frontiers

FOR YOUNG MINDS

kids.frontiersin.org

## Frontiers for Young Minds is a web-based scientific journal with an editorial board of young people

**NUMBERS** *(June 2015)*

**12**
Classrooms

**45**
Articles

**50**
Scientific Editors

**200**
Young Minds

**1.6K**
Twitter followers

**15K**
Facebook likes

**150K**
Article views

**IN THE PRESS**

FAST COMPANY · CBC news · Smithsonian · THE DAILY CALIFORNIAN

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SCIENTIFIC AMERICAN™

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frontiers · JACOBS FOUNDATION Our Promise to Youth

*Named a* **GREAT WEBSITE FOR KIDS** *by the American Library Association*

# Our Mission

We are on a mission to bring cutting-edge research to our youth and to foster scientific understanding in the world.

*Science and research are the fabric of modern society and we should all understand what these discoveries mean and do for us. Translating cutting-edge research to the public has always been part of our mission. Connecting kids in a hands-on experience with researchers in the publishing process of these discoveries is not only an important step towards scientific understanding in young people, but also a very fun way to fulfill our mission.*

**Kamila Markram**
Co-founder and CEO, Frontiers

# About Frontiers for Young Minds

Frontiers for Young Minds is an open access scientific journal written for – and reviewed by – young people. We connect 8-15 year olds directly with scientists to provide critical feedback on articles about cutting-edge research. The end result is a journal of freely available scientific articles that are not only rigorous, but also shaped for younger audiences by the input of their own peers.

## WHY CREATE A SCIENTIFIC JOURNAL FOR A YOUNGER AUDIENCE ?

Since its inception, **Frontiers has been committed to building bridges to better connect research communities**: between disciplines, across continents, and with the general public.

Frontiers for Young Minds extends these bridges to younger audiences, not only **providing them with access to cutting-edge research** in a form they can understand, but also **involving them in a critical step of the scientific process** itself.

**Dr. Robert Knight** of the University of California Berkeley had a vision for a peer reviewed journal with an editorial board made up of 8-15 year olds. Working with Frontiers, this has since grown into a journal where **young reviewers work with science mentors to publish articles that are not only scientifically accurate, but vetted for young people by their own peers.**

## THE BENEFITS

### Empowering young minds to think like scientists

Frontiers for Young Minds enables young audiences to actively engage with the

> "It's about analytical thinking and understanding the scientific method, which will help in their daily lives, not just in science"
>
> Robert Knight, University of California, Berkeley

scientific process, connecting them with leaders of the scientific community and **challenging them to ask questions** about ideas still at the cutting edge of science. By involving Young Minds in the process of scientific review, we help them **develop their ability to think critically about science** and communicate the latest research to their peers.

### Fostering collaboration and creating connections in science

Few 8-15 year olds have the opportunity to interact with scientists, and even fewer are ever asked to provide feedback on the work of a recognized expert. The Frontiers for Young Minds platform **enables students to find out first hand what it is to be a scientist, and how to work as part of a collaborative process towards a common goal.**

### Creating reliable resources for the public

Frontiers for Young Minds builds a bridge to more directly connect scientists with the public. All articles are written by the researchers themselves and are written in a form that can be understood and used by the broadest of audiences. **This provides young minds, educators, and the general public with a reliable go-to source on the latest advances in science.**

# The people involved

## YOUNG MINDS

Our primary focus is **a new and younger audience between 8-15 years of age.** These "Young Minds" can be individuals or classrooms with an interest in playing a critical role in the scientific process.

## SCIENCE MENTORS

Science Mentors include both early career and senior **scientists who guide our Young Minds through the review process**, serving as a direct connection to the scientific community.

They provide unique perspectives on what it means to be a scientist, how to interact with new information with a critical eye, and how to provide constructive feedback.

## SPECIALTY CHIEF EDITORS

The Specialty Chief Editors are renowned researchers in their disciplines who **believe in the importance of engaging young people in the scientific process.**

We have appointed one Specialty Chief Editor for each of the focus areas in which we publish. They provide guidance and recruit a board of passionate volunteers.

## ASSOCIATE EDITORS

Our **Associate Editors are highly qualified researchers who serve as vital expert contacts and ensure quality control.** They highlight new and interesting research and help us connect with authors. During the review process, they ensure that the work done

> “Absolutely brilliant new forum for public communication”
>
> The People’s Science

by the author reflects the feedback and comments made by the Science Mentors and Young Minds.

## EDUCATORS

Science Educators play a vital role in fostering a passion for the sciences. Educators provide a framework to help our **Science Mentors align their message within the context of the curriculum.**

## SCHOLARLY JOURNALS AND PUBLISHERS

Frontiers for Young Mind features articles published in any journal. Currently a link already exists with the Frontiers Journal Series. Other publishers have expressed an interest in participating and we are in the process of setting this up.

## SUBJECT AREAS COVERED

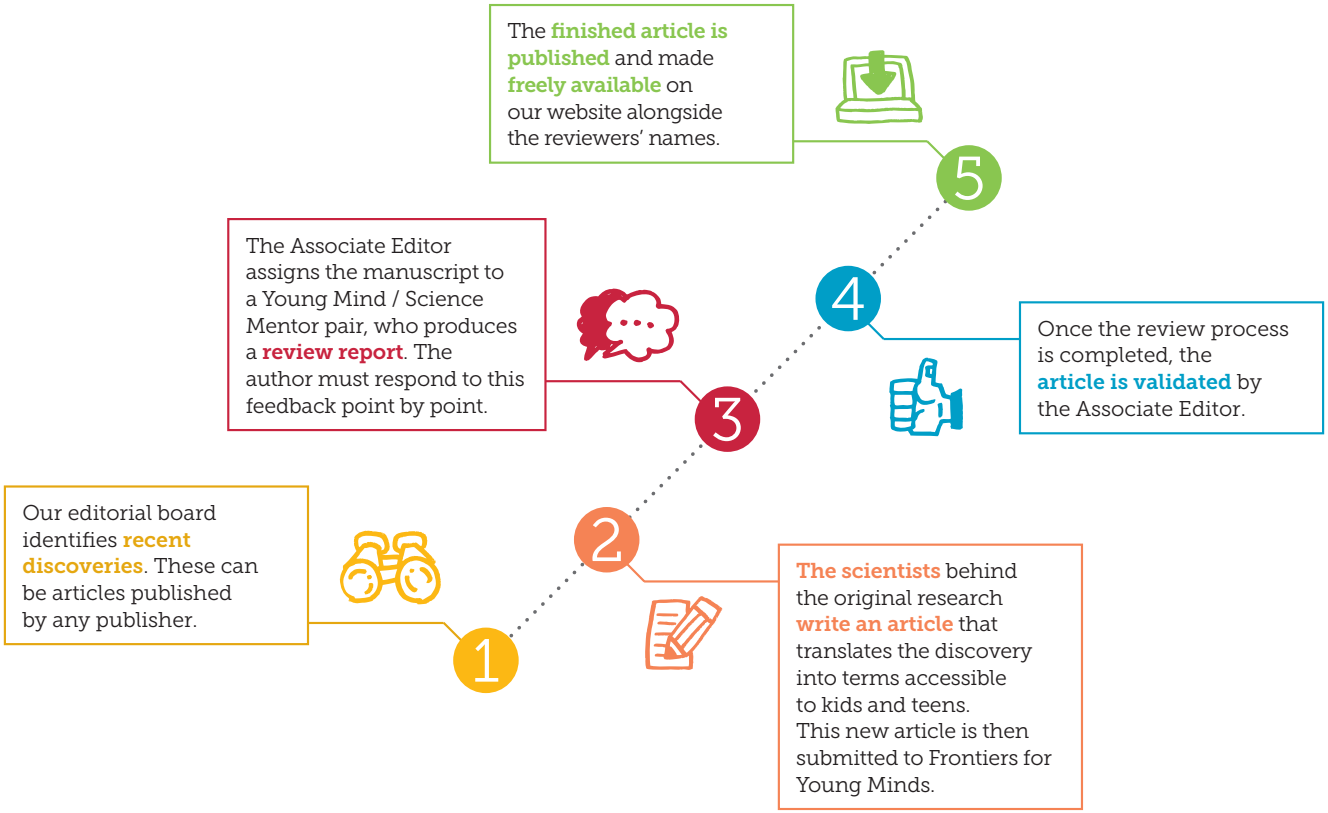
**We cover a wide range of scientific fields**

Working with enthusiastic researchers we publish articles in the following areas:

- Understanding **Neuroscience**
- Understanding **the Earth and its Resources**
- Understanding **Astronomy and Space Science**
- Understanding **Health**

We will continue to include more fields, and are open to working with funders and sponsors on new and exciting areas.

# How it works




*We guarantee the protection of the younger reviewers' identity and only publish their first names.*

## Twenty Tips for High-School Students Engaging in Research with Scientists

Ten high-school students from Catalunya and two neuroscientists from the Netherlands started a research collaboration in 2012 investigating how colors may influence learning abilities. This research question was defined and developed solely by the students, with researchers joining the project later through the guidance of a facilitator and a teacher. This rather radical approach to "citizen-science" involved research collaborations on citizen-generated questions and was extremely rewarding for both parties involved.

Authors

The Rainbow Investigators · Guillaume Sescousse · Livio Riboli-Sasco · Timothée Flutre · Mathilde Bonnefond

Reviewed by

Abby
15 years old

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## Music is Good for Your Brain, but Don't Blast it

Many of us enjoy listening to and even making music. Music moves us, inspires us, and just makes us happy. It can become an important part of who we are. Making music is also good training for the brain, especially if you start young and stick with it. Musical training can improve the way the brain processes all sounds, including speech, which can help with hearing and communication, especially in noisy places. It can also improve how other senses, such as touch and vision, work together with hearing to paint a complete picture of the world. It is important, however, to avoid listening to music so loud that it damages your ears.

Authors

Martin Pienkowski

Reviewed by

Bhargavi
14 years old

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## Name that tune: What parts of our brains do we use for naming songs?

Proper nouns refer to unique people, places, and things. One of those "things" can be songs, and famous songs have specific names like "Take Me Out to the Ballgame" and "Jingle Bells." We conducted a scientific study to determine which parts of the brain are important for the process of naming famous songs. We already had some clues—we knew from previous research that people with damage to the left temporal pole (LTP) lost their ability to name famous people and places (landmarks). These people had strokes or surgery that damaged the LTP, and were unable to come up with names such as "Barack Obama" or "the Grand Canyon."

Authors

Amy M. Belfi · Daniel Tranel

Reviewed by

Krishna
8 years old

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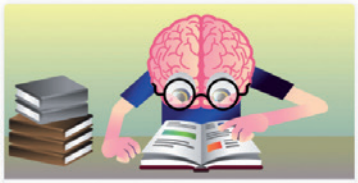

## The Reading Brain

Do you enjoy reading books? Reading is one of the unique activities that only humans do, and we haven't been doing it for that long! Humans have talked to each other using a language system with grammatical rules for at least 100,000 years, but we have been reading and writing only for a few thousand years! What happens in our brain when we read? Our brain has developed a region that is specialized in knowing what written words look like. It closely works together with other parts of the brain that help us understand words and speak. Importantly, as we learn to read, this region will become trained in recognizing word shapes used in whatever language we train it with.

Authors

Tanja Kassuba · Sabine Kastner

Reviewed by

Riverside Elementary School

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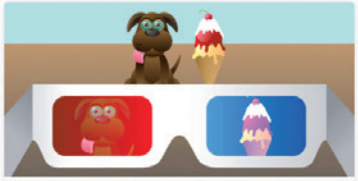
## Are Adolescents Really Risk-Takers? Most Adults Say Yes, but the Science is Starting to Say No

Most adults firmly believe that as kids reach their teens, they start to take crazy risks that get them in



## Now You See it, Now You Don't: Interacting with Invisible Objects

What do you do when you are playing in the park on a hot day and your parents offer you an ice cream? Most probably, you go running to them, keep your eyes on the delicious ice cream cone, and reach out to take it from them. Although this feels like a very easy

## So You Think You Can't Dance? (The Mysterious Case of the Guy with Two Left Feet)

Got rhythm? Most of us do – at least a little bit. Believe it or not, even babies can feel the beat of a rhythm. However, science has documented the first case of a person who could not dance to the beat. His name is Mathieu, and he is an intelligent, talented – even musical – guy with no other known brain problems, except, he cannot find the beat in music.

Authors

Jessica Phillips-Silver

Reviewed by

Leo
8 years old

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## Meg for Kids: Listening to Your Brain with Super-Cool SQUIDs

Inside your brain, you have over 80 billion neurons – tiny brain cells, all working together to make you the person you are.

Authors

Jon Brock · Paul Sowman

Reviewed by

Essie
9 years old

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## Hitting a Baseball Needs the Brain

We tend to think about sports and games as if they were physical activities that depend on strength and speed, and reading and math problems as if they were mental activities that depend on being brainy and smart.

Authors

Dan Brooks

Reviewed by

Krishna
8 years old

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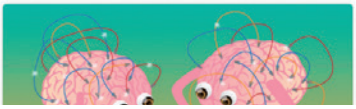

while talking?

Authors

Carrie Niziolek

Reviewed by

Helena
7 years old

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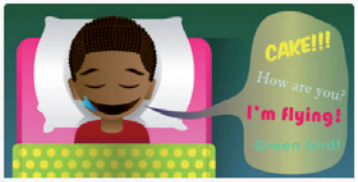


## Scientific Significance of Sleep Talking

Did one of your parents, siblings, or friends ever tell you that you were talking in your sleep? Nothing to be ashamed of! A recent study found that more than half of all people have had the experience of speaking out loud while being asleep. This might even be underestimated, because often people do not notice that they are sleep talking, unless somebody wakes them up or tells them the next day. Most neuroscientists, linguists, and psychologists studying language are interested in our language production and language comprehension skills during the day. In this study, we will explore what is known about the production of overt speech during the night. We suggest that the study of sleep talking may be just as interesting and informative as the study of wakeful speech.

Authors

David Peeters · Martin Dresler

Reviewed by

Mika
12 years old

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## White Matter Counts: Brain Connections Help Us Do 2 + 2

The brain is made of many millions of cells, and different kinds of cells have different functions. The part of the brain that looks darker in pictures is called gray matter (Figure 1). The cells in this part of the brain help us do things like think and process information. White matter looks lighter and has different kinds of cells that have a fatty layer of insulation around them called myelin. This layer helps

Authors

Anna Matejko

Reviewed by

Nikola
15 years old

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"The best sci-publishing launch in decades"

Noah Gray
Senior Editor, *Nature*

# Get involved

Participating in Frontiers for Young Minds is a great way to build a bridge between young people and science at the cutting-edge. Our success depends on partnerships and collaborations from every side of the scientific world. We need:

- Young people (ages 8-15) to serve as reviewers
- Schools and teachers to host Young Minds reviews in their classrooms
- Expert researchers to serve on our board and help Young Minds reach into new disciplines
- Young researchers committed to public outreach to serve as Science Mentors for our young reviewers

If you would like to join our international team, please contact us and let us know.

There is much left to be done, including opening new subject areas of science to Frontiers for Young Minds and bringing the program to kids who speak other languages.

Frontiers for Young Minds is committed to remain a fully not-for-profit program, free for both authors and readers.

Read more at our website, or send your question to

kids@frontiersin.org