



Ciências
ULisboa

Give your science a voice: good practices for communicating effectively

September 8, 2023

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Ciências ULisboa*



Who am I?

PhD in Physics (2012, ULisbon)

Master in Science Communication
(2015, New Univ Lisbon)

2016-2021:

Responsible for Communication
Office of cE3c

August 2021 - present:

Communication and Image Unit of
Ciências ULisboa

Until recently (2020 – 2023):

Vice-President SciComPt Network



Why communicate science?

Why communicate science?



Engaging with non-specialist audiences makes you look at your work from a different perspective



Scientists who engage with society perform better academically

(Jensen et al., Science and Public Policy, 2008)



Potentially increase attention towards your research – *Altmetrics*



Social responsibility? 😊

9 out of 10 european citizens (**86%**)
think that the overall influence of science
& technology on society is positive [1]

 : **99%**

33% of european citizens affirm being
interested in new scientific discoveries and
technological developments [1]

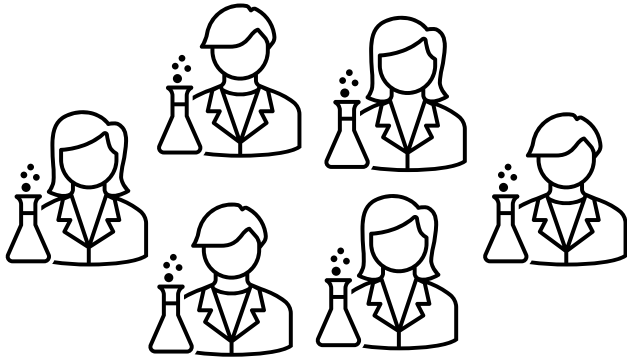
 : **62%**

43% of the worldwide population states
trusting 'a lot' in science [2]

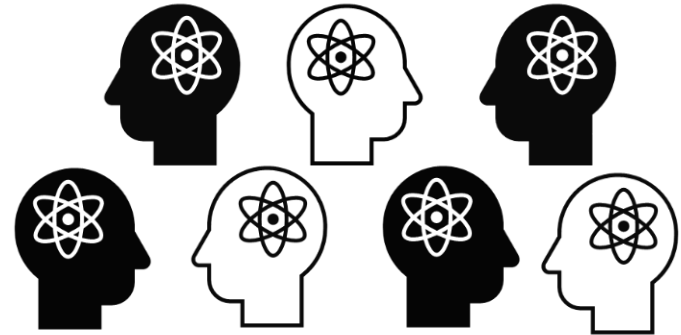
 : **45%**



Scientists



Society



What

Facts, data...

So what?

*Consequences of
those results*

Information



Message

*Knowing your audience, using right
language, structuring content...*

**What about obstacles or
difficulties to
communicate science?**



How to start?

Define your message

What do I want to communicate?

What are the main points?

Define your audience

Who needs to know about this?

Why should they care?

How will I communicate?

Will I use slides? Video? Social media? If yes, which one(s)? Will I reach out to journalists?



**General public...
does not exist**



**General public...
exists!...**

A ginger and white cat is lying on its back inside a cardboard box. The cat is looking up at the camera with its blue eyes. The text "General public... is a Schrodinger cat" is overlaid on the image in white, bold font.

**General public...
is a Schrodinger cat**

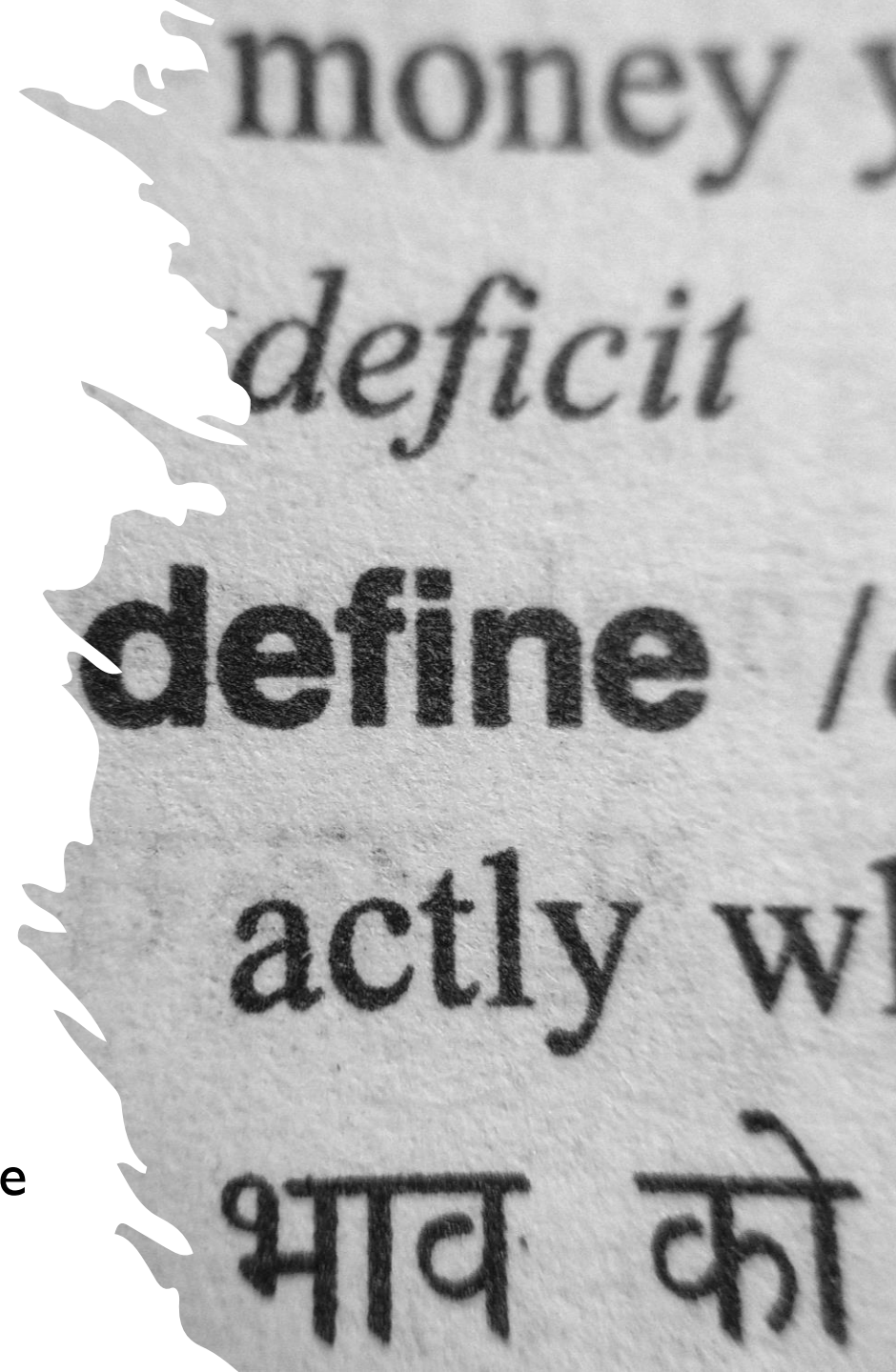
Let's talk about language

Jargon is useful – but **only if your audience is familiar with it**

Prepare: make a list of technical terms that you usually use and think how you can translate them to that particular audience

Scientific jargon not only makes it **more difficult to process information**, but also makes people **lose interest in science**

(Schulman et al, Journal of Language and Social Psychology, 2020)



Engage your audience

Don't be condescending

Also: don't extrapolate

Use **examples** & tailor them according to the audience

Avoid the ***curse of knowledge***

Words can be false friends, i.e.

have \neq meanings

Prioritize your info



Talking about comparisons...

Asteroid Half the Size of a Giraffe Hits Iceland 2 Hours After Astronomers Spotted Space Rock

Tiffany Winfrey Mar 14, 2022 11:14 PM EDT



Laura Bassett ✓

@LEBassett

Surely there's an easier way to describe this thing's size

 Daily Mail Online ✓ @MailOnline · 7h

Asteroid half the size of a giraffe strikes Earth off the coast of Iceland trib.al/aAcXJVb

2:26 PM · 14 Mar 22 · [Twitter for iPhone](#)

Is "half a giraffe" a good unit of measurement for asteroids?

On Afternoons with Sonya Feldhoff



The Measure of Things

<https://www.themeasureofthings.com/>

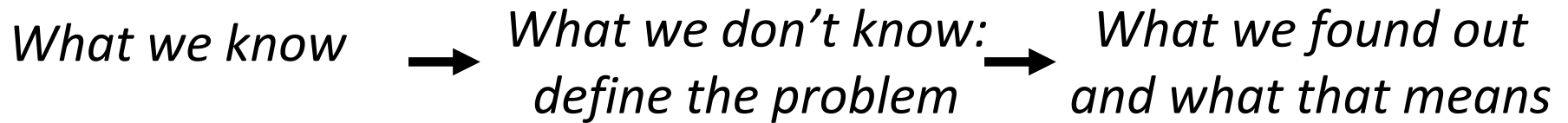
The importance of *telling a story*

Create a **structure** around **ONE** key message

Instead of a list of facts:

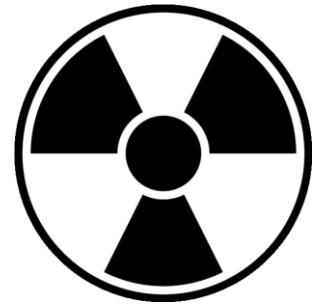


Tell a story, *engage* (several possible structures):



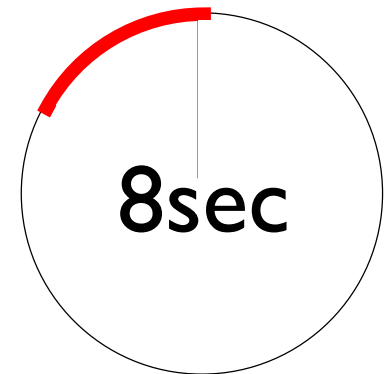
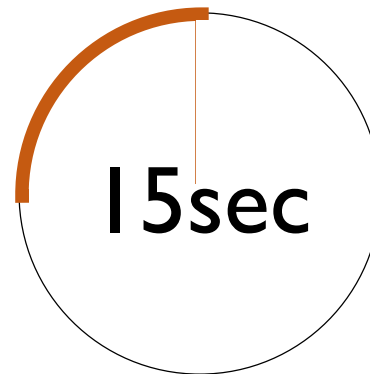
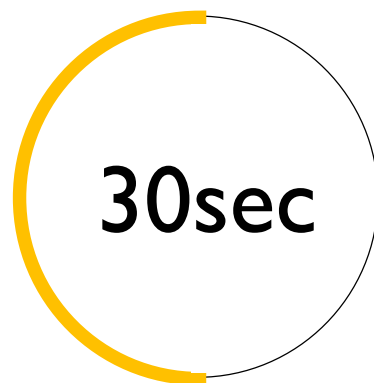
Based on the And-But-Therefore structure (Randy Olson)

Let's practice: Half-life your message!

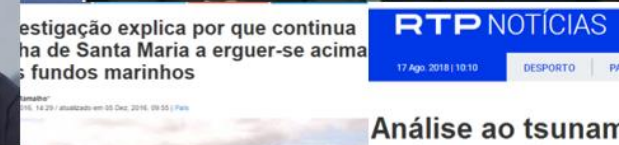


5min: Individually, brainstorm your topic.

Then: a few volunteers will perform the Half-life your message exercise



Science in the news media







**~56 000
scientists**

DGEEC/ME-MCTES, PORDATA



**~10
science journalists**

SCIENTIFIC
AMERICAN®



ScienceDaily®
Your source for the latest research news



The
Guardian



Diário de Notícias

New
Scientist

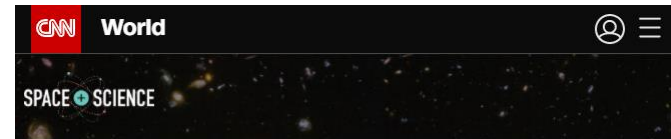


What makes a (science) story newsworthy?



Pass notes
In a galaxy far, far away? The supermassive black hole wandering through space

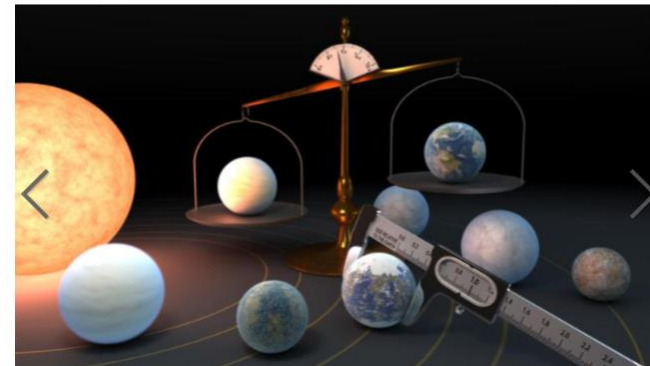
US astrophysicists have located a travelling black hole that is sucking in matter as it goes. Should we be worried?



This planet morphed from one type to another — and formed a second atmosphere

By **Ashley Strickland, CNN**

Updated 1133 GMT (1933 HKT) March 12, 2021



Photos: Weird and wonderful planets beyond our solar system

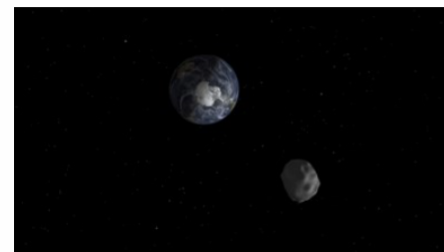
MUNDO atualizado 19 Fevereiro 2021, 22:27

"Perseverance" pousa em Marte sem problemas. "Olá mundo. O meu primeiro olhar à minha casa"

por RTP



A primeira imagem de Marte captada pelo rover da NASA Perseverance NASA



ASTRONOMIA

Em 2020, um número recorde de asteróides passou "perto" da Terra

Filipa Almeida Mendes

14:11



What makes a (science) story newsworthy?

GENÉTICA

Todos no planeta (afinal) temos um pouco de neandertal

Pela primeira vez, conseguiu-se observar de forma consistente ADN neandertal em populações africanas.

Teresa Sofia Serafim

1 de Fevereiro de 2020, 7:15

🔔 Receber notificações

LIVESCI-NCE

Search Live Science

'Rarest of the rare' dinosaur fossil found brooding on its eggs

By Laura Geggel - Editor 2 hours ago

Dinosaur embryos were even preserved in the eggs.



An oviraptorid dinosaur broods on its blue-green eggs with its mate nearby in what is now the Jiangxi Province of southern China. (Image credit: Zhao Chuang)

ARQUEOLOGIA

Neandertais e Homo sapiens da Europa trocavam saberes há 46 mil anos

Estudo publicado na 'Nature' mostra relações entre os dois grupos de homínidos, com base em escavações realizadas na caverna Bacho Kiro, na Bulgária

PALEONTOLOGIA

Novo dinossauro de Portugal era um “caçador da Lusitânia”

O dinossauro carnívoro *Lusovenator santosi* inclui no nome uma referência à Lusitânia, a província mais ocidental do império romano, e a José Joaquim dos Santos, paleontólogo amador tem encontrado diversos fósseis na região Oeste de Portugal. Trata-se de uma espécie e de um género novos para a ciência.

Teresa Firmino

13 de Julho de 2020, 16:40

🔔 Receber notificações



Ilustração científica do *Lusovenator santosi* CARLOS DE MIGUEL CHAVES

What makes a (science) story newsworthy?

Why do wombats poop cubes? Scientists may finally have the answer

By Amy Woodyatt, CNN
Updated 11:53 GMT (19:53 HKT)
January 29, 2021



The common wombat (*Vombatus ursinus*), also known as the coarse-haired or bare-nosed wombat, poops cube-shaped feces.



The bizarre link between bird migration and quantum physics



The bizarre (and pretty gross) science of whale vomit

For Constipated Scorpions, Females Suffer Reproductively. Males, Not So Much.

After the arachnids drop their tails, poop backs up until it kills them, but before that it can affect pregnancy



An *Ananteris balzani* scorpion couple interlocked in their elaborate mating dance. The male (left) has lost the end of his tail, rendering him unable to defecate. (John Alexander Uribe, @JohnUribePhotos)

By Bradley Allif
SMITHSONIANMAG.COM
MARCH 1, 2021

What makes a (science) story newsworthy?

Diabetes.co.uk
the global diabetes community

NEWS

Red wine and cheese found to improve cognitive decline

24th February 2021
By Editor



MEDICALNEWS TODAY

Quitting smoking may improve mental well-being

Written by [Jennifer Huizen](#) on March 14, 2021 — [Fact checked](#) by Hilary Guite, FFPH, MRCGP



High-fat diets linked to liver cancer

Wednesday, 17 March, 2021

Normal, non-cancerous liver tissue can act like tumour tissue when exposed to a diet high in fat, linking diet and obesity to the development of liver cancer.

That's according to a new international study, published in the journal *Cancer Research* and led by Professor Sarah-Maria Fendt and her team at the VIB-KU Leuven Center for Cancer Biology.



Coffee Drinking Tied to Lower Risk of Heart Failure

An innovative study that examined hundreds of factors linked to heart failure found one dietary factor that may lower risk: drinking coffee.

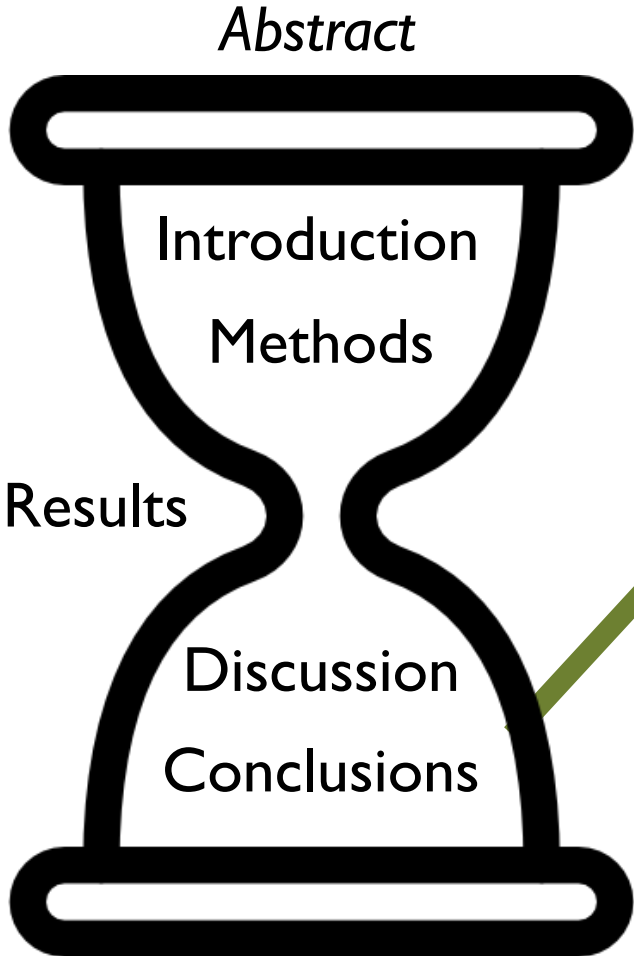


By [Nicholas Bakalar](#)

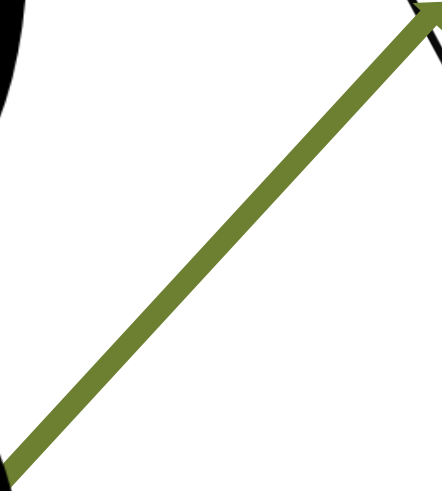
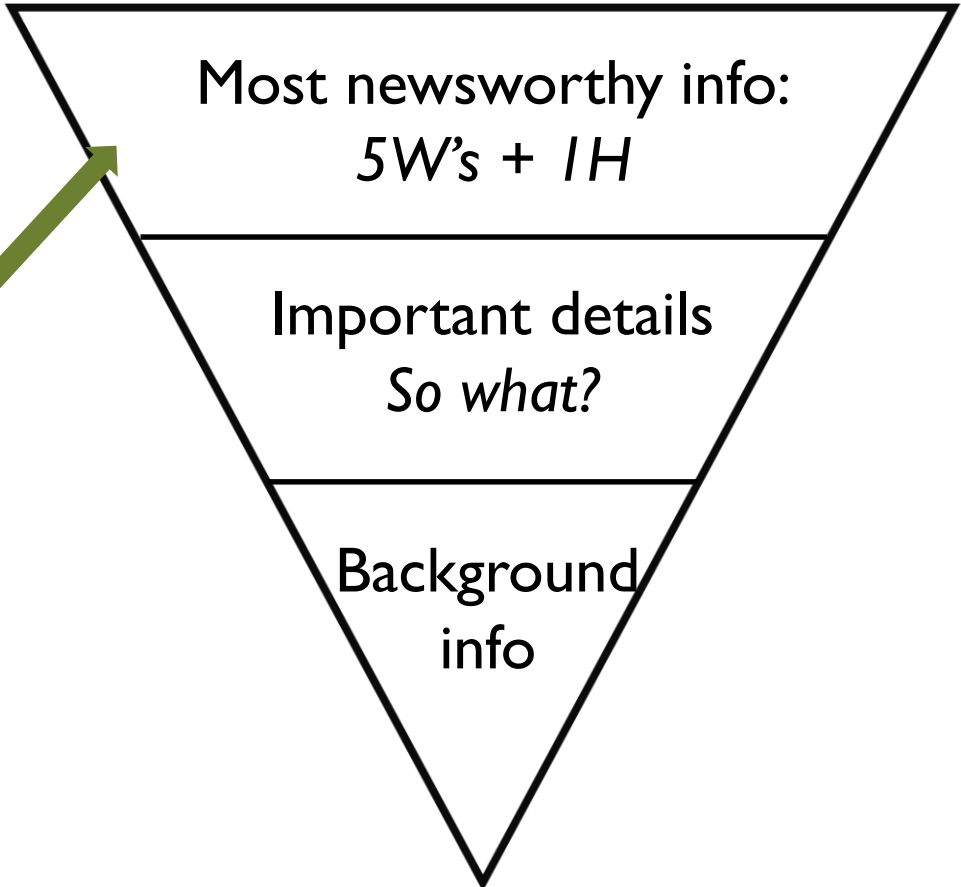
Feb. 18, 2021

Scientific papers vs news stories

Scientific papers



News stories: Crucial info *at the beginning*



Scientific papers vs news stories


Published: 27 February 1997

Viable offspring derived from fetal and adult mammalian cells

I. Wilmut, A. E. Schnieke, J. McWhir, A. J. Kind & K. H. S. Campbell

Nature 385, 810–813 (1997) | [Cite this article](#)

21k Accesses | 3495 Citations | 541 Altmetric | [Metrics](#)

 An [Erratum](#) to this article was published on 13 March 1997

Abstract

Fertilization of mammalian eggs is followed by successive cell divisions and progressive differentiation, first into the early embryo and subsequently into all of the cell types that make up the adult animal. Transfer of a single nucleus at a specific stage of development, to an enucleated unfertilized egg, provided an opportunity to investigate whether cellular differentiation to that stage involved irreversible genetic modification. The first offspring to develop from a differentiated cell were born after nuclear transfer from an embryo-derived cell line that had been induced to become quiescent¹. Using the same procedure, we now report the birth of live lambs from three new cell populations established from adult mammary gland, fetus and embryo. The fact that a lamb was derived from an adult cell confirms that differentiation of that cell did not involve the irreversible modification of genetic material required for development to term. The birth of lambs from differentiated fetal and adult cells also reinforces previous speculation^{1,2} that by inducing donor cells to become quiescent it will be possible to obtain normal development from a wide variety of differentiated cells.

The New York Times

SCIENTIST REPORTS FIRST CLONING EVER OF ADULT MAMMAL

 Give this article  

By **Gina Kolata**

Feb. 23, 1997

In a feat that may be the one bit of genetic engineering that has been anticipated and dreaded more than any other, researchers in Britain are reporting that they have cloned an adult mammal for the first time.

The group, led by Dr. **Ian Wilmut, a 52-year-old embryologist at the Roslin Institute in Edinburgh,** created a lamb using DNA from an adult sheep. The achievement shocked leading researchers who had said it could not be done. The researchers had assumed that the DNA of adult cells would not act like the DNA formed when a sperm's genes first mingle with those of an egg.

Example from: <https://sciencemediacentre.es/en/comparative-anatomy-scientific-and-journalistic-article>

Press releases

Press Officers should be contacted as soon as the paper is accepted

PRs have a fundamental and delicate role in the communication between academia & media and in news construction



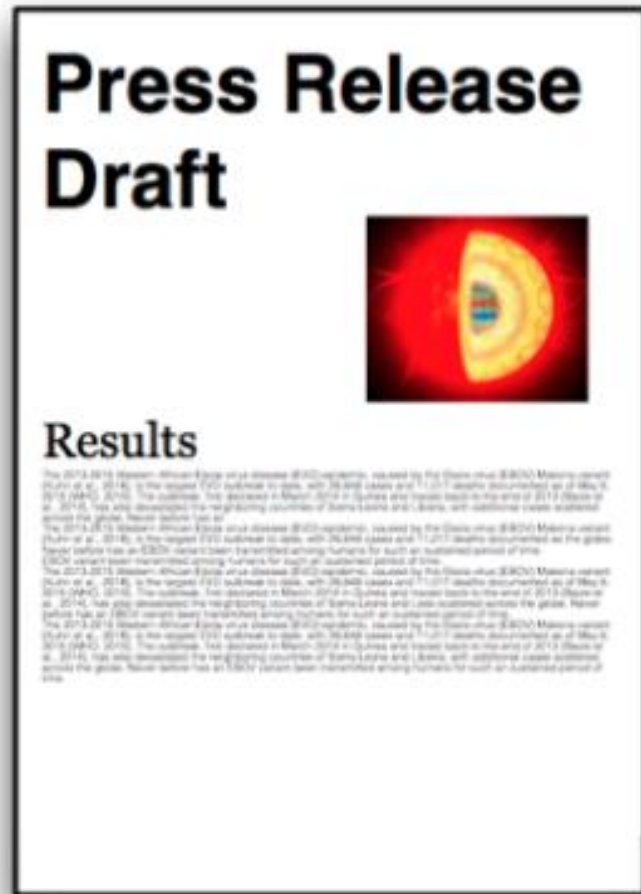
Content

Format

Timing & Target

Press releases

In inverted pyramid:



// Title: brief, clear, *true*

// Lead – 5 Ws

// Summary of the main results

// Quotes from one/two scientists

// Summary of how the results were obtained

// Study limitations/Give context

// Financing sources

// Contacts: researcher & *Press Officer*

// Link/Pdf of the scientific paper

Press releases

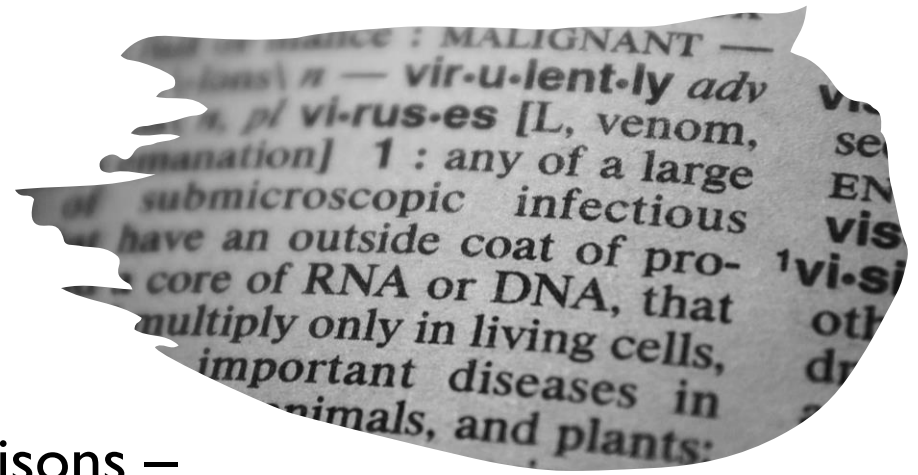
Language

Use examples, metaphors, comparisons –
but don't be condescending

Avoid jargon and explain that which is essential to use

Prepare: do a list of technical terms that you usually use and think how you can 'translate' it to more accessible language

Beware of words with different meanings to different audiences



Press releases

Format



About 1 page

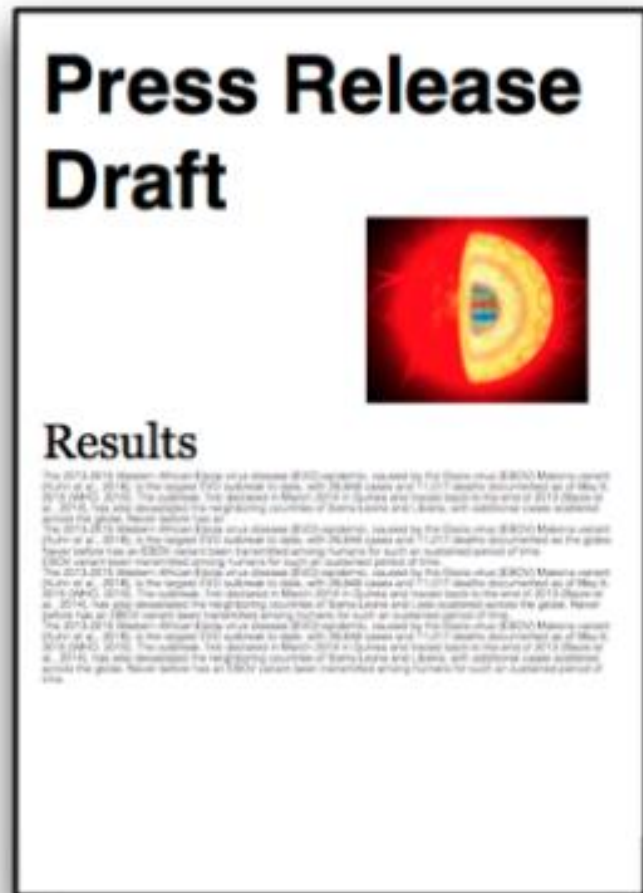
Multimedia: good quality images, video and/or audio, with captions and credits

Contacts of the researcher and the Press Officer

Beware of embargo!

Press releases

Timing & target



Sent in the morning

Avoid sending on the beginning or end of the week. BUT: send it when it is news

Targetted sending: different topics are of interest to different journalists

Press releases

Last but not least



Work with your Press Officer,
not 'against' him/her

PRs can contribute to sensationalism,
beware of unconscious inaccuracies

Don't hype your science

Press Releases

If possible, **2 weeks** to work on the press release

If the topics of the PR involves several institutions: coordinate efforts. Some scientific journals also have Communication Teams

If you're the contact person, *make sure to be available*

Internationally:



What might a journalist ask?

How did you get involved in this project?

What did you find?

Why is this important?

Did you encounter any surprises along the way?

Were there any unexpected hurdles?

What are the next steps for this research?

Are there any specific questions or criticisms others might have about these findings?

What might a journalist ask?

How might I sum up these results in just one or two sentences?

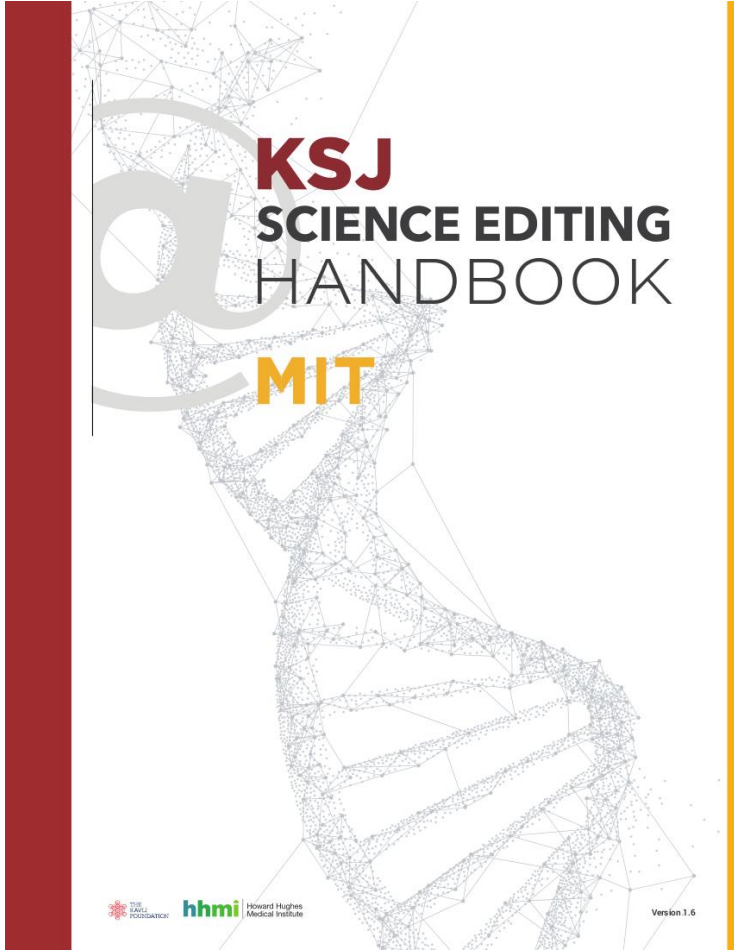
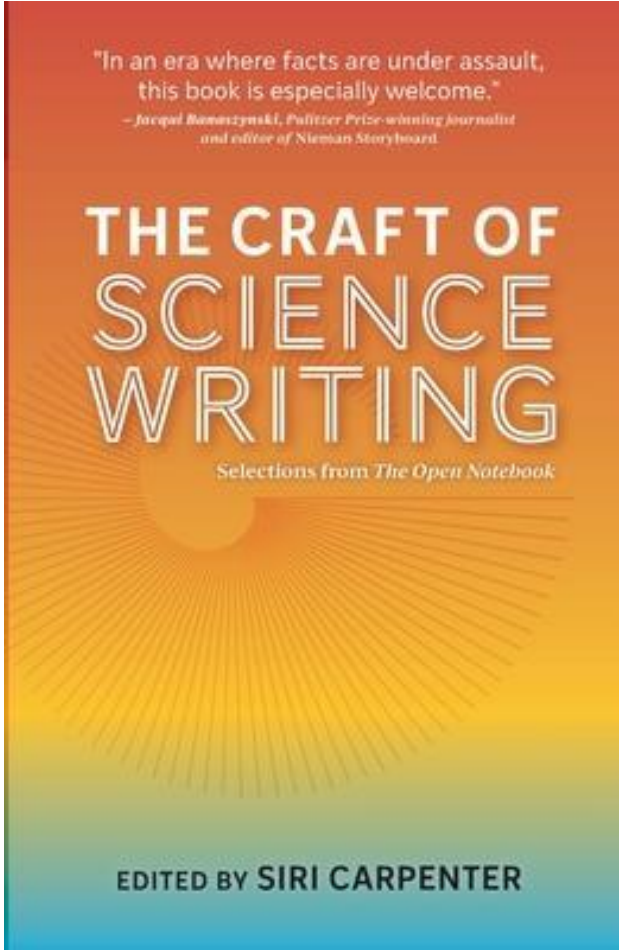
Is there anything I haven't asked that you would like to add?

What do you personally find most exciting or important about these results?

Can you provide some context to help me understand these findings? How do they fit in with other recent results?

For field studies: Describe what you saw during the fieldwork.

Interested in science writing?





**What to do
when a journalist calls?**



Who is the journalist?

What medium do they represent?

Why is the journalist calling?

When, where and how do they want to interview you? On the phone or in person? What is the format? [Radio, TV, online, etc]

Will it be live? Or taped and edited?

What is the deadline? Ask for preparation time (even is just 10min) and say you will call back. And use that time

Craft your message

What are your three main messages?
Stick to them

Establish the 5W's + 1H

Know what you want – and **DON'T** want – to say.
And know **how** you want to say it: *soundbites*

Zoom out, look at the bigger picture

Human angle of the research: is there
any story related with this work that
deserves to be told?



During the interview

Repeating

Go back to your key messages often, say the name of your discovery several times.

Flagging

Help the audience recall your message by emphasizing it:

The take-home message is...

The most important thing to remember is...



Counting down

Say how many points you would like to highlight and explain them one by one:

*There are three factors...;
the first one...*

Bridging

Go from where you are to where you want to go:

I'm not sure about that; what I do know is...

That's an interesting question, for which we don't have answer yet; but we do know that...

Checklist for scientists: communicating science to the public



quest

Jacopo Pasotti, Ilda Mannino, Alessandra Fornetti (Venice International University)

1. Are you allocating enough **time** for preparation and improving your communication skills?
2. Do you know who your **audience** is?
3. Have you identified the key **messages** to deliver and kept the focus on them?
4. Are you **framing the message** so that it sparks curiosity and is compelling to the public?
5. Are you **linking to current facts** or events?
6. Are you communicating **something that you also care about**?
7. Are you **telling stories** or just delivering a list of facts or numbers?
8. Are you using **a simple explanation**, can it be understood by the public?
9. Are you using **short sentences**?
10. Have you strategically planned ways to open **a dialogue and interact** with your audience?
11. Are you carefully thinking about how to **keep your delivery or writing lively** and monitoring the public's reaction?
12. Have you set out strategies to **deal with scepticism or distrust**?
13. Have you **practiced** your communication with non-experts?
14. Are you in touch with your **communication (or press) officers**?

The above checklist developed within the H2020 QUEST project supports scientists in delivering their message and fine-tuning their communication skills to the public. It is the result of several focus groups and interviews with both scientists working in different fields and trainers experienced in science communication. The checklist also draws from the literature review of published studies on scientists' perception and from available guidelines on science communication. Some of the points in the checklist apply in specific contexts and not in others: scientists are encouraged to go through the list and choose those elements that apply to their circumstances.



Last but not least, if you'd like to share with your students:

cE3c Advanced Courses 2023/2024



**Science and the Media – bringing together
scientists, journalists and society**

Taught by: Marta Daniela Santos | Janeiro 15 – 19, 2024 @ FCUL

January 15-19, 2024

Free of charge for

PhD students Ciências ULisboa

// Introduction to science communication

// Social media for scientists

// Scientists and journalists, science journalism



Ciências
ULisboa

Thank you

Science Communication Office

Communication and Image Unit

