Australia's National
Science Agency

Writing for Double Helix Magazine

Double Helix shares science, technology, engineering and maths (STEM) stories in the form of news, feature length articles, competitions and activities. Every article and activity is written so that it's easy to understand and appeals to young readers. Our core age target is 8–14. Issues are released 8 times a year (every 1.5 months) on 15 January, 1 March, 15 April, 1 June, 15 July, 1 September, 15 October and 1 December.

Contact us at Helix.Editor@csiro.au to pitch your story idea before writing it up, so you know we'll accept the article before investing your time. This can be a short paragraph including links to the research you'll cover, explaining why it's appealing to our target audience. We typically get back to writers within 4 weeks to accept pitches.

Writing a good article

Cover image of Issue 35 of Double Helix magazine

Our news section contains 150 word stories about topical, unusual and entertaining STEM and is located at the front of the magazine. Features vary from 500 to 1,000 words.

Popular topics are:

- new science
- weird science
- strange animal stories
- biggest, oldest, or most dangerous things
- shiny technology
- disasters, mistakes, triumphs and mysteries.

Tips

- Stories should be easy to read in a conversational style. Remember, the audience is 8 to 14 year olds.
- Use little jargon, and don't talk down to them. Where forced to use jargon, use it in context or provide a clear explanation.
- Write stories conveying your own excitement about the topic.
- Treat STEM professionals as people. When introducing them, include their title (e.g. Dr Zachary Smith) and thereafter, refer to them by their common name (i.e. Zach). If you can, add their human dimension to the story, such as a sentence on how their interested developed or their passion about their discovery.
- Children like to see subheadings, as well as short pull-out sections in long features. These could be key points summarised, captions for images, or fun facts.

Who are you writing for?

When considering a story, always keep in mind who you're writing for. In our case, that's kids aged 8 and up from across Australia and New Zealand, and some from overseas. The magazine has a national focus, so readers don't necessarily know about local or even state venues and events.

Our readers generally have short attention spans, and a lot competes for their attention. Make sure there's a hook in the first couple of sentences to get them in, and make explanations concise.

Give us a great pic

A scanning electron microscope (SEM) image of the marine wood-boring isopod *Limnoria tripunctata* (Science Image)

- Give us a good photo, one that will make a reader want to find out more. We'll bend over backwards to make good use of great pictures.
- Good pictures are quality photos (in focus, correct exposure) of research or somebody practising interesting STEM.
- Good pics can also be standard set ups (such as student looking through telescope or microscope) taken from a bizarre angle or with a weird lens.
- Faces work well, particularly if they are looking towards the camera.
- We prefer high-resolution electronic images (larger than 300 DPI at about $^{1}/_{4}$ A4 size, or at least 1,000 x 1,000 pixels square).

Include interviews

Each article should include an interview from a STEM professional. You may want to include more than one interview in a longer feature article to provide different perspectives on the topic. It could be someone involved in the project, or someone working in a related field that can comment on it.

Tell interviewees that our audience is children aged 8+ and to avoid jargon. Most are very good at clearly explaining complex ideas if you brief them on the audience. Once the article is edited, we will ask you to send the edited version to the interviewee for fact-checking.

Sourcing material

Ensure that you cross-check your references. You should use at least 3 reputable sources, where possible – for example, scholarly papers and interviews. These should be included with your final story submission.

Contact relevant STEM professionals or communicators if you need more information. You can ring the person, introduce yourself, and explain that you are interested in doing a short story on their work for *Double Helix*, a children's magazine produced by CSIRO. Or you can make similar contact via email. If you are sending an email, we recommend including a link to our website www.doublehelix.csiro.au.

Please request interesting photos. Make sure that you obtain permission for us to use the photo from the copyright owner, and ask them to note the permission in an email to you, along with credit and caption information. Then forward that email to us so we can save a copy in our records.

Copyright

All stories submitted to CSIRO *Double Helix* must be accompanied by a signed contract form that we will send to you. This assigns copyright to CSIRO and text may be re-used on our website or in other publications. Whenever your work is used in this manner we will ensure your byline is attached to the story. We give you a licence to publish the story (text only) on your personal website, but if you wish to publish it in other publications you need to ask for permission first.

Style notes

- We prefer articles submitted as a Word file in 11 point Calibri font with 1.5 line spacing and 1 line spacing after paragraphs. Include the title and your byline at the top (in bold). Paragraphs are separated by pressing the enter key once at the end of the paragraph, with the gap being automatically added by Word's page layout spacing (i.e. no double-carriage returns).
- We use the Macquarie or Australian Oxford Dictionary and the Australian Government Style Manual (www.stylemanual.gov.au).
- Use comma separators for large numbers (e.g. 1,234,567).
- Double quote marks are used for quotes from interviewees.
- Acronyms may be used in an article, only after they have been introduced – for example, the Australian Centre for Disease Preparedness (ACDP).
- Before you send off your story, run it through the spell checker with the 'readability stats' option checked. Your story should be at a reading level of 9 or less.
- We capitalise Sun and Moon if talking about those in relation to Earth, and non-capitals for all else (e.g., our lunar satellite is the Moon, Titan is a moon).

SEE OVER FOR ARTICLE EXAMPLES

Double Helix
1300 719 623
Helix.Editor@csiro.au
www.doublehelix.csiro.au

This anole is carrying its own underwater air supply

SCUBA-DIVING LIZARDS

Aquatic bugs use bubbles to breathe underwater. But this natural mechanism for underwater breathing has never been thought possible in vertebrates (animals with a backbone). In a first-of-its kind discovery, scientists have found that anoles – a type of semi-aquatic lizard – share this trick.

Anoles are found throughout the tropical Americas. Being slow-moving creatures, they frequently escape danger by diving into water.

According to a new study, these lizards evolved to exhale air into a giant bubble that clings to their snouts, which they then re-inhale. The researchers believe that the reptile's hydrophobic (water-hating) skin plays a key role in being able to form such bubbles.

Six species of anoles are now known to blow these bubbles. The technique, which resembles an oxygen tank used by a scuba diver, allows the lizards to stay underwater for up to 18 minutes!

– By Cordelia Jerjen

NO DIG MINING

Mining metals is a messy business. First, you have to dig up ore – a small amount of metal tightly combined with rock. Then, once the ore is out of the ground, you need to extract the metal and throw the rest of the ore away. This process makes mining metals wasteful, and damages the environment.

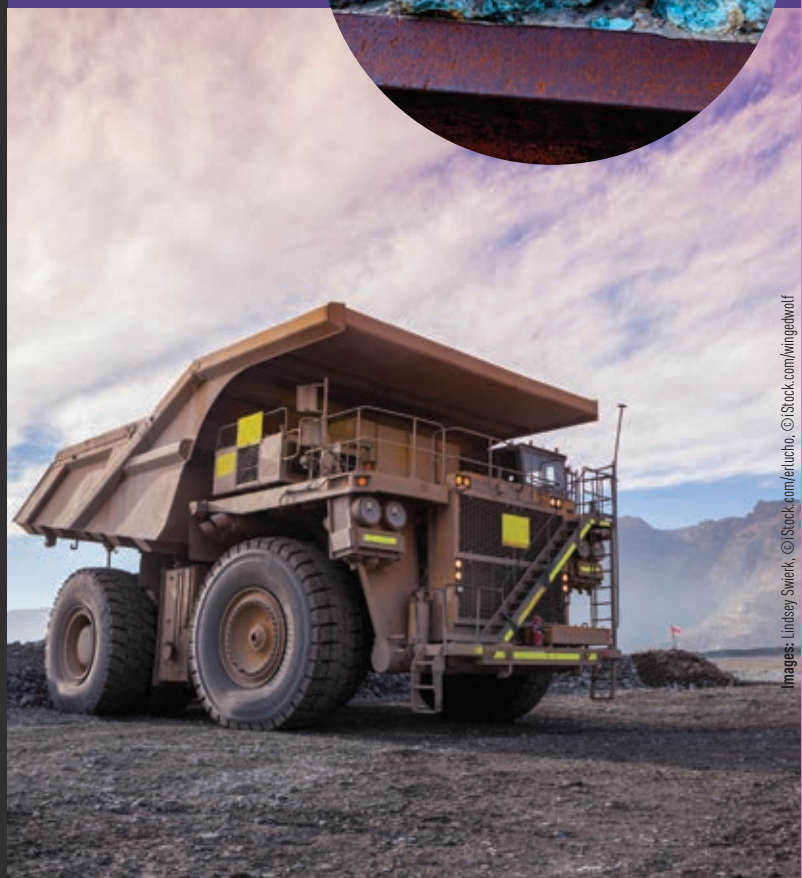
An international team of researchers have created a new technique that extracts copper (and hopefully other metals) without digging.

"This will not only improve mining outcomes; it will also help us shift towards a more sustainable way of mining," says University of Western Australia Professor Andy Fourie. Andy is part of the team that also includes researchers from CSIRO, the Technical University of Denmark and the University of Exeter.

The new technique starts by using a chemical to dissolve the metals from the ore. Then, using an electric field, the metals and chemicals are pulled towards a pole of the opposite charge. The mixture can then be slurped up to the surface!

– By Jacinta Bowler

Mining copper involves digging up a lot of rock, but new methods promise less waste



Images: Lindsey Swierk, ©iStock.com/erlucho, ©iStock.com/wingedwolf

AUSTRALIA'S NEW SUPERCOMPUTER NAMED 'GADI'

Australia's National Computational Infrastructure (NCI) has a new supercomputer, built on Ngunnawal country.

In consultation with the United Ngunnawal Elders Council, the new machine was named 'Gadi' [Gar-dee], a word of the Ngunnawal people meaning 'to search for'. Gadi will also be adorned with its own artwork, hand-painted by renowned Ngunnawal artist Lynnice Church.

Gadi's artwork shows western and Indigenous knowledge systems coming together, guided by the Ngunnawal Elders over many generations. "The art symbolises the gathering of knowledge from different places and sources," says Lynnice. "And the bringing together of an even greater collective knowledge system."

"We are proud to be able to make this connection between the Traditional Owners of the Canberra region and its newest tool of scientific discovery," says NCI Director Professor Sean Smith.

Organisations that work with the NCI include The Australian National University, CSIRO, The Bureau of Meteorology and Geoscience Australia.

– By Adam Huttner-Koros

Gadi is the most powerful supercomputer in the Southern Hemisphere

Images: NCI, Public Domain

MARY ANNING'S FOSSIL FINDS

Mary Anning was an English paleontologist, who lived from 1799 to 1847

"She sells sea shells
by the sea shore"
is a tongue-twisting saying
we've all heard before
about Mary Anning,
a girl, very poor,
who found many
fossilised ichthyosaurs.

She dug out some fossils
of plesiosaurs
and even a fine
flying pterosaur.
She found lots of
dinosaur coprolites too
and started the science
of fossilised poo!

– By Celia Berrell

Back flippers or front flippers? It's different strokes for different folks

SUPER SWIMMERS

No wonder seals and sea lions are fantastic swimmers. They've had 30 million years to perfect their skills.

Some seals, such as fur seals, swim using their wing-like front flippers. Others, such as northern grey seals, with their bear-like clawed front flippers, use their back flippers instead.

Why the different swimming styles? It's a mystery that's bugged biologists for a long time. At first, scientists thought the different seals had evolved from different ancestors.

"But the genetics clearly shows that all living seals come from the same group of animals," says Dr David Hocking, a biologist at Monash University.

David led an international team of biologists and engineers that looked at this mystery from a different angle. Their research used video footage of seals swimming, and then computer simulations to understand how the different shapes of seal flippers worked in water.

It seems the swimming styles evolved because of the different environments the seals lived and hunted in. Now we need more seal fossils to help fill in their evolutionary story.

– By Louise Molloy

THREE THUMBS UP!

Have you ever thought to yourself, "I just don't have enough thumbs for this"? Well, a new robotic thumb has got you covered.

The Third Thumb was designed by artist Dani Clode, and tested by scientists at University College London.

While wearing the thumb, the possibilities are endless! You can hold a hot chocolate while stirring it, shuffle cards one handed, or do anything else your three thumbs could imagine – all while controlling the movements by pressing on a pressure sensor in your shoe.

What's really exciting researchers is that volunteers who used the Third Thumb for a while started to think of it as a part of their body. This was demonstrated using brain scans.

"Evolution hasn't prepared us to use an extra body part," says Professor Tamar Makin. "We have found that to extend our abilities in new and unexpected ways, the brain will need to adapt the representation of the biological body."

– By Jacinta Bowler

Dani Clode, designer of The Third Thumb