



PLAY OPTIONS

Option 1: With calls

Much like traditional bingo, a designated person calls out phrases from the call sheet. If a player has the called phrase on their card, they mark the square (here's the twist) IF the phrase is true for them. For example:

Mark calls "Able to match musical pitch". Sally has the phrase on her sheet, however, she knows she cannot match musical pitches. She will NOT mark the square.

The group decides how a winner is chosen. You can play until a player gets five in a row or you can go through the entire call list and see which player has the most squares marked at the end.

Option 2: Without calls

Set a timer for 1 minute. Each player goes through their card marking squares filled with phrases that are true for them. Missed a square because you were under pressure? Better luck next time. Whoever has the most squares marked at the end, wins!

Option 3: Social media

Mark all the squares on your card that are true for you. Post to your social media account and tag 3 friends!



CALL SHEET

Able to match musical pitch

Big toe is longer than second toe /
Second toe is longer than big toe

Can smell asparagus odor in urine

Cilantro tastes like soap

Gets bitten by mosquitoes more often
than others / Gets bitten by mosquitoes
less often than others

Had lots of hair at birth / Had little to no
hair at birth

Hair lightens in the sun

Has a cleft chin

Has a unibrow

Has a widow's peak

Has cheek dimples

Has detached earlobes / Has attached
earlobes

Has freckles

Has had a bunion before

Has red hair

Has wet, sticky earwax / Has dry, flakey

earwax

Hates the sound of others chewing

Is afraid of heights

Is afraid of public speaking

Never had dandruff

Prefers chocolate over vanilla ice cream /
Prefers vanilla over chocolate ice cream

Prefers salty over sweet / Prefers sweet
over salty

Prone to motion sickness

Raw broccoli or Brussels sprouts taste
bitter

Ring finger is longer than index finger /
Index finger is longer than ring finger

Sneezes when in bright sunlight



GENETICS BINGO

Did you know your traits may be influenced by both genetic and non-genetic factors?

Had little to no hair at birth	Hair lightens in the sun	Prefers salty over sweet	Ring finger is longer than index finger	Second toe is longer than big toe
Gets bitten by mosquitoes more often than others	Able to match musical pitch	Has detached earlobes	Is afraid of heights	Never had dandruff
Has wet, sticky earwax	Has freckles	♥'s DNA	Has cheek dimples	Has red hair
Prefers vanilla over chocolate ice cream	Can smell asparagus odor in urine	Raw broccoli or Brussels sprouts taste bitter	Has a unibrow	Has a cleft chin
Hates the sound of others chewing	Cilantro tastes like soap	Is afraid of public speaking	Sneezes when in bright sunlight	Is prone to motion sickness



GENETICS BINGO

Did you know your traits may be influenced by both genetic and non-genetic factors?

Has a unibrow	Is afraid of heights	Cilantro tastes like soap	Big toe is longer than second toe	Has a widow's peak
Has cheek dimples	Is afraid of public speaking	Gets bitten by mosquitoes less often than others	Index finger is longer than ring finger	Has had a bunion before
Hair lightens in the sun	Has freckles	♡'s DNA	Has attached earlobes	Never had dandruff
Sneezes when in bright sunlight	Has dry, flakey earwax	Hates the sound of others chewing	Has a cleft chin	Able to match musical pitch
Prefers chocolate over vanilla ice cream	Is prone to motion sickness	Raw broccoli or Brussels sprouts taste bitter	Prefers sweet over salty	Had lots of hair at birth



GENETICS BINGO

Did you know your traits may be influenced by both genetic and non-genetic factors?

Big toe longer than second toe	Sneezes when in bright sunlight	Has freckles	Has had a bunion before	Has wet, sticky earwax
Has red hair	Is afraid of public speaking	Has a cleft chin	Raw broccoli or Brussels sprouts taste bitter	Hair lightens in the sun
Is prone to motion sickness	Prefers vanilla over chocolate ice cream	♡'s DNA	Can smell asparagus odor in urine	Able to match musical pitch
Has detached earlobes	Index finger is longer than ring finger	Cilantro tastes like soap	Has a widow's peak	Prefers salty over sweet
Never had dandruff	Has cheek dimples	Had little to no hair at birth	Hates the sound of others chewing	Is afraid of heights



GENETICS BINGO

Did you know your traits may be influenced by both genetic and non-genetic factors?

Has cheek dimples	Prefers chocolate over vanilla ice cream	Has attached earlobes	Can smell asparagus odor in urine	Has red hair
Hair lightens in the sun	Had lots of hair at birth	Is afraid of public speaking	Cilantro tastes like soap	Is prone to motion sickness
Has dry, flakey earwax	Has a unibrow	♥'s DNA	Able to match musical pitch	Sneezes in bright sunlight
Hates the sound of others chewing	Has a cleft chin	Raw broccoli or Brussels sprouts taste bitter	Has had a bunion before	Has freckles
Has a widow's peak	Never had dandruff	Ring finger is longer than index finger	Is afraid of heights	Gets bitten by mosquitoes more often than others



GENETICS BINGO

Did you know your traits may be influenced by both genetic and non-genetic factors?

Can smell asparagus odor in urine	Is afraid of heights	Has wet, sticky earwax	Ring finger is longer than index finger	Able to match musical pitch
Has a cleft chin	Is prone to motion sickness	Hates the sound of others chewing	Gets bitten by mosquitoes less often than others	Has a unibrow
Has cheek dimples	Prefers chocolate over vanilla ice cream	♡'s DNA	Prefers salty over sweet	Hair lightens in the sun
Raw broccoli or Brussels sprouts taste bitter	Sneezes when in bright sunlight	Second toe is longer than big toe	Cilantro tastes like soap	Never had dandruff
Has freckles	Has a widow's peak	Had little to no hair at birth	Is afraid of public speaking	Has red hair



GENETICS BINGO

This one's for free play. Fill it in how you see fit.

		♡'s DNA		



ABOUT YOUR TRAITS

Able to match musical pitch

Whether singing professionally or just in the shower, matching a musical pitch requires the intricate coordination of several tasks. Upon hearing a sound, the singer's brain identifies the pitch and decides which vocal muscles are needed to produce a similar sound. Then, after singing the note, the brain identifies the new pitch, determines if it matches, and adjusts the vocal muscles if needed. The ability to match a musical pitch is a complex process with equally complex genetics. Research at 23andMe has identified over 500 genetic markers as well as other non-genetic factors associated with this trait.

Big toe is longer than second toe / Second toe is longer than big toe

In 1864, noticing that many Roman statues had longer second toes, a British anthropologist named James Park Harrison was inspired to perform one of the earliest studies on human toe length. Harrison found that toe length ratio varied from country to country. He even measured the toes of old skeletons displayed in museums, and at least one Egyptian mummy. 23andMe adds up the effect of your genetic variants at 35 places in your DNA (genetic markers) plus the effect of other factors, including your age and sex to predict your toe length ratio.

Can smell asparagus odor in urine

Scientists believe the asparagus odor in urine comes from molecules that are made by the body when asparagus is broken down. For decades scientists have been searching for a reason why some people can't smell the asparagus-related

odor in urine. Some studies have suggested that this trait can run in families, but the details of the genes involved remained a mystery until 2010. Genetic research at 23andMe identified, for the first time, a genetic marker that is linked to the likelihood of smelling the asparagus-related odor in urine. However, the likelihood of being able to smell asparagus odor in urine is likely not completely due to genetics.

Cilantro tastes like soap

Many people dislike cilantro (also known as coriander), describing the taste as "soapy." 23andMe researchers identified two genetic markers associated with this aversion. These genetic markers are located near genes that help determine your sense of smell through proteins called olfactory receptors. Some of these receptors detect aldehydes, chemical compounds that are found in soap and thought to be a major component of cilantro aroma. Genetics is just part of the picture. People without the variants 23andMe tests for may still dislike cilantro.

Gets bitten by mosquitoes more often than others / Gets bitten by mosquitoes less often than others

Some people may feel like they get more mosquito bites than the people around them. So what makes some people more attractive to mosquitoes than others? Genetics may be partly to blame. Female mosquitoes have a complex olfactory system that lets them sniff out their food. As it turns out, mosquitoes have preferences! Mosquitoes are attracted to certain molecules in body odor and breath and depending on the proportions of these molecules, some people may appear more delicious than others.

Had lots of hair at birth / Had little to no hair at birth

Hair begins to grow around week 10 of pregnancy, and by week 20 the scalp is covered with hair. This first round of hair is called "lanugo" and it is shed in the uterus around 24-28 weeks of pregnancy. This means that any hair a baby is born with was likely grown during the last trimester of pregnancy. 23andMe adds up the effect of your genetic variants at 26 places in your DNA (genetic

markers) plus the effect of other factors, including your age and sex to predict whether you had lots of hair at birth.

Hair lightens in the sun

For some people, frequent sun exposure can lighten their hair color. This happens when high-energy ultraviolet rays from the sun break down the hair's pigment molecules, altering its color. While certain hair types are more susceptible to photobleaching than others, it's important to keep in mind that all hair types are sensitive to the damaging effects of ultraviolet light on hair growth and hair strength. As such, reducing the amount of time spent in the sun is important for everyone's overall hair health. And while we may not know exactly why certain hair types are more sensitive to photobleaching, 23andMe scientists identified 48 genetic markers associated with the trait.

Has a cleft chin

We discovered genetic variants for cleft chin by looking for differences in the DNA of 23andMe research participants with and without cleft chins. Because these DNA differences are recent discoveries, we don't yet know much about them. But our analysis suggests that many are in or near genes that play a role in the growth of bones in the face and skull. If genetic variants affect the function of these genes, they could make it more or less likely that the left and right jawbones will stop short of fusing all the way, leaving a cleft. There are also other factors that may impact the chances of having a cleft chin.

Has a unibrow

Not much is known about the genetics of eyebrow hair distribution. But initial findings offer some clues. Two of the genetic variants in 23andMe's report are common variations in or near genes, called PAX3 and EDAR, that have been previously associated with unibrow growth. PAX3 plays an important role in the development of pigment-producing skin cells. EDAR controls the development of hair follicles, along with sweat glands and teeth. The likelihood of having a unibrow is also based on non-genetic factors.

Has a widow's peak

Children usually start out with a smooth, flat hairline. Starting in adolescence, many people's hairlines begin to recede. In people with a widow's peak, the hairline recedes everywhere except a small point at the center of the forehead. With more time, many men and some women also start to thin at the temples. This can create a hairline similar to a widow's peak. 23andMe adds up the effect of your genetic variants at 12 places in your DNA (genetic markers) plus the effect of other factors, including your age and sex to calculate the likelihood you have a widow's peak.

Has cheek dimples

Dimples might have no real purpose, or there might be more to the story. Some hypothesize that because dimples accentuate the smile they could provide a boost for communication. Primates evolved to live in complex social groups where cooperation is critical. Facial gestures like smiling are social signals, and primates – from macaques to chimpanzees to humans – use smile-like gestures to communicate things like submissiveness, friendliness, and playfulness. The likelihood of having dimples is based on genetics and other factors.

Has detached earlobes / Has attached earlobes

Because of the way earlobe shape is passed down through families, scientists initially proposed that this trait was controlled by just one gene. But 23andMe research suggests the genetics of earlobe shape are more complicated: we discovered 32 different genetic markers associated with earlobe type. We don't know exactly how these markers may influence earlobe shape, and other non-genetic factors are likely involved, but some of these markers are near genes known to play a role in development of the skin or other tissues, like WNT5A, SP5, PRRX1, and CUX1.

Has freckles

We probably don't have to tell you freckles are more common in people with

lighter skin and hair. These traits share some, but not all, of their genetics in common. 23andMe research found 34 genetic markers associated with the likelihood of having freckles. Many of these markers are near genes we already know play a role in skin pigmentation, eye color, and/or hair color, like SLC45A2, OCA2, HERC2, and TYR. Scientists still aren't sure what causes skin cells to behave differently when they're located in freckles versus the paler areas between freckles. There are some non-genetic factors at play, such as age and sun exposure.

Has had a bunion before

Bunions are often formed when the big toe becomes angled toward the other toes. This causes the joint at the base of the big toe to stick out, creating the characteristic bump. Bunions can form when bones and tendons within the foot move incorrectly when supporting weight and eventually become misaligned. It isn't known exactly why some people develop bunions and others don't, but it's likely influenced by multiple factors. Studies suggest that restrictive footwear and genetics may be partially to blame.

Has red hair

Hair gets its color from pigment molecules. People with red hair have high levels of a red/yellow pigment called pheomelanin. Several variants in a single gene, MC1R, can cause red hair by increasing the amount of pheomelanin in your hair.

Has wet, sticky earwax / Has dry, flakey earwax

Wet earwax is dark-colored and sticky, while dry earwax is light-colored and flaky. Both types are equally good at keeping dirt and bacteria at bay, but the difference between the two is determined by a single variant in the ABCC11 gene. The ABCC11 gene contains instructions for a protein that specializes in moving fat into, and out of, your cells. People who have 1 or 2 copies of the C variant in the ABCC11 gene have more fat in their earwax, making it dark-colored and sticky. People who have two copies of the T variant have less

fat in their earwax, making it dry, light-colored, and flaky.

Hates the sound of others chewing

Almost everyone hates noises like nails on a chalkboard, but for people with a condition called misophonia, everyday noises like the sound of chewing can cause a similar reaction, along with rage or panic. Some scientists speculate that misophonia could result from increased connections between the brain systems involved in hearing (the auditory cortex) and the "fight or flight" response (the limbic system and autonomic nervous system). 23andMe researchers identified one genetic marker associated with feeling rage at the sound of other people chewing. This genetic marker is located near the TENM2 gene which is involved in brain development.

Is afraid of heights

Some scientists believe that people with an extreme fear of heights may depend more heavily on visual input for balance control than other people who can use physical sensations as well as visual input to keep their balance. As a result, they may feel especially unstable when standing at an elevation, triggering a fear response. The likelihood that you have a fear of heights is influenced by genetic and non-genetic factors.

Is afraid of public speaking

When the brain senses a threat in the environment, a part of the brain called the amygdala responds by activating the "fight or flight" response. This response includes many biological changes, like a faster heart rate and increased blood flow to the brain. Studies have found that when speaking in front of others, people with a fear of public speaking may have more active amygdalas. Scientists at 23andMe identified 802 genetic markers that are associated with a fear of public speaking. In addition to genetics, other factors like age, sex, and ancestry can also influence your chances.

Never had dandruff

One possible cause of dandruff may be a negative reaction to microbes living on the skin. Just like inside your gut, microbes also live on your scalp. For some people, these microbes may trigger immune reactions that cause the skin cells to rapidly divide and flake off, forming dandruff. Scientists aren't sure why some people are sensitive to these microbes and others aren't, but genetics may play a role.

Prefers chocolate over vanilla ice cream / Prefers vanilla over chocolate ice cream

In the tasteful debate of vanilla versus chocolate ice cream, your preference may actually be influenced by your sense of smell. Several genetic markers associated with ice cream flavor preference are located near olfactory receptor genes, like *OR10A6* and *OR5M8*, which contain instructions for proteins that help detect odors. While you're eating, your brain combines information from odors and your taste buds to perceive flavor. It isn't known exactly why some people fancy vanilla ice cream and others prefer chocolate, but it's possible that genetic variation in olfactory receptor genes may affect the perception of these flavors.

Prefers salty over sweet / Prefers sweet over salty

Like almost all traits, taste preference is partly shaped by genetics, and partly by environment. 23andMe research identified 43 genetic markers where people can have variants that make them more likely to prefer sweet snacks or salty/savory snacks. A few of these 43 genetic markers are in or near genes involved in brain development or function (like *CDH8*, *ELAVL2*, *AUTS2*, and *KCNA3*). But most are near genes with a broad range of functions, perhaps reflecting the complexity of this trait.

Prone to motion sickness

To maintain your balance, your brain relies on signals from multiple sources: your eyes, your muscles and joints, and the vestibular system in your inner

ear. Most scientists think that motion sickness occurs due to "sensory conflict" – when your vestibular system and muscles tell your brain that you're moving but your eyes send the opposite signal. Those mixed signals cause some people to feel dizzy and nauseous. And depending on genetics and other factors, some people may be more predisposed to motion sickness than others.

Raw broccoli or Brussels sprouts taste bitter

Scientists believe the bitter taste sense developed to help animals detect toxins or poisons in food. But not everyone can taste the same things. The TAS2R38 gene contains instructions for a protein, or taste receptor, that can detect the bitter chemical called "PTC." PTC isn't usually found in the human diet, but it is similar to chemicals present in vegetables like broccoli and Brussels sprouts. People with the G variant have a taste receptor that can detect these PTC-like chemicals. This means people with the G variant may taste bitterness in these foods and avoid them all together.

Ring finger is longer than index finger / Index finger is longer than ring finger

Some research suggests that finger length ratio is influenced by the balance of testosterone and estrogen in the womb during early pregnancy. Higher testosterone exposure in the womb may be linked to having a lower finger length ratio, while lower testosterone exposure may be linked to having a higher finger length ratio. After birth, hands grow in perfect proportion to the size they were in the womb. So your finger ratio today is probably the same as it was when you were a baby. 23andMe adds up the effect of genetic variants at 15 places in your DNA plus the effect of other factors, including your age and sex, to predict your finger length ratio.

Sneezes when in bright sunlight

Scientists are still trying to understand why light-induced sneezing happens. But that didn't stop them from coming up with a clever name for it, "Autosomal Dominant Compelling Helio-Ophthalmic Outburst," or "ACHOO Syndrome." Although there is little research on this phenomenon, some studies suggest

it runs in families. Research at 23andMe has identified 54 genetic markers associated with this quirky reaction to bright light.