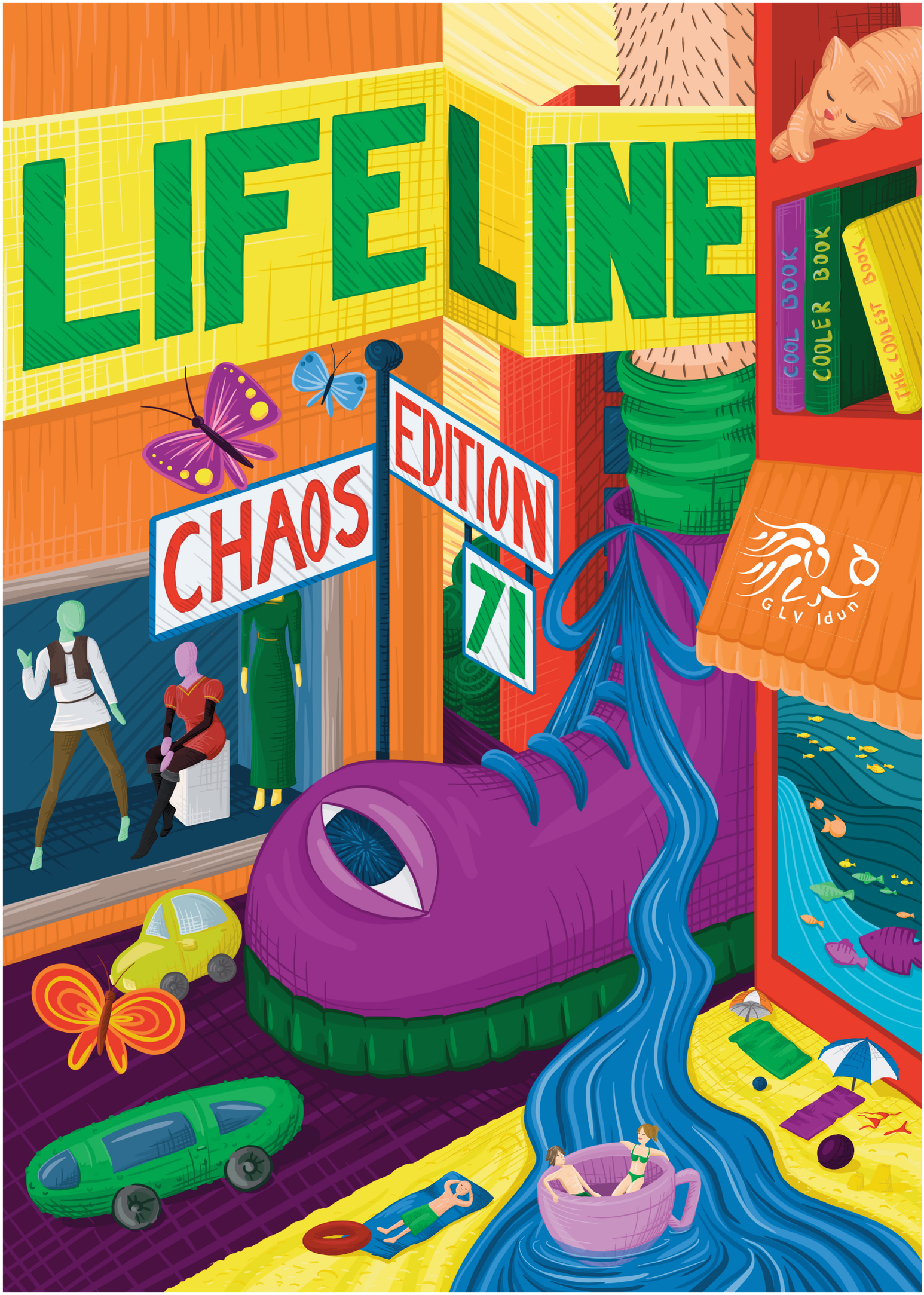

# CONTENTS

# PREFACE

## DOESN'T TIME FLY BY SO QUICKLY?!

The sun is peeking its nose through the rain clouds and summer plans don't seem miles away anymore. But still there is something. Something is not quite right. I hear it from everyone around me. "I am so busy. I am so tired. I have so much to do". You do as well, right? It's chaos. Complete chaos. Upside down. Head over heels. Inside out. If everyone feels like this, Lifeline can't be any different. This edition our theme is 'CHAOS' and we are giving you insights to all the chaotic topics. You can come with us to our committee weekend through the review, and meet our AI colleagues. And don't forget the Iduzzle, maybe even more chaotic than usual. Welcome to our

**Lifeline chaos,**

we hope you stay!

With love,

Lifeline editor in chief 2022-2023

Anette Hallik

Dear Idunaren,

***Chaos***

is a remarkable concept, with its opposite being order. One cannot exist without the other and there is a delicate balance of order and chaos all around us. Too much of one or the other and the scales will tip in the wrong direction. One example of this battle of order and chaos is, of course, your life as a student. Too much chaos and you will be going out with friends daily or playing hours of your favourite video game, and you will struggle to set goals for yourself and your growth. The abundance of order and you will be so stuck in your routine, and trying too hard to reach all your goals that you forget to enjoy the moment. My advice: try to carefully choose your moments of chaos, and enjoy them to the fullest.

For now, enjoy this newest edition of the Lifeline!

With kind regards,

Tippe Vansmeer

Chairman of GLV Idun 2022-2023

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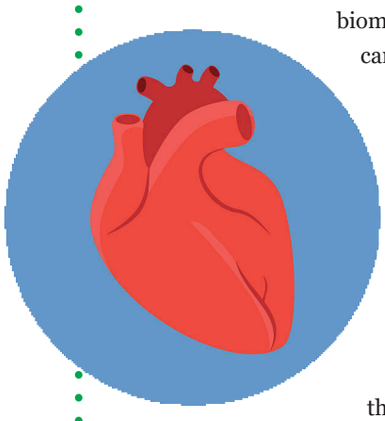
# SCIENTIFIC NEWS

## *New biomaterial found that could heal damages tissue after heart attacks*

BY CHAY WESSELS

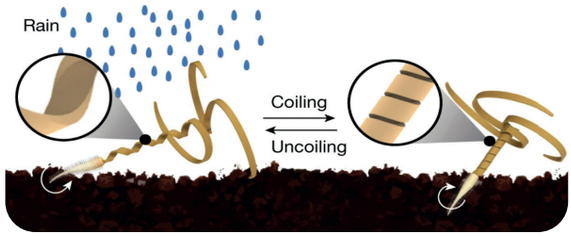
Scientists at the University of California have found a new biomaterial that can heal damaged cardiac muscle tissue in animals from the inside out after a heart attack. It could soon be used in human trials they say. Normally, the cardiac muscle tissue is killed after a heart attack, leaving damaged scar tissue behind. But this new biomaterial made out of the extracellular matrix derived from body fat is thin enough to be delivered to the heart blood vessels intravenously. Made out of nanoparticles, the material binds to leaky vessels and prevents inflammation whilst stimulating the healing process. Further studies are needed to begin human trials but the effects of cardiac tissue repair are promising. Then, the biomaterial could possibly be used for treatment of other leaky vessels in other hard-to-access organs such as the brain.



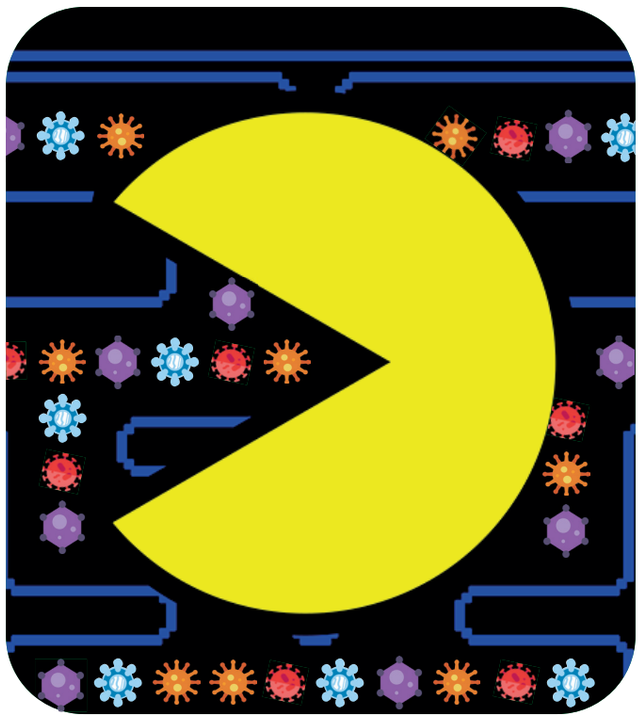
## *Fidget Spinners with a Greater Purpose*

BY CLARA SEINSCHE

In a recent paper published in *nature,* researchers from the US and China report a solution to one of the biggest issues in aerial seeding. Aerial seeding is exactly what it sounds like: the deployment of seeds by aircrafts, such as airplanes, helicopters, or – more recently – drones. It is mostly used for large scale reforestation, for example after wildfires. Previously, this method suffered from very low yields, caused by the condition that aerially deployed seeds typically remain exposed on the surface, where they are susceptible to predation by animals. In their new paper, Luo et al. present a solution to this problem: Self-burying




seed carriers, which can drill their payload into the soil, simply powered by rain. The idea is built on the principle that many solid materials change their shape when they soak up water. To make their product biodegradable, they used thin layers of wood. If the wood is molded into the shape of a coil, it uncoils upon water absorption. Essentially, this enables the carrier to drill its payload into the soil, where the seed can germinate safely. First tests suggest that the utilization of seed carriers may increase germination rates by five-fold, which is extremely promising!



# Why do you drink my pee?

BY ANETTE HALLIK

All animal species have their own mating rituals; some weirder than others. Male gazelles are known to lick the urine off of the tracks of their potential mates. Why? We could compare that to pregnancy tests humans take. Urine contains a lot of different hormones and pheromones and the concentration of these elements varies depending on the fertility cycle of the female. Most animals test ovulation and fertility by smelling the urine to determine if this specific female is ready to mate. However, in giraffes, the pheromone-detecting organ is connected more closely to the mouth than to the nose. That would lead to similar behaviour as in gazelles: licking the track. But giraffes' necks are too long to reach the ground. What to do? As always, evolution had the answer! Male giraffes will go up to potential partners, nudging their hips and legs. If the female accepts the mating offer, she will release her urine for a few seconds, letting the male take a sip to determine if mating is possible. A bit kinky, but useful!

# Viral Food: Meet the Virovore

BY JELLE DE JONG

Viruses contain all sorts of nourishing biomolecules such as proteins, nucleic acids and lipids. On top of this, especially in aquatic environments, viruses are omnipresent. A typical teaspoon of seawater contains about 50 million(!) viruses. Since viruses are quite specific when it comes to which hosts they can infect; why not eat them? This is exactly what some organisms, now known as virovores do. Their efficiency has remained unclear, until now. Researchers from Switzerland have assessed a single celled aquatic protist from the genus Halteria on its ability to consume viruses. By simply providing viruses as the only food source, a test was done to uncover if Halteria can survive solely on viruses. The results did not disappoint! Not only was Halteria able to survive and thrive; a single cell was observed to eat up to a million viruses daily. That is a lot of snacks! It takes only 50 cells to clear that teaspoon of viruses, and in the wild millions of virovores can consume trillions of viruses. With the role of the virovore now exposed, aquatic food webs can be expected to get an update.

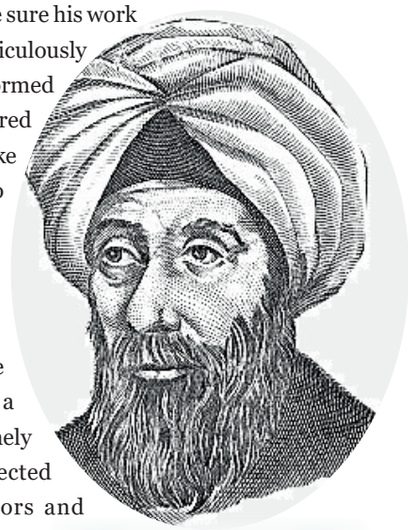
# A STORY ABOUT SCIENCE

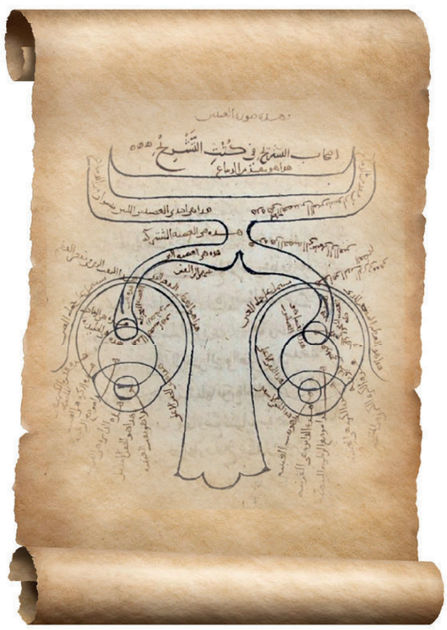
By Jelle de Jong

## FROM DARKNESS TO ENLIGHTENMENT

Since the dawn of humanity, we have observed nature. Even without understanding it in depth, our ability to recognize patterns helped us to make sense of it. All flying feathery things became birds, and all slippery swimming things became fish (or whatever name was given to them). This is maybe not the most accurate way to make sense of this world, but it certainly was sufficient. For a long time, at least, until the first cities began to grow. Education became increasingly important; Libraries allowed the knowledge of previous generations to be accumulated. Empires grew, and information was translated and transferred between cultures. The well-known Greek philosophers were among the first to write down their thoughts and observations. While many ancient writers that tried to make sense of this world relied on assumptions, mysticism, and religious thought, there was one that stood out.

Around the year 1000, someone from what is now Iran took inspiration from Greek writings. His name was Hasan Ibn al-Haytham, and his work would ultimately shape the world into what it is today. It was not necessarily WHAT he found out that was the reason for that, though he made great contributions to the fields of mathematics, physics, and astronomy. It was HOW he came to his conclusions, it was his way of working, that made him truly unique among the great thinkers of his time. Take, for example, his book of optics; not only did he state his findings and way of thought; he was the first to write down his work according to the scientific method. Thus, Ibn al-Haytham can be seen as the first true scientist. He came up with a method to test hypotheses, whether it were about observations of his own or others. He took care in elaborating his way of thought and made sure his work was reproducible by meticulously describing how he performed said experiment. Compared to some Greek thinkers like Ptolemy and Euclid, who believed the eye emitted light in order for us to see, Ibn al-Haytham came to very different conclusions. Among these were; light travels in a straight line and extremely fast. Light can be reflected and refracted by mirrors and lenses. He spent much time on studying the eyes. Most importantly, he explained that vision occurs when light reflects from an object and passes into the eye. Though he did not know how a coherent image would be formed from all the observed light within the eye, he figured it must have something to do with the brain (see drawing).



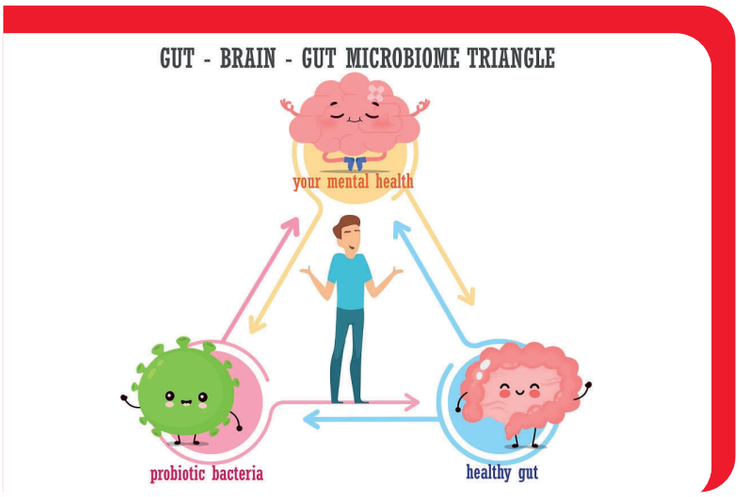
After Ibn al-Haytham died, it would take a long time before his work would reshape the world. It was not until hundreds of years later that his Book of Optics would be translated from Arabic to Latin. During the middle ages this book would gain popularity, and was printed in 1572 by a German mathematician. During the scientific revolution and subsequent enlightenment his work would be cited by many well known scientists, like Isaac Newton, Galileo Galilei, Johannes Kepler, and Christiaan Huygens. While these names sound familiar, it is kind of unfair that many of his findings were attributed to Europeans. His contribution to optics and science laid an important foundation that would, hundreds of years later lead to microscopes and telescopes. Not only did his work lead to a huge expansion of our observable world, it also guided us how to make sense of our observations in a scientific way. After countless scientific communities arose, Darwin and Wallace set sail to make new observations. By broadening their horizon, and testing their view of the world, they led the world away from old ideas. Away from ideas like the transmutation of species, towards an organisation of life by evolutionary relation. Once again, it was shown that light does not come from within us, it is our observations that enlighten us.

# THE ROAD TO HAPPINESS

## LIES IN YOUR GUT

By Chay Wessels

There is this saying "You are what you eat" and it turns out to be pretty accurate. Of course, this is meant figuratively, otherwise I would now turn into a Dorito, but unhealthy food is correlated to diseases and mental health issues. It may sound a bit disgusting, but everything you eat hosts millions of microorganisms. These bacteria, viruses, protozoa, fungi, and archaea end up in your digestive system and together they are called your gut flora, microbiota, or microbiome. They influence a lot of physiological processes related to health and therefore it is often seen as a separate organ. Significant disbalances in the gut microbiome have for instance been linked to several mental health illnesses and various psychiatric disorders. Now how does this work?




The collection of your gut microbiota starts already at birth. If you were born vaginally, you have a different microbiome than babies that were delivered through a C-section. In addition, delivery complications and modes of feeding influence this collection. In adulthood, the composition of the microbiome is mainly influenced by diet. Other factors are stress, environmental conditions, medications, stage and mode of the life cycle, comorbid diseases, and medical procedures.

Disbalances, also called dysbiosis, change the functional composition and metabolic activities. It turns out that these balances get passed on to the brain through the so-called 'gut-brain axis'. The microbiome produces neurotransmitters and communicates bi-directionally with the brain through neural, endocrine, and immune routes. For instance, Lactobacilli and Bifidobacteria produce GABA and E. coli produces serotonin and dopamine. Another component of dietary intake are short-chain fatty acids produced from carbohydrates which are important for overall brain health. The three most common ones produced are acetate, butyrate, and propionate. Administration of them has been demonstrated to alleviate depression symptoms in mice. These short-chain fatty acids are produced by Faecalibacterium and Coprococcus bacteria. Moreover, the essential amino acid tryptophan is broken down by bacterial enzymes into serotonin, kynurenine, and indole, all molecules with mood-regulating properties. A shortage of tryptophan has also been linked to depression. Another important function of the gut microbiome is the production of vitamins, especially B-vitamins and vitamin K. They are carried across the blood-brain barrier and they play a role in energy homeostasis to neurotransmitter production.

Now to the part where you are what you eat, dysbiosis has been linked to depression, bipolar disorder, schizophrenia, and autism spectrum disorder. Moreover, neurodegenerative disorders such as Parkinson's disease, Alzheimer's disease, and multiple sclerosis. Especially evidence for the relationship between Parkinson's disease and the gut microbiome is clear. Several studies show an increase in Lactobacillus, Bifidobacterium, Verrucomicrobiaceae and Akkermansia and a decrease in Faecalibacterium, Corprococcus, Blautia, and Prevotella. These changes are also seen in idiopathic rapid eye movement sleep behaviour disorder, which is a prodrome of Parkinson's. This could mean that the gut microbiome can predict certain diseases.

> "YOU ARE WHAT YOU EAT"

With this knowledge, new perspectives on the treatment of several diseases have been investigated. Fecal transplantation has grown popular over the years and has proven to be effective against infections that are antibiotic resistant. Now, modulation of the gut-brain axis via the gut microbiome has gained the attention of researchers that are trying to cure brain-related issues. This can either be done by taking probiotics, prebiotics, or changing diet. However, most research is still done in animal studies and the prescription of probiotics as a medicine is rarely done. To completely understand the entire mechanism is a time-consuming job and still needs a lot of work, but for now just make sure you eat healthily and stay happy!

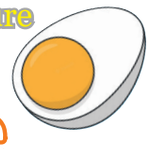
# TIERLIST

*A tierlist is used to rank something from best to worst. Since the theme of this edition is chaos, the LifeLine has ranked chaotic things.*

## S


The European Union

Cecile's Adventure Camp Story



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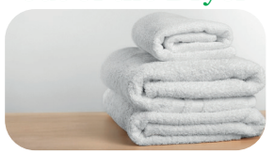
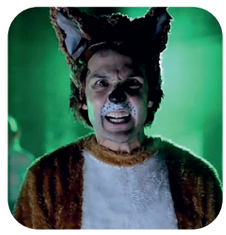
## A

Fresh Towels out of the Dryer





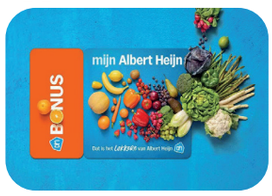


What does the Fox say?

## B

Antibiotics

Appie Bonus Items





When OV gets there early

7 am

## C

Capybara Tik-Tok Song

Getting a 5.5

When forgotten tea is lukewarm

Cilantro (on your own risk, check your genes)

## D

Hanging mirror on door

Peanut butter + Beer

Clogged hallways

Clothes stuck in door

## E

Blote Blasten Borrel


4 pm

LB Cantine Sandwiches

Bike on top rack

Donkey Ghost in Martini Tower?

Head massage whisk

## F

Constructions in Groningen


Rainbow Road

Getting a 5.4

# MARIT'S MYTHBUSTERS

## IN NATURE, EVERYTHING IS BALANCED

They say knowledge is power, but what if this knowledge is total nonsense? When you fall on your tailbone, you won't get blind and when you get a jellyfish sting, please don't pee on it. You will be surprised how many biological misconceptions are rooted in your mind and that of others. In our rubric 'Marit's Mythbusters', I will debunk common myths that many of you believe to be true.

Oh, the harmonious nature. The squirrel eats the nut. The fox eats the squirrel. Out of the fox's poop, a seed will grow into a nut tree, eventually repeating the cycle. A stable equilibrium, holding each other in line. So pure, right? Well, not exactly.

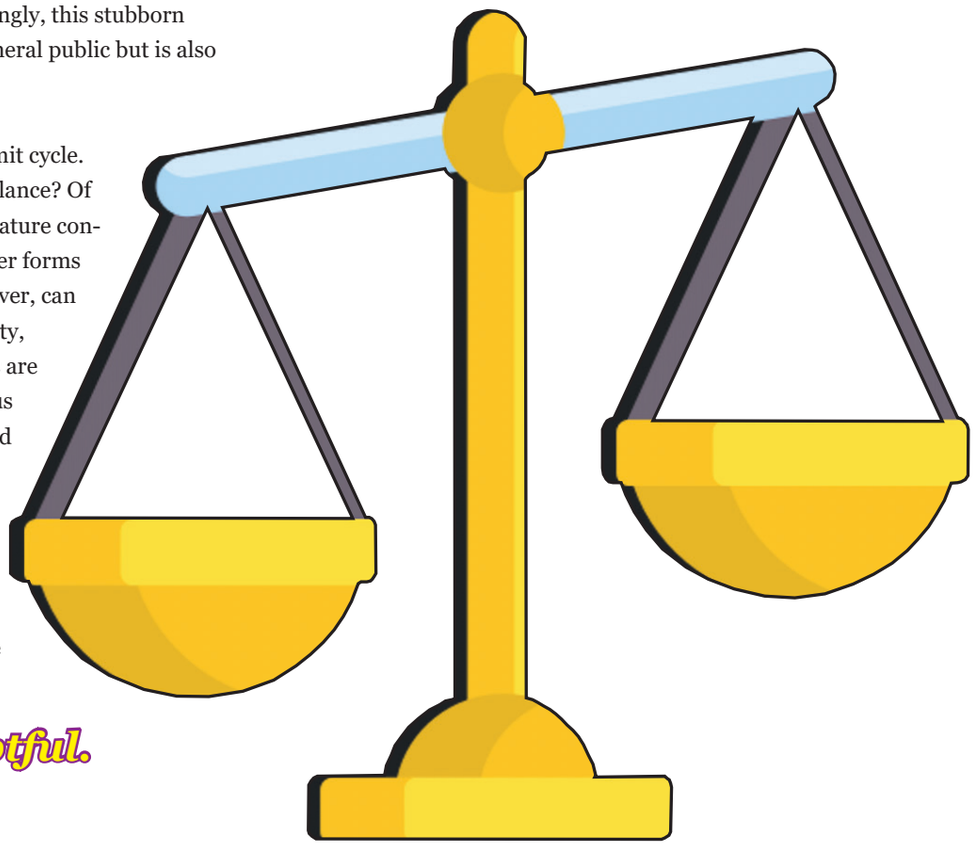
The belief that nature is in stable equilibrium is unlikely, yet strongly rooted in society. The 'balance of nature' theory finds its origin in ancient Greek philosophers, such as Plato and Herodotus. The latter proclaimed that predators never excessively consume prey and that this balance is 'divine'. Later, in the 1970s, James Lovelock and Lynn Margulis developed the 'Gaia Hypothesis': living organisms interact with planet Earth to form a complex, self-regulating system that maintains the balance of nature. Somehow, these views lead to the belief that nature has a 'true' state, like homeostasis, which it will return to when left alone by humans. Interestingly, this stubborn belief is not only present among the general public but is also still seen in Biology students.

I hear you think. You've heard of the limit cycle. Are prey and predators really not in balance? Of course, this article does not deny that nature consists of numerous interactions with other forms of life, but abiotic factors as well. However, can that really be named a balance? In reality, it's more like chaos. Prey and predators are in a continuous tug-of-war race and thus are kind of in equilibrium, but this could be quickly distorted by environmental changes. Drought? Less grass will grow, and more gazelles will die, thus resulting in fewer snacks for the predators. This will happen regardless of how many predators search the grounds for food.

A true balance? *Doubtful.*

A cool example can be found on the coast of New Zealand. There, barnacles, algae, and mussels each take their turns to reign the rocky coast. It seemed to be predictable. First, the barnacles would dominate the rocks. After a while, the algae took back the crown. No barnacle left to be found. Lastly, the mussels took over the kingdom. They would reign for a while, creating a thick mussel layer on the designated rocks. Eventually, they would leave their rock palace to make a place for the barnacles again. A pretty unstable kingdom, you would say, although the majority seems predictable. But take caution, the high winds, rain, and temperature throw a spanner in the works. The unpredictability of the weather is contagious. Hence, there is absolutely no telling how much of each species will be there on the rocks. It's rather a chaos, than a stable balance.

I must note, however, that the balance of nature theory has been criticized by scientists from the 90s onwards. Therefore, it is not necessarily used in education anymore. Still, plenty of people think that nature can turn back to a more 'true' state. This is simply not true. Nature has never had an original state. In fact, it's constantly changing! So next time you feel a bit chaotic, just remember: it's in your nature.



# INSERT TITLE HERE...

By Cecile Bruil

After an infinite amount of January we are all of the sudden here, months ahead. In the rush of academics there is a void to fill. I want to change something, enhance my sense of personality. Yet four boring white walls stare at me every morning when I wake. The solution? Painting my wall. A roadtrip to Gamma it is.
In the paint aisle, a kaleidoscope of colours awaits.
Hundreds of little coloured cards can be found.
All beautifully aligned in a perfect rainbow,
but with one chaotic twist; Their names.
A scala of random obscure names is printed on the cards in a light grey font.

No rhyme or reason found in the naming. I wonder whether there is a deeper meaning behind each name. Or is it a thoughtless process. Can you apply to become a wall paint namer? Can I leave writing my thesis behind and switch career path to name paints forever? It sounds awfully appealing. I start scanning the colours. A wide range of cool toned blue hues. I am allergic to the cold. Figuratively, but could be literally. You can get cold urticaria, hives, from touching cold water or being outside in the winter air. Rare, but possible. A mutation on the PLCG2 enzyme can disrupt the entire activation of the immune system. Causing the body to make autoantibodies and react so strongly to the cold that you get itchy hives, faint or even die. No, I don't want a blue wall. Rather something warm-toned. A nice tan colour. "Colony" catches my eye. A light grey, slightly warm toned. Not brown, not grey..A weird name for this colour. It somewhat resembles my kitchen sink, so maybe it refers to bacterial colonies. We all clean our sink somewhat. But never more than surface level. The constant moisture, temperature, pH and the bits of onion and other veggies that are flushed down the drain are an amazing environment for dozens of microbes to thrive. Exophiala is most abundant in all of our sinks. A member of the black yeast family. Black is a colour. Isn't it? On the cardboard paint swatches it isn't. Sometimes things look black, but are not. Like the bottom of the ocean floor. Everything seems pitchblack, but upon closer inspection, it is pretty colourful.

Though not per definition beautiful. Like the goblin shark. It has one of the ugliest noses in the animal kingdom, with razor sharp teeth and can be up to 6 metres long. Definitely not a fish you would want to meet on your diving trip on your summer vacation.
But the chances of meeting a goblin shark are slim anyways as it is a very rare species. I move my way to the yellows and greens. So bright. Nearly poisonous. I don't know about you, but when I think of poisonous animals, I think of frogs. The bright red dots on their backs, their high jumps and loud croaks. Though not all of them croak. Maybe that is why some are harder to discover. Recently a new frog species has been uncovered, the Hyperolius ukaguruensis. They are completely silent. To identify each other they make use of touch. There are bumps on their spine that function like braille, or so it seems. And they can use this as a form of communication instead of saying crooaaaakk all day long. Frogs somehow tiptoe the line of being disgusting and cute. Find one in the wild? disgusting. Have merchandise with a cartoon frog on it? very cute. I read the next card and a turquoise colour named "thesis" reminds me of the harsh reality I need to return to. The chaotic mess of colours and their names overwhelms me and I leave the store empty handed. Four white walls it is. Maybe the less chaotic, the better.

PLEASE TAKE THE TIME TO FILL IN MY PETITION ON TRAIN TOPIC <3

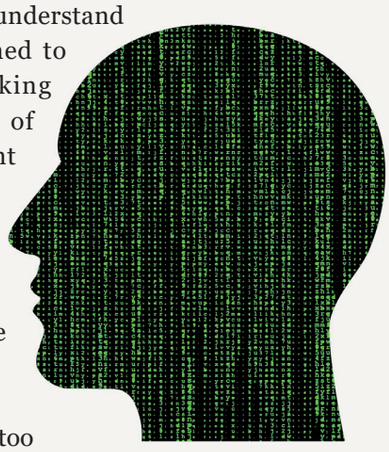
# AI: CHAOTIC EVIL OR GOOD?

By Ella Rees-Baylis

**Artificial Intelligence (AI) is rapidly changing the way we interact with technology and the world around us. One of the most exciting developments in AI is the emergence of conversational AI, which includes chatbots such as ChatGPT. These bots are programmed to understand and respond to human language, making them an ideal tool for students who need assistance with academic work. But are they really beneficial or just a source of chaos for universities?**

Let's start with the good news - AI chatbots like ChatGPT can be a real lifesaver for students. One of the most significant benefits of using them is their availability. Unlike human staff members who may not be available 24/7, AI chatbots are always ready to lend a helping hand, even during weekends and holidays. This is great news for students who need help outside of regular office hours. Plus, these bots are incredibly quick! With access to vast amounts of information, they can provide accurate answers to students' questions in a matter of seconds - perfect for students who tend to procrastinate and leave everything to the last minute.

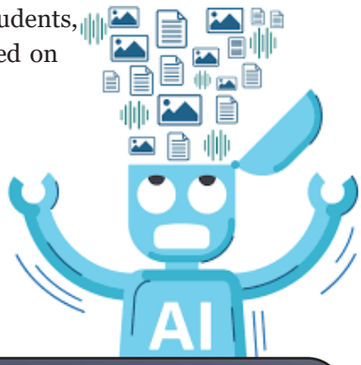
Another benefit of AI chatbots is that they're easy on the wallet. Unlike expensive private tutors or pricey online study guides, ChatGPT is completely free! And with machine learning algorithms, it can even provide personalised learning resources tailored to your individual learning needs. So not only is it affordable, but it's also like having your own personal tutor at your fingertips. But, as with any new technology, there are also some limitations to using AI chatbots.



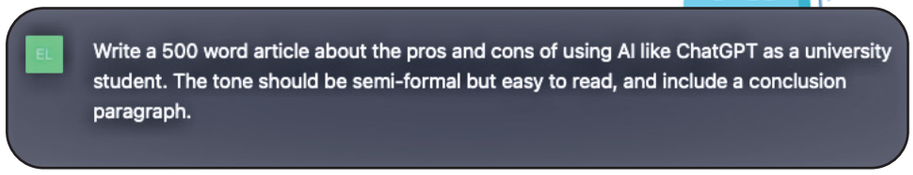
For one, these bots can only understand what they've been programmed to understand. So if you're asking a question that falls outside of their programming, you might be out of luck. And since they lack emotional intelligence, you can't expect ChatGPT to empathise with you or read between the lines when you're upset or frustrated.

Another concern is that relying too heavily on AI chatbots can hinder critical thinking skills. Sure, they can provide quick answers, but what happens when you're faced with a problem that requires some real brainpower? By relying too heavily on AI chatbots, students might miss out on the chance to develop crucial problem-solving skills. Plus, there are privacy concerns to consider as well. Since these chatbots collect data and personal information, it's essential to ensure that universities have proper data security measures in place to protect students' privacy.

In conclusion, AI chatbots like ChatGPT offer many benefits for university students. However, it's important to remember that they have their limitations too. By using AI chatbots as a supplement to, rather than a replacement for, human staff members, universities can get the best of both worlds.So, the next time you're struggling with a difficult assignment or need help outside ofvregular office hours, don't be afraid to turn to AI - justv\ don't forget to keep those critical thinking skills sharp! AI chatbots can be a useful tool to assist students, but they should not be relied on exclusively.




***Also, did you notice that this whole article was generated by ChatGPT itself?***





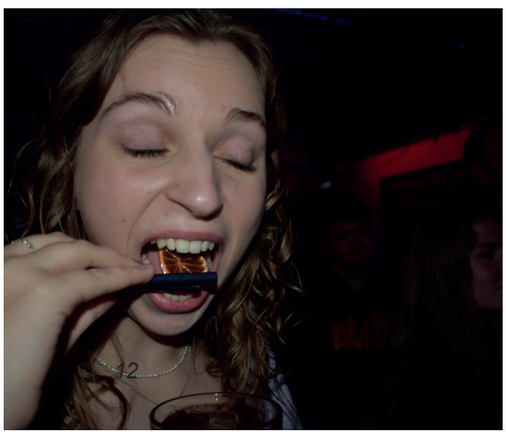













Lifeline



Security





Chef






GLV Idun


PAPARAZCIE

# HORMONAL CHAOS

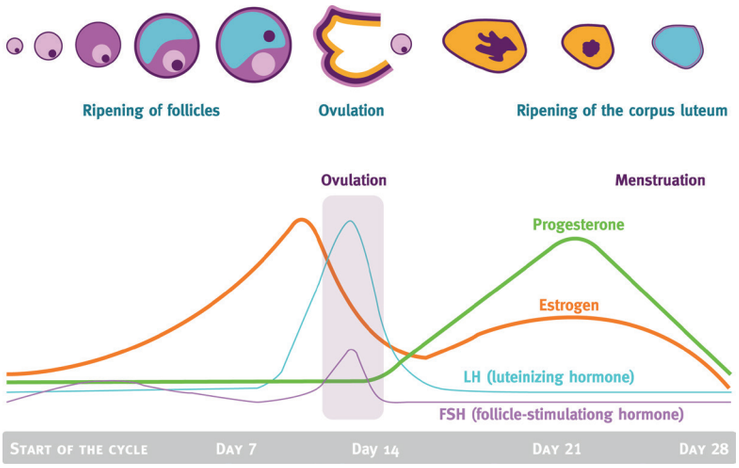
## THE (NOT SO FUNNY) STORY OF PMS

By Alessia Palazzo

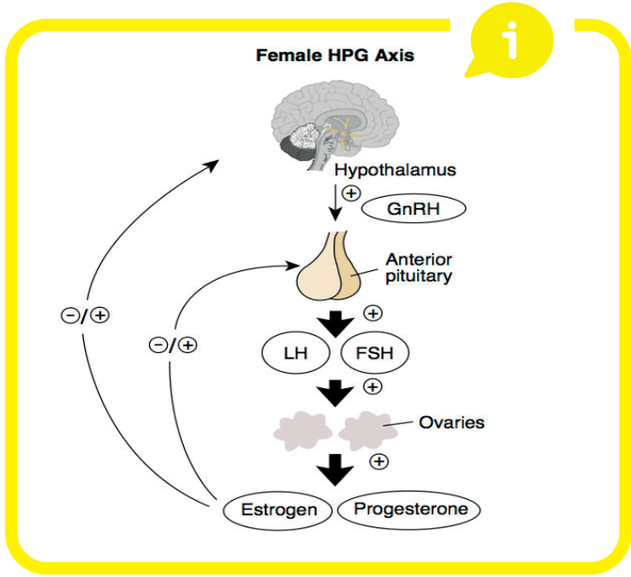
My dear girls, I fear you may be familiar with the struggle of having a uterus when that time of the month comes... but don't worry, our chaotic emotions and behaviors do have a reason. They say knowledge is power, so today I want to give you the power to understand the physiological changes happening before our period and how these mess up our internal functioning.

Premenstrual syndrome (PMS) is a combination of symptoms that women experience in the days prior to the arrival of their period. The unpleasant symptoms are both physical (bloating, belly cramps, headache and backache) and emotional (irritability, tiredness, food cravings, mood swings, depression, anxiety and loss of concentration). During this period, girls may feel like nobody can understand what they feel, but actually PMS is a quite diffuse phenomenon with about 90% of women stating they have some form of discomfort before their period. Of course, there is a lot of variation in the severity of symptoms and in extreme cases PMS can affect daily life preventing women from going to work or school.

Before diving into the causes of PMS, let's first recap some basic female physiology regarding our period. The menstrual cycle is divided in 3 phases: the follicular phase during which one follicle matures in the ovary, the ovulatory phase where the fully developed egg is released and the ruptured follicle becomes a corpus luteum, and finally the luteal phase in which the uterus prepares for a possible pregnancy. The transitions from one phase to the other are tightly regulated by the HPG axis (Hypothalamus-Pituitary gland - Gonads). The output of such control results in the fluctuation of sex hormones throughout the menstrual cycle as shown in the figure below.




Estrogen peaks prior to ovulation while progesterone peaks about one week after ovulation. These hormones are mainly produced by the follicle and corpus luteum. When the corpus luteum dies (after about 12 days from ovulation), the production of estrogen and progesterone suddenly drops. It is thought that the reduced level of these hormones might be one of the causes of PMS.




It is known that the brain regions associated with mood and emotions (amygdala, hippocampus and hypothalamus) have estrogen and progesterone receptors. Therefore, it is no surprise that the fluctuation of these hormones affects brain activity. In particular, estrogen is associated with positive emotions as it increases serotonin in the brain (the "happiness hormone"). Progesterone is thought to have an anti-anxiety effect promoting sleeping. As a result, when the level of these hormones drops during the late luteal phase, women experience mood swings, irritability and sleeping problems.

But this is not the end of the story because estrogen receptors are also found in the SCN which, as you may know if you read my last article :), regulates the sleep/wake cycle. Therefore, the reduction of estrogen prior to our period decreases the circadian output and may disrupt sleeping patterns leading to a possible sleep deprivation. Sleep deprivation causes per se poor mood, irritability and activates the stress axis. Stress has the remarkable ability to worsen the condition even more by affecting both mood and sleep in a negative way. This "deadly" triangle between sex hormones, sleep disruption and stress explains why the premenstrual phase can be very challenging for many women.

In conclusion, next time you (or your friends) are PMSing, don't be too hard on yourself because it is not our fault if once a month our brain is in chaos. We gotta face the struggle of PMS, but in the end periods are what makes us able to generate life.

# ARE YOU A STUDENT? ARE YOU STRUGGLING? LIFELINE IS HERE TO SAVE THE DAY AND MAKE YOUR LIFE JUST A LITTLE BIT EASIER. WE COLLECTED A BUNCH OF TIPS, TRICKS, GADGETS AND HACKS TO BRING ORDER TO THE CHAOS IN YOUR LIFE.

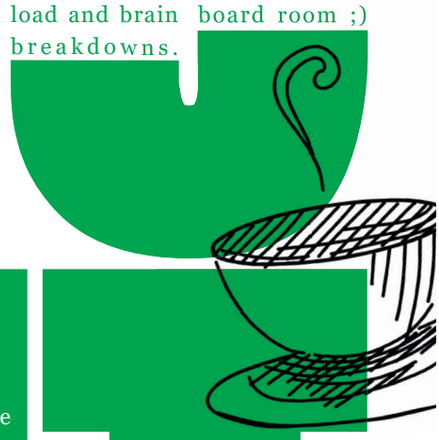
## APPS

Movienights: A night out to the cinema has gotten quite expensive these days, but luckily Pathé has our back! In the duodagen, when your balance is at an all time low, the movie tickets are just 5 euros a piece.

Smartlamp: for making your internal clock happier and waking up from a slowly brightening light instead of that crazy annoying alarm clock every morning.


Pomodoro method: a nifty study method with a lot of research backing it up. Study for 25 minutes, then have a 5 minute break, and repeat the cycle. Perfect for preventing study overload and brain breakdowns.

Free coffee?!: Is it good coffee? No, of course not. But if you are in the UMCG, then you can have a little adventure to the 7th floor, to get some free coffee or hot cocoa from the machine. Or go to the idun board room ;)



## DEALS

Authenticator: is your phone charging in the other room when you need to login on brightspace? Install the MFA widget on your laptop, you can always login with one click, no phone code needed anymore!

UNiDAYS: life is already too expensive, this site can help you through giving discounts on brands and products, just because you are a broke student.

SciHub: for all the articles you need to read that are actually illegal... (psst don't tell anyone)

Carbon footprint: we all need to be aware of our carbon footprint, to help you lower yours you can use the app 'Carbonera'. This app will let you store recipes, check your carbon footprint of your meals, and even give you some more sustainable options (if possible)! For example you could lower your carbon footprint by substituting meat by lentils in your pasta sauce.

Cheap plants: in line with the previous tip, you can get cheaper and imperfect plants through the site Plantjes.nl. All you need to do is order a Kneusjesbox. Perfect to add some greenery to your room, save some cute 'imperfect' plants for cheap!

## TIPS

Cheap food: If you want to be more sustainable AND save yourself some money on groceries, go and install the 'Too good to go' app, you can get groceries for 1/3rd of the normal price. A real steal.

Scoupy app: Groceries are becoming more and more expensive these days, but happily Scoupy exists! You just need to download the app for free and figure out what deals there are. Want to try that new soda or beanmix? Buy it, take a picture of your long receipt, and upload to the app. You will get a cashback for the products scoupy has a deal for!

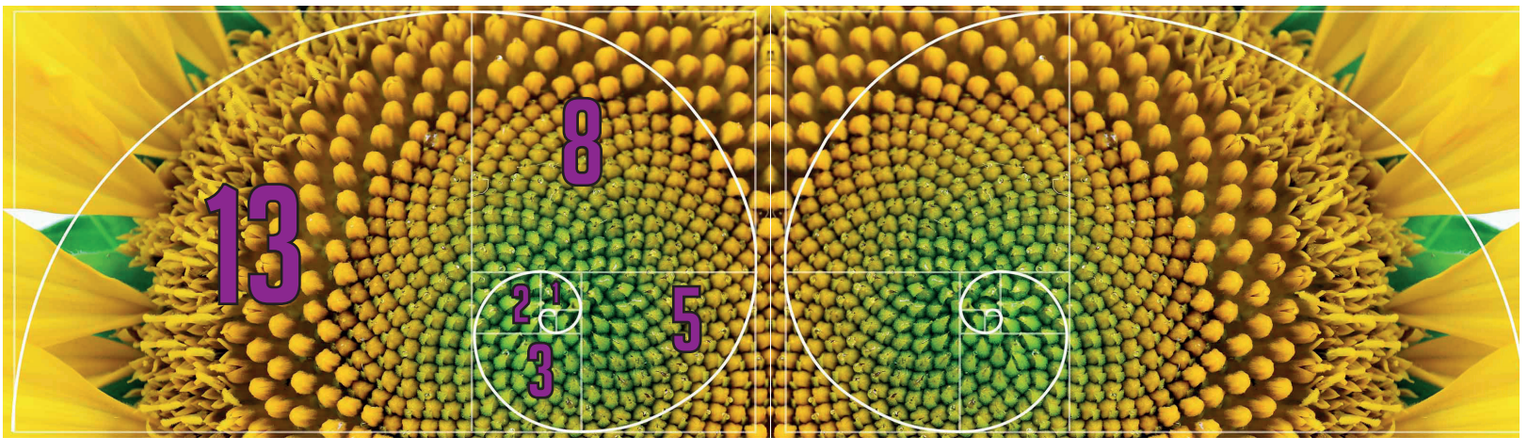
Seasonal awareness: it is always better to buy the veggies that are in season right now, to help you know which those are there is a great app called 'Seasonal Food Guide'

Forest: staying in the studytips area, we have 'Forest', an app where your phone is locked for a certain amount of time, in which you study. And if you do so correctly, a nice full grown tree awaits you when you return to your phone.

# NATURE – AN ORGANIZED MESS?

## THE HIDDEN STRUCTURES IN CHAOS

Nature often seems chaotic – think for example of the impossible myriad of proteins, nucleic acids, and metabolites swirling around in a single cell, the turbulent mess inside the hives of social insects, or the utter complexity of ecological interactions in tropical ecosystems. A key objective of science is to unravel this incredible mess – to make sense of it all. And, in doing so, researchers have repeatedly found that nature is often more organized than we think and often even obeys to mathematical principles. And there is one particular set of numbers, which seems to be especially relevant in this context – the Fibonacci sequence.




The first written account of the Fibonacci sequence dates back to around 300 BC and consists of a mathematical analysis of prosody in Sanskrit poetry. However, as commonly known from history, the idea was first popularized by Europeans; in this case an Italian mathematician, whom the sequence was named after. In his book *Liber Abaci*, published in 1202, he introduced the sequence by a hypothetical (and biologically unrealistic) scenario: he considers a newly born breeding pair of rabbits (A), which build the foundation of a new population. He assumes a sexual maturation period of one month, as well as a gestation period of one month, unlimited resources, and no deaths. In his scenario, the initial pair (A) has its first offspring after two months, producing a second pair (AB). In the third month, the initial pair (A) sires another pair (AC), while their first offspring is still maturing. In the fourth month, the initial pair (A) gives birth to their third pair of offspring (AD), while their sexually mature offspring pair (B) now also contributes to the population growth (BC). While it is a bit confusing, counting the pairs in each month will yield the following sequence: 1,1,2,3,5,8,12,... Mathematically speaking, each number in the sequence is the sum of its two preceding values.

Now, given that the initial explanation by Fibonacci is built on quite some assumptions, one would not necessarily expect the sequence to be particularly relevant – but the opposite is the case! In fact, research continues to find more examples in nature, suggesting the sequence might solve some essential mathematical and physical problems.

There are particularly many examples of Fibonacci numbers in botany, one being the number of nodes in many plants. The logic is essentially the same as for the rabbits, with nodes emerging not simultaneously, but progressively, as each new shoot has to grow for some time before being able to create branches itself. If you take a closer look, the number of shoots after each node then follows the Fibonacci sequence.

More examples from the plant world can be found in various flowers-, seed- and leaf arrangements. Considering for example a sunflower, the seeds in the center are arranged in bidirectional spirals, rotating both left- and right handedly. Counting the number of spirals in both directions reveals two consecutive Fibonacci numbers, such as 34 and 55, or 55 and 89. Similar patterns can be found in other plants, such as pineapples, artichokes, or broccoli.


Another area, where Fibonacci becomes relevant, is the golden ratio. A good way to visualize the

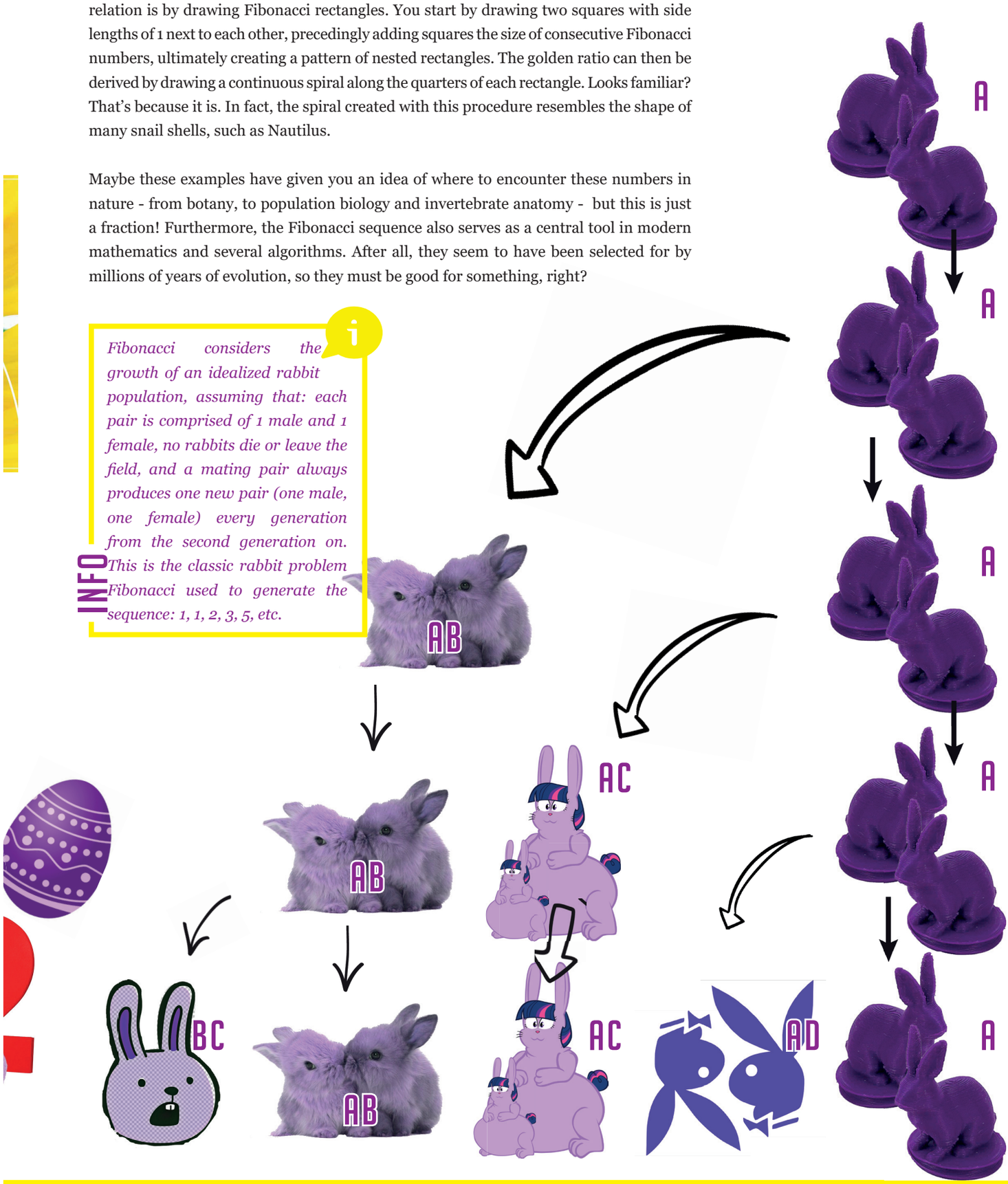
By Clara Seinsche

relation is by drawing Fibonacci rectangles. You start by drawing two squares with side lengths of 1 next to each other, precedingly adding squares the size of consecutive Fibonacci numbers, ultimately creating a pattern of nested rectangles. The golden ratio can then be derived by drawing a continuous spiral along the quarters of each rectangle. Looks familiar? That's because it is. In fact, the spiral created with this procedure resembles the shape of many snail shells, such as Nautilus.

Maybe these examples have given you an idea of where to encounter these numbers in nature - from botany, to population biology and invertebrate anatomy - but this is just a fraction! Furthermore, the Fibonacci sequence also serves as a central tool in modern mathematics and several algorithms. After all, they seem to have been selected for by millions of years of evolution, so they must be good for something, right?

INFO

*Fibonacci considers the growth of an idealized rabbit population, assuming that: each pair is comprised of 1 male and 1 female, no rabbits die or leave the field, and a mating pair always produces one new pair (one male, one female) every generation from the second generation on. This is the classic rabbit problem Fibonacci used to generate the sequence: 1, 1, 2, 3, 5, etc.*



# WARDROBE OF ANARCHY

By Eva Dine Lemson

SCAN ME

It's a few days before your exam and all motivation has been drained. All of a sudden, you find yourself knee-deep in your closet, tidying up clothing you haven't seen in months, but have no idea how to style with other colours. But is there a more effective (and scientific) way to avoid chaos and clutter in your wardrobe? It's time to explore the connections between fashion and science, and maybe even how science can improve your clothing habits.

Let's first look at what fashion says about your personality. A study from 2008 might suggest that to become (instantly) more attractive, only one step is required; wearing red. By wearing this, men might find you more attractive, whereas women might be more romantically attracted to you. However, the effects are quite limiting as well; your perceived likeability, agreeableness, kindness or intelligence does not change at all. So according to science, maybe wear red for your next first date.

Another study states that wearing green will make others think you are more sustainable, which could also be beneficial in some instances. But should you really pick one colour to match your wardrobe to your personality? Probably not. A study was done to find out whether your personality might influence your colour preference. Sadly enough, there is no evidence that this might correlate. There is also no correlation found between your own body image and the color you wear or your clothing color preference based on your fertility window. And maybe you should be more open to some chaos in your wardrobe, as monochromatic clothing isn't ideal. Not only will you have to throw out most of your current wardrobe, but there is also proof that miniature pigs and cows will be able to recognize you better, ánd more easily harbor certain emotions (like revenge) towards you. So maybe for safety, stay away from monochromatics. But what then, ís the answer? Research towards colour and fashion has been going on for quite some time. In color analysis, Michel Eugène Chevreul, a french chemist introduced a so-called 'audience without any color harmony' to the earliest colour science. Albert Henry Munsell, an art teacher, was responsible for creating the first color ordering system. Eventually Johannes Itten, also an art teacher, invented the concept of color seasons, which are still very prevalent today in high fashion.

So what is a color season exactly? According to Deborah Chase, the undertones of your skin play a big role in what colors complement you the best. This undertone is a combination of melanin, carotene, and hemoglobin. Adding hair and eye colour into the mix makes you into a very personal color palette. Your color season is a palette that supposedly complements yours. The term 'season' should not be confused with a time of year, but rather just an ordering system. Although it is true that your color perception of the color yellow changes throughout the seasons, this is not taken into account in making these palettes. And that might exactly be the key point of color analysis. Despite a lot of research being done on colors and fashion, there is no way yet to differentiate personal taste (even culturally conditioned) and science. Still, color analysis is still a fascinating topic, although chaotic. In the end, it's about what colors you want to wear, so maybe take this science with a grain of salt.

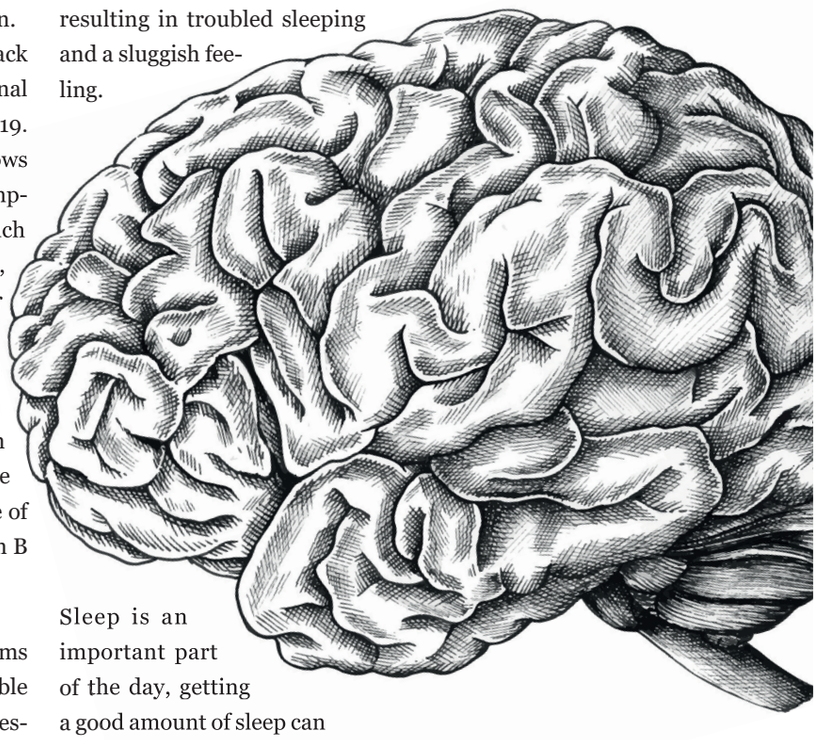
# DON'T BE FOOLED
## BY BRAIN FOG

By Michelle Berendsen

Everyone knows it; the sluggish, exhausted feeling and the forgetfulness. These are symptoms of brain fog, which can lead to a loss of mental sharpness and a disassociated feeling. This is a term that describes a sensation and not a medical condition. Brain fog can be caused by many health issues, such as a lack of sleep, stress, dementia, depression, medication, hormonal imbalance, B12 deficiency, or viral infections such as covid-19. When looking at the neurological health of the world, it shows an upcoming crisis with brain fog as the most prominent symptom. Broadly, brain fog tends to affect executive functions, such as planning, organizing of information, following directions, and multitasking. The key difference, when compared to other neurological diseases, is that brain fog does not get progressively worse in the way that mental abilities degenerate (like dementia). Some days will be worse than others, but brain fog tends to impair cognitive function to the same extent each time it occurs. Since it is a sign of impaired function in the body, a series of blood tests would be able to show the cause of the cognitive impairment. For example; sleep apnea, vitamin B deficiency or other hormone and thyroid problems.

When hormones are out of balance, brain fog-like symptoms can occur, such as inability to focus, irritability, unexplainable anger, fatigue, headaches, or insomnia. Hormones such as estrogen, progesterone and testosterone contribute to blood flow

and protect against memory loss and dementia. If one hormone is out of balance it will impact your ability to mentally function properly. Low estrogen levels can lead to mood swings, night sweats and difficulty to concentrate. On the other hand, higher levels cause weight gain and memory issues. The same occurs with progesterone imbalance, mood swings occur as well as brain fog-associated memory loss. Additionally, testosterone has a great impact on mental sharpness by strengthening nerves and artery muscles. Moreover, cortisol, the stress hormone that regulates fight or flight instinct, can affect brain fog. When chronic stress occurs, cortisol levels increase, causing an imbalance resulting in troubled sleeping and a sluggish feeling.



Sleep is an important part of the day, getting a good amount of sleep can prevent brain fog. In fact, sleep is important when it comes to cleaning the brain out of toxins. If you are not getting enough sleep and wake up feeling groggy, it is a sign that adenosine, the sleep chemical, has not fully cleared out of the body. So, why does brain fog occur? Most often because of a lack of routine, almost 40% of our behavior is habitual and essential for the effective function of the brain. The brain needs a lot of nutrients; almost a quarter of what we consume is used to keep it going. To process all sensory input the brain is constantly scanning for patterns. The usage of these patterns results in automated behavior, which uses fewer resources. By spending some time on autopilot, our brain will not become overwhelmed as quickly.

Finally, how can you reduce brain fog? First of all, do not get your body too tense for too long, and lower your cortisol levels by having more breaks. Meditate to relax your brain within all the chaos we are surrounded with. Secondly, listen to your body and its cues, and get enough sleep as well as enough movement to keep the body healthy. Lastly, be aware of what food you consume. A lot of food is highly inflammatory, such as processed food with high levels of sugar. So, balance out your glucose intake, and see the mist disappear before your eyes!

# REVIEWING... COMMI-WEEKEND

REVIEWING...

You are probably beyond curious. What will the amazing Lifeline review in a theme full of chaos? Well, what could be more chaotic than going on a commiweekend with the lifeline-squad?
Spoiler: not much.

## Accommodation

Okay, first up, the location. We don't know how, nor why, but on a random Sunday afternoon preasus and vice-preasus found our palace. It was a huge ass villa with an enormous grass field surrounding it. At least it appeared that way. Upon arrival in the peaceful Meeden (a few min drive from Veendam, province of Grun), the house revealed itself to be a bit of a catfish. The peaceful Meeden? Robbers were active. The beautiful front? Belonged to the family who was renting it to us. Which is fine, but still, a slight aftertaste of catfishiness lingered there among Lifeline that never left.

> "ONIONS HAVE LAYERS

The inside, however, was fucking amazing. Huge kitchen with a bar, so you could watch live how Michelle and Anette were cooking. The lack of black pepper, however, made our chef's heart cry. In the living room, there were three couches, plenty of space to sit for all of us (except when Anette colonized a whole couch <3). The best thing about the living room? FLOOR HEATING. Moving upstairs, we were welcomed by a freezing cold wind; I get shivers just thinking of it. Lifeline agreed that the floor upstairs was in general a bit weird, as random wooden beams (probably the foundation of the place) created a construction similar to a laser maze. You know, like the ones in spy movies. Generally, we are a rather tall committee, so ducking and manoeuvring were no luxury. On the downside, in the middle of the night, our beloved praesus woke up from some strange noises downstairs. With all her courage and the thought of valuables laying at the dinner table, she slowly went down the stairs...

No robbers, fortunately, just poor isolation, and dogs as loud as werewolves. Another good point about the accommodation: we didn't need to bring towels or bedsheets, because, honestly, who has time for that. The toilet, in contrast, was cursed. When flushing you would hear a scream from hell, though no guarantee of your business being flushed. All in all, it was a fairly decent accommodation, with some nice points and some flaws. But hey, everyone has those, right? We awarded the place with an average of 7,43 robbers.

## Activities

Quiz

What better way to start commiweekend than to expose fellow lifeliners? In teams, Lifeline answered questions like "What lifeliner does this story belong to?" and "Who likes to wear socks to bed?". We rated it a 10/10 with a comment from our seccie: 'I won, so was nice'. Everyone was cozy and bonded over awkward teenage stories. The only point for improvement: 'could have been longer'. Honourable mention: crazy high school camp stories.

5 minute drawings

Revolutionary!!!!!! So the idea is: take a blank piece of paper each, draw for five minutes, and hand it to your right neighbor. This continues until you have your own drawing back, and you can add details. As Lifeline is freaking creative, we all loved this. Also 10/10. You learned so much about others, as the drawing and perspective is very unique per person.

Shrek

S-tier movie and a true lifeline classic. It was a 9/10 because 'it's Shrek'.

By Wietske...

...and Parit

ft. robbers

We finally made seccie watch the movie, a real achievement. 'Onions have layers'. Only way it could have been a 10/10 was if the weird tv screen didn't fuck Shrek up the way it did. Also, Lifeline wants to aid in the production of the spinoff 'Donkey', as he is our new Lifeline mascot.

Murder mystery dinner

TOO SHORT. This was fucking amazeballs (as Jente would say). It was the best before we got to the hints. Oscar-worthy acting skills made the whole thing scarily real (except for the meat-eating rhinos) and the costumes were * chef's kiss *. Also, Alessia got a Tesla and was very proud of it. Lifeline got a few new members, including the pet rabbit Paris, who lived in Chay's purse, and the pet spiders Angel and Satan. Angel was only present in memory (RIP Angel) and on Cecile's neck as a tattoo. We highly recommend EVERYone to do this, because it's guaranteed to be fun and cause some drama.

Werewolves

After the killer was caught (spoiler: it was me hehehe), we were still in the 'mysterious deaths' mood. We've all been there. So we decided to play the classic werewolves (in some countries known as 'mafia'). Alessia had 'werewolf energy', so was the first one being lynched almost every time we played. Poor her. Cecile and Marit also had to compete in a major election and even though Marit's speech was phenomenal, Cecile still got elected as a major :( Chay was overall very confused by this game, which created the biggest chaos, and caused our praesus to burst out in uncontrollable laughter. Overall the activities were rated with 9,25 donkeys.

**Food**

Of course, food is an important factor in a commiweekend. It even started chaotically: Marit had all the groceries and arrived much later than Michelle, Cecile, Jelle, and Eva. They couldn't eat nor cook and had to survive on 1/3 of a banana (true survivors). We had the best pancakes and English breakfast in the mornings though and during the murder mystery dinner, the murder was accompanied by a killer tapas. During hangry lunch times, toasties with cheese and tomato saved us from actually killing each other (kidding). The food was rated with an average of 7,75 beans.

"SHE JUST HAD WEREWOLF ENERGY"

**OV**

Sucks sucks sucks a lot. Friday was fine though, except for the scary bus ride that made Cecile almost puke her guts out. However, in a small - and I mean small - town like Meeden, the buses don't drive on Sunday??? how??? Marit saved the day though as she turned her car around and rescued the OV people from doom.

The OV was generously rated with 3,67 roundabouts.

**Concluding thoughts**

Did we inspire you? Did our revolutionary activities spark an idea for your upcoming commiweekend? We had a chaotic 67 hours in Meeden, which will hopefully be just as fun next year. At the end of the day, it doesn't matter where you are going, or what you are doing. As long as the people you are with are amazing you will have the best time of your life <3

# BAS EN Z'N BEESTJES

BEASTS BY BAS

By Bas van Boekholt

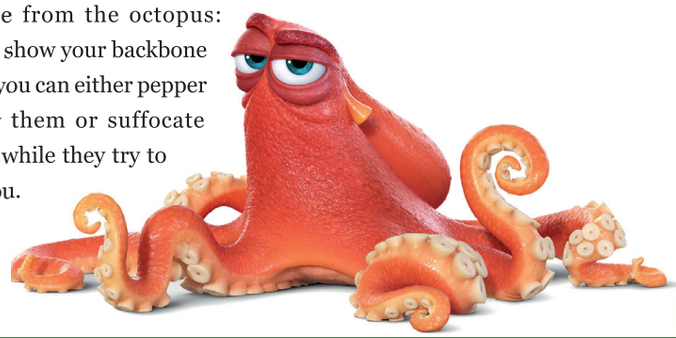
When reading this blog there are a few facts you might have picked up along the way about the animal kingdom: Eusocial insects are cool; there are a lot of interesting animals that we (unknowingly) co-habit with and if you are looking for weird, go underwater. This week's animal definitely fits into the weird water class. This creature has appeared in both pirate horror stories as well as in the minds of Japanese fetishists. They lurk in the deep and have one of the most interesting bodies out there. No skeleton, no legs, but a big brain, three hearts and eight arms. Yes, you guessed it, this "Bas en zijn beestjes" I present to you the unorthodox octopus!

The octopus is an eight-limbed mollusc from the order of Octopoda. Octopuses have the highest brain to body ratio of all invertebrates (and also a lot of vertebrates). This can be partially explained that each of their eight arms (NOT legs or tentacles) have their own "brain" and can move and act independently. Two thirds of all their neurons are dedicated to the arms and even after an arm detaches from the body it can still bring food to the mouth for up to an hour. Talk about a helping hand. However, this fascinating feat can sometimes have deadly consequences, about 5 people die each year eating live octopuses. When they swallow the severed arm, it will still be able to use its suction cups and as a result gets stuck in someone's throat, suffocating the victim. Next to their multitude of arms octopus also have an impressive number of hearts: three to be precise. Two pump their blue blood past the gills while the third helps the circulation through the rest of the body. However, when an octopus swims this third stops pumping which quickly exhausts the octopus and therefore they prefer crawling (sometimes "bipedally" but mainly octopedally) as their mode of transport. If they cannot crawl away an octopus can make use of their muscles and obtain speeds of up to 40 kilometres per hour sometimes even jetting out of the water to "fly" away from predators.

One of the most interesting behaviours of the octopus has to do with their reproductive cycle. If you put two octopuses in the same container they will soon after begin mating, independent of sex. However, if by chance the two end up being two males they will find out it is not working and separate after a few hours. When a male and female meet, the male will use its penis arm (which is the only arm an octopus cannot grow back) to deposit some sperm into the female in a specially developed groove. He will then quickly swim away and sadly die sometime later. The female will use this sperm to fertilize her eggs and guard them all the while not eating until she too will slowly dye, dissolving from the inside out. However, the Tremoctopus violaceus has a slightly different strategy. In this species the male can be 40.000 times lighter and after finding a "giant" female he just rips off his penis-arm injects it in the female and bolts it. For reference, this would be similar to a herring bumping into a blue whale, so it is not unlikely that she doesn't even notice this interaction.

While all octopuses are predatory they are often also the prey for bigger fish. Luckily, they have a multitude of defence mechanisms. Most octopuses are venomous, and the blue-ringed octopus is by far the most dangerous and has enough toxins to kill 26 adult humans within minutes (of course, they live in Australia). The sneaky thing is that their bites are tiny and often painless so their victims only realise they have been envenomated when paralysis begins and by then it's too late. Another defence mechanism is the ejection of a cloud of ink to confuse its predator. This ink doubles down as a sort of pepper spray where the enzyme tyrosinase causes a burning sensation. This is so potent that if an octopus can't get away from its own cloud it can end up killing itself. If going on the attack is not an option octopuses are also the masters of camouflage. They cannot only change colour but also opacity, reflectivity or even the texture of their skin. Some imitate the shape of lionfish, sea snakes or even two halves of a coconut. For the Octopus vulgaris the skill of adapting to their background color is even more impressive given that they only have one type of photoreceptor in their eye and should be colour blind. Currently, the main hypothesis is that they are still able to see colours by changing the shape of their pupil which can cause a slightly different prism-effect breaking light differently for different wavelengths. It would explain why their pupils can morph into strange shapes like the letter W or U or even the shape of a dumbbell!

Last but not least, octopuses are extremely smart. They can navigate mazes, open jars and use tools like stones and coconut shells to their advantage. Some even break off tentacles from jellyfish and use them as weapons. Though at a first glance, the octopus might seem like a chaotic jelly-filled bag of wriggling arms, there is so much more than meets the eye. They can be bored quickly and like to trick and make fun with their keepers by throwing rocks or water at them. Octopuses are another perfect example of how living in the gravity-free waters can make evolution really creative. No need for sturdy skeletons and joints but just pure flexibility and brains gets them in my hall of fame. So next time you find yourself face-to-face with a predator, take some advice from the octopus: Don't show your backbone until you can either pepper spray them or suffocate them while they try to eat you.

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By the amazing Marit & Michelle

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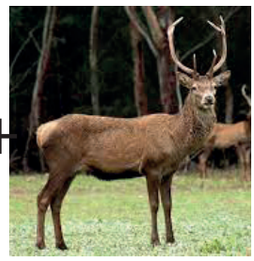
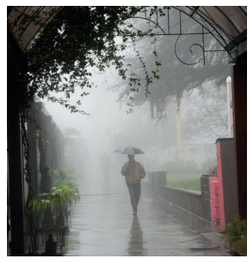
-m, e=l

ca=o

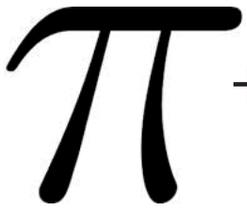


-e



-ra

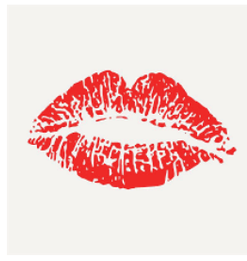
s=t, -o



p=un

b=v, -e

-l, -d



-k, -s

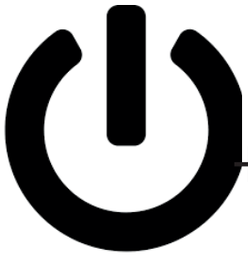
ar=u

-al

-nt

at=y

b=c, -u



-f

p=c

-h

-ir

x=s

The previous Iduzzle was won by **Nina Huisman**. Congratulations! He has won a marvelous prize, which he is very happy with! Would you like to be mentioned here in the next Lifeline? Please submit your answer to the Iduzzle to redactie@idun.nl before May 23rd.

**Answer to iduzzle 56:** They say time changes things, but you actually have to change them yourself.