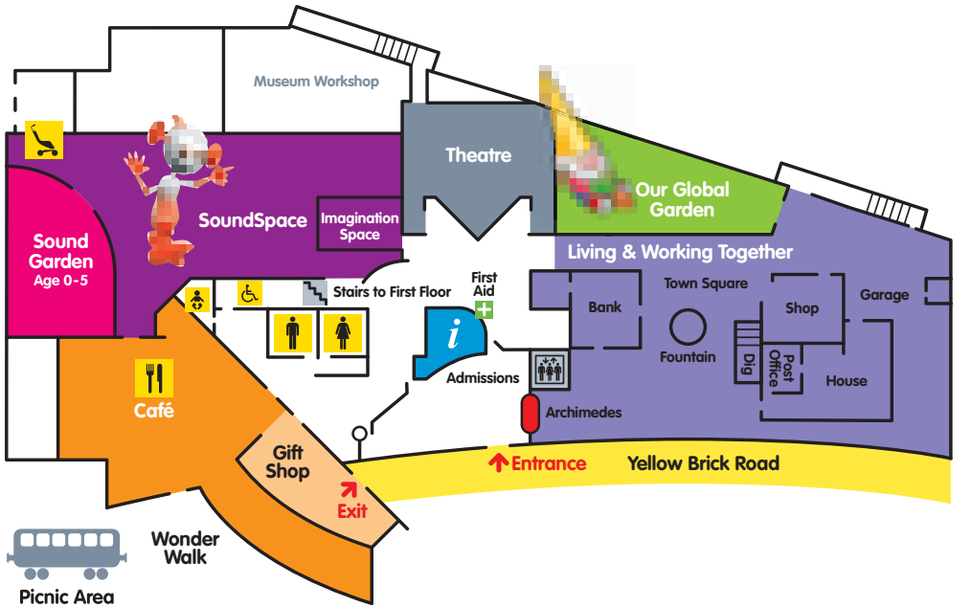
# Gallery Guide

# Key Stage 2

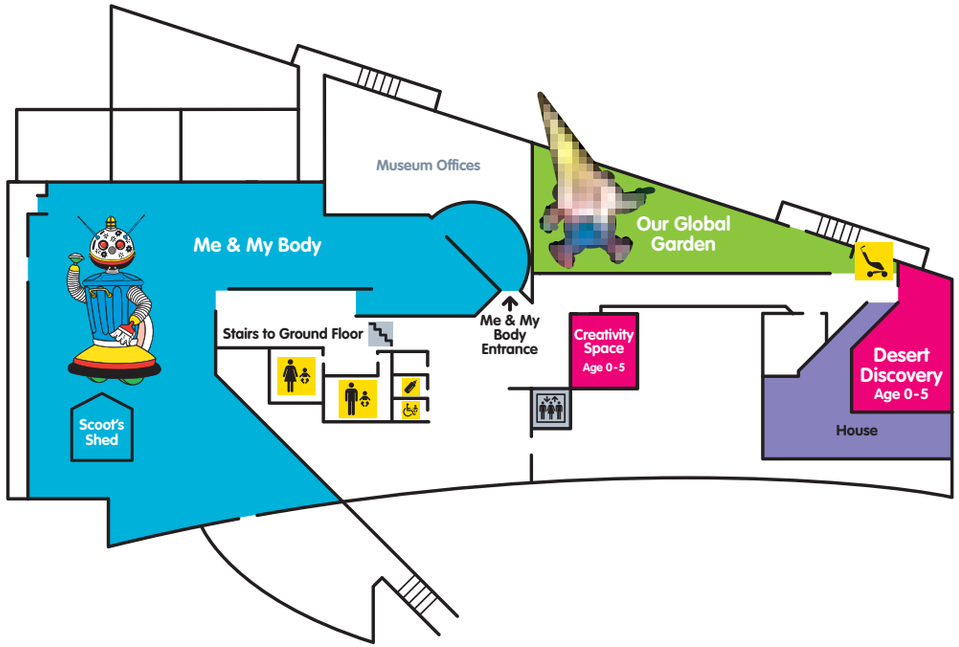
EUREKA!
the national children's museum

# Floor plans

## Ground floor




## First floor




## Welcome to Eureka! the UK's one and only 'must-touch' museum for children.

This gallery guide is designed to help you plan and enjoy your visit to the full.
If you have any questions regarding the guide please contact the learning department on 01422 330012, fax 01422 330275 or email bookings@eureka.org.uk

**Please note that children must be supervised at all times.**

# Introduction

## For your Self Guided Gallery visit

### Choose a Gallery

**Me & My Body**
(up to 3 classes at a time)
Increase understanding of our bodies and how they work including the external parts of the body, the senses and keeping healthy.

**Our Global Garden**
(up to 2 classes at a time)
Find out about the plants and animals which live in six different environments.

**The Town Square**

**House and Garage**
(1 class at a time)
Investigate how things work in a life-sized house and garage.

**Shop and Bank**
(1 class at a time)
Explore the world of work and use maths in a contextual setting.

**SoundSpace**
(up to 2 classes at a time)
Help Orby the Alien understand and enjoy sound and music.

**Or**

**A Learning Journey Programme**
(up to 35 children and 7 adults at a time)
A programme developed to support Key Stage 2 curriculum and led by Eureka! enablers.

**Then visit any of the other galleries in smaller groups.**

This booklet is designed to support a visit with simple, child-orientated descriptions of what is on offer at Eureka!. The following pages contain supporting resources for your visit.

## Let's Explore

Let's Explore pages describe what you can expect to find and do in our four main galleries.



## Thematic Trails

Thematic Trails show how certain galleries and exhibits can be used to support learning in various areas of the curriculum and are linked to specific QCA documents.

# A Guide for Young Explorers



At Eureka! we want visitors to make the most out of their visit. Below are some activities which you can use in the classroom before the trip to make the visit more personal and engaging for your pupils.

### Share the itinerary of the visit with the children and supporting adults

- Where are they going?
- How long is the trip?
- Why are they going?
- How long will their visit to each gallery be?
- What will they be able to do in the galleries?
- When is lunch?

### Create opportunities for paired or individual research

Focusing on the themes in your Focus Gallery will stimulate a sense of discovery, excite their curiosity and allow the children the opportunity to ask questions before the visit. This will add to the Eureka! experience and encourage the children to be in control of their own learning.

### Brainstorm the main theme of your Gallery Time

This can be on a large sheet of paper in pairs, groups or as a whole class. Ask the children what they know about the topic already and what they would like to find out. (These can be kept and added to discussions after the visit to show what knowledge has been acquired.)

### Create a questioning environment

A week before the visit, place a blank question poster on the wall and encourage the children to write on any questions which they would like to find answers to relating to the focus topic/area of study. Just before your visit, make a list of all the questions raised by the children and review. Decide on a limited number to investigate. Appoint an adult 'ideas catcher' to whom the children can report their ideas and answers during the visit. (Be prepared for a visit to Eureka! to raise even more questions!) It can be useful to place the children into groups and assign roles such as 'explorers' or 'journalists'.

### True or False?

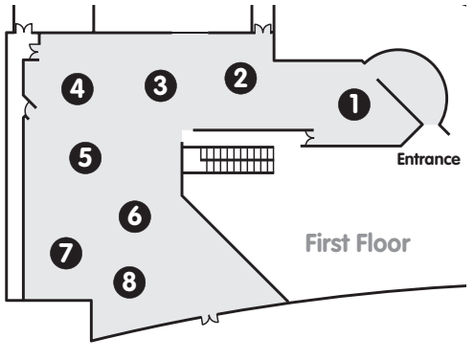
Give out a list of statements to the class, or one to each group, which may or may not be true. Encourage the children to gather evidence from the gallery to either support or disprove this statement. The evidence could be held by the group leader. These can be given out on the bus on the way to Eureka! to stimulate pre-visit conversations.

### Exploring the answers

Allow time back in the class room to share the answers and information discovered. This could be offered as group presentations or as an assembly to the whole school.

The **Me & My Body** gallery provides an opportunity for children to learn about themselves and how their bodies work. Follow the overhead 'blood vessel' to visit every part of it and use each section below as a guide for your exploration!

Look out for Scoot's icon to complete your Me & My Body passport.




## 1 All About You

- Meet Scoot the Robot and listen to the story about how he was made.
- Measure the weight of your bones and the water in your body.
- Find the hidden voice which tells you how tall you are.
- Measure your stretch, reach and stride.
- Try out some puzzles and look at your reflection in the fairground mirrors.
- Use the computer to make a face with different features.
- Try pulling a face to match the one on the screen and press the button.

## 2 What Goes In?

- Post the shapes with pictures on into the holes to see how things get into your body.
- Find out about teeth by feeding an eating machine.
- Play the pinball game to follow the journey of food through your body.
- Listen to the sound of a stomach rumbling.
- Look at the x-ray of lungs breathing.
- Listen to the breathing sounds to hear how people breathe differently when they are doing different amounts of exercise.

## 3 What Moves Things Around Inside You?

- Watch a giant heart beating. Put your hand onto the heart in the picture to find out where blood goes.
- Try the 'hands up, hands down' test.
- Look down the microscope to see blood cells close up.
- Watch and listen to the heartbeat monitor to find out how fast your heart beats at different times.
- Try the step test to find out how your pulse rate changes when you exercise.

## 4 What Holds You Together?

- Go inside a giant skull.
- Ride the bike to see a moving skeleton appear! Watch how its joints work.
- Look at the arm which changes from bone to muscle as it turns around.
- Look at the different face muscles you use when you smile or frown or get a fright!

## 5 What Makes it All Work? and The Five Senses

- Look up to see the giant brain! Try the different activities to find out how you learn and remember and how good your co-ordination is.
- Follow the blue flashing lines above you to explore your five senses.
- **Sight:** Find the giant eye and look inside to see how an image appears on the retina at the back.
- **Smell:** Find the giant nose and try out *your* sense of smell with the smelly boxes.
- **Taste:** Find the giant tongue and light up the different taste buds.
- **Hearing:** Find the giant ear and see what the ear looks like inside. You can feel and watch vibrations by touching and by looking at beads dancing on a drum skin. You can use the oscilloscope to see different sound wave patterns. Discover how the ear also helps you balance.
- **Touch:** Feel the hot and cold pipes to find out how your sense of touch can be fooled.

## 6 Growing and Changing

- Watch a film about how your life began.
- Put your hands on the pregnant womans tummy and listen to the sounds that an unborn baby hears.
- Put the magnetic children in the right order from the youngest to the oldest.
- Find out some of the things that will happen to you as you get older.
- Find the computer to add your passport details to the database of other visitors' facts about themselves. How many people are like you?

## 7 Making Choices

- Decide how you would feel in different situations by moving the pointer when the picture appears.
- Watch short stories and choose what you would do next.
- Talk to Scoot the Robot and tell him about the things that you have found out about your body.
- Draw a picture of something which makes you feel good.

## 8 What If You Couldn't?

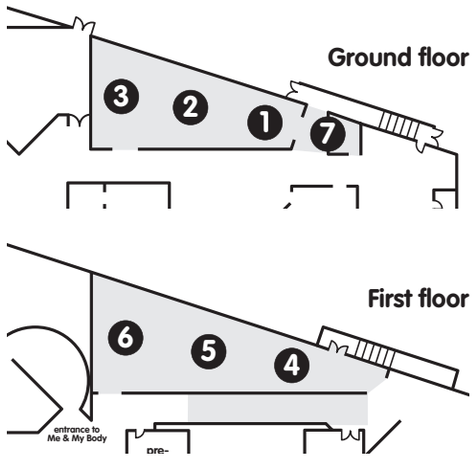
**Experience everyday obstacles for people with disabilities:**

- A try-it-yourself trail with obstacles.
- A short film shows problems people might meet in everyday life.
- A selection of things which can help.
- Details about people who have achieved amazing things despite disability.

# Our Global Garden



The **Our Global Garden** gallery provides an opportunity for children to explore the similarities and differences in the places, animals and plants which are found there. **Gordon Gnome** is a friendly character who introduces the children to their journey in short cartoons on the outside walls and adds extra interest to the exploration by hiding in each garden. The gallery is divided into seven areas, the last one being Positive Steps where children can save a polar bear by making simple changes to their everyday lives.




## 1 The Town Garden

- Read about towns and pollution on the back wall.
- Investigate the outside wall of a town house to find out what creatures might live in and around it.
- Discover different ways of getting to school and decide which is healthier for the environment.
- Turn a tap to follow the journey of water.
- Stand on the footprints behind the wall and reveal the creatures that live under a paving slab.
- Put on a giant rat's head to find out how they see.
- Move the creatures that have moved into towns to their country homes and back.
- Make choices about re-cycling.
- Discover the parts of a house that can be made from recycled materials.
- Look up to see a motorway in the sky or look down to find the squelchy paving slabs that make patterns when you step on them.
- Listen to the sounds of a town.

## 2 The Jungle Garden

- Read the back wall to find out about food chains.
- Explore the trees to find out about:
  events that happened during the tree's lifetime;
  some of the things we take from the jungle;
  why we shouldn't take too much.
- What creature is hidden in the last tree stump?
- Discover how trees give us oxygen.
- More jungle creatures are hiding on the outside of the jungle hut, predators and prey!
- Inside the hut you can dress up in animal masks and play wooden instruments.
- Stand on the footprints before you leave the jungle to reveal another flying creature.
- Use the magnifying glass to take a closer look at some enormous spiders.

## 3 The Ocean Garden

### (The Shore)

- On the back wall you can read about the water cycle.
- Explore the rock pool to find the creatures hiding there.
- Try out some clean *and* renewable energy producers.
- Make your way through the sea kelp forest.

### (Under the Water)

- On the shipwreck, puff up a puffer fish, listen to the electric eel crackle and find the camouflaged flatfish.
- Turn the handle near the porthole and you can watch the jellyfish and octopus.
- Listen to a conch shell and hear the sea. Look through the fish-eye portholes.
- Spin the tubes to see the land creatures that some sea creatures are named after.
- Giant sea anemones contain some of the things we get from the ocean and tell us not to take too much.
- Watch the wooden wall. Some very big fish will appear!

## 4 The Country Garden

- Press the buttons to watch Gordon as he tells you about the four seasons.
- Find out what grows above and below the ground (did Gordon surprise you?)
- Put different products on the place they come from on the magnetic board.
- Peek into a hedgerow at the plants and animals living there.
- Can you work out the food chains?
- See some of the different ways land is used, including landfill!

## 5 The Ice Garden

- Read the back wall to find out about natural balance.
- Listen to the sounds of the Polar Regions.
- Read about the Inuit people who live here.
- Go inside an igloo or even build your *own*!
- Pull the lever on the seasons board to see how the creatures change from their summer to their winter camouflage.
- Gordon talks about water from inside an icicle.
- Make a rubbing of your favourite snowflake.
- Try to catch a fish like a seal or a penguin.

## 6 The Desert Garden

- Read the back wall to find out about adaptation.
- Feel the hot rocks.
- Go *inside* the Bedouin tent to see how the desert dwellers use the stars to guide them. Listen and watch as the glowing eyes, watching you, are revealed as some of the creatures in the desert.
- Dress up in hats and find out how Bedouin children live.
- Go to the well and lift out buckets of water. Find out how much water you use for different activities at home.

## 7 Positive Steps

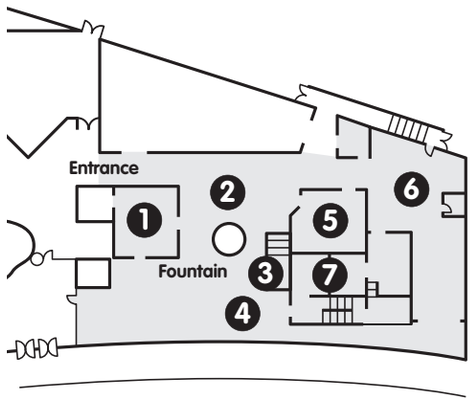
- Why is Nanuq worried?
- What is the most environmentally friendly way to travel?
- How many kilo's of carbon dioxide could you save by walking to school?
- How can you save electricity?
- Where should you throw your apple core?

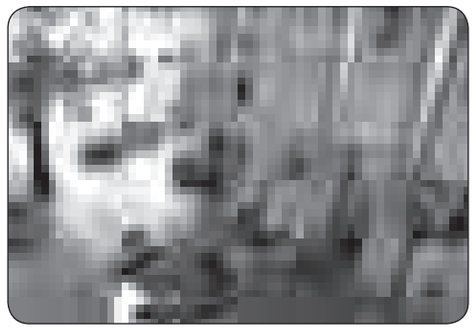
**Use the touch screen computers to find out more. Can you find Gordon?**

# The Town Square



The **Town Square** at Eureka! provides a wonderful opportunity for role play – a small world for small people! Children can explore the world of work as they become cashiers, postal workers and mechanics or try out some everyday grown up tasks such as writing cheques, going shopping and making lunch.



## 1 The Bank

- Dress up as a cashier, Bank Manager or security guard and find out what it's like to work in a bank.
- Fill in a withdrawal form and use your Eureka! bank card in a real cash machine.
- Explore the bank vault with its 2 different alarm systems. Break the combination codes to peek into the safety deposit boxes.
- Use the security cameras to spy on your friends.
- Check the banknote security using a light box and ultraviolet scanner.
- Send money in a capsule to the shop or garage.
- Read the information boards to find out everything you want to know about money and banking.

## 2 The Square

- Look and listen to the musical fountain.
- Choose a book to read from the Book Tower.
- Explore the mini beast wall. Can you find all the creatures that are hiding there?

## 3 The Dig

- Go down into the dig to see the pipes uncovered. Look through into the cellar and search the ledge for mini beasts.
- Find the crockery and bones from long ago that have been uncovered.
- Go up to the tables and take a look at the fossils.
- Read about the creatures of today that are descended from some of them.
- Can you sort the rocks and minerals by looking and feeling them? You can tell chalk from cheese but can you tell chalk from granite?

## 4 Police Box

A Police Box has landed in the Town Square!

- Look inside and approach the Science Kiosk.
- Choose an adventure.
- Play the games and activities.
- Connect with other Science Centres worldwide.

## 5 The Marks & Spencer Shop

- Use the Scanner tills, trolleys, baskets and lots of food and role-play being a customer, cashier or shelf-stacker.
- Use your senses with the sensory boxes.
- Explore the 'journey to my plate' to find out where everyday foods come from.

## 6 The Garage

- Put on an overall and become a mechanic! There's a car waiting for its MOT and another that needs its tyres changing.
- Find out how spark plugs, pistons and brakes work at the mechanics bench.
- Fill up the tank at the petrol pumps and put a car through the car wash.
- Climb into the big green truck and get an idea of what the world looks like from a truck driver's cab!

## 7 The House

### The Hall

- Find where the gas and electricity metres are. Flick the switches to see how much electricity different things use.

### The Living Room

- Watch the TV showing programme clips from around the world. Sit in the peculiar chair and move it around – how does it work?

### The Post Office

- Make sure all the parcels and letters have the correct postage. Take a moment to look at the stamp collections, a picture of the world's first postage stamp and read about the history of the stamp.

### The Kitchen

- Use the nutrition posters on the wall to guide you in making a healthy meal. Use your senses at the smelly table and in the feely drawers and try out your maths skills with the magnetic fruit bowls.

### The Bedroom

- Enter the world of imagination as you discover the bed of a princess, a doll's house and a dressing-up box. Explore the dream and nightmare cupboards; draw your nicest dream or worst nightmare (feed it to Baku and it won't come back!). How can you save energy in the 'power house'? Go through the wardrobe into the magical star-lit corridor.

### The Attic

- Discover a mini theatre and a trunk of old clothes. Put on a show using the sunpipes to light the stage. Look at the displays of objects from the past. What do *you* recognise.

### The Balcony

- Explore alternative energy sources and water saving devices. What clouds can you see today?

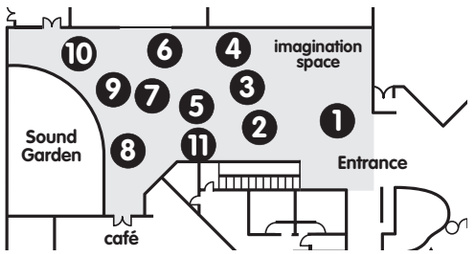
### The Bathroom

- Flush the toilet and watch the cistern fill up. Read about how much water it takes to have a bath and shower. Look behind the toilet to see where some of the things you use in the bathroom come from and some of the strange items people have used to clean their teeth.

# SoundSpace



The **SoundSpace** gallery is a magical, futuristic theatre which encourages children to discover the science of sound and music. The gallery is introduced by **Orby**, an inquisitive alien with special powers from the **Planet Zid**. **SoundSpace** provides a questioning environment where children will be able to experiment, create their own compositions and take part in interactive performances.




## 1 Transportal

- Learn about the **Golden Record**, a time capsule which **NASA** sent into Space in 1977 to take messages from Earth to extraterrestrials (aliens).
- Listen to the sounds which were recorded onto the **Golden Record**.
- Meet **Orby the Alien** to discover the gallery challenge.

## 2 Good Vibrations

Can you see sound?

- Push/pull the giant spring to show how a sound wave travels through air.
- Pull the handle on the air cannon to see the hanging plates move.
- Feel the sound by putting your hands and body on the giant speaker.
- Tap the tuning fork with the beater, watch and feel it move.
- Use the touch-screen to discover how sound travels through different materials.

## 3 Make a Sound

Can you change sound?

- Play the drums and chimes and listen to the sounds they make.
- Pump air through the pipes and listen to the sounds.
- Experiment with the giant guitar to change the sounds.
- Sing into the microphone to discover how your voice can change and why.

## 4 Make Music

- Try to predict the sounds of the pictures on the blocks.
- Test the sounds on the Sampler Station.
- Place the sound blocks on the wall to create your own music.
- Listen to your composition.
- Move the blocks again to change the music.

## 5 Orby Theatre

- Interact with **Orby's** stage show.
- Find out more about **Orby's** journey.
- Experience how sound and light effects change the mood on stage.
- Help **Orby** discover more about sounds from Earth.
- Join in with **Orby's** musical routine.

## 6 Morph Machine

- Create your own character in this role-play area.
- Choose a costume to wear from the wardrobe box and see how you look.
- Design your character's make-up on the touch screens.

## 7 Control Deck

- Use the sliders to change the colour of the lights on stage.
- Follow your friends on the stage with the spotlight.
- Choose a backdrop for the stage show. Experiment with the sound effects.
- Explore the mini-theatre and experiment with lighting and music.

## 8 Sound Lounge

- Explore how we hear sound and how music can affect our emotions.
- Find the cheeky monkey hiding in the jungle.
- Match the music to the celebration.
- Decide how music makes you feel.
- Choose a soundtrack for a film.
- Learn about soundproofing.
- Explore the website station.

## 9 Mix It!

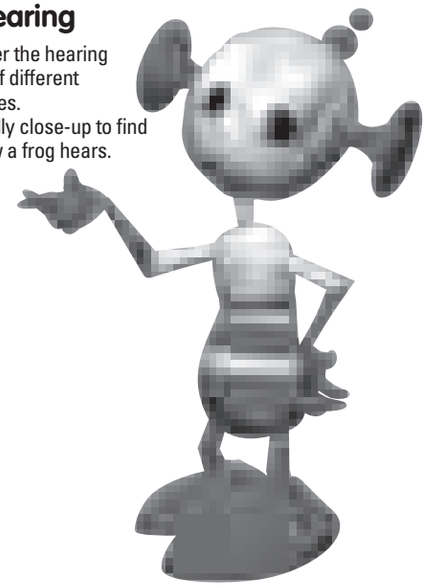
- Create your own music at the DJ stations.
- Add special effects, like an echo.

## 10 Orby Mobile

- Travel around the world with **Orby** in her landing pod to watch and listen to children playing music in different countries.
- Join in with them!

## 11 Hearing

- Discover the hearing range of different creatures.
- Get really close-up to find out how a frog hears.



# Music and Creativity in SoundSpace



**SoundSpace** supports many of the music requirements of the **National Curriculum** by allowing children to **practise, reinforce** and **develop** their musical skills in an informal, fun environment, working alongside **Orby** the curious alien from the Planet Zid. There is also an opportunity for children to work individually or collaboratively to produce performance pieces showcasing both quality and originality.

Below are some examples of how **SoundSpace** can be used to promote the **music curriculum for KS2**.

## Performing Skills

### Make a Sound

- Observe in detail how the voice can change the sounds it makes.
- Explore how the pitch of notes can be altered in percussion, wind and stringed instruments through experimenting on larger than life instruments.

### Orby Theatre

- Sing and dance with **Orby** and explore how rhythm and beat can change, whilst being introduced to instruments from around the world.
- Children will be able to practise, rehearse and present their own performances on stage, controlling their own stage effects including backdrop, sound effects and lighting.

## Composing Skills

### Make Music

- Children have an opportunity to work collaboratively to compose a piece of music using instruments from around the world and sounds from nature.
- Using this cutting edge technology, children can sample the sound block and then place it on the sound wall. The children can change a number of sounds at once to contribute to this ongoing musical composition.

### Mix It!

- Children can take on the role of a DJ. Using the mixing pods, they can work individually to create a piece of music using a touch screen to select the sounds they want to use.
- They are also able to change the rhythm of the music and add special effects, such as an echo using special sliders.
- It is possible to progress in complexity of composition as there are three levels of mixing.

  In both these areas there is an opportunity for the children to evaluate and change their compositions.

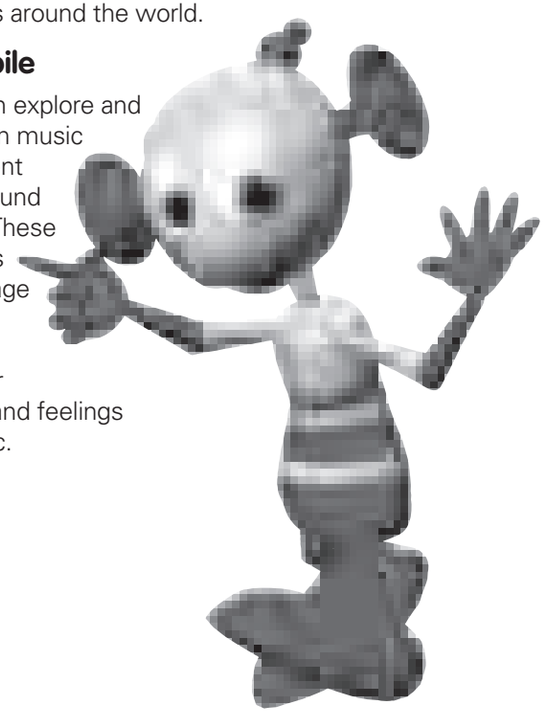
## Appraising Skills

### Sound Lounge

In this area, children can interact with a variety of exhibits which explore their emotional responses to music and discover how music can change the mood of a certain situation. Children discover that certain musical styles have been developed for different celebrations around the world.

### Orby Mobile

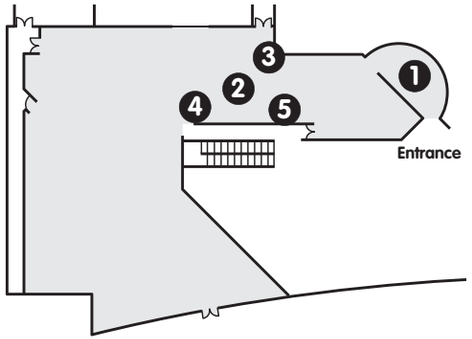
Children can explore and participate in music from different cultures around the world. These experiences will encourage children to explore and explain their own ideas and feelings about music.



# Teeth, Food & Healthy Eating: Year 3 Focus Hour



This trail in **Me & My Body** supports the Science curriculum QCA unit 3a – 'teeth and eating'.

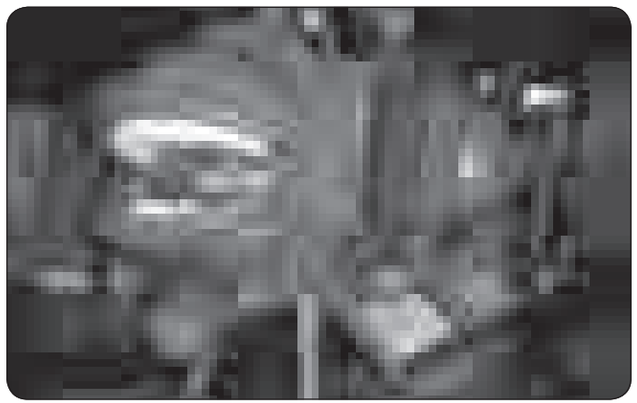



## 1 All About You

Meet Scoot the Robot to hear the story about how he was made. Make your way to the 'Feed Me' exhibit in the 'What goes in?' section of the gallery using the overhead blood vessel.

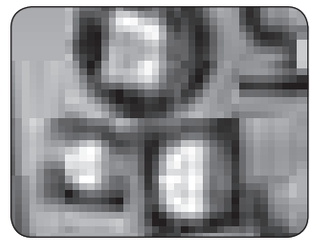
## 2 Feed Me!

- Count the teeth in the mouth of 'Feed Me!'. Is it a child or adult? (a child – 24 teeth)
- Feed it with its favourite diet of bean bags.
- Watch the sequence of biting, chewing and swallowing.
- Which teeth are used for biting? Which are used for chewing?
- What helps to make the food softer?
- Press the button to send the taste message. Where does the taste message go? (To the brain)
- Find out more about taste in the 'Senses' section of the gallery.



## 3 Step Inside!

- Find out more about teeth by stepping inside the giant mouth.
- Find the wobbly tooth. Feel for any wobbly teeth which you may have. Did they fall out? Did new ones grow?
- Count the teeth. Is it a child's or adult's mouth? (Adult) What happens if adult teeth fall out?
- Read about caring for your teeth and healthy eating.
- In the 'Making Choices' section of the gallery, draw Scoot a picture to show which healthy choices you make.



## 4 Tummy Rumble

- Listen to the tummy rumble.
- When does your stomach rumble?
- What happens to the food in your stomach?

## 5 Animal Teeth

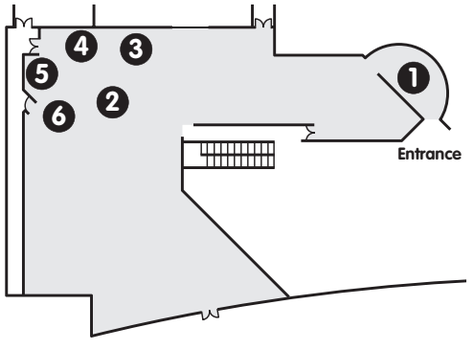
- Look at the three animal skulls. How are their teeth different to ours?
- The sharp pointed teeth are called canines and are used for gripping and piercing food. Why doesn't the cow have canines?
- Look for your canines. Where are they?
- Can you think of any animals who don't have teeth? How do they eat? (Insects, Spiders)

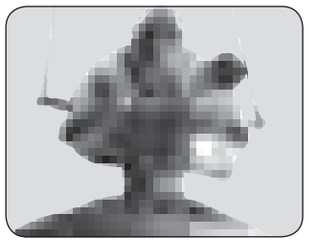
## Extra! Extra!

- Your intestines are about eight metres long, about the length of a bus! How can they possibly fit in your body?
- Animals use teeth for other purposes, not just eating. For example tusks are used for fighting and digging and walruses use theirs for anchoring themselves to the ice! Can you think of many animals with tusks? How have they adapted to their life styles?
- Some birds eat grit to help them digest their food! Why do you think that they have to do this?
- Can you design a leaflet for Scoot's friends explaining how to look after teeth and why it is important to do so?
- Can you design the teeth for the animals that eat these diets? Explain your choice of teeth. Why not challenge your friends with some other diets?

1. Carrots and apples
2. Raw fish
3. Soup

This trail in **Me & My Body** supports the Science curriculum QCA unit 4a – 'moving and growing'.



## 1 All About You

Meet Scoot the Robot to hear his story about how he was made. Make your way to the 'Skeleton Bike' exhibit in the 'What holds you together?' section of the gallery using the overhead blood vessel.

## 2 Skeleton Bike

- Peddle the bicycle to see a skeleton peddling another bicycle next to you.
- Can you recognise any bones?
- What do the ribs and skull protect? (heart & lungs)
- Find out what the places are called where the bones meet.
- Can you name any joints?
- Can you see the knee and hip joints working? Are they the same? (The knee joint is a hinge joint and can only move backward and forward? The hip is a ball and socket joint and can move in full circle).
- What kind of joint are your elbows and shoulders?
- Find out why a child has more bones than an adult.

## 3 Build a Skeleton

- Use the magnetic pieces to build a skeleton but hurry, if you're not quick enough the pieces will drop back off and you'll have to start again!
- Can you see the similarities between the arms and the legs?

## 4 Face Muscles

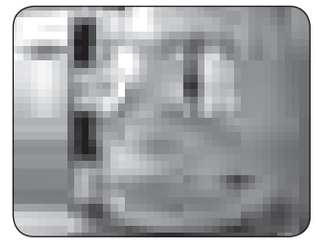
- Look in the mirror and put one of the transparent sheets showing your face muscles over half of your face.
- Make some of the different faces shown on the sheets.

## 5 Look Inside

- Look at the arm as it rotates and watch as it changes from bone to muscle!
- Why do we need muscles?
- Find out about the heart muscle in the 'What Moves Things Around Inside You?' section of the gallery.

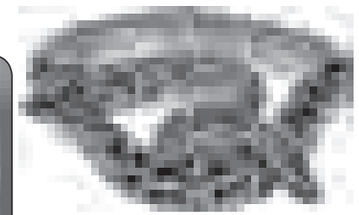
## 6 Inside a Skull!

- "Hello, you are inside a skull!" – Sit inside and listen to the explanation about what the skull does.
- What else does the skull do?

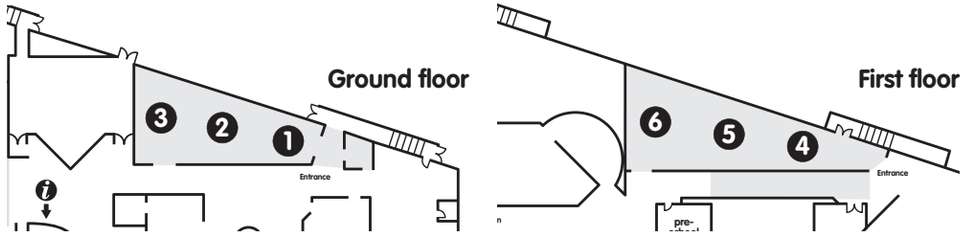


## Extra! Extra!

- Over half your bones and joints are in your hands and feet. Why do you think this is?
- How many bones are in your ear? These bones are not used for support or protection. What are they for?
- Some animals don't have bones on the inside. Can you name some? What do they use for support and protection? Do you notice anything about the size of these creatures? What other factors besides skeleton might affect the size of animals?
- You can make your bones stronger by eating foods that are rich in calcium and doing weight bearing exercise. Why is it important to keep our bones healthy? Can you discover the vitamin that is also important to healthy bones? Where does it come from? Design a leaflet for your family explaining how to keep bones healthy.



This trail in **Our Global Garden** supports the Science curriculum QCA unit 4b – 'habitats'.

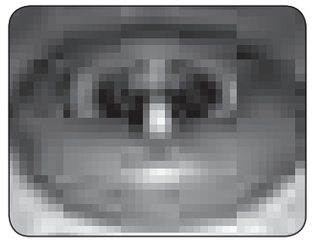



## 1 The Town Garden

- Investigate the variety of life in the wall of the house. Can you make a food chain with these creatures?
- Move the creatures from the country to the town. How do the habitats change? How do the creatures lives change?
- How do humans change the environment which may present a danger to a creature's survival. Investigate how we can help to reduce this.
- Use the computer to discover ways to reduce pollution. Why is this important?
- Find out what creatures love our rubbish. Why don't we want them to multiply?

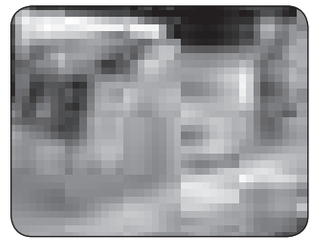
## 2 The Jungle Garden

- Investigate the features of the jungle.
- Look on the outside of the jungle hut. Can you spot the predators and the prey? Can you create a food chain?
- Twist the tree trunks to put together three creatures. The flying frog, flying gecko and flying snake don't really fly but have loose flaps of skin. How do they use these and why?
- Step on the footprints and look up. What do you see? Is a flying fox really a fox?
- Use the computer to find out what we get from a rainforest. Why do we need to maintain the rainforests?



## 3 The Ocean Garden

- Explore the rock pool.
- Explore the shipwreck and find some of the ways the sea creatures try to avoid being eaten.
- Puff up the puffer fish – what happens and why?
- Can you find the camouflaged fish? Who are they hiding from?
- Look at the wall behind you. What appears?
- Who eats the shark?
- Find out why the manta ray has a huge mouth.
- Compare the differences in the creatures who live in different depths of the ocean.



## 4 The Country Garden

- Search the hedgerow to find the creatures that are hiding there.
- How have the creatures bodies adapted to avoid predators?
- How do plants and animals change to cope with each season?
- Starting with a leaf, create a food chain from the hedgerow.
- Use the computer to find out how humans can change the environment.

## 5 The Ice Garden

- Which features show you you're in a polar habitat?
- Pull the handle on the seasons board to see how the animals change from summer to winter. What colour are their coats in the winter? Why?
- The arctic hare and fox don't want to be seen but for different reasons. What are they? How do you know which is the predator and which is the prey?
- Discover how the polar bears and penguins keep warm. Penguins huddle together in a big circle when there is a blizzard. Why?
- Use the computer to find out how snow keeps us warm. Why is this important?

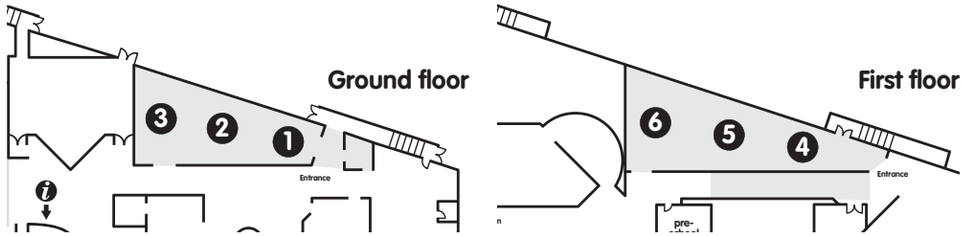
## 6 The Desert Garden

- Find the evidence to prove you're in a desert.
- Follow the tracks to see which animals are hiding.
- How have people, animals and plants adapted to cope in the desert?
- Discover how animals store precious water.
- Use the computer to find out more.

## Extra! Extra!

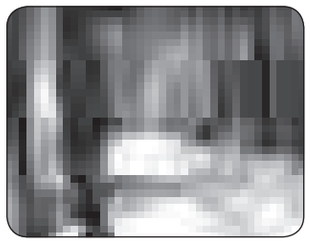
- Choose an animal in one of Our Global Gardens and make a storyboard of a day in the life of that animal. Think about what you would see, hear and eat? What would your surroundings be like? Are you predator or prey?
- Design a leaflet to distribute to Key Stage One children explaining why we should recycle and how they can help.
- How do humans in this country adapt their lifestyle to cope with the changing seasons?

This trail in **Our Global Garden** supports the year 6 Science curriculum QCA unit 6a – 'interdependence and adaptation'.




## 1 The Town Garden

- Investigate the variety of life in the wall of the house. Where might they have lived before the wall was built?
- Can you make a food web with these creatures? Can you think of any other animals who live in the Town Garden to add to the web?
- Move the creatures from the country to the town. How might this migration affect the balance of life in this habitat?
- Look at the things which we can re-cycle. What effects would more rubbish have on the environment?
- Investigate how we can help to reduce pollution. Use the computer to help.

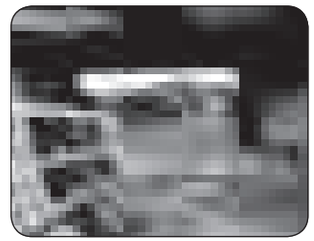


## 2 The Jungle Garden

- Investigate the features of the jungle.
- How have the jungle creatures adapted to live successfully in this habitat?
- Look on the outside of the jungle hut. Can you spot the predators and the prey? Can you create a food web? Which are the producers in a jungle?
- Do rainforests have the same seasons as Great Britain? How could you discover this?
- Use the computer to find out what we get from a rainforest. Why do we need to maintain the rainforests and how can we achieve this?
- Look at the spiders.
  How are they different from spiders in this country?

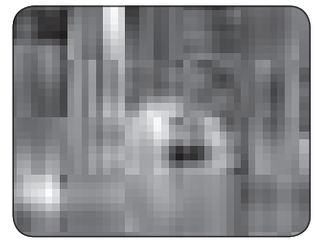
## 3 The Ocean Garden

- Explore the variety of life above and below the ocean.
- Explore the shipwreck and use the creatures there to create a food web. Could you include any consumers in this web who don't live in the ocean?
- The shark is a predator. Is there ever a time when the shark becomes prey?
- Look at the manta ray to discover the primary producer in the ocean.
- Find out how the depths of the ocean influence the adaptation of the creatures who live there.
- Use the computer to discover the extremes to which creatures will go to, to survive and adapt.



## 4 The Country Garden

- Discover the different types of countryside and their characteristics. How do humans influence the countryside?
- As a farmer, how would you improve the productivity of your land? Could this affect the bio-diversity?
- Explore the garden to discover the variety of ways in which animals use plants. Can you think of ways in which plants use animals?
- How do plants and animals cope with Winter?
- There are lots of producers and consumers in the country garden. Can you use these living things to create a food web?
- Use the computer to find out why we need to protect the countryside.



## 5 The Ice Garden

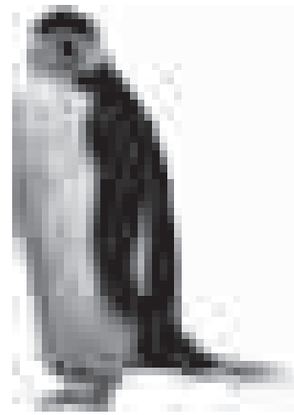
- Which features show you you're in a polar habitat?
- Pull the handle on the seasons board to discover how animals use camouflage. How does their appearance change with the seasons? Why is this important?
- Food is limited in polar habitats. Can you find 4 competitors for the available food? Which do you think is the most successful and why?
- What is the producer in the arctic food web?
- Use the computer to find out how snow can work to our advantage.

## 6 The Desert Garden

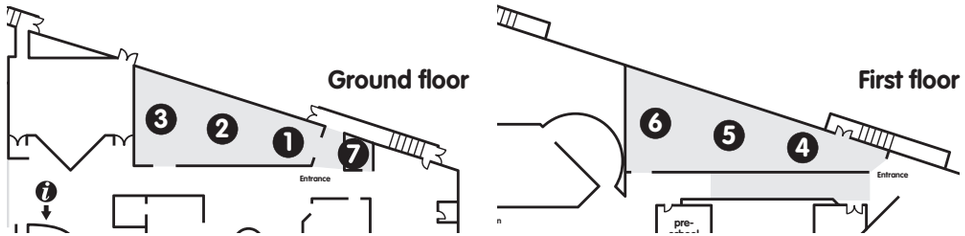
- Find the evidence to prove you're in a desert.
- Look for the common factors which living things have to help them to adapt to desert life?
- How has the animal evolved to cope with the temperature extremes?
- Find the bucket and investigate the methods of acquiring and conserving precious water.
- Use the computer to find out what happens when it rains in the desert. How does this affect life in the desert?

## Extra! Extra!

- Choose an unfamiliar garden from Our Global Garden to investigate further. Imagine that you are going to live there. What would you need to take with you? How would you find food, water and shelter? Special care must be taken with the Ocean Garden!
- Write a list of the food that you eat during the day and place yourself in a food web. Are you always the final consumer?
- Predators are not always large animals. Can you think of any small ones?
  (Clue 'Incey Wincey…')
  Can plants ever be predators?
- Choose a mammal from one of the Global Gardens and design a perfect habitat for it. What factors do you need to consider? (decomposers etc.) How would that mammal be affected if its population suddenly trebled?
- Play one of the games on this website to find out more about the environment and management of eco-systems.
  **www.bbc.co.uk/nature/blueplanet/**



This trail in **Our Global Garden** supports the years 3 and 4 Geography curriculum QCA unit 7 – 'weather'; unit 8 – 'improving the environment' and unit 21 – 'how can we improve the area we can see from our window?'.




## 1 The Town Garden

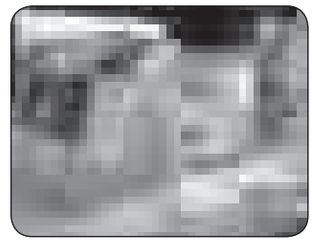
- Listen to the sounds of the town.
- When does sound become noise?
- What do you think noise pollution is and why is it a problem?
- How do you travel to school? Look at the school journey exhibit to find out how journeys affect the environment.
- Why is recycling important?
- Explore the recycling exhibits. How have the materials been used again?
- How can we encourage our schools to become more environmentally friendly?
- Explore the world of a rat. What could we do to discourage rats?

## 2 The Jungle Garden

- How's the jungle garden different from the town garden?
- Describe the climate of the jungle garden using the clues around you.
- Explore the tree trunks to discover how we benefit from the natural products of the jungle.
- If we continue to take things away how will this change the jungle?

## 3 The Ocean Garden

- Estimate the percentage of the world covered by Oceans (66%).
- Find out 2 ways in which people have used the ocean to produce energy.
- Can you think of ways in which the ocean is polluted?
- How will pollution affect the life of the creatures in the oceans?
- Can you name animals who live in the coldest and warmest oceans?



## 4 The Country Garden

- Do you recognise any features in the country garden?
- Watch the TV as Gordon Gnome tells you about the seasons. Which seasons are the warmest and coldest? Estimate the difference in temperature.
- In which season do plants grow best and why?
- See different images of the countryside.
- What is landfill? (where rubbish is buried)
- What is good about it? (it's out of sight under the ground and gasses can be put to good use)
- What is bad about it? (Much of the rubbish will take 100 years to rot away and lots more rubbish will be made in that time – where on Earth will we bury it all?)
- How does litter affect the wildlife?

## 5 The Ice Garden

- What clues tell you you're in a polar region?
- From what you can see, how does the climate affect the landscape?
- Read the back wall about life in the Polar Regions. Where are the Polar Regions?
- Use the seasons board to investigate how animals have adapted to the seasonal temperatures.
- What is Global Warming and how will this affect the Polar Regions?
- Where would the winter be coldest – at the North Pole or in the British countryside? How would you find out?

## 6 The Desert Garden

- How do you know you're in a desert?
- Describe the desert climate using the clues around you.
- Read the back wall about life in the desert. If the coldest places are at the top and bottom of the Earth, where do you think the hottest places, like deserts are? Investigate the globe to find out.
- Look at the stars from inside the tent. Why do you think we can see the stars so clearly in the desert? (no cloud cover)

## 7 Positive Steps

- Try the interactive quiz and save Nanuq the Polar Bear's environment by making the right choices about electricity and transport.

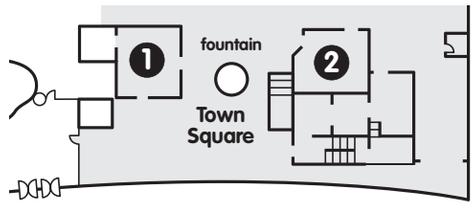
## Extra! Extra!

- In groups choose an area from Our Global Garden to find out more about. List the advantages, disadvantages and interesting aspects of living there. Design a travel brochure for your chosen area. Why not have a class presentation to share your work? Remember to inform visitors how to care for the environment and to watch out for any dangers!
- Play the environmental games on this great website to see how eco aware you really are. **www.powerhousekids.com**
- 'Red sky at night, shepherds delight. Red sky in the morning, shepherd's warning.' This is an old piece of folklore which was used to predict the weather. What does it mean and is it accurate? Can you discover any more weather folklore sayings? How do we forecast the weather nowadays?

### Pollution

Find out how dirty the air is around your school. Put a clean white sheet of paper outside where it is exposed to the fresh air but will not get rained on. Put a mug on top of the paper. After a week take a look at the paper. How different does it look on the part underneath where the mug was? Why so you think this is?

This trail in **The Bank** and **The Shop** supports years 3 and 4 Numeracy and Literacy strategy and the Design and Technology QCA unit 4d – 'alarms'.




## 1 The Bank

### Role-play Scenarios

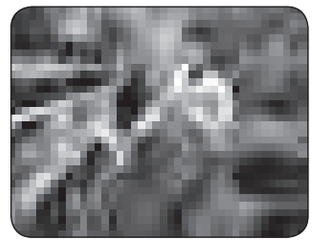
- **Be a customer:** fill in a withdrawal form; what do you want to buy and how much will you need? The cashier will give you a bank card and a PIN (personal identification number – a secret code) to use with it. Now you can get a Eureka! bank note from the cash machine. Take it to the ink stamps to create a £5, £10 or £20 note.
- **Be a cashier:** put on your uniform and sit behind the desk. Check the customer's withdrawal form; if it is OK stamp it with YES, fill in the PIN (4 numbers) and give them a bank card. Do you need to send money to the shop or garage using the air tube?
- **Be the bank manager:** put on your uniform and sit in the bank manager's office. Answer the phone if it rings, it may be a customer. What do they want to know?
- **Be a security guard:** put on your uniform and man the security camera screens. Move the camera around; is there anything suspicious going on?

### The Bank Vault

- Check out the security in the bank vault. Discover the 2 different types of alarm and what sets them off: try to avoid the sensors.
- What are the alarms protecting?
- Which of the alarms has a 'push-to-make-switch' trigger? (The pressure pads; when a person's weight pushes on the pad it makes the alarm go off)
- Use the clues to work out the combinations and peek inside the safety deposit boxes of some very famous people. If you had one, what would you put in yours?

### Find out more

- Use the light box and the ultraviolet scanner to check out some banknotes from around the world. Why do some banknotes have silver threads and watermarks?
- Go to the 'Global Banking' area. What time is it in Singapore? What currency is used in Canada?
- Check out the giant coins. Count the edges on the 50p and the 20p; which has more? Choose 3 different coins and count up how much money you have.



## 2 The Shop

### Getting Your Shopping

- As a customer, choose 5 food items from the shop to make a healthy meal. Put them in a trolly or basket and take them to the till.
- As a cashier, follow the instructions on the wall/window to scan and add-up your shopping.
- What is the total amount of money spent on your shopping?
- How much change should you get from £10?

### Finding out more about food

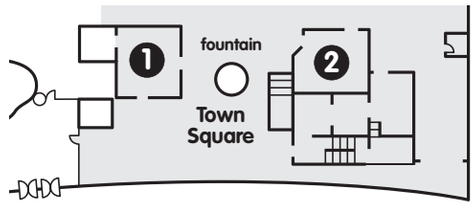
- Discover some fascinating facts about food at 'Journey to My Plate' then scan the barcodes on the shelves to find out more about where some of the foods you eat every day come from.
- Use your nose, your fingers and, lastly, your eyes to identify the food items in the sensory boxes.

## Extra! Extra!

- If you had one of each coin and note up to £20, how much would you have?
- Different countries use different currencies, can you find ten different currencies and where they are used?
- Bank safes have special codes to stop the valuables being stolen. Can you devise a code for your friends to send secret messages with?
- Can you think of reasons why it is important to have banks? What would we do if they did not exist?
- Imagine that banks have decided that they will no longer open accounts for children. Can you design an alarmed container to protect your money?
- Why is it important to make sure that fresh food is transported to shops quickly? Does it matter what temperature the food is kept at? Why?
- Can you plan breakfast, lunch and dinner for your family for one day? Remember healthy eating! Now make a shopping list.
- Play 'Grab the Grub' to see how healthy your food choices are. **www.bbc.co.uk/health/nutrition/shop_flash_grab_grub.shtml**

  Find out more and play some fun nutrition games **www.nutritionexplorations.org/kids/**

This trail in **The Bank** and **The Shop** supports the years 5 and 6 Numeracy and Literacy strategy and Science QCA unit 6b – 'micro-organisms'.




## 1 The Bank

### Opening an account

- **A customer:** fill in a withdrawal form; decide what you are using the money for and how much you will realistically need. The cashier will give you a bank card and a PIN (personal identification number – a secret code) to use with it. Now you can get a Eureka! bank note from the cash machine. Take it to the ink stamps to create a £5, £10 or £20 note.
- **A cashier:** put on your uniform and sit behind the desk. Check the customer's withdrawal form; if you approve stamp it with YES and give them a PIN and a bank card. Do you need to send money to the shop or garage using the air tube?
- **A bank manager:** put on your uniform and sit in the bank manager's office. If the phone rings be prepared to answer your customer's questions.
- **A security guard:** put on your uniform and man the security camera screens. Move the camera around; how do you zoom in and out? Is there anything suspicious going on?

### The Bank Vault

- Check out the security in the bank vault. Discover which alarms are used for which purposes and try to avoid the sensors.
- Use the clues to work out the combinations and peek inside the safety deposit boxes of some very famous people. Think of another famous person and imagine what might be in their safety deposit box?

### Find out more

- Use the light box and the ultraviolet scanner to check out some banknotes from around the world. Why do some banknotes have silver threads and watermarks?
- Go to the 'Global Banking' area. How many US dollars would you get for a pound? What time is it in Singapore?
- What is a mortgage? What is 'chip and pin'? How many double decker buses would fit in the vault of the Bank of England? Read the jargon busters boards to find out more about banking.

## 2 The Shop

- Plan a healthy meal by choosing 5 items of shopping – one fruit, one vegetable, one cereal, one dairy produce and one kind of bread.
- Why are different foods displayed and stored in different ways?
- What affects do these methods have on the shelf life of the food?
- Estimate the total cost of your shopping before you get to the till.
- Check out your purchases following the instructions on the wall/window. Are you sure you have the right change from your £20 note?

### Finding out more about food

- Discover some fascinating facts about food at 'Journey to My Plate' then scan the barcodes on the shelves to find out more about where some of the foods you eat every day come from.
- Use your nose, your fingers and, lastly, your eyes to identify the food items in the sensory boxes.

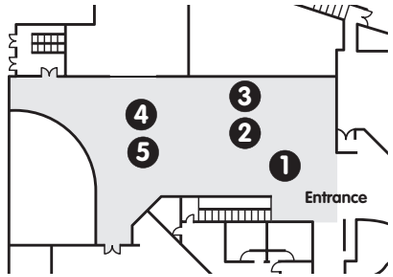
## Extra! Extra!

- Choose one of these statements to debate in class.

  'Children should work for pocket money.'

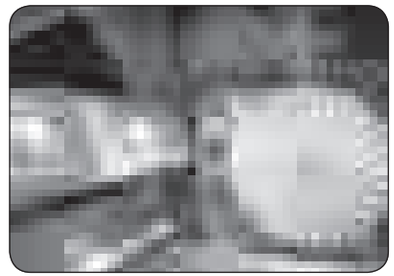
  'Nobody should have to give money to charity.'
- Many countries put pictures of famous people, heroes or inventors on their bank notes. If you were designing a new note, who would you choose and why?
- Banks use encryption codes to protect information on computers. Can you devise your own encryption system to send messages to your friends?
- If you had £1.00 in your pocket, can you investigate how many different variations of quantities and types of coins you could possibly have?
- Research the journey of a banana from where it is grown to your lunch box. What type of transport carries it and how many different people might handle it?
- Can you find out how a barcode works? Why do shops use these?
- Design a carrier to transport your food shopping home in the best condition. Remember different foods need storing in different ways.
- Write a persuasive letter to the head of school meals explaining why healthy eating is especially important for children. You could even suggest a sample menu for a week!

This trail in **SoundSpace** supports the Science curriculum QCA unit 5f – 'Changing Sounds'.




## 1 Transportal

- Meet **Orby** the inquisitive alien in the Transportal and find out how you can help her discover more about vibrations, sounds and music.

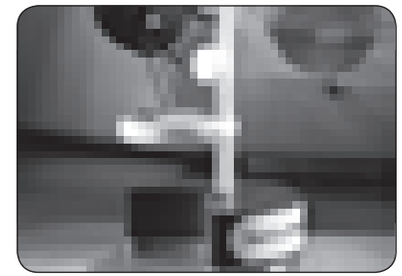


## 2 Good Vibrations

- Move the slider on the giant spring to see how the sound wave travels.
- Let **Orby** show you the vibrating tuning fork in close up.
- Can you think of any other words that mean the same as vibrate?
- Can you think of any other objects that vibrate in your house?
- Do you think that vibrations travel at the same speed in all solids?

## 3 Make a Sound

- Play the different instruments and listen to the different notes they make.
- Can you find the highest note on the chimes?
- The drums are different sizes so produce different sounds. How else can you change the pitch of a drum?
- Which sound do you think is the loudest?
- How many different types of stringed instruments can you think of?
- Which string on the giant guitar produces the lowest note?



## 4 Research Station

- Visit the Research Station to find out more about vibrations, sound and music.
- Try these sites back at school as well:
  **www.brainpop.com/science/energy/sound**
  **www.exploratorium.edu/music/index.html**

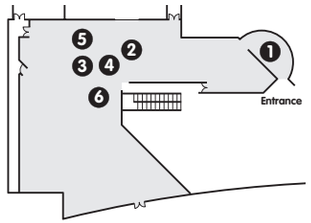
## 5 Sound Proofing

- Experiment with the different materials to see which is most effective at muffling noise.
- Which material do you think will be the best at soundproofing? Why?
- Why do we sometimes need to use sound proofing materials?
- Can you think of any other materials that would be good to muffle sound?

## Extra! Extra!
### Back in class

- Have an unplugged session in the classroom. Bring in your favourite song or piece of music and explain why you like it. Does everyone respond to the music in the same way?
- Investigate how other animals sense vibrations for example earthworms and fish? Can you find out the similarities and differences compared to how humans hear?
- Humans have three bones in their ears. Why do you think they are there?
- Can you make an instrument out of junk which can be tuned?

This trail in **Me & My Body** and **The House** supports the Science curriculum QCA unit 5a – 'keeping healthy'.




## 1 All About You

Meet Scoot the Robot to hear the story about how he was made. Make your way to the 'What goes in?' section of the gallery for the start of your trail using the overhead blood vessel.

## 2 Air In, Air Out

- Watch the x-ray machine to see what's happening on the inside of your body.
- Which organs can you see? How do you know?
- What is the important gas that your lungs breathe in?
- Listen to the breathing sounds. Why are they different?
- Can you think of any other situations when the rate of your breathing increases?

## 3 Look at a Heart Beating

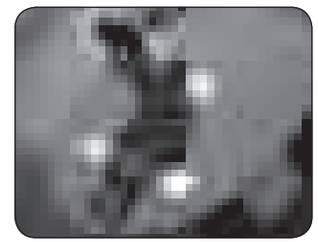
- Look at the screen with the beating heart.
- Can you see the blood vessels on the heart? What are they for?
- Nobody's heart is as big as the one on the screen. Make a fist – that's how big your heart is! Compare the size with your friends and teacher/ helper.

## 4 Heartbeat

- Check out the heartbeat monitor and predict when a heart would beat faster and slowest before pressing the buttons.
- Can you explain why a baby's heartbeat is different to an adult's.
- Why do you think doctors check your pulse in hospital?

## 5 Where Does Your Blood Go?

- Put your hand on the heart in the picture of the body. What do you notice about the blood flow? Why does blood need to travel all over the body?
- Can you name the other organs in the diagram?
- Can you tell which vessels are arteries and veins on the picture?
- Try the 'Hand up, Hand down' experiment.



## 6 Blood Close Up

- Look down the microscopes to see blood close up.
- Is it all the same colour? (red blood is full of oxygen, blue blood is on its way back to the lungs to pick up some more)

## Healthy Hearts

- How could you measure your heartbeat?
- Feel the pulse at your wrist with three fingers. Can you feel your pulse anywhere else on your body?
- How does the rate of your heart change when you exercise? Why does this happen?
- Can you notice any other changes in your body when you exercise?
- What can you do to slow the rate of your heartbeat down?
- Do you think exercise is important? why?

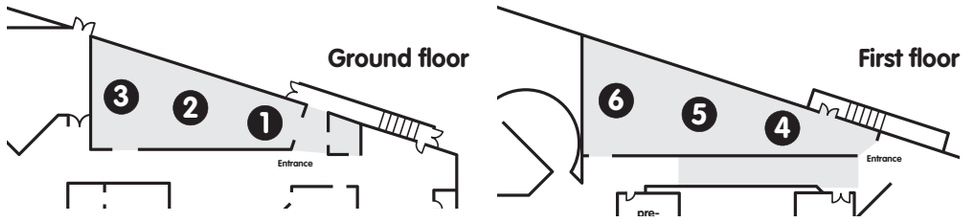
## Healthy Eating in The House and Shop

- Go to the kitchen of the house and look at all the posters on the wall about different kinds of foods.
- Why is it important to have a varied diet to stay healthy? (Your body needs different kinds of food for different things)
- Why is it important to eat foods that contain calcium? (Calcium is important for healthy teeth and bones)
- What foods contain protein? (Meat, fish, cheese etc.)
- Use the play food to make a healthy meal. Which different food types do you have in your meal?
- What vitamins and minerals can be found in your meal?
- Now go to the shop and buy: something that contains Calcium; something that contains Vitamin C; something that contains Protein.

## Extra! Extra!

- Track your pulse rate every half hour throughout the day. Plot the results on a graph. Can you explain any variations?
- Can you find out how much blood is in your body? Which animal do you think has the most blood? Do all animals have blood? How would you find out?
- Plants don't have blood. How does oxygen get into their tissues?
- Exercise is important for many reasons. Brainstorm in pairs or groups to think of why exercise is good for your health. How many reasons can you discover?
- Smoking is bad for your health and can damage your heart. Design a leaflet for children explaining why smoking tobacco is not cool!
- Plan a sports afternoon for your class. Remember to research all the games people enjoy! Can you think of healthy refreshments?
- Check out this great website: **www.medtropolis.com/vbody.asp**

This trail starting in **Our Global Garden** supports the year 5 Geography curriculum QCA unit 11 – 'water' and the Science curriculum QCA unit 5d – 'changing state'.




## 1 The Town Garden

- Investigate the route of water from rainfall to your tap, using the tap on the wall.
- Explain why we shouldn't drink water straight from a reservoir.
- Which season are we more likely to have a water shortage and why? (in the summer there is not enough water to fill the reservoirs – the hot sun causes evaporation)

## 2 The Jungle Garden

- Jungles are also called tropical rainforests. What effect does all the rainfall have? (combined with the heat, the rain makes trees and other plants grow quickly – there is a greater variety of plants in tropical rainforests than anywhere else on Earth!)
- Did you know, huge rivers often flow through the rainforests, including the 2nd longest river on Earth. Do you know what it's called? (the Amazon)

## 3 The Ocean Garden

- The oceans cover about 66% of the planet. Can you name any oceans? (Pacific, Atlantic)
- Read about the water cycle on the back wall. How might changes in the weather affect it?
- What is the difference between seawater and rainwater? What happens to the salt when the seawater evaporates?
- Ride the surfboard to light up the city. Wave power is one way that water is used to produce renewable electricity. Can you think of another? (Hydro-electricity e.g. dams)

## 4 The Country Garden

- How does the quantity of water available affect food production e.g. drought, flood, frost, pollution.
- Look up! What do you see?
- What are clouds? (Condensed water vapour – either water droplets or ice crystals)

## 5 The Ice Garden

- Why would you take a sledge or skates to a Polar Region?
- How does water turn in to ice?
- How many different types of frozen water can you find?
- Use the evidence to describe a snowflake.
- Can you make a house out of water?

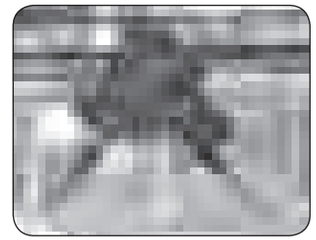
## 6 The Desert Garden

- What is a desert?
- How do you know you're in a desert?
- Did you know that a desert is a region of the Earth with rainfall of less than 25cm a year?
- Read the back wall to discover how plants, animals and people adapt to cope with a limited water supply.
- Estimate how much water you use everyday. Use the bucket to compare.
- Use the computer to find out what happens when it rains in the desert.

# Around the museum...

## Water Usage

- Visit the **bathroom of the house** to find out some of the ways that we use water.
- Look at **the water conservation poster** on the landing
- Visit the **water usage exhibit** on the side of the house. Here you can guess how much water different activities use and find alternative solutions which save water. Play the game to find out how much you know.
- Visit the balcony of the house to find out ways of saving water.



## Make it Rain

- Be *part* of the water cycle! Turn the wheel on the balcony to move the cloud over the fountain and *you* can make it rain.

## Irrigation

- Watch Archimedes take a bath (every hour on the hour and half past the hour) then watch **Archimedes' Screw** working to refill the bath.
- Archimedes invented this device many hundreds of years ago to get water from the rivers to irrigate the crops. How do you think it works?

# Extra! Extra!

- Check out this site to find out where in the United Kingdom it rains the most. **www.bbc.co.uk/weather** Try to think about other interesting questions about the weather in this country or abroad. Can you find the answers?

## The Water Cycle

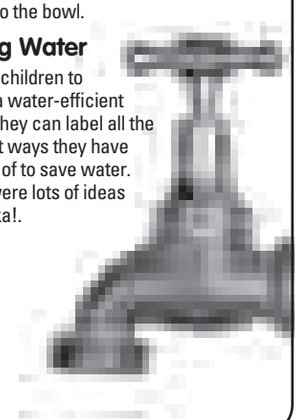
Put a large plastic bottle on its side and spoon in gravel, damp soil and potting compost. Use sticks to push in small plants such as ivy, mosses and ferns and plant them in the soil. Put the top firmly on the bottle and leave it in a shady place. Water will evaporate from the leaves of the plant, condense on the sides of the bottle and run down back into the soil, where the roots will take it up to be used again and again.

## Make a mini rainfall

In this experiment you put some hot water into a bowl and cover the top with plastic food wrap. Put some ice cubes on top of the food wrap. The hot water will evaporate and when the water vapour touches the cold plastic it will condense and form water droplets, which will then fall back into the bowl.

## Saving Water

Ask the children to design a water-efficient home. They can label all the different ways they have thought of to save water. There were lots of ideas at Eureka!.



# The Eureka! Park

Eureka! values outdoor play and the park is even more exciting this year with a range of play and active learning opportunities:

## Outdoor Activity Boxes

Time spent in the Eureka! park can be educational and fun with Eureka! Activity Boxes, with games and props to encourage individual skills, group dynamics and creative play. Boxes are available* outside from 11.00am to 3.00pm every term except December, January and February.

## Giant Sand Pit

The natural tactile qualities of the giant sand pit at Eureka! make it ideal for play-based and active learning – and of course for building huge sand castles!

## The PlayScape

This outside area, built in partnership with Suma, provides a space for child-led, free play for children of all ages in a natural environment. It is designed to reflect nature, using natural materials and recycled industrial products. The PlayScape positively encourages imaginative and co-operative play.

Suma

Suma is the UK's largest independent wholefood wholesaler-distributor.
**www.suma.coop**

## The Wonder Walk NEW

Eureka!'s newest outdoor exhibition, a trail to delight your senses and give you the chance to get close to the natural world.

EUREKA!
the national children's museum

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