

INTRODUCTION

Food Scientists to the Rescue! is a free play for schools exploring the science of food, presented as part of Norwich Science Festival 2025 in partnership with the Ministry of Imagination and The SAW Trust.

The play and this Teacher's Pack are kindly supported by Dudgeon Community Fund via the Norfolk Community Foundation and the Alan Boswell Group Charitable Trust.

This Teacher's Pack is full of fun and creative ways to teach children about food and food science and is designed as an accompaniment to the play. The sessions outlined here utilise active learning techniques to explore what we can do to look after ourselves, each other and the planet.

Norwich Science Festival is presented by The Forum with the support of partner organisations. The Festival takes place every year in the February half term, with an exciting programme of talks, shows, workshops and hands-on science fun for all ages. For more information, visit norwichsciencefestival.co.uk.



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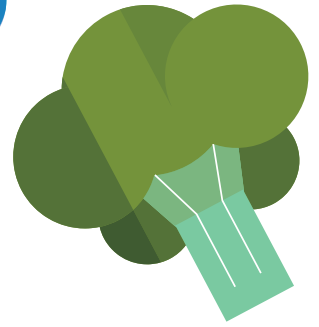
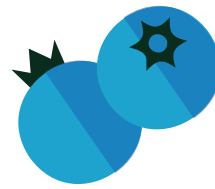
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We'd love to hear your thoughts on the **Food Scientists to the Rescue!** play and the accompanying Teacher's Pack. Your feedback will help us to submit future funding bids that will allow us to provide more free science events for schools in the future. Scan the QR code or follow [this link](#) to complete our short survey.



norwichsciencefestival.co.uk

PRE-SHOW ACTIVITIES



These activities are all suitable and adaptable for Key Stage 1 and Key Stage 2 and are best used as warm-up activities ahead of the play coming to your school.

ACTIVITY 1

MOVE LEFT, MOVE RIGHT!

Teacher Notes:

In this game, the class will be at tables or arranged in a circle. You will read out a series of instructions which the children will follow, depending on whether the answer is 'yes' or 'no'.

Activity:

- Move left if you...
like eating fruit!
- Move right if you...
eat breakfast in the morning!
- Move left if you...
help to cook at home!
- Move right if you...
eat meat!
- Move left if you...
like to try new foods!
- Rub your tummy if you...
like eating vegetables!
- Give a thumbs up if you...
drink lots of water!
- Wave your hands in the air if you...
like to share food with your friends!

ACTIVITY 2

GRANDMA'S FOOD STEPS

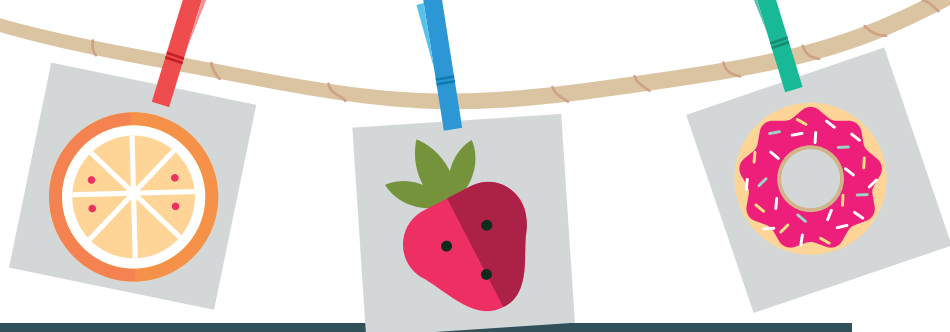
Teacher Notes:

A twist on Grandma's Footsteps!
All children will start at one end of the room in a line.

Show the class a range of foods on a screen or by holding up printed photos. Ask them to move forward when they see what they think is a healthy food, and to stay still if they see what they think is a less healthy food.

If anyone makes a misstep, they must go back to the start!





ACTIVITY 3

HEALTHY FOOD RELAY RACE

Teacher Notes:

You will need:

Four buckets or containers, two marked as 'Healthy' and two marked as 'Unhealthy'. You'll also need to print a range of pictures of different types of food items (approx. 30 images), and you'll need a washing line, pegs and a peg bag to hang the pictures from. This activity also requires several balls or bean bags to throw into the buckets or containers. You may want to use the school hall or an outdoor space to play this game.

Time: Approx. 15 minutes

Objectives:

To explore which foods are considered healthy and unhealthy, often referred to as 'always foods' and 'sometimes foods'. You may find it helpful to go back over with the class which of the foods Sally mentioned in the play as being 'Healthy' and 'Unhealthy'.

Warm-up:

- 1 Split the class into two teams. Each team is given one 'Healthy' bucket and one 'Unhealthy' bucket. Place the buckets at an easy distance. The teams will each line up and take turns throwing a ball into either the 'Healthy' or 'Unhealthy' bucket. The team with the most balls in the bucket wins!

Activity:

- 1 The class remain in their two teams, with their 'Healthy' and 'Unhealthy' bucket. The teams will each line up at one end of the hall or area. At the other end of the room, a washing line will be set up with images of different food items hanging from it with pegs. These are the images you will have printed earlier.
- 2 The children will take it in turns to run up to the washing line and select an item of food from the line. They must place it in either the 'Healthy' bucket or the 'Unhealthy' bucket.
- 3 Repeat until the washing line is empty and everyone has had a chance to take part.
- 4 Go through each team's bucket to count their answers, giving one point for every item in the correct bucket.



POST-SHOW ACTIVITIES

These activities are designed to be done after the play has visited your school. They are split into two sections to echo the play: **Healthy You** and **Healthy Planet**. See individual activities for recommended age guidance.

HEALTHY YOU

KEY STAGE 1

JUNIOR CHEF!

Teacher Notes:

This activity is designed to encourage play and make believe, as the children become a chef in their own restaurant! As a follow-on from the pre-show activities, it will help the class to further identify what makes a healthy meal.

Time: Approx. 30 minutes

Objectives:

To write a menu for a healthy and delicious dinner!

Activity:

- 1 Have a discussion as a class on a name for their brand-new restaurant! You can add their ideas to the board or to a large sheet of paper.
- 2 Working in pairs, the children will use paper to write or draw their exciting new menu, picking out healthy foods to make a delicious meal. You can lay out pictures of a range of foods as a prompt. Encourage them to think about a starter, main, and even a dessert!
- 3 Split the class into groups of three to five. Select one child to be the chef, and between one and two children to each play the role of waiters and customers. Ask them to role play going to the restaurant, looking at a menu, and ordering their food. The chef and waiters must role-play preparing the food and serving it to their customers.





HEALTHY YOU

KEY STAGE 2

OLLIE'S BIRTHDAY

Teacher Notes:

The play considers how some people can't eat gluten – including Ollie! This activity aims to support the class in understanding more about gluten and gluten intolerances, and some of the solutions that food scientists have come up with.

For example, early career researchers from the University of East Anglia and Norwich Research Park are working to utilise the power of peas to create gluten-free products for supermarkets near you! You can find out more at www.mvpea.co.uk.

Other gluten-free grains include corn (maize), rice, soy, buckwheat, chia seeds and pea and nut flours. Gluten-free foods include fruits, vegetables, fresh meat and eggs.

You will need:

Photocopies of an image of an empty plate, for children to draw on as a worksheet, and drawing pencils or pens. You may also wish to refer to the [*NHS Eatwell Guide*](#).

Time: Approx. 40 minutes

Objectives:

To understand food intolerances and consider how science is coming up with new solutions to help people.

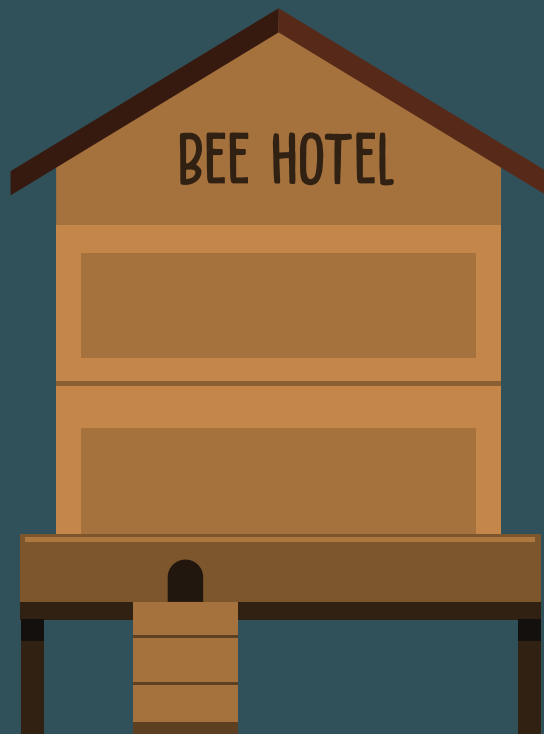
Activity:

- 1 Give each child an empty plate worksheet and a selection of pencils or pens.
- 2 Using the Eatwell Guide, the class will create a healthy gluten-free meal for Ollie.
- 3 After they have spent some time on their plates, divide the class into small groups of three or four, to plan Ollie's birthday party! The children will need to decide on three party games and five dishes for the party food table. Everything will need to be gluten free – and don't forget a cake!
- 4 The groups may wish to take it in turns to act out or present their ideas for games and dishes for Ollie's birthday.



HEALTHY PLANET

KEY STAGE 1 & 2



A HOME FOR THE BEES

Teacher Notes:

A bee hotel is a place where bees can nest. Working in groups, the class can make a bee hotel or two to be placed around the school. Using A5 paper, pre-prepare some tubes by rolling it around a pencil and holding it down with tape.

You will need:

A5 paper, colour pencils and pens, sticky tape and glue, paint, small cardboard boxes or wooden boxes, plastic plant pots, or old tin cans that have been emptied and cleaned and made safe (you might want to cover the edges with masking tape).

Time: Approx. 30 minutes

Objectives:

To learn the ways in which we can all help bees thrive.

Activity:

- 1 The class can make a bee hotel in teams or as individuals, depending on how many resources are available. First, they will need to decorate or paint the outside of the cardboard or wooden boxes.
- 2 Once the paint has dried, the rolls of A5 paper will need to be posted into the boxes or tins lengthways. You will need to add as many as possible so that there are no gaps, and so that they don't move around. They will need to be packed tightly.
- 3 Hang the bee hotel up in the school grounds, or they can be taken home and hung up in a garden!



POST-SHOW ACTIVITIES

continued...

HEALTHY PLANET

KEY STAGE 1 & 2

BEE STORIES

Teacher Notes:

Pollination is nature's superpower. It happens when bees carry tiny grains of pollen from one flower to another. For more information and resources, visit:

www.bbc.co.uk/teach/class-clips-video/articles/zv4df4j

Time: Approx. 30 minutes

Objectives:

To gain an understanding of pollination.

Activity:

- 1 Discuss with the class what they remember about the story Sally told about Bella the bee. The class can draw pictures of Bella and of the flowers.
- 2 In groups or as a class, role-play Bella and her bee friends as they fly from flower to flower to collect their pollen and take it back to the hive.



HEALTHY PLANET



KEY STAGE 2

ELECTRIC FIELDS

Teacher Notes:

Bees have incredible super senses! For example, their sense of sight is so powerful that they can see patterns on flowers that we can't! Bees have five senses – just like us – but they also have a sixth sense! Bees can sense the electric fields that surround flowers. For more information, visit: www.nationalgeographic.com/science/article/bees-can-sense-the-electric-fields-of-flowers.

You will need:

Blow-up balloons, drawing paper and pens or pencils.

Time: Approx. 30 minutes

Objectives:

To explore bees' super senses.

Activity:

- 1 To demonstrate static electricity, blow up three balloons and ask three children to stand at the front of the class with them.
- 2 Ask the children to rub the balloon on their hair or jumper as quickly as they can! The class should be able to see that their hair will stand up on end, or the balloon will stick to their jumper. This is static electricity in action! When a bee lands on a flower, pollen is transferred to the bee's body via static electricity.
- 3 Ask the children to draw their own superhero bee – with their own unique super sense! If their bee could have any super sense, what would it be?



HEALTHY PLANET

KEY STAGE 1 & 2

SUPER SENSES – WHAT A SIGHT!

Teacher Notes:

With these activities, we will dive into the senses of bees – touch, taste, sight, sound and smell – a little deeper.

You will need:

UV paint and a UV light, and regular colour paints, paintbrushes and paper.

Time: Approx. 30 minutes

Objectives:

To explore bees' super senses.

Activity:

- 1 Ask the class to look around the room and point out some of the colours that they can see. Discuss with the class the idea that bees see colours differently to humans – they can't see red, but they can see ultraviolet light. Ultraviolet light is invisible to our eyes unless we shine a special light on it.
- 2 Each child can be given two pieces of paper and a selection of regular colour paints. Ask them to paint some colourful flowers on their page. This is what we see.
- 3 On the other piece of paper, ask the children to paint their flowers again using UV paint.
- 4 Reveal the colours that a bee might see with a UV light, by shining it over their pictures!



HEALTHY PLANET

KEY STAGE 1 & 2

SUPER SENSES – THE WAGGLE DANCE

Teacher Notes:

The play explored how bees communicate using dance – dancing tells other bees how far away the flowers are and the direction they should fly in to find them. This resource might be helpful: www.youtube.com/watch?v=PRGc7skekMQ

Time: Approx. 30 minutes

Objectives:

To explore bees' super senses.

Activity:

- 1 Split the class into small groups, and put some music on!
- 2 Ask the class to create their own waggle dance, just like the bees. They can make up their own sequence of moves together – perhaps they will flap their wings, or move in a figure of eight. Ask the class to think about how they can communicate with each other through dance!



HEALTHY PLANET

KEY STAGE 1 & 2

SUPER SENSES — SNIFF THE AIR

Teacher Notes:

The honeybee's sense of smell is 100 times more sensitive than ours! This allows them to smell where the flowers are, and which ones might have the best nectar.

You will need:

Oranges and lemons cut in half, or some fresh lavender. You might also want to try other herbs and spices.

Time: Approx. 15 minutes

Objectives:

To explore bees' super senses.

Activity:

- 1 The class will close their eyes and take it in turn to smell the different items, but you will need to keep them hidden.
- 2 Ask the children to guess what they think the smells are. Can they imagine how strong a bee's sense of smell might be in comparison?



FOOD SCIENCE IN NORWICH

Here is some more information on the amazing places in Norwich where real-life food science is happening.



Quadram Institute

The Quadram Institute is home to world-leading researchers making discoveries in the gut microbiome, food and health sciences. Working alongside NHS doctors and nurses, their mission is to improve human health through healthier, more nutritious diets that support the gut microbiome.

Current experiments include biofortifying plants – like tomatoes – to contain Vitamin D, breeding a type of wheat that is higher in fibre, and giving people poo transplants to help cure some diseases.



John Innes Centre

The John Innes Centre is home to over 40 research groups. Its mission is to generate knowledge of plants and microbes through innovative research, train future scientists and to apply the knowledge of nature's diversity to benefit agriculture, the environment and human health.

Current research topics include improving soil health, increasing crop yields, producing disease resistant plants and exploring the chemistry of floral scents and how they attract pollinators.



Earlham Institute

The Earlham Institute studies the genomes (genetic material) of important plants, animals and microbes. By carefully analysing their DNA, its researchers are working to understand, benefit from and protect life on Earth.

The Institute is home to leading experts and cutting-edge technology which, together, are helping to tackle some of the planet's biggest issues – climate change, food security, biodiversity loss and health.



CAREERS IN SCIENCE

Here are some of the people who make food science happen in Norfolk:



Andy is Communications Manager for the Quadram Institute. He developed his love of science after a teacher encouraged him to grow plants at home and do his own experiments. He worked as a scientist for several years, before becoming a science writer and communicating the discoveries of other researchers.



Rispah is a PhD student at the Quadram Institute. Her research focuses on enhancing the nutritional potential of pulses to meet the demand for sustainable and nutritious alternative protein sources. The excitement of hands-on practical science lessons in Kenya inspired Rispah's curiosity and love for discovery.



Shannon runs the Education Programme at the John Innes Centre. She was inspired to go into science when a teacher conducted a forensics activity that had the class digging up buried pigs' heads to work out how long they'd been buried – by counting the maggots! It was a gruesome experiment, but it sparked Shannon's love of science!



Miles works on improving the drought tolerance of wheat at the John Innes Centre. As a child he loved walking outdoors, and was amazed at how plants could adapt to their habitat. The climate is changing our environment and so Miles is using plant science to design future wheat to keep food on our tables.



Greg is Head of Communications at the Earlham Institute. As a great one for talking when he was young, it was only natural that he would go into comms! After studying engineering and science journalism, he joined the Institute to help share the exciting innovations, especially around protecting biodiversity.



Melissa is a postdoctoral scientist at the Earlham Institute. She was always interested in science from a young age and is fascinated by how nature works, from entire organisms down to individual enzymes! She works on decoding the DNA instructions that plants use to make their pharmacy of molecules that we use as medicines.

APPENDICES

Appendix 1: Useful links and resources

NHS Eatwell Guide

www.nhs.uk/live-well/eat-well/food-guidelines-and-food-labels/the-eatwell-guide/

All the Buzz Lesson Plan from The SAW Trust

sawtrust.org/resources/all-the-buzz/

The Bee Trail from the Earlham Institute

www.earlham.ac.uk/the-bee-trail

Zoologist Bushra Schuitemaker's Story

www.britishscienceweek.org/smashing-stereotypes-bushra-schuitemaker/

BBC Bitesize Cooking and Nutrition for Key Stage 1

www.bbc.co.uk/bitesize/topics/zjpmfmdm

BBC Bitesize Cooking and Nutrition for Key Stage 2

www.bbc.co.uk/bitesize/topics/z63nrmn

John Innes Centre Blog and News

www.jic.ac.uk/news-events/

Quadram Institute Blog and News

quadram.ac.uk/blogs/

Lunchtime Labs: Plants and Pests at Norwich Science Festival 2020

www.youtube.com/watch?v=KPQDYjPVhpY&list=PLlrsg0iCgACw5XH6818dM-60Dxo2lqAVc&index=10

What is Pollination?

With Maddie Moate

www.maddiemoate.com/maddie-videos?wix-vod-video-id=56c5dd51c34a4b79a1a85d50a8eaafde&wix-vod-comp-id=comp-k402o70g

How to Make a Bee Hotel with Blue Peter

www.youtube.com/watch?v=WyrctXv3S50

ProVegUK Classroom Resources

proveg.org/uk/canteen-to-classroom/

Guardians of the Gut Resources

guardiansofthegut.org/

BBC and The Royal Society:

Why do we waste so much food?

www.bbc.co.uk/videos/cv2gqvppdjlo

Edible insect start-up based in Norwich

www.uea.ac.uk/stories/from-uea-to-edible-insects-yum-bug

Vertical Farming in Agriculture

www.jic.ac.uk/blog/is-vertical-farming-the-future-of-agriculture

Flying butterflies with Sarah Bearchall

www.youtube.com/watch?v=TZIZv6QjsKE

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the
forum

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DUDGEON
Offshore Wind Farm
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