

Instructions



Pick a country and learn about the foods people eat there.



Choose any two foods and see what they are made of.



For each food, look through all the microbe cards and match the symbols to the food card.



Add 2 stickers for each “like” symbol.



If you see any “dislike” symbols, remove just 1 sticker.

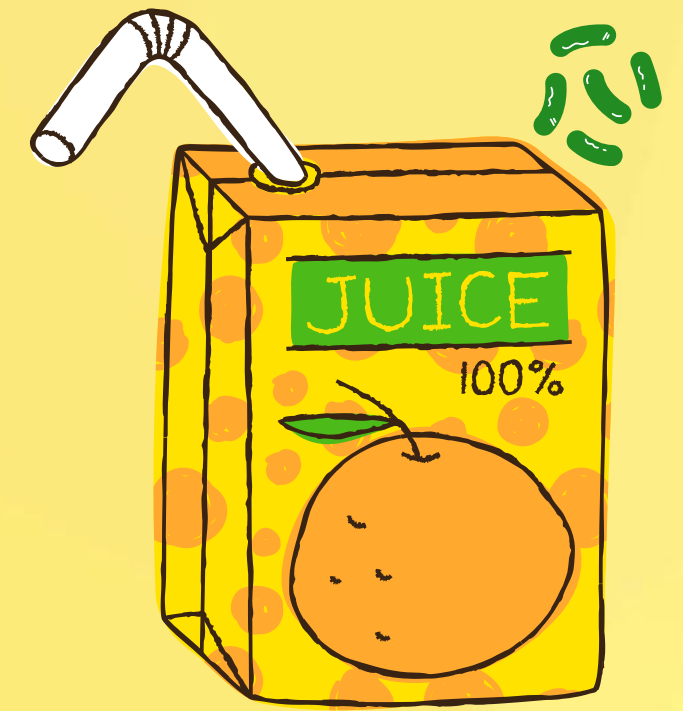
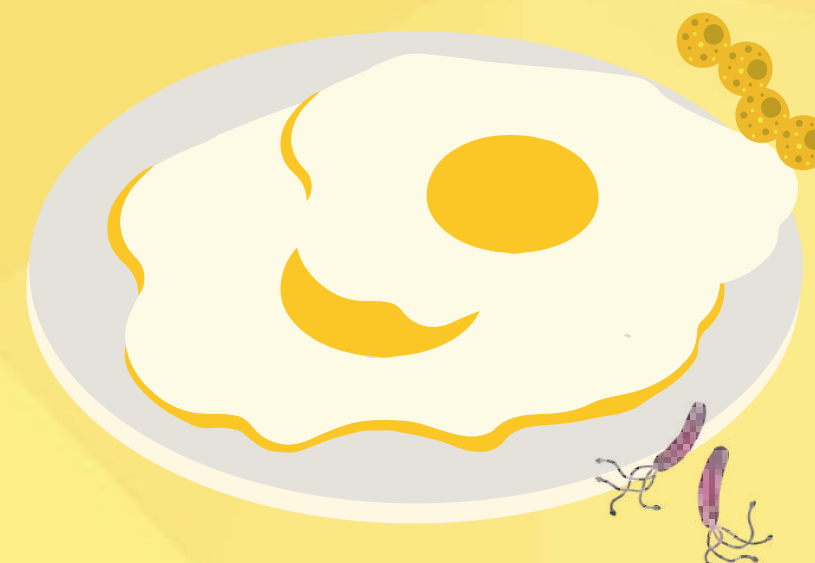
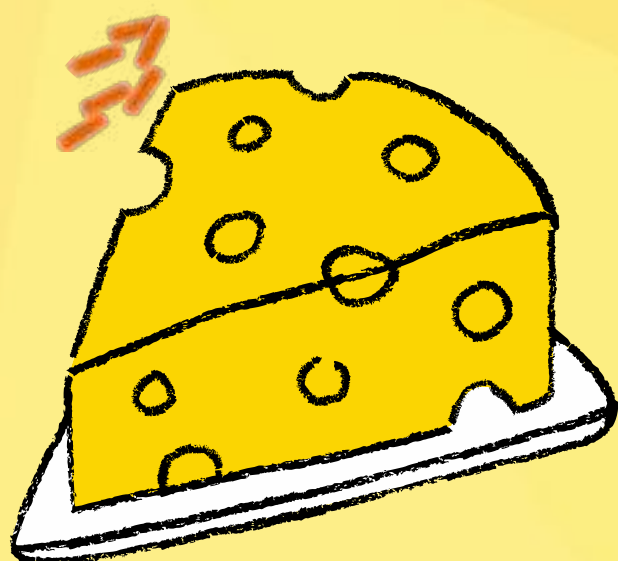
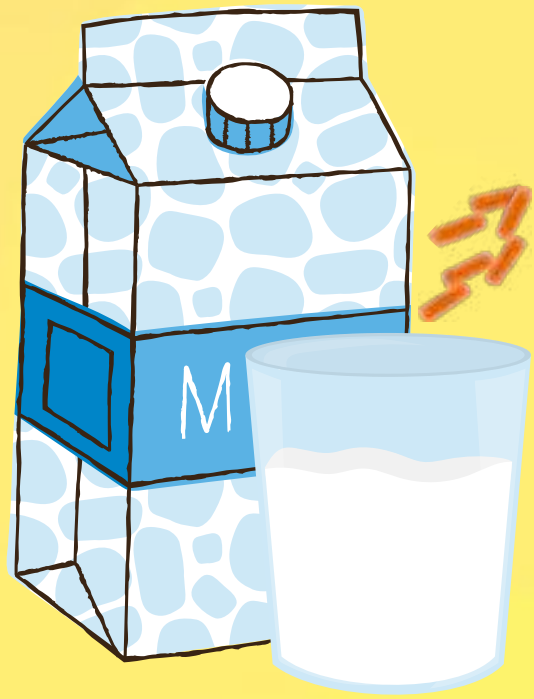


Identify which microbe is present the most in the gut for that country.

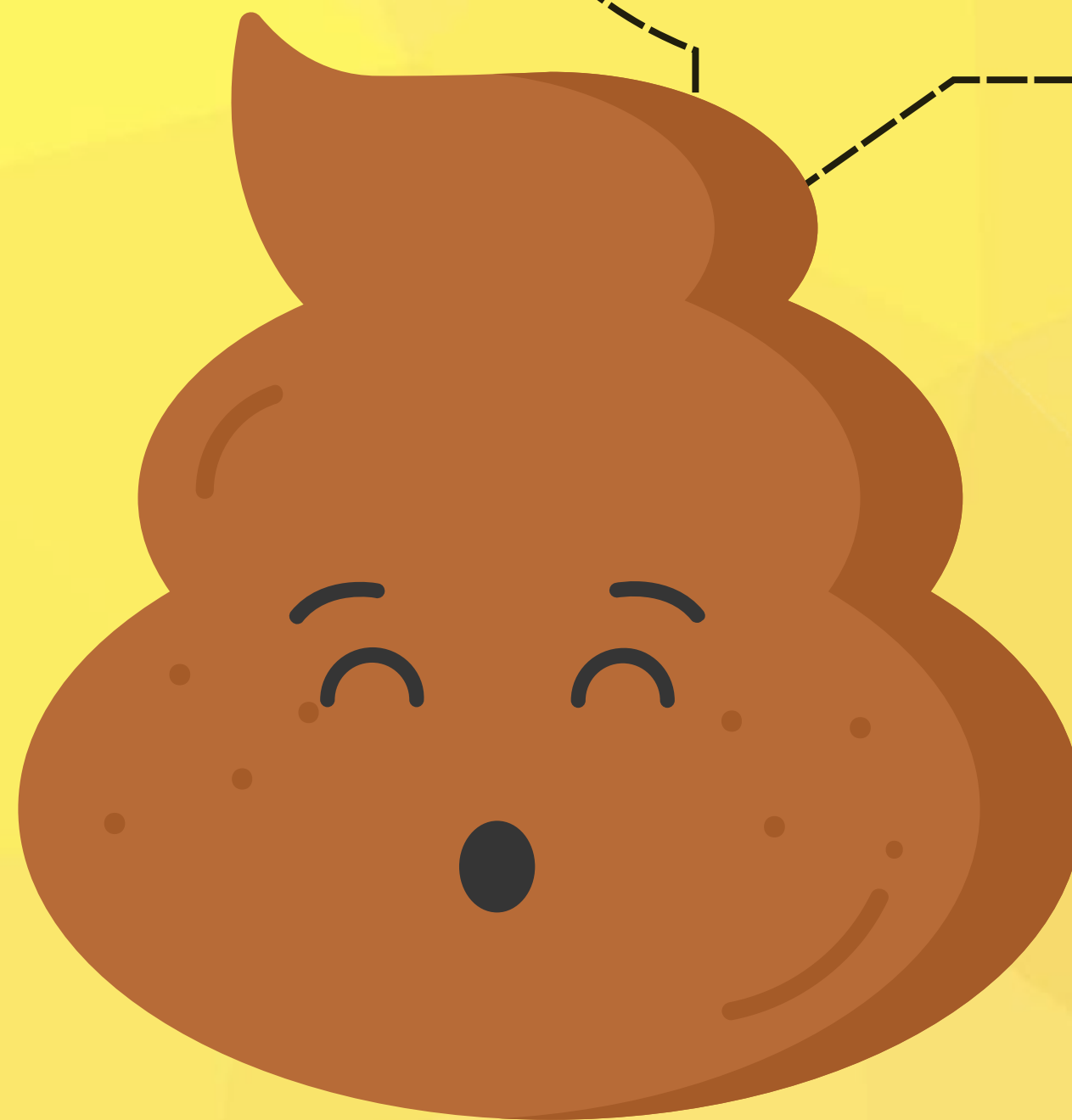


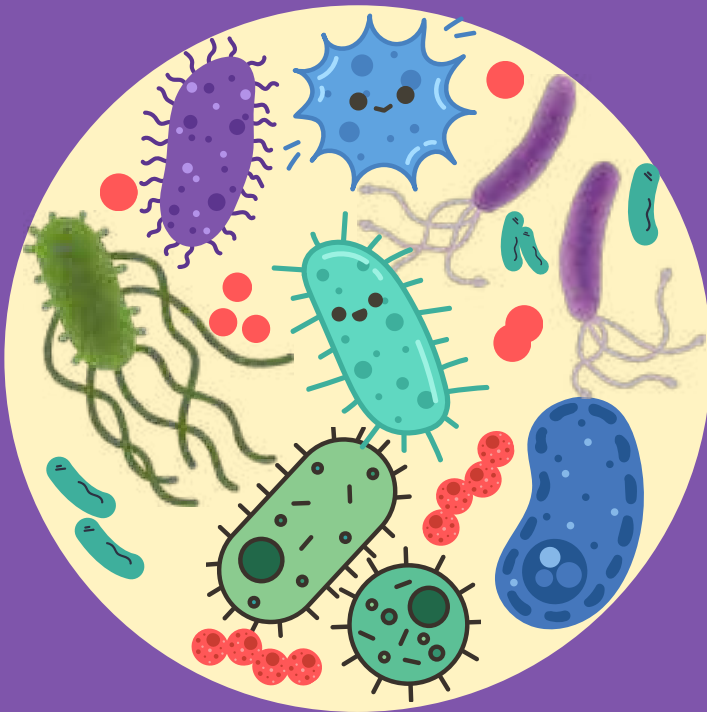
See how your poo sheet looks compared to others.

From Plate to Poo



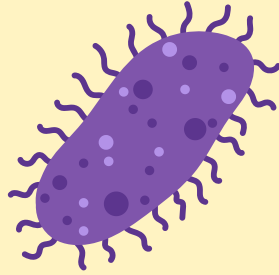
What did you eat for breakfast?
Move the microbes from those foods into
the poo!





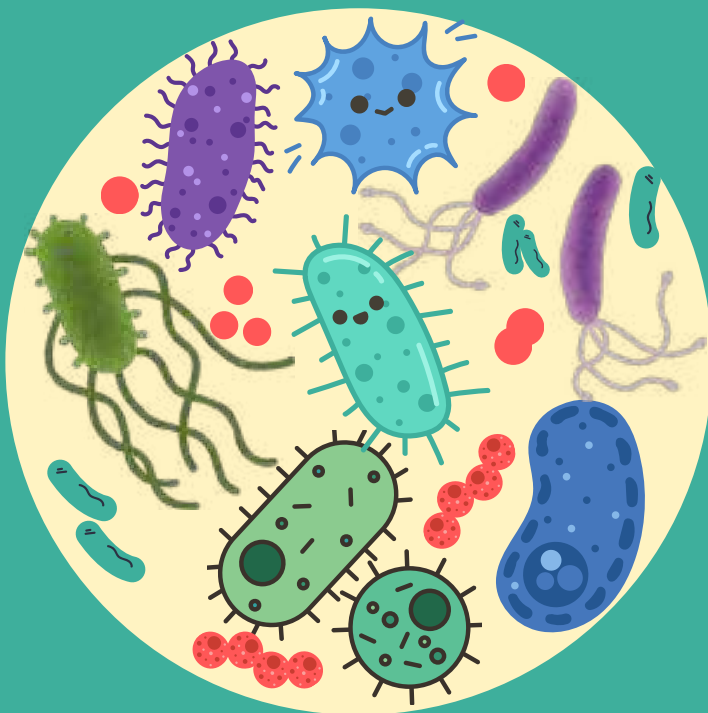
Bifidobacterium

**Call me the
Tummy Helper !**



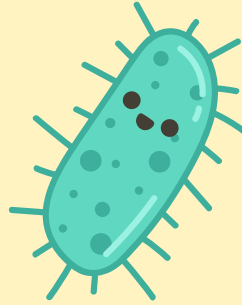
I'm a tiny helper who loves yummy, gentle fibres. You'll find me in tummies that enjoy fruits, veggies, grains and even tasty pickles. Feed me these foods, and I'll help keep your belly calm and happy!

 LIKE	 Fibre	 Fermented food
 DISLIKE	 Sugar	 Protein



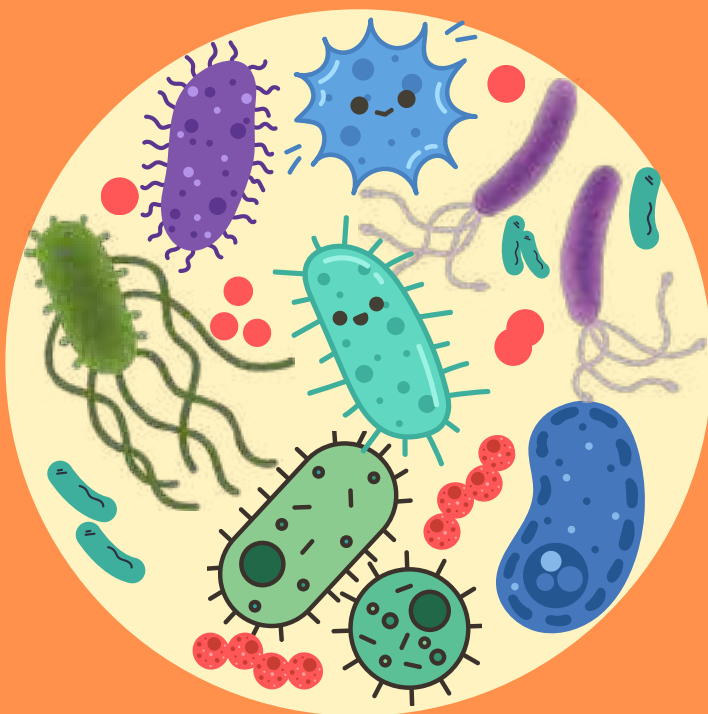
Bacteroides

**Call me the Carb
Specialist !**



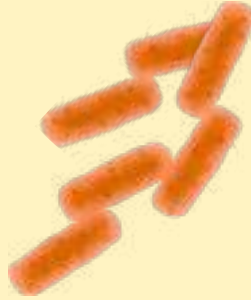
I chow down on soft, cooked carbs like roti, bread, mashed potatoes, noodles, and rice. If it's a starchy, squishy plant food, I'm ready to crunch it !

 LIKE	 Carbohydrates
 DISLIKE	 Fibre  Fats



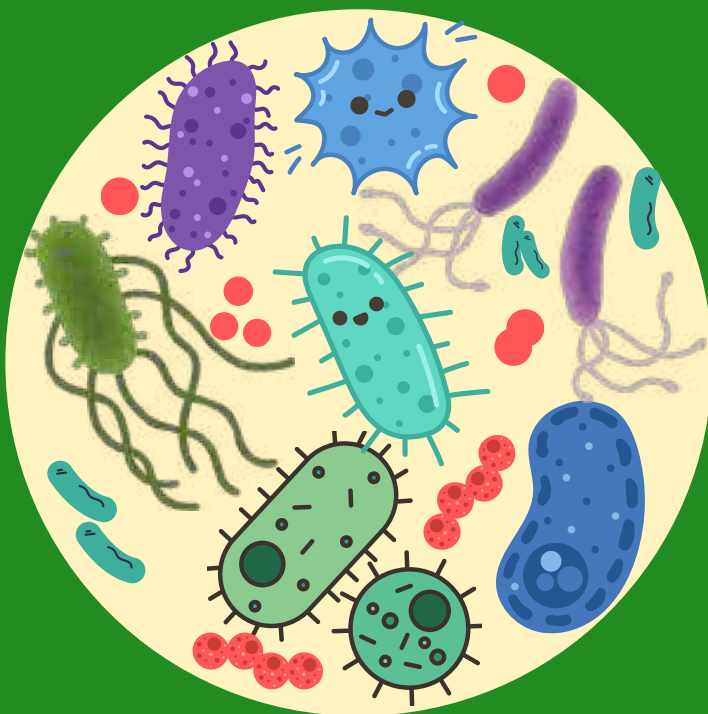
Lactobacillus

**Call me the Gut
Superhero !**



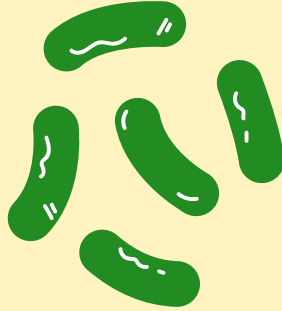
I'm a friendly little bug. You'll find me in tummies that enjoy fermented food like miso, yoghurt, cheese, and pickles. Give me fermented goodies, and I'll guard your gut !

 LIKE	 Carbohydrates	 Fermented food
 DISLIKE	 Sugar	



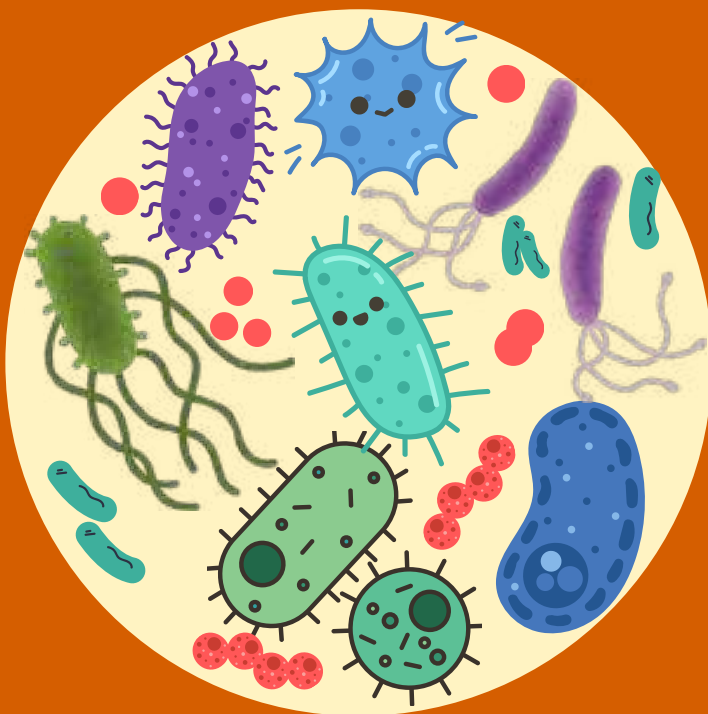
Prevotella

**Call me the
Fibre Fanatic !**



I party in the gut full of plants, grains,
and beans. Feed me lentils and leafy
veggies, and I'll stick around. The more
fibre you bring to the feast, the happier I
am !

 LIKE	 Fibre	 Carbohydrates
 DISLIKE	 Fats	 Sugar



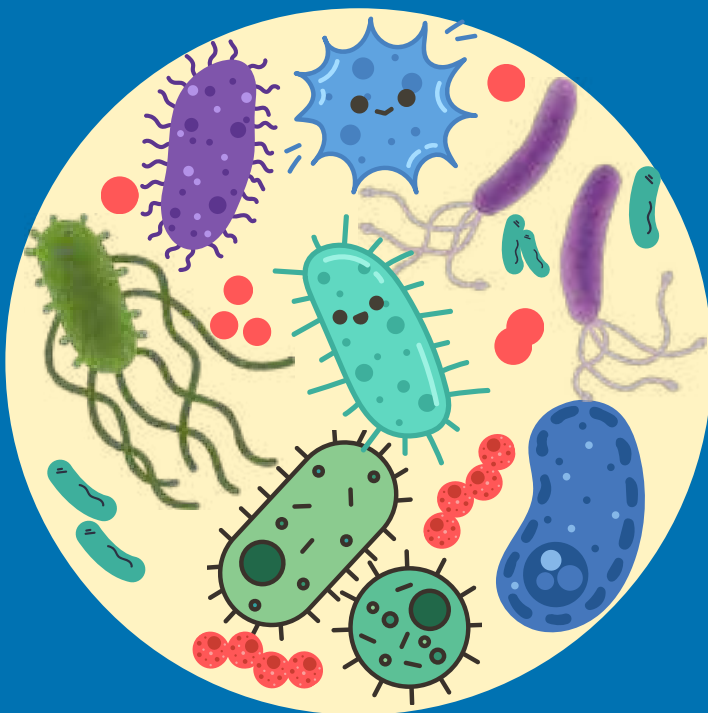
Alistipes

**Call me the
Balanced Buddy !**



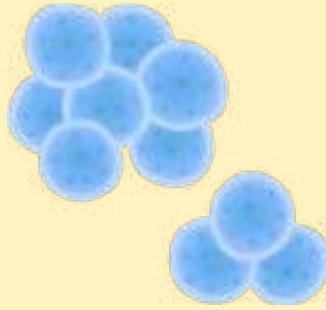
I show up when your diet is balanced, like soups and stews with veggies. Not too much meat, not too little fibre. I keep your gut chemistry in check, but push things too far, and I start acting a bit quirky !

 LIKE	 Fibre	 Protein
 DISLIKE	 Fats	



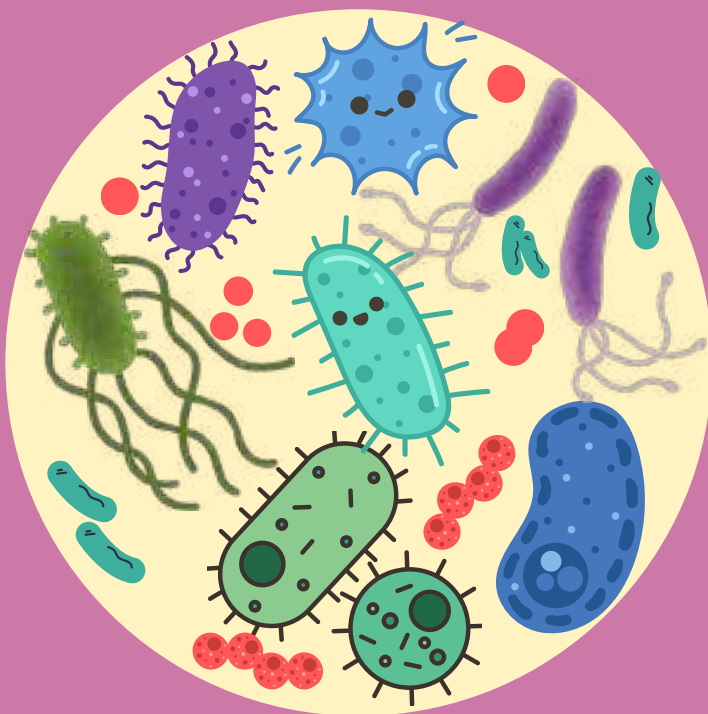
Ruminococcus

**Call me the
Fibre Shredder !**



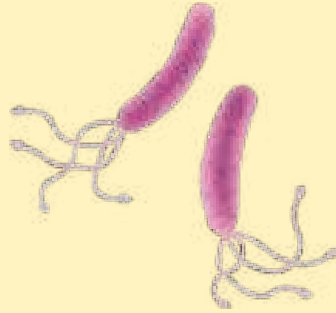
Tough plant fibres fear me! I tear apart stubborn and resistant fibres so your gut can turn them into energy. Leafy greens, beans, and breads — that's my playground !

 LIKE	 Fibre	
 DISLIKE	 Fats	 Protein



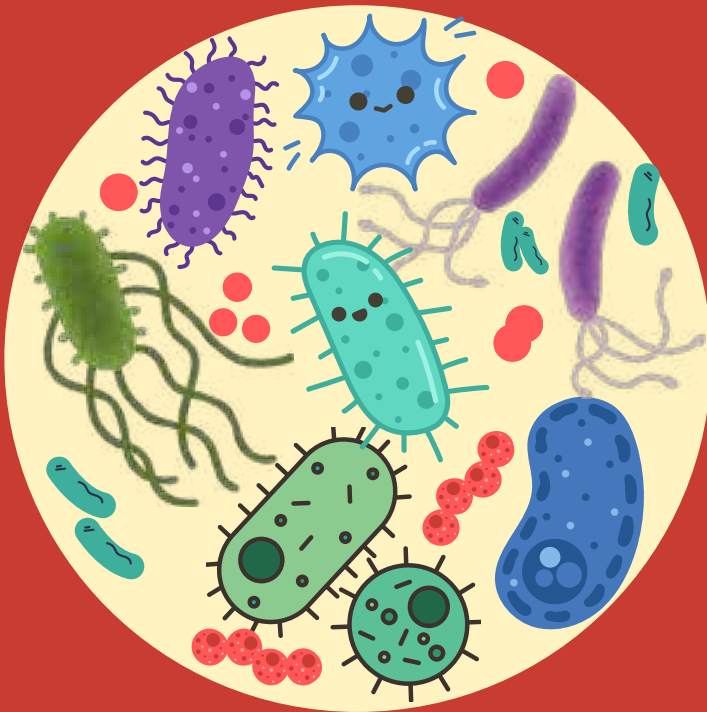
Clostridium

**Call me the
Protein Grinder !**



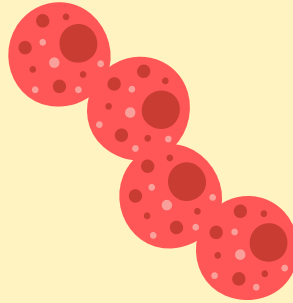
I'm a strong little fermenter who loves digging into the proteins you eat. Fish, chicken, tofu, or eggs, I turn those tasty bites into fuel. Give me hearty proteins, and I'll break them down like a champ!

 LIKE	 Protein
 DISLIKE	 Sugar  Fibre



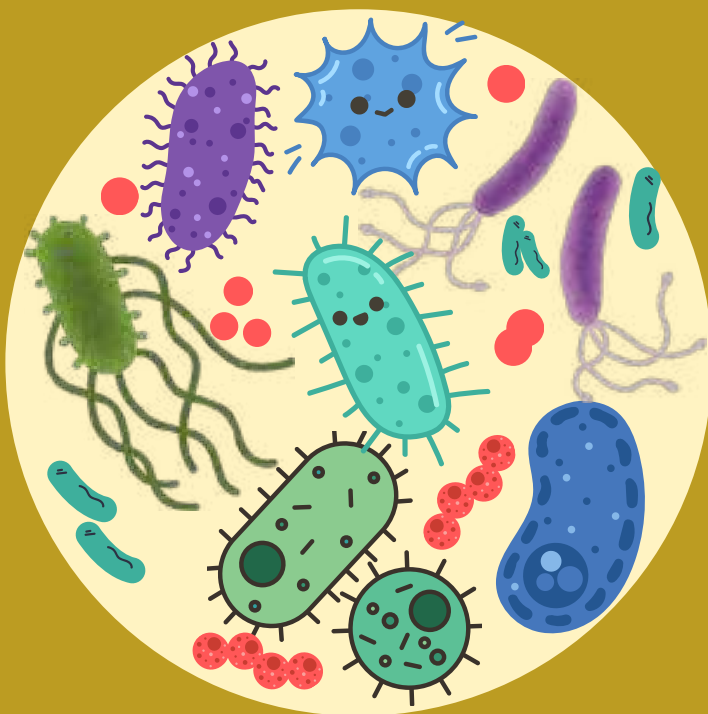
Peptostreptococcus

**Call me the
Protein Pro !**



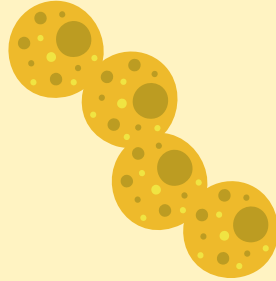
I thrive when your meals are full of meaty goodness. Steak, chicken, fried fish, or BBQ — that's my world. I'm small, tough, and great at handling the protein leftovers your stomach couldn't finish.

 LIKE	 Protein
 DISLIKE	  Fermented food Fibre



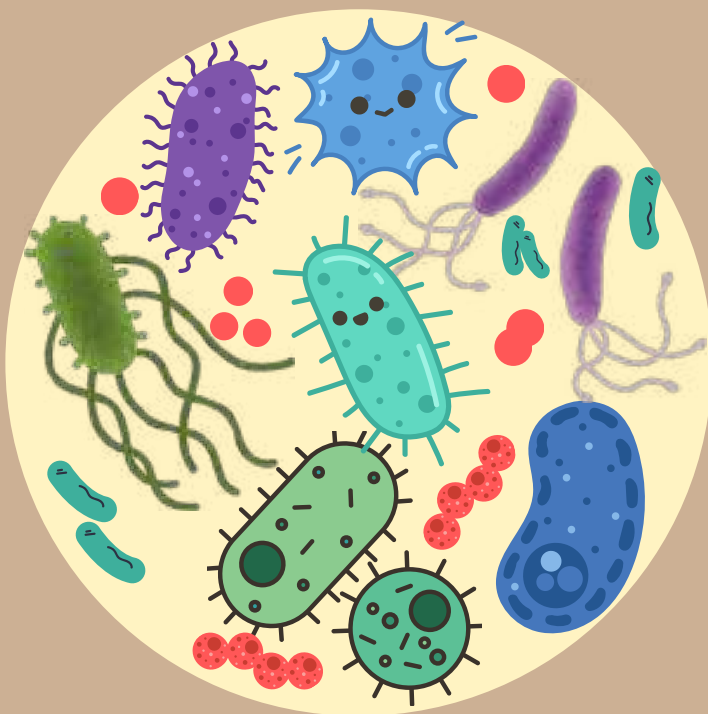
Bilophila

**Call me the
Fat Feaster !**



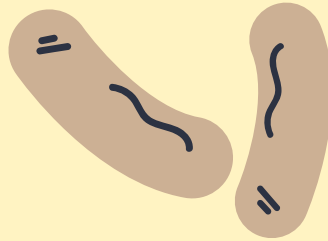
I spring into action when your meal brings the fat. Cheeseburgers, fish and chips, and buttery food — all that fat makes your gut release bile, and bile is my favourite treat. Where there's fat, you'll find me growing strong !

 LIKE	 Fats	
 DISLIKE	 Sugar	 Fibre



Desulfovibrio

**Call me the
Fat Fighter !**



I'm a sulfur-loving friend who grows when you eat richer, fattier foods. Butter, fried chicken, sukiyaki, BBQ, and hearty stews give your gut the bile I need. I may be small, but bile makes me bold !

 LIKE	 Fats	
 DISLIKE	 Sugar	 Fibre

From Plate to Poo

Country:

Food you choose: 1.....

2.....

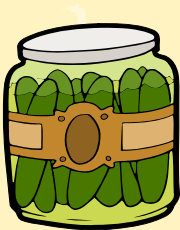


Which is the most common microbe?

Different countries have unique poo microbe communities, influenced by the foods people eat in each country.

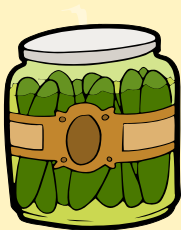
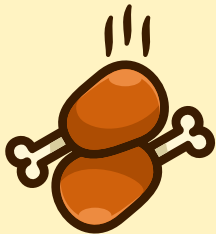
Sushi





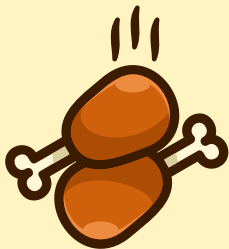
Miso Soup





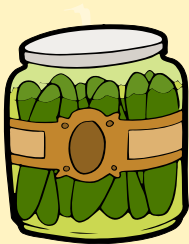
Yakitori





Pickles





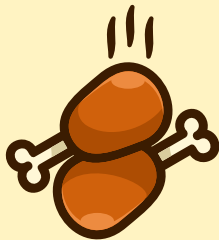
Seaweed





Ramen





White Rice



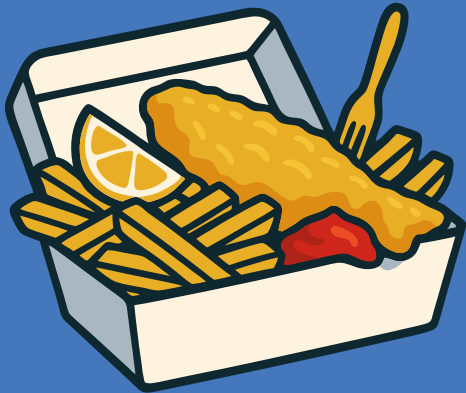


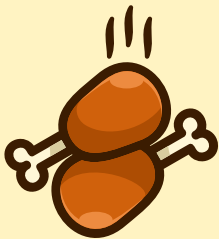
Tofu





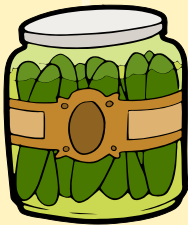
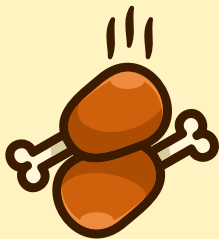
Fish & Chips





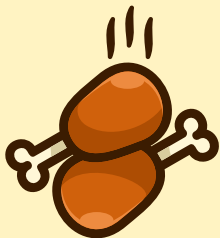
Toasties





Roast Dinner



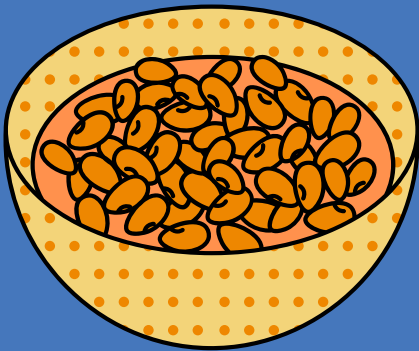


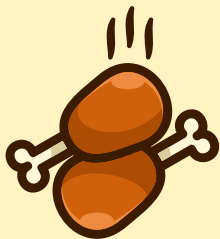
Mashed Potatoes





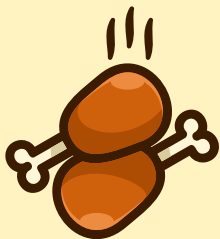
Baked Beans





Scotch Egg



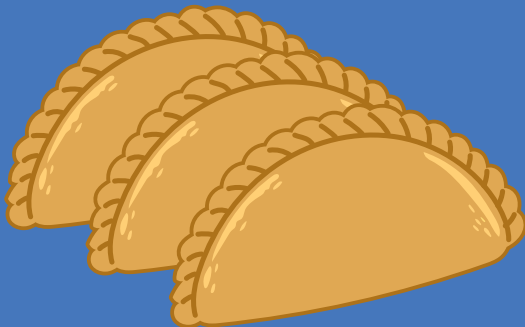


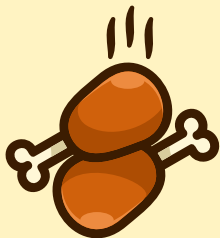
Trifle





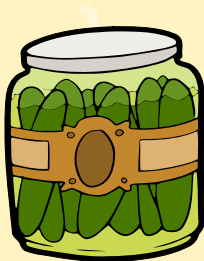
Cornish Pasty





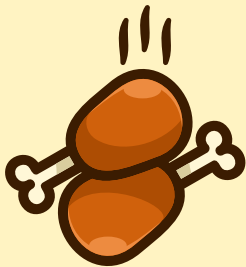
Injera



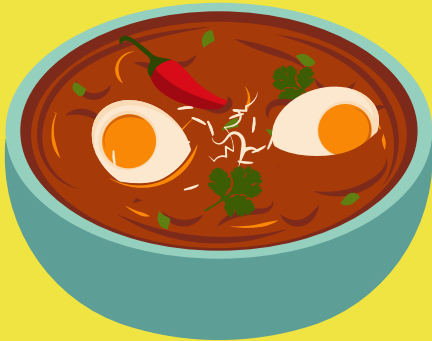


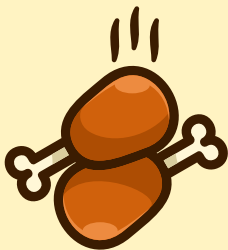
Lentils





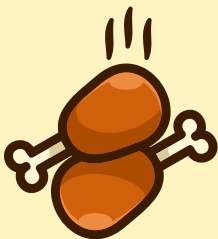
Doro Wat Stew



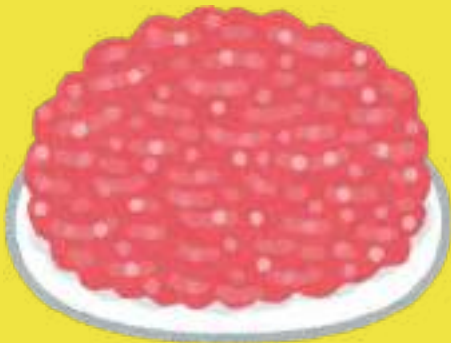


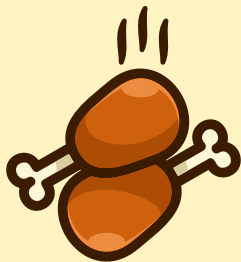
Tibs





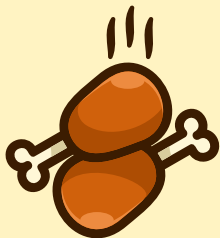
Kitfo





Shiro





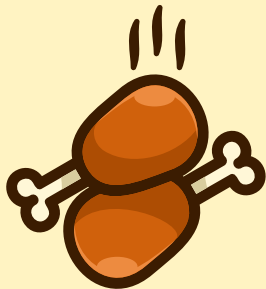
Gomen



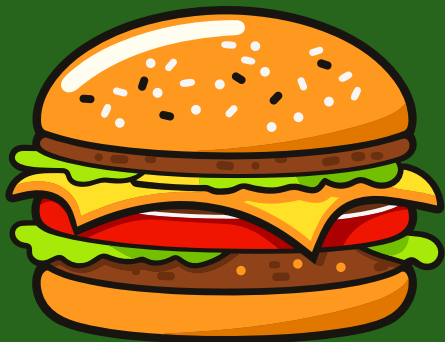


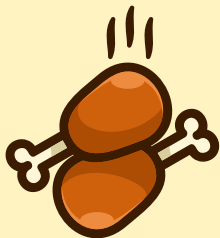
Gored Gored



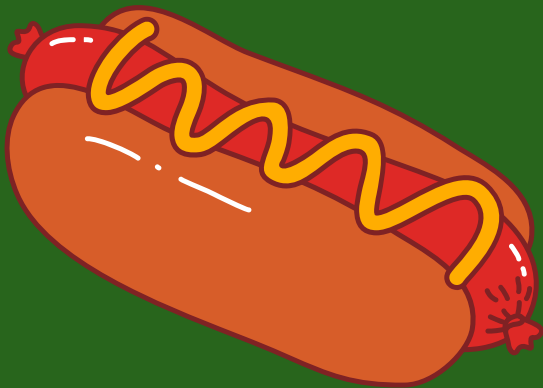


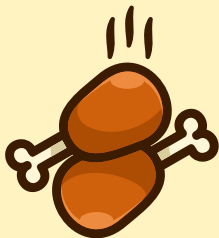
Hamburger





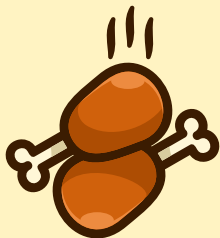
Hot dog





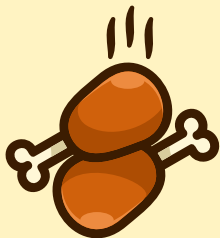
Mac & Cheese





Fried Chicken





Apple Pie



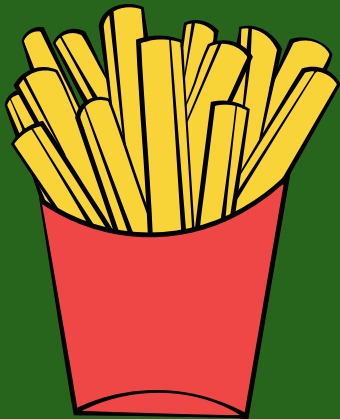


Pancakes





French Fries





Corn on the Cob





Japan





Sushi



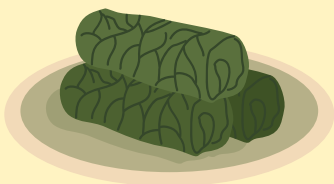
Miso Soup



Yakitori



Pickles



Seaweed



Ramen



White Rice



Tofu

Ethiopia

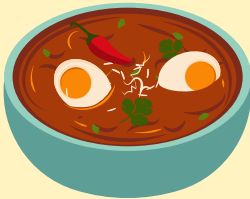




Injera



Lentils



Doro Wat Stew



Tibs



Kitfo



Shiro



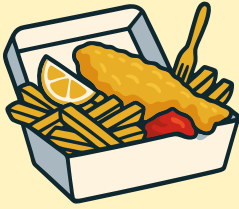
Gomen



Gored Gored

United Kingdom





Fish & Chips



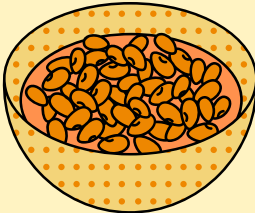
Toasties



Roast Dinner



Mashed Potatoes



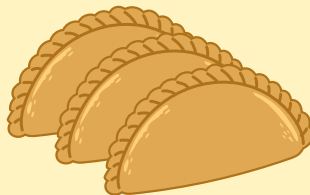
Baked Beans



Scotch Egg



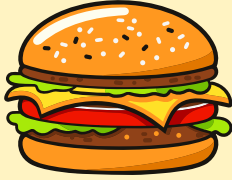
Trifle



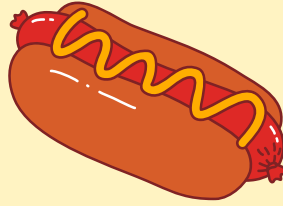
Cornish Pasty

United States of America





Hamburger



Hot dog



Mac & Cheese



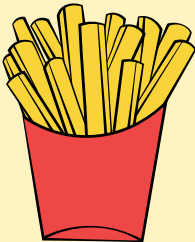
Fried Chicken



Apple Pie



Pancakes



French Fries



Corn on the Cob

FACILITATOR GUIDE

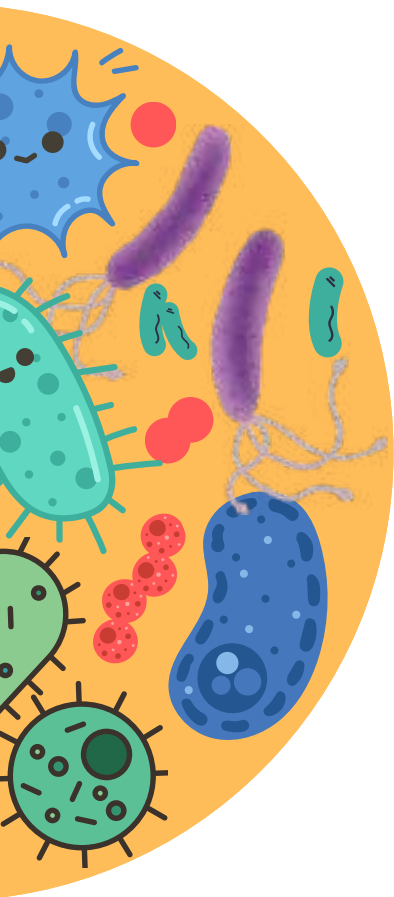


Plate to Poo



A drop-in activity to introduce the role of diet in shaping the gut microbiota

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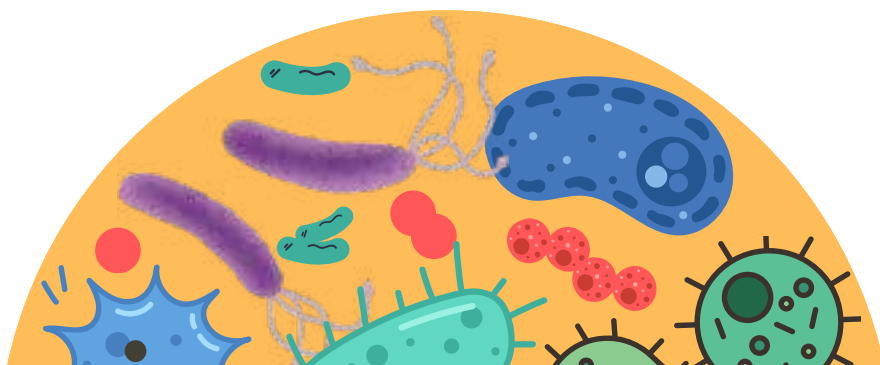
03 Printing and preparation >

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06 Facilitator Support >

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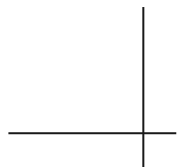
About the developer of this activity



Anum Ahmad

Anum Ahmad is a Core Scientist at The Roslin Institute, where her research focuses on how diet influences the gut microbiota of chickens and how this relationship can impact their health and productivity. She is passionate about communicating science to the public and sharing the simple but fascinating idea that the food we eat shapes the community of microbes living inside our gut.

Her work explores how different regions and diets are associated with distinct gut microbiota, a concept that applies not only to humans but also to animals such as chickens. By drawing on global examples of dietary diversity and microbial variation, she aims to spark curiosity and make gut microbiology engaging and accessible to all learners, without focusing on the positive or negative effects of specific foods or pathogens.



What this activity is about

OVERVIEW

From Plate to Poo is a hands-on, drop-in activity designed for children aged 5–10 years to explore how diet influences the microbes living in the gut. Participants select foods from a country and use simple matching rules to build their own “poo microbial profile”. The activity uses colourful stickers and visual prompts to make microbiology accessible, engaging, and fun for early learners.

The activity works well in:

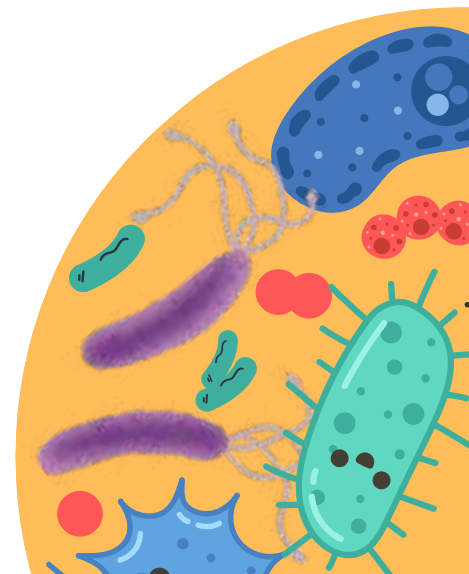
- Science festivals
- Classrooms
- Museum learning spaces
- Family learning events

It is designed as a drop-in activity, so participants can join at any time and complete it at their own pace.

LEARNING OUTCOMES

By the end of the activity, participants will be able to:

- Understand that microbes live inside the human gut
- Recognise that the majority of gut microbes are helpful or harmless, and play important roles in digestion and health
- Describe how different foods can support different types of microbes
- Understand that diet can influence the composition of gut microbial communities
- Recognise that people around the world have different diets, which can be linked to differences in gut microbes



What you need

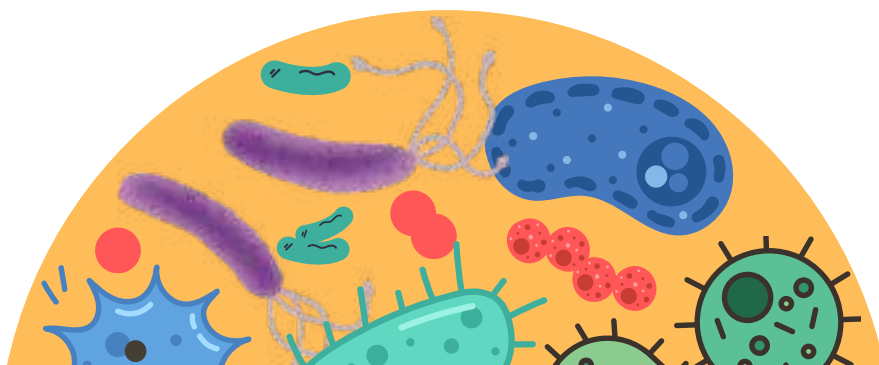


PRINTED MATERIALS

- Country Cards (Japan, United Kingdom, United States, Ethiopia)
Size: 5.83" W × 8.27" H (A5)
- Food Cards (32 total; 8 per country)
Size: 4" W × 3.8" H
- Microbe Cards (10 types)
Size: 5.83" W × 8.27" H (A5)
- Poo Sheets (1 per participant)
Size: A4
- Instruction Sheet (1 per table)
Size: A4
- Microbe Stickers
A4 sheet of removable round labels (25 mm diameter recommended)
Example template used: Avery L485OREV
- Pens or pencils
For recording responses on the Poo Sheet

OPTIONAL MATERIALS

- Selfie Board Activity Display
Size: 22.2" W × 16.5" L
- Magnetic Microbes (for board use)
Printed and laminated on A4 sheets, the microbe circles are cut out and mounted on magnetic backing.



Printing and preparation



All resources are designed to be print-ready at the sizes listed above.

PRINTING GUIDANCE

- Print all cards at 100% scale (do not “fit to page”)
- Ensure correct page size (A4 / A5 as specified per resource)
- Prepare one set of microbe cards for each country

FINISHING

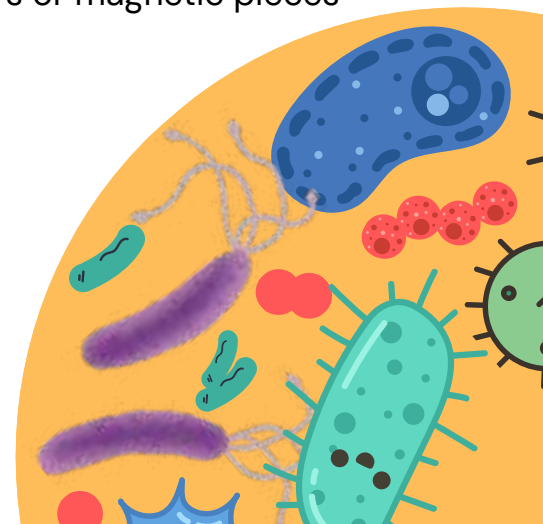
- Laminate all cards for durability
- Use rounded corners on all cards to prevent sharp edges and ensure safe handling

MAGNETIC MATERIALS SETUP (SELFIE BOARD)

- Print Board Microbes sheet on A4
- Laminate before attaching to magnets to increase durability and reuse
- Use low-intensity peel-and-stick magnetic backing to avoid pinching hazards and attach the laminated microbes.
- Recommended size: approx. 30 mm × 50 mm

SAFETY NOTES

- Ensure all laminated corners are rounded to avoid injury
- Check magnets are securely fixed before classroom use
- Supervise younger learners when handling small stickers or magnetic pieces



Running the activity

1

Choose a country

Invite participants to pick one country from the Country Cards whose poo microbiota they want to explore.

2

Choose foods

Ask participants to choose two foods from the options listed on the back of their chosen Country Card.

3

Explore microbes

Provide participants with a set of Microbe Cards and explain them:

- Each microbe thrives on certain nutrients ("likes")
- Some microbes grow less well when particular nutrients are present ("dislikes")

4

Design & Development

Participants should compare the nutrients in their chosen foods with the information on the Microbe Cards to identify which microbes are likely to thrive.

5

Build the microbiota

Ask participants to follow the instructions on the Instruction Sheet and go through each food card one by one.

For each microbe:

- Add 2 microbe stickers for every nutrient the microbe "likes" that is present in the selected food.
- Remove only 1 microbe sticker for all nutrients the microbe "dislikes" that are present in the selected food.

Repeat this process for all microbes to create a food-specific gut microbiota profile.

6

Complete the poo sheet

Participants record:

- Their chosen country
- Their two foods
- The microbe they have the most in their poo microbiota profile

7

Compare results

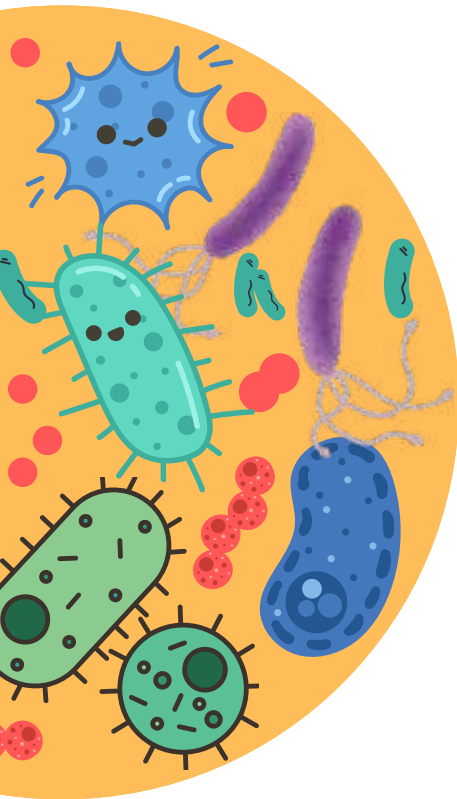
Encourage participants to compare their poo sheets with others.

Use discussion prompts such as:

- Which microbes were most common?
- Are they the same or different?
- How might food choices explain differences?



Facilitator Notes and Key Messages



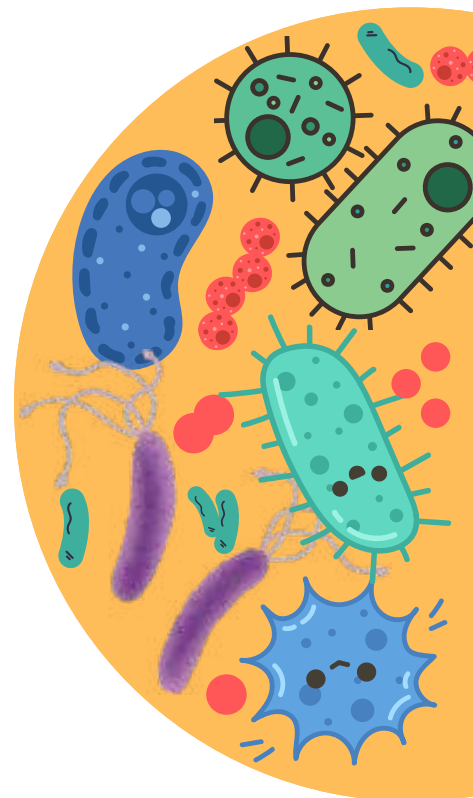
FACILITATOR TIP

Remind participants that this activity is a simplified model of the gut microbiome. In reality, gut microbial communities are much more complex and are influenced by many factors, including diet, age, environment, health, and lifestyle.

KEY MESSAGES FOR FACILITATORS

Use simple, child-friendly explanations. Avoid focusing on “good” or “bad” foods or microbes. The following messages can help guide discussions:

- Your gut is home to trillions of tiny microorganisms called microbes.
- Many of these microbes help us digest food and stay healthy.
- Different microbes use different nutrients for food.
- What we eat can influence which microbes grow best in our gut.
- Everyone's gut microbiome is unique.
- Microbes are not just germs – many microbes are helpful and play important roles in our bodies.



Q. Is poo actually different because of microbes?

Q. Are microbes dangerous?

Q. Can I have the same microbes as someone else?

Q. What are prebiotics, and are they the same as probiotics?

A. No. Prebiotics are foods (often fibre) that feed helpful microbes, while probiotics are live microbes found in some foods, such as yoghurt and fermented foods.

Q. How do we get microbes to digest food?

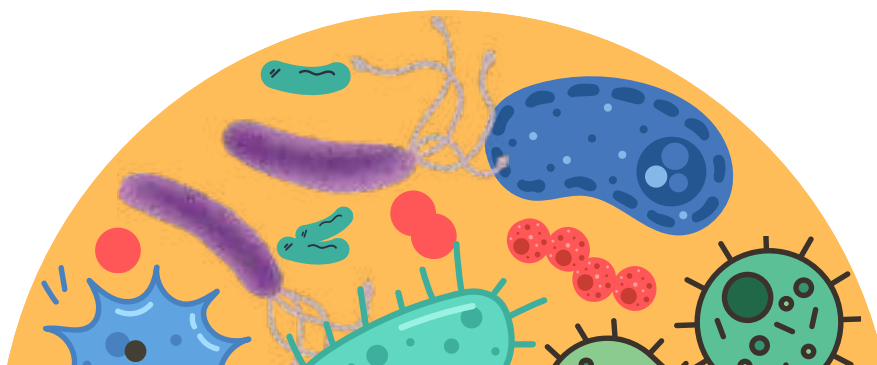
A. We naturally pick up microbes from our environment, food, and the people around us. Many then live in our gut and help break down food.

Q. Does a more diverse diet lead to a more diverse microbiota?

A. Yes. Eating a wider variety of foods can support a wider variety of microbes.

Q. Are there only 10 types of bacteria in the gut?

A. No. The gut contains hundreds to thousands of different microbial species. We use 10 examples in this activity to make the science easier to explore and understand.



Additional Information

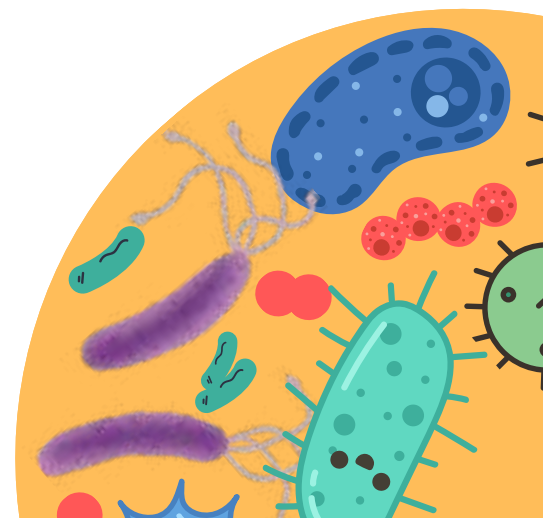


SAFETY AND ACCESSIBILITY

- No biological materials are used in this activity.
- All resources are safe for classroom and public engagement settings.
- The activity is fully visual and accessible for early readers.
- It can be completed individually, in pairs, or in small groups, depending on group size and setting.

CREDITS

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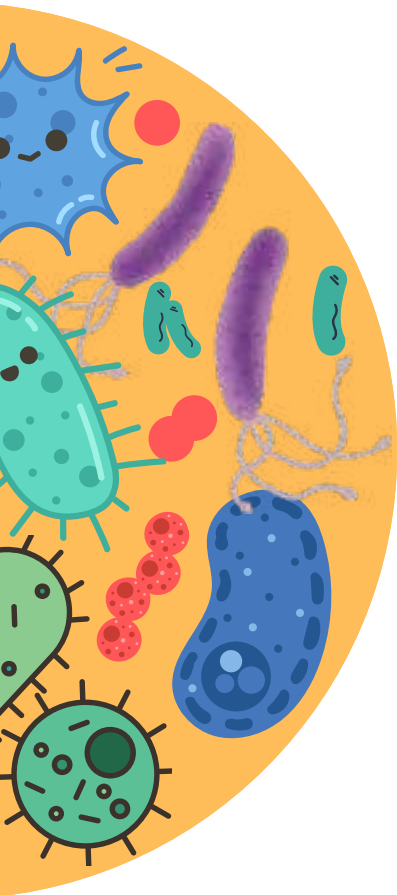


Plate to Poo

Every meal tells a microbial story. Thank you for discovering the hidden world of gut microbiota.