



In 2024, let's draw inspiration from the qualities of the LIVING!



ATELIERS ADELINE RISPAL

PARIS

2024
wishes you
a lifeful
New Year!



ADAPTATION

The common **chameleon** displays numerous shades of bright green, yellow-green, or olive. It can also exhibit various tones of gray, ranging from whitish to black, or turn reddish-brown. However, only the Parson's chameleon boasts a vibrant blue pigmentation.

During breeding season, the male turns more colorful than the female, aiming to intimidate its rivals.

In males, the longer tail shows a swelling at the base of each side of the cloaca, where the copulatory organ or hemipenis is located.

The arboreal adaptation is taken to an extreme here, thanks to the fusion of fingers and toes into opposable elements and the presence of a prehensile tail.

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MUTATION

When sequencing the genome of the **tardigrade**, researchers have recently unlocked the secret behind its exceptional survival skills.

This tiny creature, commonly known as the “water bear”, is in fact capable of absorbing DNA from other species and organisms, particularly bacteria, to endure the most extreme conditions, including space void.

Measuring only half a millimeter in length, it lives in several locations around the planet and walks clumsily on eight legs.

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IMAGINATION

The **superb lyrebird** is a species of passerine bird belonging to the *Ptilonorhynchidae* family, prevalent in Australia and New Guinea.

To attract females, males construct a pergola-shaped bower, adorned with stones, shells, feathers, berries, flowers, and more. These nuptial bowers take on the appearance of genuine works of art.

Here, the satin bowerbird (*Ptilonorhynchus violaceus*) is seen painting his bower in a beautiful blue color using a dye he creates by mixing berry juice and saliva before adding collected blue objects!

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DETERMINATION

A.M. Fielde, an American naturalist, studied the determination of **ants**: not only can they withstand asphyxiation by submersion (surviving drowning in case of flooding), but the mutilation (head or abdomen) of female worker ants who are more resilient than males, does not stop them in their tasks.

To protect their eggs, ants naturally produce various insecticides, fungicides, bactericides, virucides, and other complex molecules, the functions of which are not yet fully understood.

True pioneers, they demonstrate capabilities in excavation, colonization, ecological resilience, and resistance to radioactivity, as they are among the few species that survived Chernobyl.

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ABILITY

As an ecosystem engineer, the **beaver** possesses several abilities: it adapts to the topography, digs canals, fells trees, builds dams, protects its lodge from predators, and conserves water during the summer.

In short, it's a Swiss army knife that demonstrates great inventiveness in solving complex problems.

Beneficial to the environment, its dams also serve humans. By felling trees, beavers create an influx of light that promotes the growth of other plant species. By buffering floods, they make the watercourse more functional and prevent the spread of pollution. By creating wetland areas, they establish refuge spaces for species unable to escape wildfires.

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COLLABORATION

Lysmata amboinensis, commonly known as the "**cleaner shrimp**," feeds on ectoparasites it finds in the mouths of large fish.

To avoid being eaten themselves, these shrimps have an ingenious technique: they dance, as recently observed by a team of marine biology researchers.

Furthermore, these shrimps are selective with their clients. Scientific observation has revealed that, after 242 visits to a variety of fish, eels, and turtles, the shrimp refuse to treat the mouths of certain "clients." Hence, 75% of predators that come to feed instead of getting their teeth cleaned are identified and do not receive their services.

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INNOVATION

The **firefly**, a bioluminescent beetle, utilizes a protein (luciferin) and an enzyme (luciferase) to produce cold light. Like mirrors, the scales on its photophore abdomen enhance luminous radiation, allowing this insect to control the intensity and frequency of flashes at will for communication and defense purposes.

Its flickering triggers the production of an unpleasant-tasting steroid (lucibufagin) that repels most predators... except for blind bats. However, it has recently been discovered that the firefly also emits powerful ultrasonic waves undetectable by these predators.

It's no wonder that the biomimicry of fireflies inspires various innovative technologies, especially in France.

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CREATIVITY

This sea mandala is the creation of *Torquigener albomaculosus*.

This modest-sized species (9 to 12 cm), discovered in Japan at depths ranging from 10 to 27 meters off the Ryukyu Islands, belongs to the **pufferfish** or **blowfish** family, aptly named for their ability to inflate.

The male obliges itself to construct a circular nest with a diameter of 2 meters, using its fins to align peaks and valleys of perfect geometry designed to retain fine sand particles highly favored by the female.

After inspection by the female, she mates with the male and deposits her eggs in this creation before the current carries them away.

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AGREEMENT

Human agreement means belonging to a social group united by the same ideas and objectives.

While most animals produce calls instinctively, some species acquire vocal skills to strengthen their social bonds and ensure the longevity of their species. Thus, **African elephants** (and some birds, monkeys, bats, or cetaceans) adjust their vocalizations within couples, families, or clans.

This vocal concordance, observed during migration or after a period of separation, facilitates cooperation, food gathering, raising offspring, protection against predators, and communication within often complex and noisy social groups.

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RESEARCH

The **gecko** is a lizard belonging to squamates, which are reptiles that shed their skin.

Primarily nocturnal and arboreal, it captivates with its ability to climb on any surface and carry loads much heavier than itself.

This capability is attributed to its setae, microscopic hair-like structures rich in keratin located under its fingers, which provide exceptional adhesion.

The United States Department of Defense drew inspiration from this ability to develop vertical climbing techniques. Global research explores gecko characteristics to create adhesive coatings, water-resistant adhesives, photosensitive adhesives, as well as miniature robots capable of lifting 2000 times their weight.

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CARE

The **wombat** is a herbivorous marsupial that dwells in the mountainous forests of Australia. It possesses a ventral pouch that peculiarly opens to the rear, which prevents it from filling with soil when digging.

With a very slow metabolism, it takes over 14 days to digest a meal and it produces cubic-shaped droppings!

An expert in constructing highly sophisticated underground tunnels, the wombat hosted thousands of guests from other species in its burrows during the devastating fires from October 2019 to February 2020.

Nevertheless, both the common wombat and the hairy-nosed wombat are currently threatened by feral dogs, diseases, and food competition with kangaroos.

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GLOBALITY

To date, less than a million species of **insects** have been identified, while their actual estimated number fluctuates between 4 to 6 million.

In the case of **ladybugs**, these allies of humans in biological pest control, there are 6,000 known species, including 80 in France. However, the constant evolution of insects makes an exact count unlikely.

Yet, without them, our world would collapse, as many things we usually take for granted would be different. For instance, without these remarkable pollinators we would suffer from numerous deficiencies since our agricultural development would be compromised, and our food resources would either be drastically reduced (fruits and vegetables) or quite simply nonexistent (silk and honey).

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COURAGE

Nicknamed the "desert sentinel," the **suricate** is a mammal native to Southern Africa and belongs to the mongoose family. Members of the clan take turns standing guard to watch for predators when they exit the burrow to feed.

In an upright position, the lookout can see far because the dark fur around its eyes protects it from solar glare.

Early learning of courage is crucial to face the extreme temperature variations in the arid plains of Africa and to develop reflexes for social vigilance. A suricate's life is a survival challenge from the early days. As small, deaf, and blind infants, they are vulnerable to snakes that may infiltrate the burrows. Outside, cheetahs, jackals, and birds of prey pose threats to the entire clan.

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TRANSMISSION

Rustic and mountainous, the **Salers** is an ancient breed of cattle originating from Cantal, known for its mahogany coat, long and curly hair, and distinctive lyre-shaped horns.

A particularly maternal cow, it is valued not only for its well-marbled meat but also for the quality of its milk (3000 liters per year).

An exceptional nurturer, the Salers prioritizes its children to the extent that, during suckling period, it allows milking only when its calf starts nursing.

As a gesture of gratitude, farmers leave the calf the cream of the milk after finishing milking.

A beautiful example of transmission!

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WISDOM

In France, "*chouette*" and "*hibou*" are vernacular names used to refer to nocturnal birds of prey, specifically **owls** belonging to the Strigidae family.

Throughout history, the hooting, the scrutinizing gaze and the nocturnal lifestyle of these birds have captivated human imagination, giving rise to various superstitions.

A symbol of Athena, the goddess of wisdom and war in Greek mythology, the owl's hoot was believed to foretell imminent death among the Romans. In ancient Egypt, it was seen as a conveyer of knowledge to help individuals "face their fears," and considered a provider of assistance and protection among Native Americans.

Its nocturnal foresight explains why the owl is associated with wisdom, reflection, intuition, knowledge, and philosophy in all these cultures.

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OPTIMISM

Native to central China, the **Panda** is a mammal belonging to the Ursidae family (carnivores), although its diet is 99% composed of plants.

Mainly bamboo. A lot of bamboo. Very slowly and all through the day!

To the extent that, as a direct outcome of a convergent evolution phenomenon, the bone in its paw has mutated to give it a sixth finger, a "pseudo thumb" opposable to the other five that allows it to grip bamboo stalks without having to stretch its neck!

A symbol of luck and peace in Chinese culture, this totem animal, which has won over the hearts of humanity, teaches us the importance of patience while maintaining a positive attitude.

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AWARENESS

Do animals experience emotions, do they think, do they have life stories? While their cognitive abilities are recognized, the nature of their consciousness is still a subject of debate.

Most species react to noxious stimuli, but vertebrates and certain invertebrates (especially cephalopods) meet the criteria for sentience, thus demonstrating their ability to feel emotions and perceive their life experiences subjectively.

Therefore, animal consciousness displays different degrees: from so-called access awareness (to act rationally towards their environment) to self-awareness (both bodily and moral), notably observed in **chimpanzees** who show a particular sensitivity to the concept of mortality.

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MEDIATION

Animal-assisted therapy promotes non-verbal communication in individuals experiencing psychological distress or those who have disabilities. According to Boris Cyrulnik, animal-mediated interventions provide a powerful factor of resilience that develops fundamental social skills such as attention, memory, identification, concentration and interaction, allowing each individual to engage in their own way.

While human-animal interaction has been formalized, especially since the 1980s with protocols involving domestic animals, the exceptional qualities of **dolphins** (emotional intelligence, multisensory communication) have recently favored dolphin therapy for children with autism.

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INTELLIGENCE

Without bones or shells, but with eight arms covered in suckers, cephalopods are over 500 million years old, yet they exhibit intriguing evolutionary convergences with human cognition.

Either in their natural habitat or in aquariums, **octopuses** pass several intelligence tests: they showcase great flexibility in obtaining information (using multiple senses, social learning), processing it (discriminative and conditional learning), retaining it (long-term memory), and ultimately reusing it to make decisions and take action (behavioral adaptation to various predators and prey).

It's no wonder that the ethological film "*My Octopus Teacher*" won the Oscar for Best Documentary in 2021.

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RESILIENCE

The antlers of male **deer** are temporary bony outgrowths. A resilient material they regenerate annually in synchrony with the animal's life.

Shedding comes at the end of winter: the stag loses its antlers, retaining only two bloody stubs that quickly heal.

From March to June, the antlers regrow, covered with "velvet," a vascularized skin that promotes the rapid growth of larger and more branched antlers.

In summer, the antlers become mature: the deer rubs them against trees to remove and consume the velvet, which is rich in vitamins.

In the fall, during the rutting season, the deer displays its antlers to attract does and confront rivals in combat.

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