Educational Conference: The IBO Way to Excellence

"Open Biology Towards Sustainable Thinking"

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OUTLINE

☐ **Introduction**

    ☐ What is open Biology?

    ☐ Is open biology really needed for young biologists?

☐ **Academic publishers of Open Biology:**

    ☐ Where and how students can find scientific publications in open biology

☐ **Structure of a typical scientific paper in biological sciences**

☐ **Guidelines for an effective and critical reading of a scientific paper**

☐ **A brief highlight on the writing of a scientific paper: order of process**

Introduction: What is Open Biology?

Google says Open Biology is an online journal that welcomes original, high impact research in cell and developmental biology, molecular and structural biology, ...

This is good, however, this is not exactly what we are looking for!

Open access is a broad international movement that seeks to grant free and open online access to academic information, such as books, publications and data.

Making biological knowledge freely accessible for everyone

Introduction: What is Open Biology?

Making biological knowledge freely accessible for every surfer

Is this mission is achieved?

**We can say YES, but not completely
Over 30% of all scholarly articles are actually published as paid-for open access**

82% of the peer-reviewed articles from 2021 of the 14 Dutch universities are Open Accessed available with a strong increase of 9% compared to 2020.

This is good, however, is open biology accessible for students?

❑ **Introduction:** **What is Open Biology?**

Is open biology accessible for IBOs students?

Under-graduated students, our future IBOs, have not

- Scholar platform to access to open biology

- Enough information on how and where find open biology

- Very limited sources in the less developing countries

☐ **Introduction:** Is open biology really needed for young biologists?

Yes, definitely

Because open biology offers:

- A large and varied collection of academic sources in biology: books, scientific publications, protocols and even more experimental videos,..

- New trends in biology: emergent pollutants, global warming, new tolls in bioinformatics,..

- New techniques in biology: analytical and imaging

Academic publishers of Open Biology

- Where and how students can find scientific publications in biology?

This is the first question we try to answer and discus in the welcome lecture with our news National Biology Olympians

Academic publishers of Open Biology

□ Where and how students can find scientific publications in biology?

There are lots of scientific publications in different branches of biology

Where we find open-accessed scientific publications?

Academic publishers of Open Biology

□ Where and how students can find scientific publications in biology?

Top 10 academic publishers 2023:

**Science group,
Springer Nature group,
Elsevier,
Cell Press,
Oxford Academic,
Wiley-Blackwell,
Taylor & Francis
BMC group
Frontiers group
PLOS group**

Published more than a half of peer-reviewed academic papers

Academic publishers of Open Biology

☐ Where and how students can find scientific publications in biology?

www.elsevier.com

Life Sciences > Biological Sciences journals
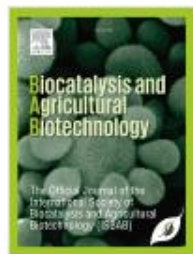
Biocatalysis and Agricultural Biotechnology

Microbiological Research
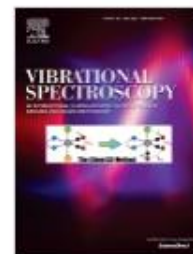
Vibrational Spectroscopy

Journal of Human Evolution

Comparative Biochemistry and Physiology - Part A: Molecular & Integrative Physiology

Current Opinion in Environmental Sustainability

Journal of Nutrition Education and Behavior

Journal of Food Engineering

Morphologie
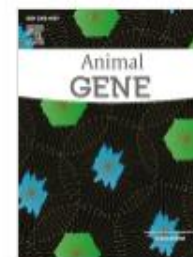
Animal Gene

Resources Policy

International Journal for Parasitology

In the most journals, there is no free access to full paper: We should pay to have PDF!

Fortunately the Open Access Journals are present

Academic publishers of Open Biology

Where and how students can find scientific publications in biology?

Top academic publishers with Open Access policy:

Nature, few journals
BMC group
Frontiers group
PLOS group

Academic publishers
+ subscription

Open access journals

Free full papers

Academic publishers of Open Biology

□ Where and how students can find scientific publications in biology?

Life Sciences > Biological Sciences journals > Open Access Journals

Academic publishers of Open Biology

□ Where and how students can find scientific publications in biology?

Life Sciences > Biological Sciences journals > Open Access Journals

❑ **Structure of a typical scientific paper in biological sciences**

Guidelines on how students can be familiar with scientific paper

A scientific paper provides information on:

- ✔ **Scientific knowledge**
- ✔ **Paper design**
- ✔ **Scientific language**

☐ Structure of a typical scientific paper in biological sciences

In biological sciences, a scientific paper is typically composed of:

- ☐ Title
- ☐ Abstract
- ☐ Introduction
- ☐ Materials & methods
- ☐ Results
- ☐ Discussion
- ☐ Conclusions
- ☐ Acknowledgment
- ☐ References

❑ **Guidelines for reading of a scientific paper**

A scientific paper is typically composed of:

- ❑ Title
- ❑ Abstract

- ❑ **Introduction:** Deep scientific background in a specific topic
- ❑ **Materials & methods:** Old & new technics
- ❑ **Results:** Figures > statements
- ❑ **Discussion:** Critical opinion
- ❑ Conclusions

- ❑ **Acknowledgment:** Say thank you
- ❑ References

☐ **Guidelines for reading of a scientific paper**

From each result segment
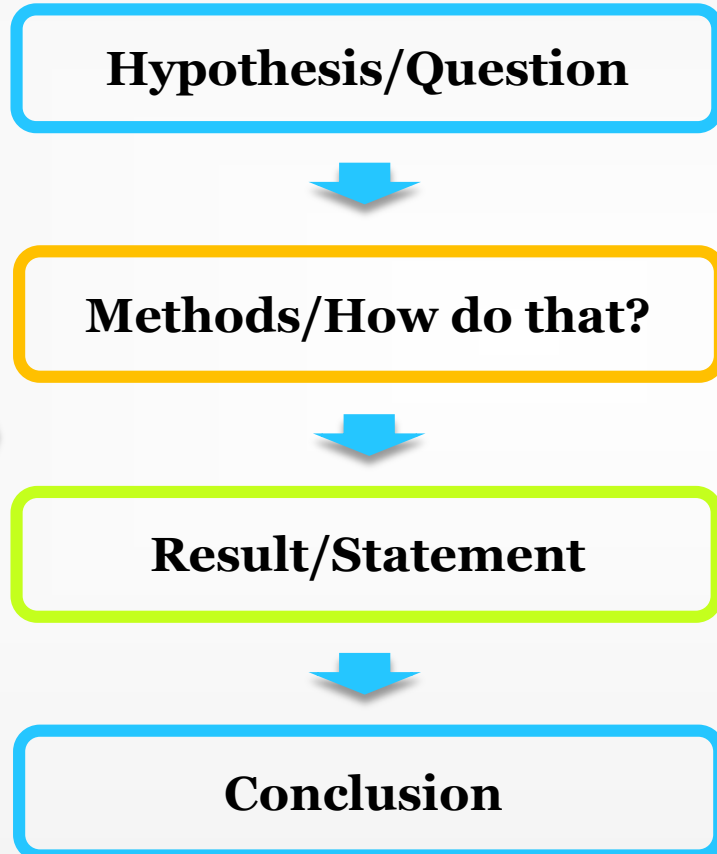
Hypothesis/Question

Methods/How do that?

Result/Statement

Conclusion

Make a presentation!

❑ **Guidelines for reading of a scientific paper**
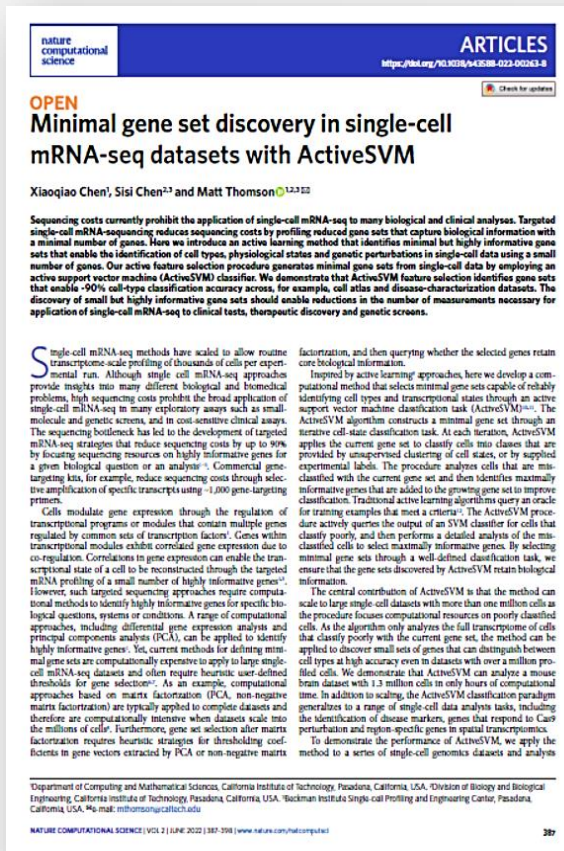
Skills acquired:

- ❑ To gain information on the construct of a scientific paper
- ❑ To be familiar with an advanced scientific language
- ❑ To gain more an elaborated scientific background
- ❑ To be familiar with different forms of illustrations
- ❑ To prepare a presentation
- ❑ And more importantly, to talk and discuss with others

❑ A brief highlight on the writing of a scientific paper: order of process

❑ How a scientific paper is written?

Parts of a paper are usually ordered by:

- ❑ Title
- ❑ Abstract
- ❑ Introduction
- ❑ Materials & methods
- ❑ Results
- ❑ Discussion
- ❑ Conclusions
- ❑ Acknowledgment
- ❑ References

Which part is written first?

☐ A brief highlight on the writing of a scientific paper: order of process

How a scientific paper is written?

Writing a paper is usually proceeded in the following order:

1. **Materials & methods:** accurate, reproducible
2. **Illustrations & tables:** clear and understandable without text
3. **Results:** direct, concise and comparative
4. **Introduction:** well constructed, concise, elusive
5. **Discussion:** comparison, interpretation and explication
6. **Conclusions:** significance and applications
7. **Abstract:** a very compact version of the paper
8. **Title:** one statement covering the most important result
9. **Acknowledgment**
10. **References:** RF management software: EndNote

☐ A brief highlight on the writing of a scientific paper: order of process

☐ How a scientific paper is written?

Skills acquired:

☐ To gain information on the writing process of scientific paper

☐ To write a brief report

☐ To write and design an IBO international project

☐ A brief highlight on the writing of a scientific paper: order of process

☐ Critical reading and reviewing process

An usual direction

| Young minds write | → | Old minds review |

Amazingly, an unusual direction

| Old minds write | → | Young minds review |
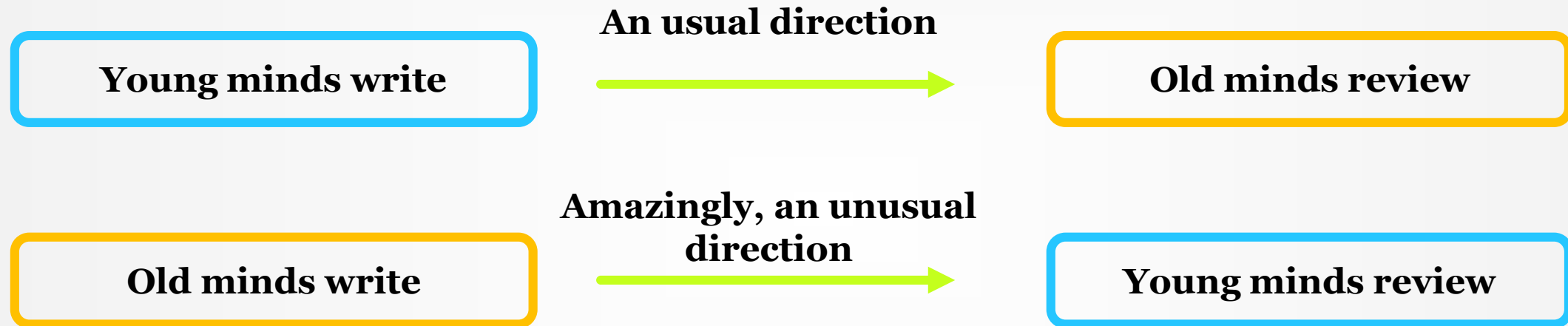
Frontiers for Young Minds believes that the best way to make cutting-edge science discoveries available to younger audiences is to enable young people and scientists to work together to create articles that are both accurate and exciting

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Articles   Collections   Participate   Sections   About   ⊕EN

Core Concept   Biodiversity   Published: April 15, 2022

Plants Can "Speak" to Each Other

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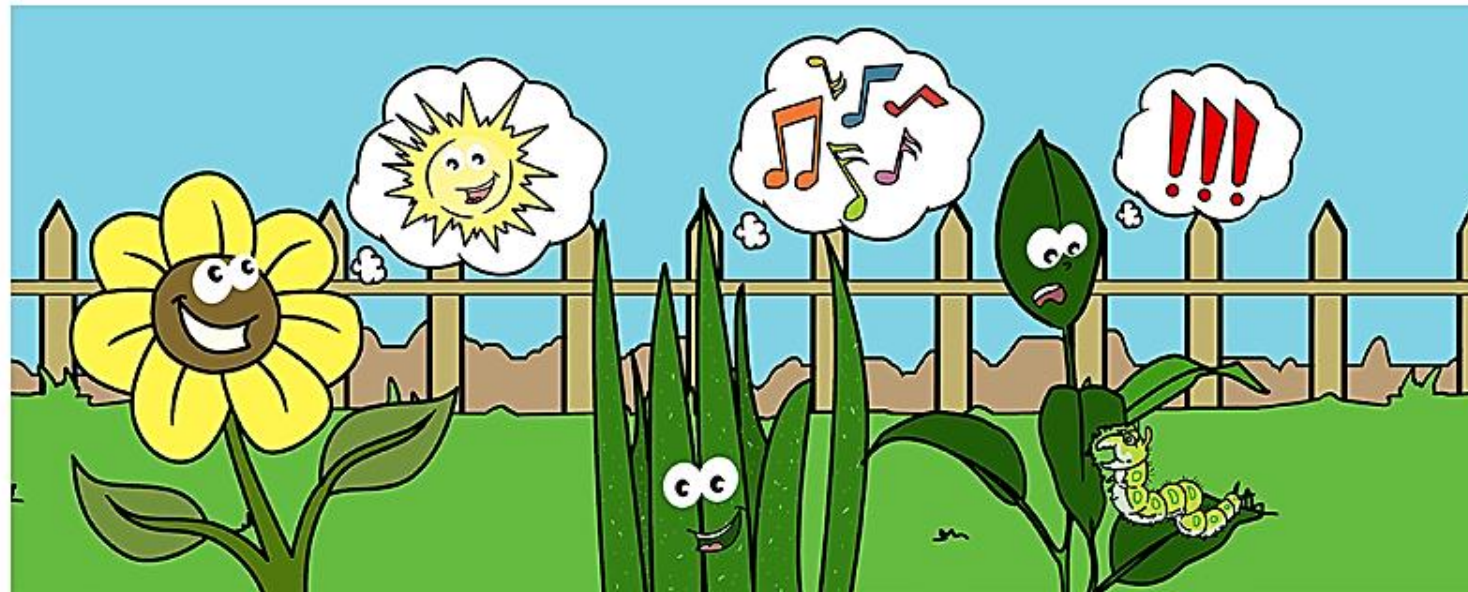
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Thank you..