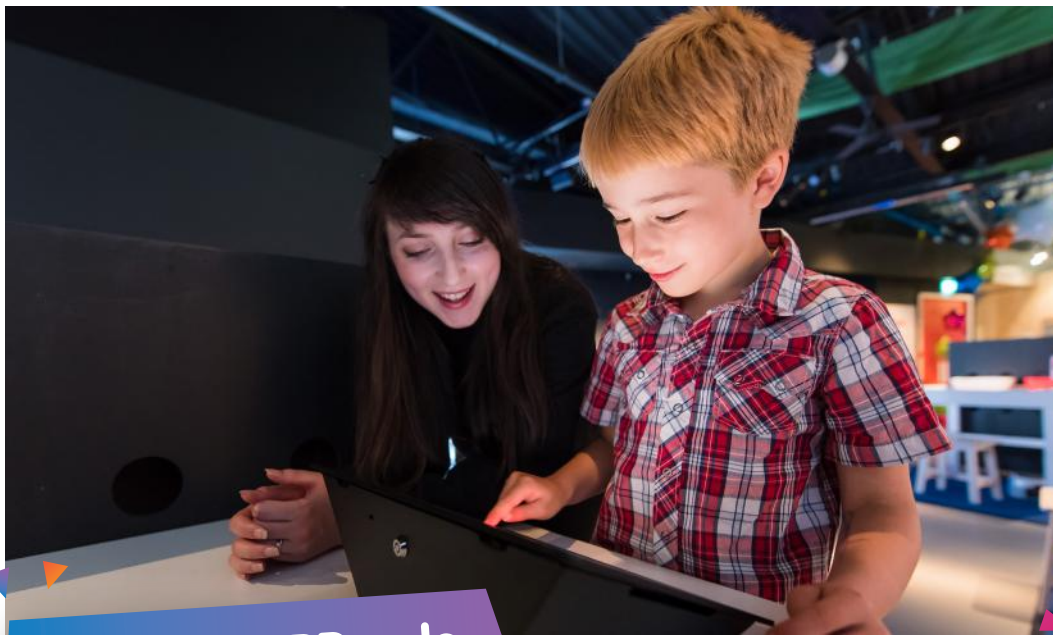
KS1 & 2: Curriculum links: Music, Computing.

Further info:

- This exhibition demonstrates that everyday objects can be used in innovative and playful ways to create music, and anyone can be a musician.

Top tips:

- Participants can learn that some materials can conduct electricity to complete the circuit and make a sound.



TIFF Kids APPcade

Presented by Sago Sago

Explore a range of more than 30 apps including games, creative tools, and storytelling activities, carefully selected by the APPvisory Committee as some of the best tools for digital learning.

Artist: Sago Sago

EYFS: Children play co-operatively taking turns and follow instructions involving several ideas or actions.

KS1 & 2: Curriculum links: Computing.

Further info:

- Choose from specific apps relating to coding, drawing, storytelling, and mathematics. The apps are organised by age group.

JUST
FOR FUN!



Cumulo Nimblers

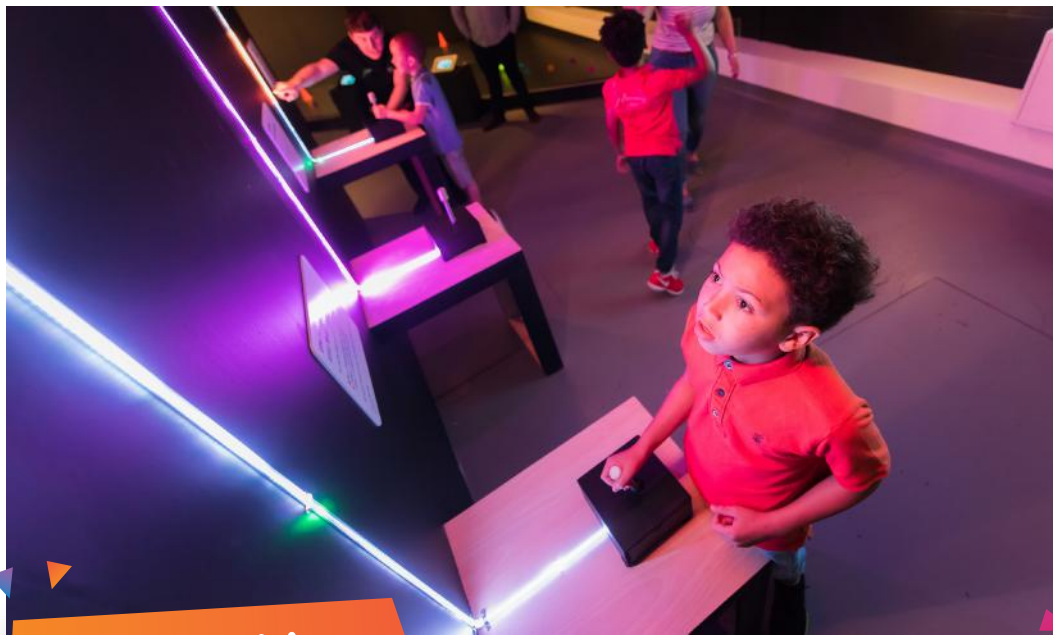
Interact with colourful 'cloud-hoppers' and hop from cloud to cloud in this playful digital experience.

Artist: John Martz and Jarrod "Farbs" Woods

EYFS: Children are confident to try new activities and follow instructions involving several ideas and actions.

KS1 & 2: Curriculum links: Computing.

JUST
FOR FUN!



Line Wobbler

Test your hand-eye coordination controlling LED light in this award-winning experiment in minimalistic game design.

Artist: Robin Baumgarten

EYFS: Children follow instructions involving several ideas or actions.

KS1 & 2: Curriculum links: Art & Design.

Further info:

- This immersive installation is controlled by three joysticks that participants can use to control the speed that the coloured line of light travels at.

Top tips:

- This is engaging to watch as well as play as the coloured line of light moves up and down.
- The joysticks are positioned at three different heights to make this exhibit suitable for all age groups.
- Read the instructions on the wall to beat the line of the light.



Sphero Speedway

Learn computer programming the fun way with this robotic moving sphere that combines a gyroscope, accelerometer and sensors inside a glowing ball, and race it round the speedway and through the obstacle course.

Artist: Orbotix

EYFS: Children play co-operatively taking turns and follow instructions involving several ideas or actions.

KS1 & 2: Curriculum links: Computing, Design & Technology.

Further info:

- This exhibit combines simple electronics, robotics and computer programming and provides participants with an opportunity to use simple coding theory in a hands-on way.

Top tips:

- Participants will also have the opportunity to see inside some of the Spheros and observe the basic mechanisms working inside.