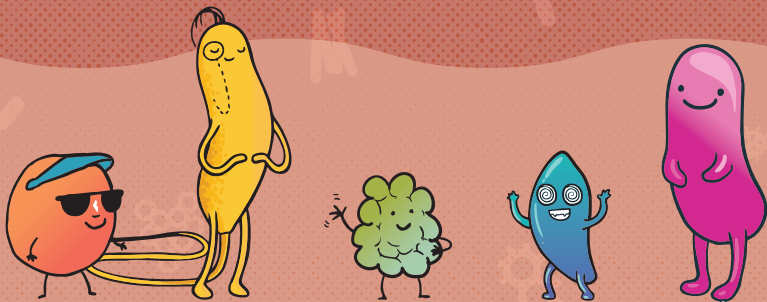


Microbe Mealtime

"Who will go first?"



Ages 8+
Players 2-4

Trillions of microbes live together in our gut—in the stomach and intestines! These microbes perform important tasks for our bodies to help support our health and daily function. While every person hosts a unique community of gut microbes, eating a well-balanced diet with a variety of foods is the easiest way to build and maintain a healthy gut!

Your gut is our home, but you may not know us yet. Let us introduce ourselves!



Hey, I'm Bacillota!
(BA-suh-LOH-ta)

We help your body break down and digest the foods that you eat!



Hello, my name is Bacteroidota!
(bak-ter-oi-DO-ta)

We create molecules that help support your immune system, brain, and metabolic health!



Pseudomonadota here!
(su-doh-MOH-nah-DOH-ta)

We create chemicals that help us communicate with your brain!



You can call me Actinomycetota!
(ak-ti-no-MY-see-to-ta)

We help maintain the diversity of your gut microbes and prevent the overgrowth of harmful ones.



Howdy, I'm Verrucomicrobiota!
(ver-oo-koh-my-kroh-by-OH-ta)

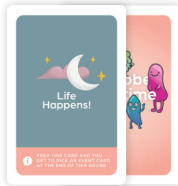
We help preserve the function of your gut barrier—the tissue that lines your intestine.

Game Contents

Meal cards x66

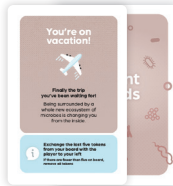


Food x58



Life Happens! x8

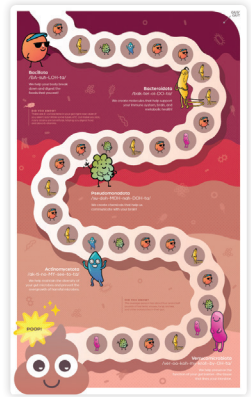
Event cards x18



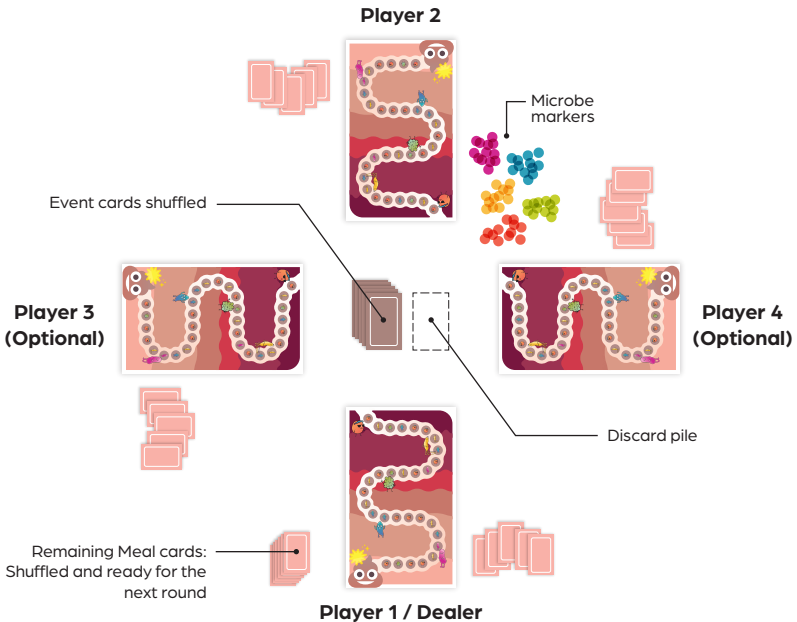
Microbe markers x145



Boards x4



Setup



Play the game

1

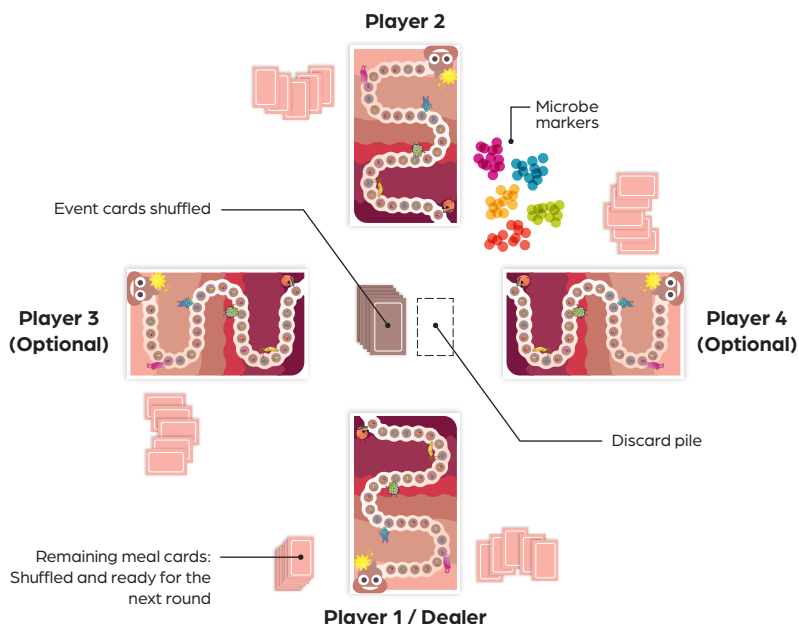
Pick the dealer

The person who most recently ate will be the first dealer. The dealer will shuffle the Meal cards and deal out 5 cards per player. Set the remainder aside to use in the next round. Event cards should be shuffled and placed in the center.

The dealer role moves clockwise for each new round.

2

Set up the game

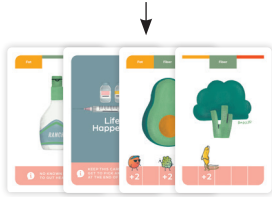


3

Play a round

The game will be played as a series of rounds until at least one player has filled their board. To begin the round, each player will simultaneously choose 1 Meal card from their 5 card hand and place it face down on the table.

First hand



Pass the remaining 4 cards in your hand to the person on your left and take the cards from the person on your right.

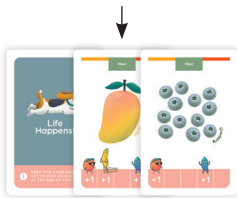
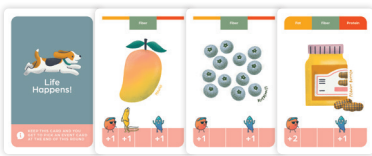
My Meal cards



Keep from first hand ✓
After all players have chosen their cards, flip your card to reveal the selected food.

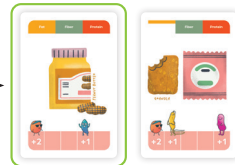
From your new 4 card hand, choose your Meal card and place it down.

Second hand



After all players have chosen their Meal cards, reveal the chosen food, and pass your remaining 3 cards clockwise.

My Meal cards



Keep from second hand ✓
After all players have chosen their cards, flip your card to reveal the selected food.

Repeat this process until everyone has 5 Meal cards chosen.

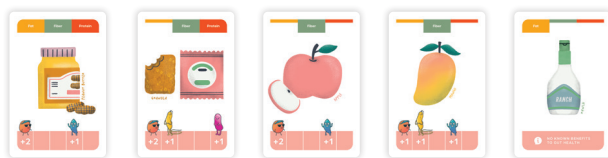
Play the game

4

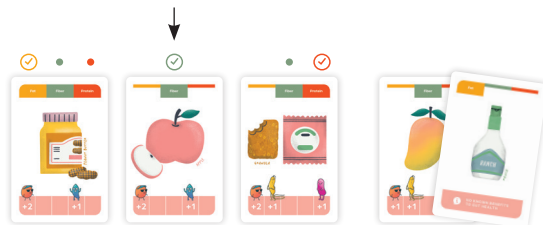
Assemble your meal

From your set of 5 cards, assemble your 3 card meal and set aside the remaining 2 cards to discard.

Meals are eligible for scoring when they contain 3 Food cards and have at least 1 **fat**, 1 **fiber**, and 1 **protein**. Some Food cards contain multiple macronutrients, however, **each food may only count for 1 macronutrient within the meal**.



Kept from: first hand second hand third hand fourth hand fifth hand



Meal assembled ✓

Discard pile

After assembling your 3-card meal, put the remaining Food cards into the Discard pile.

i Different foods support different types and amounts of microbes, so you can strategically build meals that best help you to fill out what is missing from your board.

Life Happens!

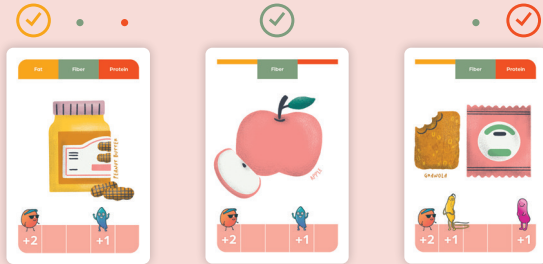
Life Happens! cards are distributed throughout the Meal card deck. These cards cannot be used as foods but can be set aside to use later in the round.



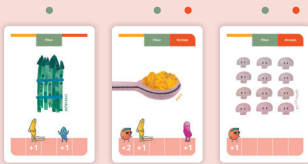
i Do not discard your Life Happens! cards. Set aside for step #6.

i How to assemble your meal

- 3 Food cards make a meal.
- You need at least 1 fat, 1 fiber, and 1 protein.



Not a meal—
missing macronutrients



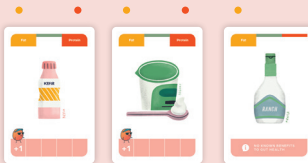
✗
No fat

Not a meal—
needs 3 foods

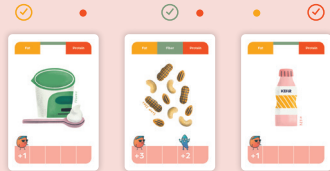


✗

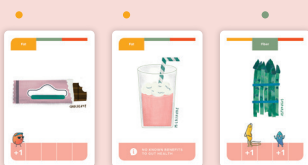
Complete meal!



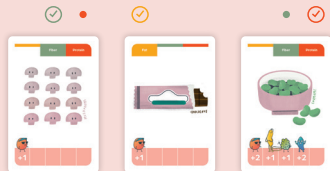
✗
No fiber



✓



✗
No protein



✓

How appetizing the meal looks is up to you—and luck!

Play the game

5

Scoring

Now that you have assembled a meal, it is time to populate your gut board with the microbes listed at the bottom of each Food card in your meal.

To score your meal, place markers on empty spaces on your board that correspond with the microbes on the 3 Food cards in your meal.

*If you couldn't build a complete meal, **no cards** count toward microbe scoring.*

Meal assembled ✓

The diagram illustrates the process of scoring a meal. On the left, three 'Food' cards are shown: 'Banana' (with a banana icon), 'Yogurt' (with a yogurt container icon), and 'Apple' (with an apple icon). Each card has a score of 2 and 1. A fourth card, 'Orange' (with an orange and juice bottle icon), is shown below and labeled 'Discarded'. On the right, a large illustration of a human gut is shown with various microbes placed in different sections. Red arrows point from the 'Banana' card to a red microbe in the top section. Blue arrows point from the 'Yogurt' card to a blue microbe in the middle section. A red arrow points from the 'Apple' card to a red microbe in the bottom section. The gut board has several empty spaces for microbes. Text boxes describe the microbes: **Bacillota** (BA-suh-LOH-toe) - 'Bacteria that help us digest the foods that we eat.'; **Bacteroidta** (bak-ter-oid-DOY-ah) - 'We create molecules that help support your immune system and help us digest.'; **Pseudomonadota** (PSEU-doh-MUNE-nah-SPOH-nah) - 'We create chemicals that help us communicate with our brain.'; **Actinomycetota** (ak-tin-oh-my-SEE-ah) - 'We help maintain the diversity of soil and microbes and prevent the overgrowth of harmful microbes.'; **Verrucomicrobiota** (VER-oh-suh-may-KROH-ee-ah) - 'We have bacteria that help control your gut bacteria and make that give your microbes...'. A 'POOPI!' icon is shown at the bottom left of the gut board.

i Once all of the spaces for a given microbe have had markers placed on them, no more microbes of this type can be scored. So, make sure to pay attention to this when choosing Food cards for the next round!

6

Life Happens! → Event cards

If you picked any Life Happens! cards when assembling meals, you get to draw an Event card for each Life Happens! card.

Read your Event cards starting with the dealer and moving clockwise.

Play your Event card for yourself or give it to another player. Each Event card represents different things that can happen in life and have different instructions to carry out.



i You may still play Event cards even if you were unable to make a meal this round.

7

Continue playing rounds

Once all Events cards have been played, the dealer will shuffle and distribute 5 Meal cards. Return to step #3 and repeat until someone fills their board.

8

Winning the game

Once a player's board has been completed, they shout "Poop!" and the round ends and the game is over—they are the winner of the game.



i In the event of a tie, the player who had the highest scoring final meal wins.

i Optional challenge mode: A winner can't be declared until the round has concluded and all active Event cards have been played.

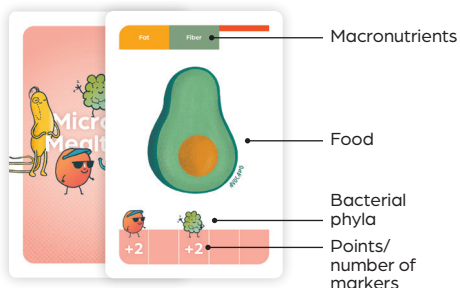
Meet the cards

Meal cards: Food—x58

Assemble your meals with these Food cards!

How do you assemble a meal?

Remember, each meal needs 3 Food cards and all 3 macronutrients: fat, fiber and protein.

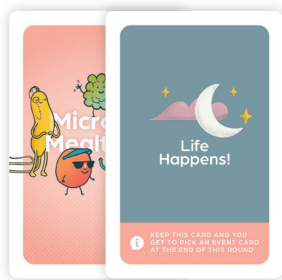


Meal cards: Life Happens!—x8

Life Happens! cards are shuffled in with the Food cards. Just like in real life, these cards may throw a wrench in your life plans, good or bad.

How do you use this card?

If you choose this card, it will allow you to draw an Event card at the end of the round.



Event cards—x18

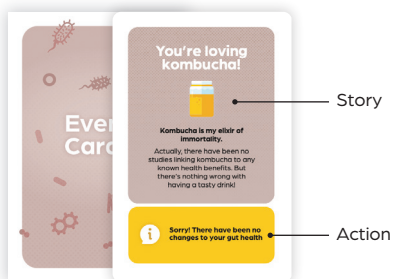
Find out how various events in your life will alter the microbes in your gut!

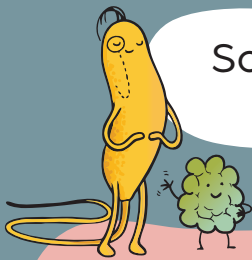
When do you use this card?

When you have a Life Happens! card in your hand at the end of a round, you draw an Event card.

How do you use it?

You can choose to use it on yourself or give it to another player. These cards cannot be saved to use in future rounds.





So what's all this talk about microbes and poop?

SCIENCE BEHIND THE GAME

Did you know we have more microorganisms than human cells living in our bodies?

These microbes, including bacteria, viruses, and fungi, are part of a complex ecosystem that flourishes in our gastrointestinal system. The first microbes to inhabit the gut come from our mothers during childbirth. Throughout life, our diet and environmental exposures influence which microbes survive and thrive in our guts.



So, what are the microbes doing in there?

While some microbes called pathogens are harmful and can cause sickness, most are here to help! Humans and gut microbes have a symbiotic relationship where both benefit from interacting. We provide them shelter and food in our gut, while microbes perform jobs that we can't do ourselves such as helping to digest dietary fibers, protecting us from harmful pathogens, and creating molecules that support our brains and immune systems.

Are we talking about the gut microbiome?

Yes! The term "gut microbiome" is often used when talking about all the microbes living in our gut. When scientists first invented the word microbiome, they used it to refer to the collective genetic makeup of those microbes and what they do. These days, many people also call the microbes themselves the microbiome. Whatever you call them, caring for them is what matters!

Tell me more about these five bacteria friends!



There are thousands of different species in our gut, so we highlighted five phyla of bacteria that are most abundant. Scientists have a special system called taxonomy to classify all organisms based on their traits, like a big family tree. So when we talk about a phylum, we are referring to a group of many different bacterial species rather than only one species.

What foods are best for microbe mealtime?

While it is likely that many foods influence our gut microbe populations, we have only included those with scientific studies backing them up. But overall, eating a well-balanced diet, full of a variety of foods and good sources of fiber, helps to best support a microbial community that works for our health!



After all the meals and microbes, this game ends with a movement. What comes out looks very different from what went in. What is it made of? Where do all those foods and microbes go?

25% fat and protein

Proteins and fats that we didn't digest, or that microbes produced (microbes make waste too!)

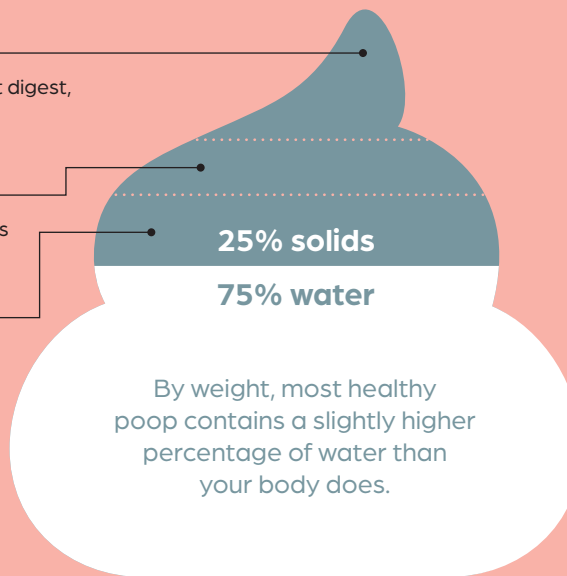
25% carbohydrates

Mostly plant fiber that microbes couldn't help us digest

50% microbes

Half of the microbes are dead and the other half are alive

Each gram of poop contains 100 billion bacteria, 100 million archaea, and 1 million yeasts



For more information on the studies referenced in the making of this game, visit www.igb.illinois.edu/outreach/microbemealtime



**Carl R. Woese Institute
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