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Creative differences

The cover image captures the creative journey that underpins the production of a scientific illustration. Brought to life by *Nature* Art Editor Richard Tibbitts, the cover reveals the key stages — from initial pencil sketch to intricate ink work to full-colour rendering — that went into this image of a rhinoceros beetle. It reflects the qualities that have made scientific illustration an essential tool for discovery and communication for centuries — close observation, expert knowledge and human judgement. In this week's issue, we celebrate the craft of scientific illustration and examine the potential effects of artificial intelligence on this crucial aid to understanding. In a —

show all

Cover image: Richard Tibbitts/Nature

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Celebrating *Nature*'s covers – past, present and future

Nature's iconic front page uses inspiration, creativity and ingenuity to unite science and technology with art and design.

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AI is set to completely transform cybersecurity – here's how researchers must prepare

As automated tools accelerate both the discovery and the exploitation of software vulnerabilities, organizations must redesign their defences and workflows to keep pace.

Thorsten Holz

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The '24-hour rule' and other tips from sport can improve lab life.

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Wearable sensors on the face are invisible to the eye

Electrodes that measure brain waves and more cannot be seen or felt.

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Party pooper: grandparents' COVID risk rose after grandchildren's birthdays

Records from Denmark suggest that small family gatherings can be an important transmission point.

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'Dark comet' unmasked by its mysterious motions

A celestial body thought to be an ordinary space rock turns out to have a comet-like tail.

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Lab-grown sperm: scientists inch closer to fertility breakthrough

Sci-fi procedure generates immature human sperm from stem cells, nurturing them on a mouse's kidney.

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Mathematics formula found on Maya wall rivals insights of ancient masters

Mathematical texts from a Maya site in Guatemala identify an astronomer called Sak Tahn Waax.

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Biologists pinpoint how common virus triggers multiple sclerosis

A connection with Epstein–Barr virus has long been suspected, but the underlying mechanism was unclear until now.

Rachel Fieldhouse

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How naked mole rat queens stop rivals reproducing

The scent of a single chemical, made only by the queen, alters hormone production in other females.

Jacob Smith

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First 'true sugar' molecule found in space – offering hints to life's origins

Erythrulose, which has four carbon atoms, is the most complex sugar spotted beyond our Solar System.

Jenna Ahart

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How to end poverty and protect Earth: inside the debate tearing up economics

The idea of prosperity without growth is gaining traction among researchers. So why are many economists sceptical?

Mariana Lenharo

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Which 'AI scientist' suits your lab? A guide for the perplexed

General-purpose AI tools for science, such as Claude Science, promise to accelerate research. But which is right for you?

Ewen Callaway

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New hope in the fight against cachexia – cancer's deadly co-conspirator

Scientists are getting closer to understanding the wasting and fatigue that often accompanies cancer. Treatments could be on the horizon.

Amber Dance

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Polio should have been eradicated by now. What's plan B?

Amid funding cuts and political barriers, researchers are asking whether the campaign can ever succeed, and what to do next.

Aisling Irwin

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Take continuous ECG measurements wherever you are
A wearable fabric enables continuous ECG measurements during daily life.

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'Good design takes mastery': scientific illustrators sketch out AI's future

Nature talks to five artists about their approaches to communicating science visually.

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The science of foresight: how to future-proof your research

Anticipating from the start the various ways a research programme can succeed or fail can avoid problems later. Here's how to do it.

Bertalan Meskó, Tamás Kristóf ... Tien Yin Wong

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Oil and gas drilling is shifting to the deep sea – here's what is at stake

Technologies are taking the search for fossil fuels to the deepest parts of the ocean. Engineers must keep ecological risks manageable.

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My job interviews for industry positions are going nowhere. How do I make myself stand out?

A postdoc researcher trying to move into an industry role wants help gaining traction and making it past the first interview stage.

Sarah Wild

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Don't let AI steal all the joy: what scientists won't give up to chatbots

Nature asked readers of the Nature Briefing what they like about their job and don't want to hand over.

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Three tips to avoid AI image mistakes in science

Artificial-intelligence tools can be useful for brainstorming and creating graphics, but they can introduce errors. If you're going to use them, here's how to avoid problems.

Sarah Wild

Collection: NatureTech

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Body-plan organizer in comb jellies hints at animal ancestry

Transplantation experiments in evolutionarily distinct animal groups reveal conserved mechanisms underlying tissue organization during development.

Ruth Styfhals & Pawel Burkhardt

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Optical filter sorts light by its 'quantum statistics'

A nanostructured gold surface can filter light depending on the tendency of its photons to arrive at a detector in pairs.

Sebastian Golat

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Detailed maps of European wetlands reveal overlooked patches of ecosystems

Satellite images have been analysed by a machine-learning algorithm to produce high-resolution maps of wetland environments — a boon for conservation efforts.

Andrew Mitchinson

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Plant membranes shuffle lipids around to stay firm under heat stress

High temperatures make cell membranes weak and leaky. Rice plants rapidly counteract this effect by adjusting membrane lipid content, enabling them to resist heatwaves.

Patricia Scholz & Yvon Jaillais

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Electric fields probe the symmetry of the 'heavy hydrogen' nucleus

The response of the nucleus of a deuterium atom to electric fields shows no evidence of asymmetry, which is consistent with conventional theories of particle physics.

Steven Hoekstra

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Are boldness and belligerence related?

Different types of aggression in stickleback fish, and a pillar of light seen at sunset, in this week's pick from the *Nature* archive.

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RNA molecules with different destinies are processed through overlapping pathways

The protein complex that helps messenger RNA to leave the nucleus is remarkably similar to the one that facilitates the destruction of short, unwanted transcripts.

Rosemary Kiernan

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Redesigning algorithms to intervene on social norm misperceptions during a national election

Engagement-based feeds amplify intergroup, moralized, emotional (IME) and toxic content relative to reverse-chronological feeds, and a diversified extremity algorithm reduces exposure to IME and toxic content while maintaining comparable platform enjoyment.

William J. Brady, Meriel Doyle ... Mark Torres

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Planetary-mass exosatellite detected around the substellar companion of a star

Radial velocity measurements provide evidence for a Jupiter-mass exosatellite orbiting the brown dwarf companion CD-35 2722 B, a promising detection of an exomoon-like object.

Kevin Hoy, Alice Zurlo ... Ilaria Giovannini

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Isotopic evidence for a cold and distant origin of 3I/ATLAS

Carbon isotopic measurements of the interstellar comet 3I/ATLAS reveal that it may have formed as long ago as 12 billion years and thus represents a preserved fragment of an ancient planetary system.

Martin Cordiner, Nathan X. Roth ... Cristina A. Thomas

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Magnetic character of the low-energy enhancement in ^{70}Zn

The low-energy enhancement in the γ-ray strength function of ^{70}Zn is due to magnetic dipole transitions between nuclear states.

E. K. Ronning, A. L. Richard ... M. Wiedeking

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Reinforcement learning control of quantum error correction

By integrating reinforcement learning with quantum error correction, a quantum computer continuously self-calibrates during computation, achieving record logical error rates and enhanced resilience to drift.

Volodymyr Sivak, Alexis Morvan ... Paul V. Klimov

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Quantum statistical plasmonic metacrystals

A new class of materials, quantum statistical plasmonic metacrystals, is described, which can selectively transmit different types of light based only on their quantum coherence, showing bands of allowed and forbidden photon statistics.

Chenglong You, Riley B. Dawkins ... Omar S. Magaña-Loaiza

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Fractional high-Chern insulator in twisted rhombohedral graphene

A rich variety of both integer and fractional high-Chern insulators are observed in a moiré system composed of Bernal bilayer graphene and rhombohedral tetralayer graphene.

Zexu Li, Wenxuan Wang ... Xiaobo Lu

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Reconfigurable mmWave microchips co-integrating hBN switches on GaN

Radio-frequency switches made from two-dimensional layered hexagonal boron nitride (hBN) were co-integrated on gallium nitride (GaN) microchips to build programmable millimetre-wave (mmWave) monolithic microwave integrated circuits suitable for 6G hardware.

Sebastian Pazos, Andrés Fontana ... Mario Lanza

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Nanocrystal-tailored recombination for all-perovskite tandem solar modules

A solution-processed indium oxide nanocrystal interconnection layer enables a 65-cm^2 all-perovskite tandem solar module to achieve a certified 26.2% efficiency, advancing scalable commercial photovoltaics.

Ke Xiao, Hongfei Sun ... Hairen Tan

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Catalyst-free, microdroplet-mediated waste plastic conversion to diacids

A catalyst-free upcycling strategy based on in situ generation of hydroxyl radicals at microdroplet interfaces is described for efficient and scalable processing of polymers with minimal infrastructure, using only water and oxygen under mild conditions.

Ruiliang Gao, Liwei Zhang ... Yong Wang

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Scalable quasi-pure MOF membranes for energy-efficient gas separations

Scalable quasi-pure metal-organic framework membranes achieve near-intrinsic separation performance, enabling energy-efficient industrial gas separations with major cost reductions compared with distillation.

Shizheng Song, Dong Fan ... Sheng Zhou

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Highly fragmented European wetlands with uneven restoration needs

Satellite imagery and machine learning used for the mapping of six seminatural open wetland types and land-use disturbance in European countries shows that wetlands are highly fragmented and have uneven restoration needs.

Gyula Mate Kovács, Xiaoye Tong ... Rasmus Fensholt

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Darkness and body size shaped end-Cretaceous marine extinction patterns

Trait-based ecosystem modelling shows that impact-driven darkness and body-size-dependent extinction thresholds, rather than carbon-dioxide increase or acidification, drove most of the observed end-Cretaceous marine extinction patterns.

Rui Ying, Fanny M. Monteiro ... Daniela N. Schmidt

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A blastoporal organizer in a ctenophore

Experiments using the comb jelly *Mnemiopsis leidyi* and the sea anemone *Nematostella vectensis* reveal that the emergence of a core signalling pathway may have been a key innovation enabling the transition to multicellularity in animals.

Stanislav Kremnyov, Tatiana Lebedeva ... Andreas Hejnol

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Genetic analysis of circulating metabolic traits in 619,372 individuals

A genome-wide association study combining data from the Estonian Biobank and the UK Biobank identifies many common and low-frequency locus-metabolic trait associations, enabling the identification of putative causal links with disease outcomes.

Ralf Tambets, Mihkel Jesse ... Priit Palta

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White matter micro- and macrostructure brain charts for the human lifespan

Integration of data representing 35,120 brain scans from diverse global studies enables construction of reference charts that define normative microstructural and macrostructural properties across the human lifespan for research and clinical diagnosis.

Michael E. Kim, Chenyu Gao ... Kurt G. Schilling

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A critical initialization for biological neural networks

Basic properties of symmetric random matrices can explain the emergence of macroscopic patterns in neural networks, suggesting that initialization conditions of connected neural populations may confer computational advantages across the mouse brain.

Marius Pachitariu, Lin Zhong ... Carsen Stringer

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A synaptic locus of song learning

Combining a computational framework and optogenetic and chemogenetic manipulations within and downstream of the cortico-basal ganglia circuit identifies the specific cortico-basal ganglia synapses that drive the acquisition and expression of rapid vocal changes during juvenile song learning.

Drew C. Schreiner, Samuel Brudner ... Richard Mooney

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Teosinte alleles enhance nitrogen assimilation and seed protein in maize

Teosinte alleles enhance nitrogen assimilation and seed protein without lowering crop yield when expressed in modern maize, providing a powerful strategy for crop improvement to meet future population demands.

Yongcai Huang, Yidong Zhu ... Yongrui Wu

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A deep-learning framework reveals whole-body perturbations at cell level

An analysis of diet-induced obesity using MouseMapper—a suite of foundation-model-based deep-learning algorithms—identifies structural alterations of the infraorbital branch of the trigeminal ganglia.

Doris Kaltenecker, Izabela Horvath ... Ali Ertürk

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Commensal-derived acetylcholine enhances mucosal immune education

A diet-microbiome-host axis strengthens mucosal immune defences and reinforces host–microbiota mutualism.

Deguang Song, Brianna Duncan-Lowey ... Noah W. Palm

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Mitochondrial L-2-hydroxyglutarate is a physiological signalling metabolite

L-2-Hydroxyglutarate is identified as a legitimate physiological signalling metabolite, and control of its levels is essential for postnatal growth and survival and correct renal development and function.

Ram P. Chakrabarty, Jonathan G. Van Vranken ... Navdeep S. Chandel

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Acquired genetic and cell-state changes in IDH-mutant glioma progression

Longitudinal transcriptomic, chromatin and genomic analyses of the two types of IDH-mutant glioma reveal in detail how disease progression is influenced by interdependent genetic, epigenetic and microenvironmental factors.

Kevin C. Johnson, Avishay Spitzer ... Roel G. W. Verhaak

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Heat-triggered phospholipid flipping stabilizes plasma membrane fluidity

In rice, the P4-ATPase complex OsALA5–OsALIS2 rapidly stabilizes membrane fluidity in response to high temperature by flipping saturated phosphatidylcholines to the cytosolic leaflet of the plasma membrane.

Shijun Fan, Peng Gao ... Peng Qin

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Molecular basis of polyadenylated RNA fate determination in the nucleus

Biochemical, structural and cell biological analyses reveal that UAP56 (DDX39B) assembles with a TREX-2-like module that redirects non-functional polyadenylated RNAs from export to degradation.

Andrii Bugai, Ulrich Hohmann ... Torben Heick Jensen

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SIRT7 regulates dosage compensation and safeguards the female X chromosome

SIRT7 safeguards X-chromosome integrity and dosage balance with autosomes.

Nicolas G. Simonet, Joshua K. Thackray ... Jeannie T. Lee

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02 Jul 2026

Author Correction: Synthesis of enantioenriched atropisomers by biocatalytic deracemization

Casey B. Roos, S. Luke Schubert ... Alison R. H. Narayan

Publisher Correction
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07 Jul 2026

Publisher Correction: A 98-qubit trapped-ion quantum computer with all-to-all connectivity

Anthony Ransford, M. S. Allman ... Justin G. Bohnet

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