

Digital outreach and engagement

Philippa Skett
Press and Communications Manager
Royal Society of Biology

 @sketterss

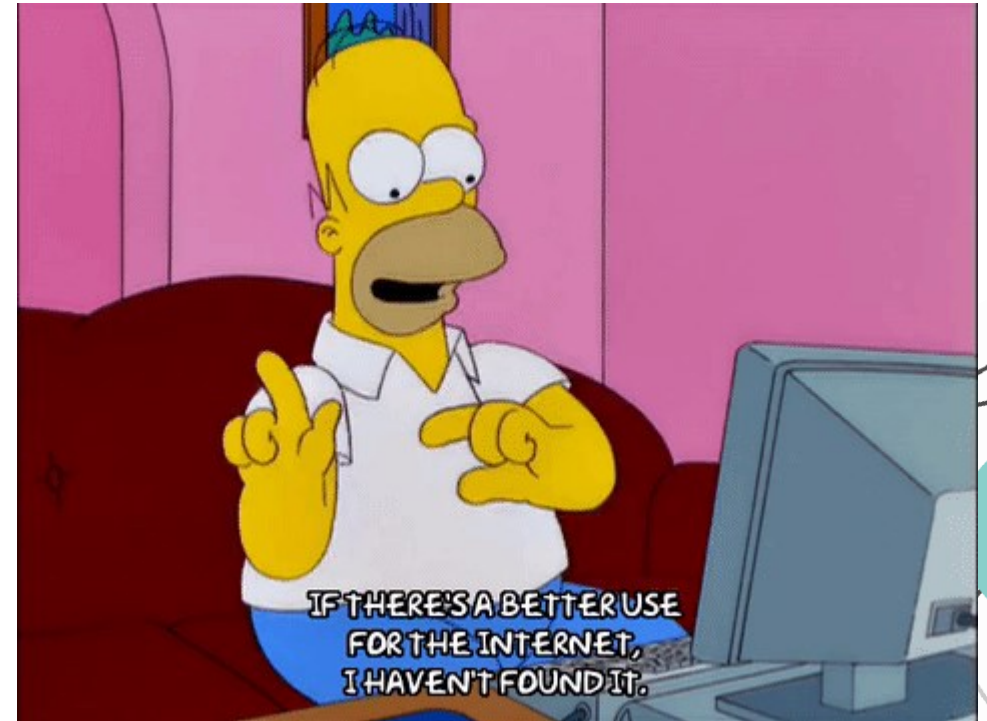


Show of hands!



A whistle-stop tour of....

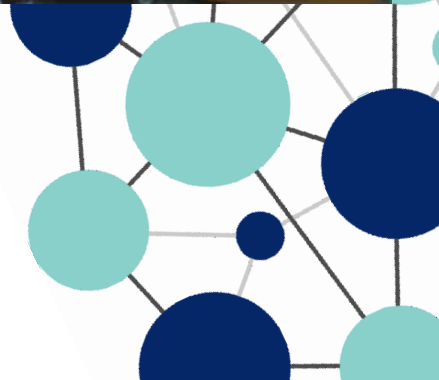
- What? and Why??
- What can be achieved using digital channels in outreach and engagement
- Some hindrances
- Social media examples and their pros and cons
- Using digital outreach and engagement for research
- How to get your own digital outreach and engagement project going



What is digital outreach and engagement?

Anything that uses a digital platform to reach out and engage with audiences

- Blogs and websites
- Social media
- Smart phone apps
- Podcasts
- YouTube
- Video games
- VR



What can we achieve from digital outreach and engagement?

- Embedding science into everyday culture
- Highlighting the value of science
- Bringing science to those who have infrequent chances to interact with the field
- Tackling stereotypes and misconceptions about scientists or science
- Increasing accessibility to science



Why use digital platforms for outreach and engagement?

- Lots of different platforms and medias to play with
- Far reaching – not limited by distance (or time!)
- Can be created and accessed anywhere
- Can be accessed by audiences on their own terms
- Easy to measure impact



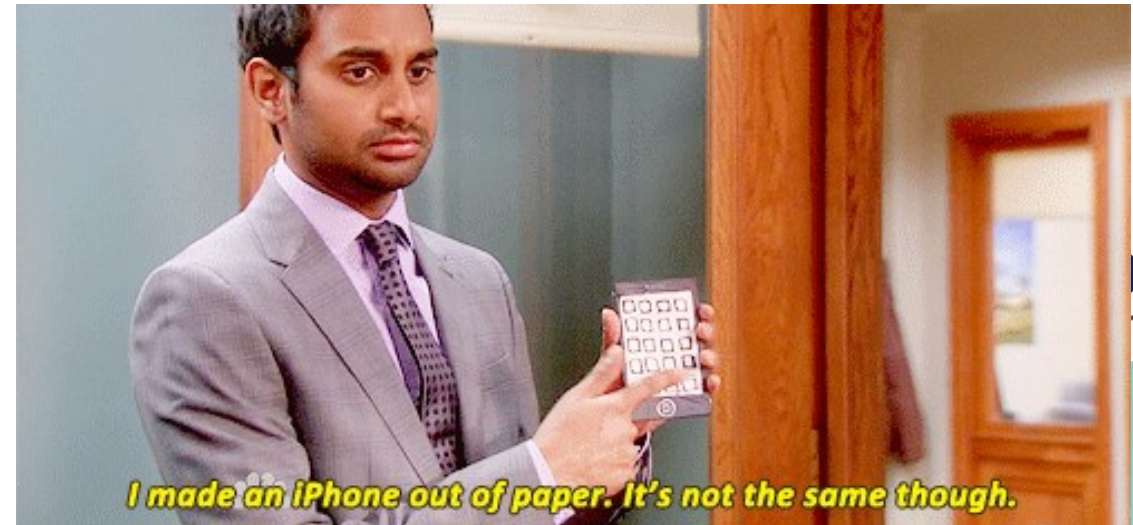
Digital platforms can enhance in-person outreach and engagement

- Help advertise events or activities
- Provide additional material and add depth
- Increase accessibility via live streaming (shouldn't be the only way accessibility is increased however!)
- Generate online discussion, sometimes in real-time
- Establish a community
- Can be used to distribute content post-event



Disadvantages?

- Not necessarily accessible for those without smartphones, internet etc
- May not be suited for certain audiences
- Can be costly or time consuming to develop
- May require specific skills to develop
- Reliant on technology to create and deliver
- Audiences may be self selecting
- Material can become inaccessible due to updates etc



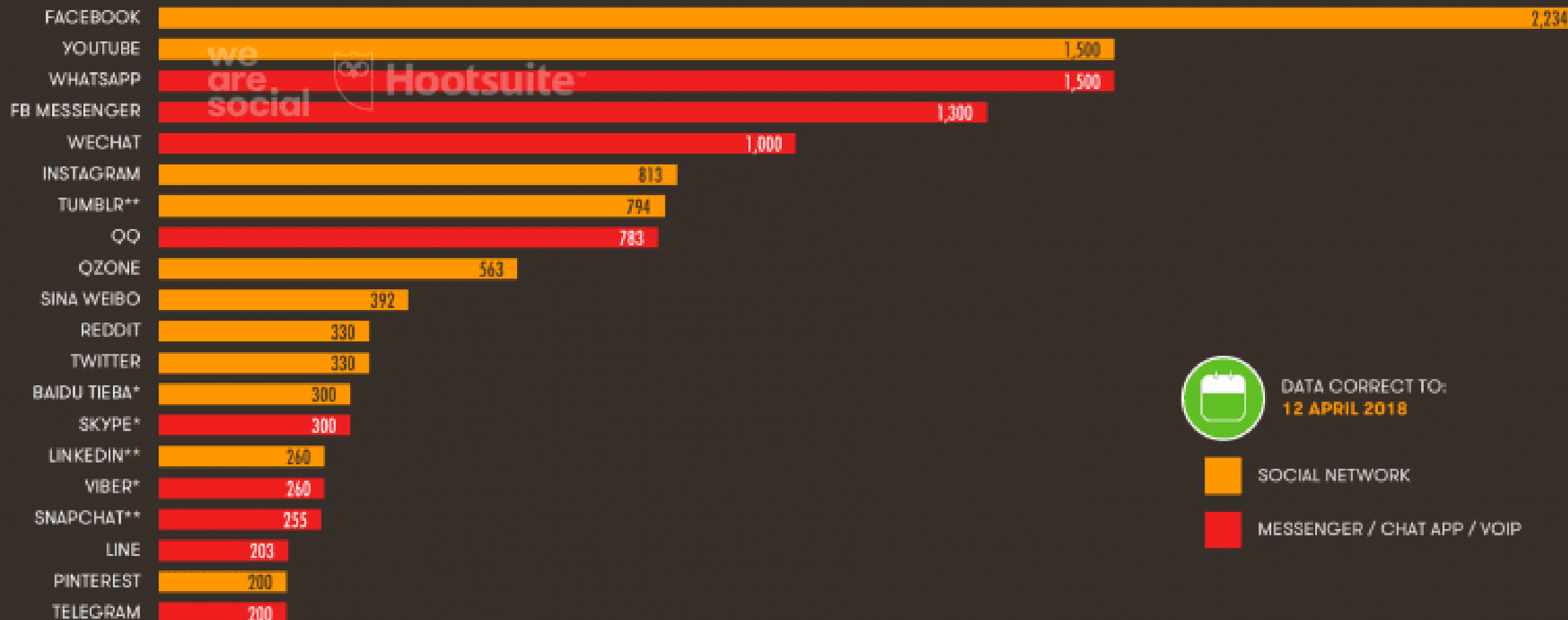
Social media



APR
2018

ACTIVE USERS OF KEY GLOBAL SOCIAL PLATFORMS

BASED ON THE MOST RECENTLY PUBLISHED MONTHLY ACTIVE USER ACCOUNTS FOR EACH PLATFORM, IN MILLIONS



DATA CORRECT TO:
12 APRIL 2018



SOCIAL NETWORK



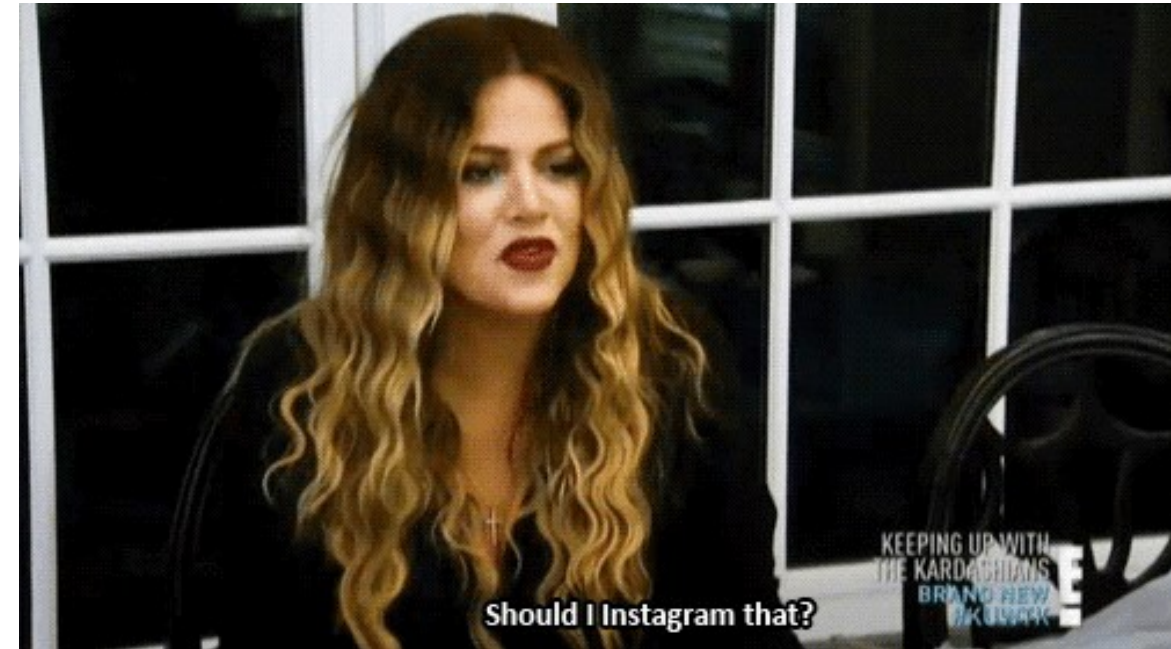
MESSENGER / CHAT APP / VOIP

SOURCES: KEPIOS ANALYSIS; LATEST COMPANY EARNINGS RELEASES, PRESS RELEASES OR MEDIA STATEMENTS; REPORTS IN REPUTABLE MEDIA; ALL AS OF APRIL 2018. ***ADVISORY:** PLATFORMS IDENTIFIED BY [*] HAVE NOT PUBLISHED UPDATED USER FIGURES IN THE PAST 12 MONTHS, SO FIGURES MAY BE LESS RELIABLE. ****NOTES:** THESE PLATFORMS DO NOT PUBLISH MAU DATA. TUMBLR FIGURE IS FOR MONTHLY UNIQUE VISITORS IN DEC 2017. VIA SIMILARWEB. SNAPCHAT FIGURE VIA TECHCRUNCH, JULY 2017. LINKEDIN DATA VIA FORTUNE / ARPTORIA, APR 2017.



Instagram

- Recently hit one billion users
- 72% of teens use the app everyday
- 38% of users check Instagram multiple times a day
- 25% of smartphone owners use Instagram
- 4.2 billion posts liked per day
- 95 million posts shared per day
- Users spend on average 53 minutes a day on the Android Instagram app





royalsocbio

royalsocbio Who knew a bee could be so cute? 🐝🐝🐝

This sleepy head is a Leafcutter bee, a solitary bee species that emerges in the spring and after mating, the males die. The females then cut parts of leaves (hence the name) to make the nests in the video into which the mother stores pollen nectar and a single egg. A mother bee will do this around a dozen times before dying too. The egg will hatch and larvae will grow into an adult by autumn, but remain in the leaf cocoon until warmer weather arrives once more.



672 views

OCTOBER 15

Add a comment...





royalsocbio

royalsocbio Is it a bird? Is it a plane? Is it...a feather duster?! This is a zebra crinoid, or feather star. This glorious specimen was captured in shallow waters off the coast of Thailand. It's a type of echinoderm, and the feathers are used to catch food.

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Credit: Els van den Eijnden from the Netherlands

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#biology #RSB #marine #marinebiology
#underwaterpics #underwaterlife
#underwaterworld #underwaterphoto
#biology #biologist #biologists #thailand
#travelphotography

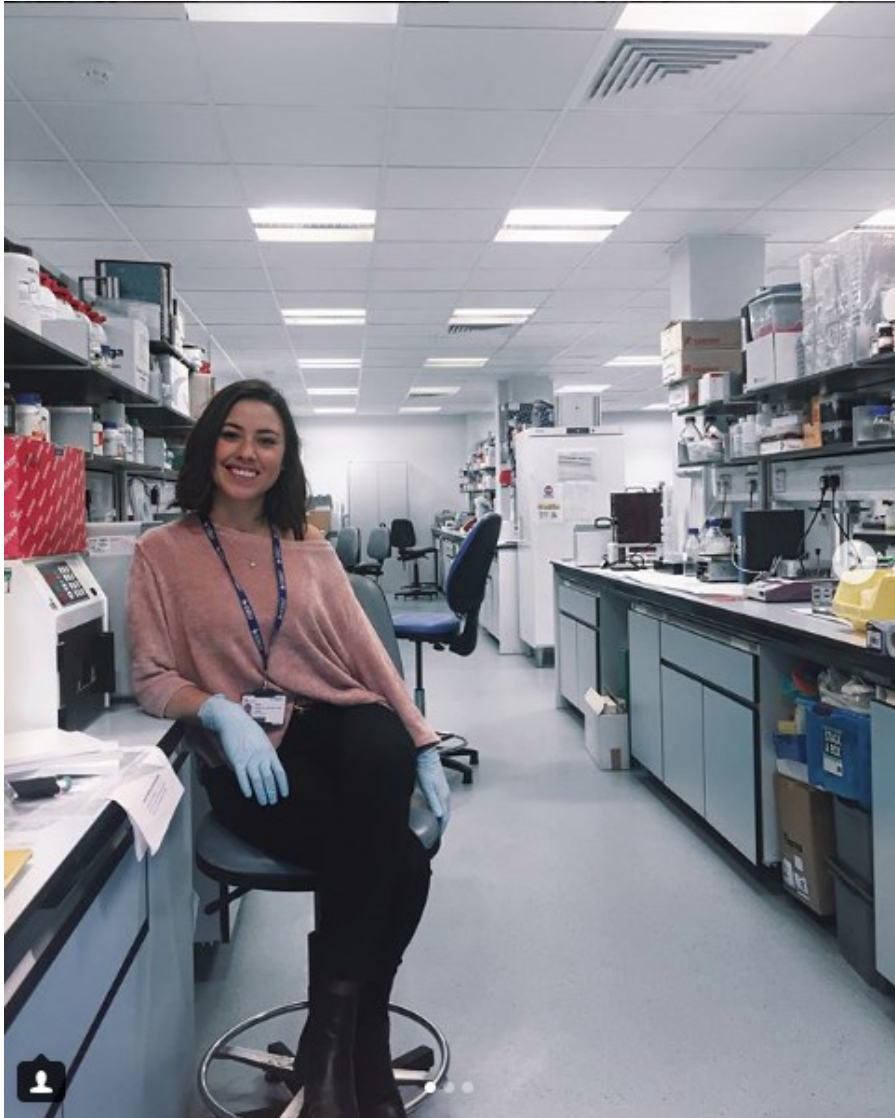


193 views

FEBRUARY 6

Add a comment...





thelabnotebook • Following

thelabnotebook What is my research about? 🧑🏻

Last week I gave a presentation to my research group about my research and what I accomplished so far, so I figured you also deserved to know 😊

I'm a cellular biologist and I'm trying to understand the mechanisms by which some viruses are able to evade the cell's anti-viral response 🦠🧬🔬🚗 I mainly study flaviviruses, such as dengue and Zika virus.

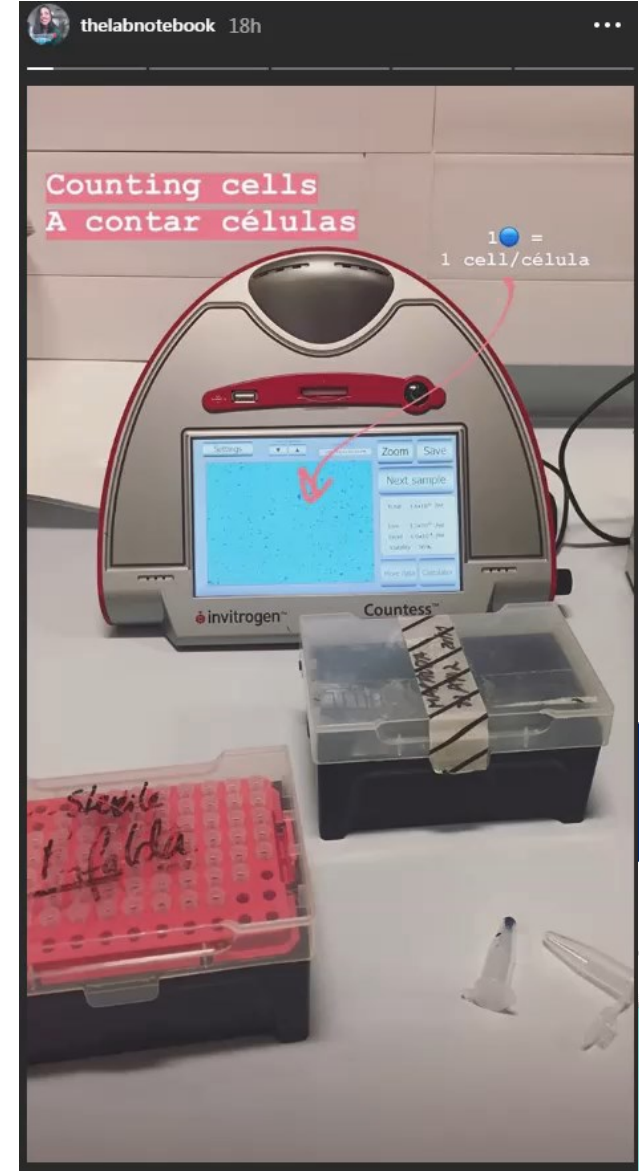
These viruses affect mainly tropical areas, where the mosquito that transmits them is present 🦟 However, due to climate change and the rising of temperature, it is thought that the areas affected by these viruses will soon expand.



1,200 likes

APRIL 24

Add a comment...



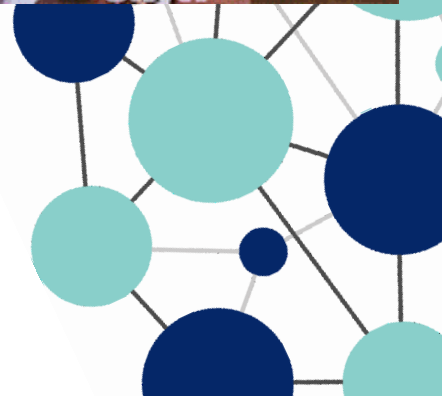
Taking a trip to gram town?

Pros:

- Wide reaching, fast growing
- New audiences
- Hashtag use/ explore function can bring content to potential new audiences
- Image and video based

Cons:

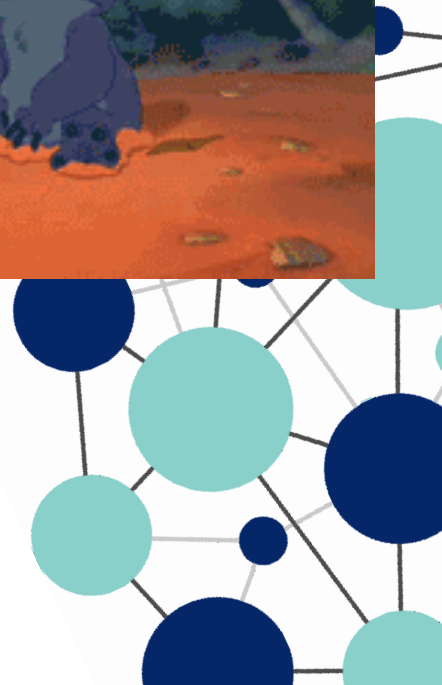
- Sourcing material can be time consuming
- Mobile based
- Metrics are limited
- Daily turnover of posts
- Building an audience is comparatively difficult





Reddit

- 330 million users (just overtaken Twitter)
- Fast growing: 30% in less than 6 months
- 853,000 subreddits
- 14 billion page views a month
- 2.8 million comments left daily
- More time spent on this platform each day on average than any other platform





r/askscience · Posted by u/jawhett3 5 days ago

1.7k
??

Biology If Cacti are known for growing in the harshest of environments, Why don't we see them in non-harsh environments?

They protect themselves from predators, don't need a lot of water. So why don't they dominate vegetation in other places?

186 Comments Share Save Give Gold Hide Report ...

93% Upvoted

Comment as [sketterss](#)

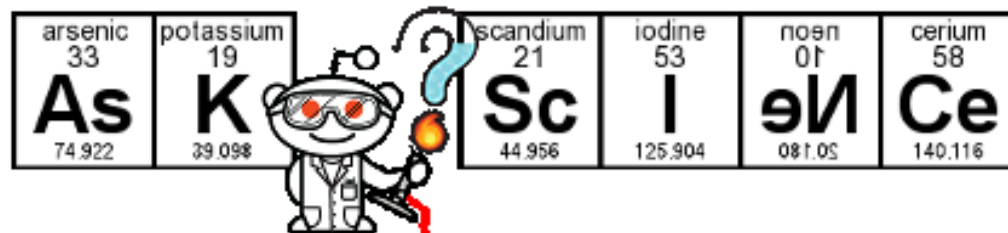
What are your thoughts?

B *i* **A'** ...

[Switch to markdown](#)

COMMENT

SORT BY BEST ▾





2.6k



r/askscience · Posted by u/AskScienceModerator Mod Bot 2 years ago

Biology AskScience AMA Series: I am /u/pengdrew, a physiologist that studies Penguins! I study the physiology of aging in wild penguin species and am here to any questions you have about penguins, aging and physiology/ecology! AMA!

Hi Reddit!

I am a PhD physiologist and ecologist studying the physiology of aging in wild penguins! I am currently in the second year of my PostDoc studying stress hormones, aging, and ecology in Spheniscus penguins. Specifically my work explores the relationship between stress hormones, telomeres and life-history decisions (reproduction, mating, growth, etc) in a very long-lived seabird!

I'm excited to talk about:

- Penguin Biology
- Physiology of Aging / Physiological Ecology
- Penguin & Seabird Ecology
- General Physiology/Ecology
- Graduate School & PostDoc in Biology
- Other fun stuff!

A few other notes on me:

| | | | | | |
|--------------------------------------|---------------------------------------|---------------------------------------|-------------------------------------|-----------------------------------|--------------------------------------|
| arsenic 33 As 74.922 | potassium 19 K 39.098 | scandium 21 Sc 44.956 | iodine 53 I 125.904 | noen 0t əM 081.05 | cerium 58 Ce 140.116 |
|--------------------------------------|---------------------------------------|---------------------------------------|-------------------------------------|-----------------------------------|--------------------------------------|



How to set up your own Reddit AMA

- Do some research first, and see what topics people have already covered recently
- Choose a subreddit
- Think about what questions you want to answer
- Draft an initial post, and specify what time you will be online posting answers
- Post a day or two before you plan to do your AMA so people can start posting questions
- Be genuine and personable



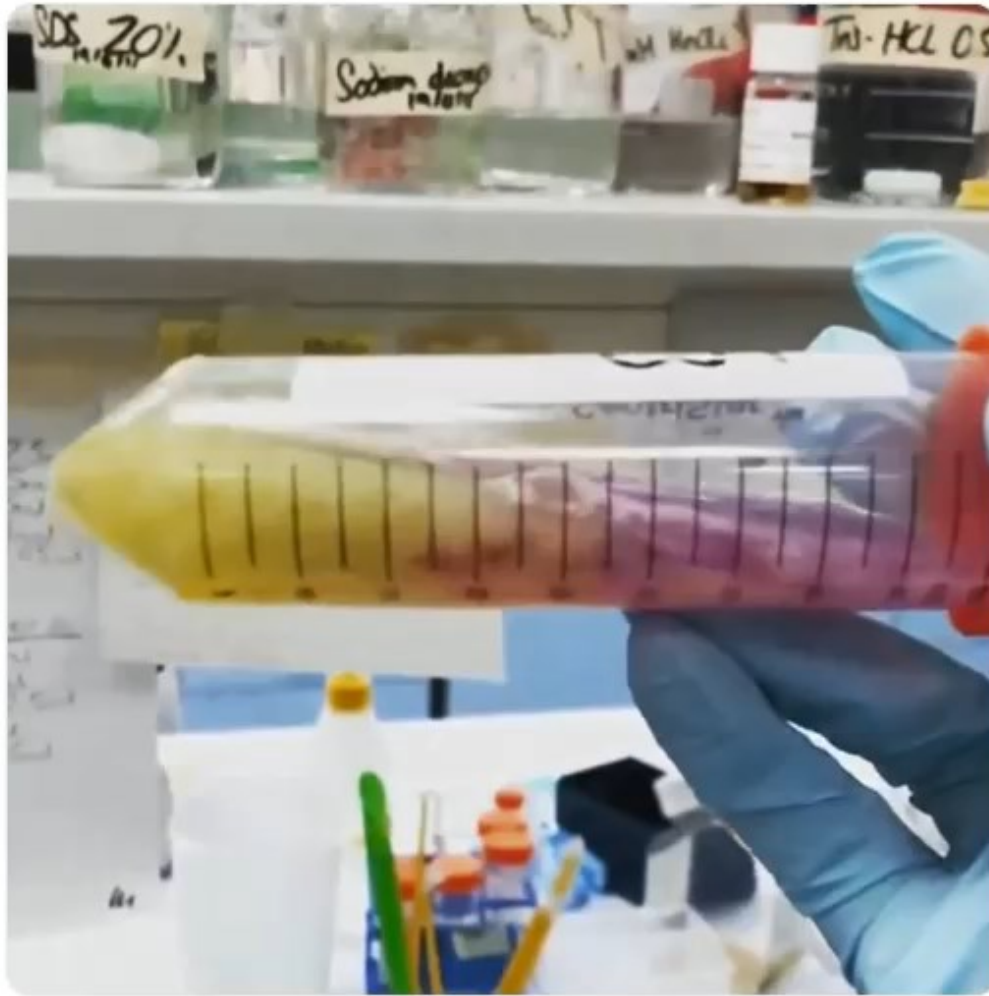
Twitter

- 326 million monthly active users, 100 million use it once a day
- 500 million tweets sent a day
- 80% users are mobile based
- 17% of users are 18-24 years old, 22% are 25-34 years old, 36% are 35-54 years old
- 56% of users earn \$50,000+ PA
- 74% users use the network to get news





Zymo Research @ZymoResearch · Nov 11
Sunday Slime...@biochemily using our ZymoPURE II Kit to extract DNA!
#ScienceTwitter



🔄 📌 📧

1:08 533 views

💬 1 🔄 1 ❤️ 12 📧 🖱️



Alex @thermoflynamics · Sep 12
Day 153 of #PhD365 and I'm working out whether I've made the right thing and purified it cleanly.

That means I get to use the mass spec.



0:02 194 views

💬 2 🔄 📌 ❤️ 5 📧



Alex @thermoflynamics · Sep 19
Day 160 of #PhD365 and it's very clear that early starts can fuck right off. (But they're okayish right now because I have 10 weeks left in the lab).

I'm gonna start with the simple stuff - purifying my peptide via HPLC.



To tweet or not to tweet?

Pros:

- Relatively quick and easy to share content
- Hashtags can extend your content to new audiences
- Able to engage with audiences

- Lots of built in metrics

Cons:

- Can lose nuance if not careful
- Is very fast paced
- Very public
- Bit of an echo chamber





YouTube

- 1.9 billion logged-in users visit each month
- More than 70% of views come from mobile devices: 18-34 year olds are watching YouTube on mobile alone
- 62% of users are male
- One billion hours watched daily
- Average viewing session: 40 minutes, up 50% year on year
- 300 hours of videos are uploaded per minute
- 20% of users will leave a video if it hasn't hooked them in the first 10 seconds

Source: <https://www.youtube.com/intl/en-GB/yt/about/press/>



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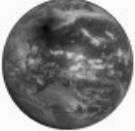


Sixty Symbols website

ACAPPELLASCIENCE

BY TIM BLAIR

Support me on Patreon!



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719,546 subscribers

SUBSCRIBE 719K

acapellascience

264,284 subscribers

SUBSCRIBE 264K

Is YouTube for me?

Pros:

- So much scope for content
- Media produced can be a rich and engaging
- Content can be far reaching, as the audience is there
- Content can be used for other platforms
- Lots of built in evaluation metrics

Cons:

- Making videos can be hard and time consuming
- High cost
- Requires a lot of cross promotion





Citizen science

- These are projects that look to get as many people as possible collecting data
- Digital platforms are ideal for such projects
- Help collect data from a wide audience over a wide geographical range
- Can be multi-faceted, with different digital elements that can collect data and then educate or inform



GALAXY ZOO





  You should sign in!

TASK

TUTORIAL

Is the galaxy simply smooth and rounded, with no sign of a disk?

 Smooth

 Features or Disk

 Star or Artifact

NEED SOME HELP WITH THIS TASK?

Done & Talk

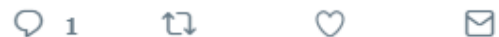
Done





Ron Chakraborty @RonChak · 7 Aug 2015

Reports coming in that it may well be **#flyingantsday**. Up North at least. Maybe there's two of them now. Like V Festival.



Sarah Beattie #FBPE @sarahbeattiegra · Jul 7

the swallows and sparrows are en fete - it's **#flyingantsday** and they're getting stuck in...swallows swooping on the pool, sparrows cleaning up around the edge



Yaron Einav #FBPE @YazzaFR · Jul 4

It's my favourite day of the year, aka **#flyingantsday**



Pearl Wilson @PearlWilson1989 · Jul 18

When you your reminder message to tell you it's Flying ants day 🐜🐜
@Abj_Vercoe **#flyingantsday**



Amy @amykittydraws · 3 Jul 2014

4 flying ants spotted last night in NW & S Ldn. Today MUST be **#FlyingAntsDay**
@sofage @delokhead @mgsoper @BIGFELLA_5446



Dr Claire Asher @claireasher · 2 Aug 2015

The young queens have only a short window of time to find a mate and a safe place to start a new nest **#FlyingAntsDay**



ECOGRAPHY

A JOURNAL OF SPACE
AND TIME IN ECOLOGY

Research

The spatial distribution and environmental triggers of ant mating flights: using citizen-science data to reveal national patterns

Adam G. Hart ✉, Thomas Hesselberg, Rebecca Nesbit, Anne E. Goodenough

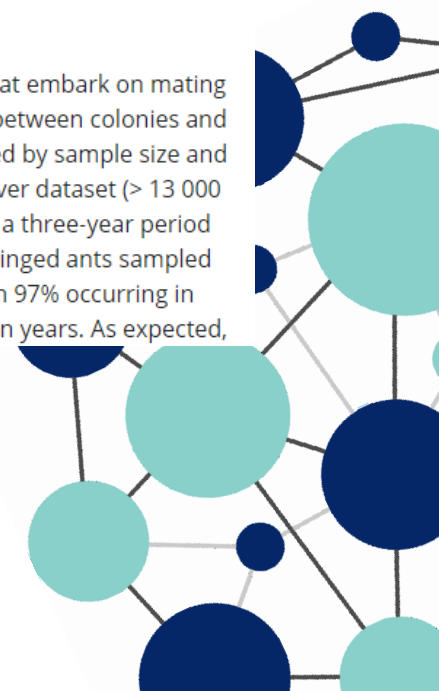
First published: 13 July 2017

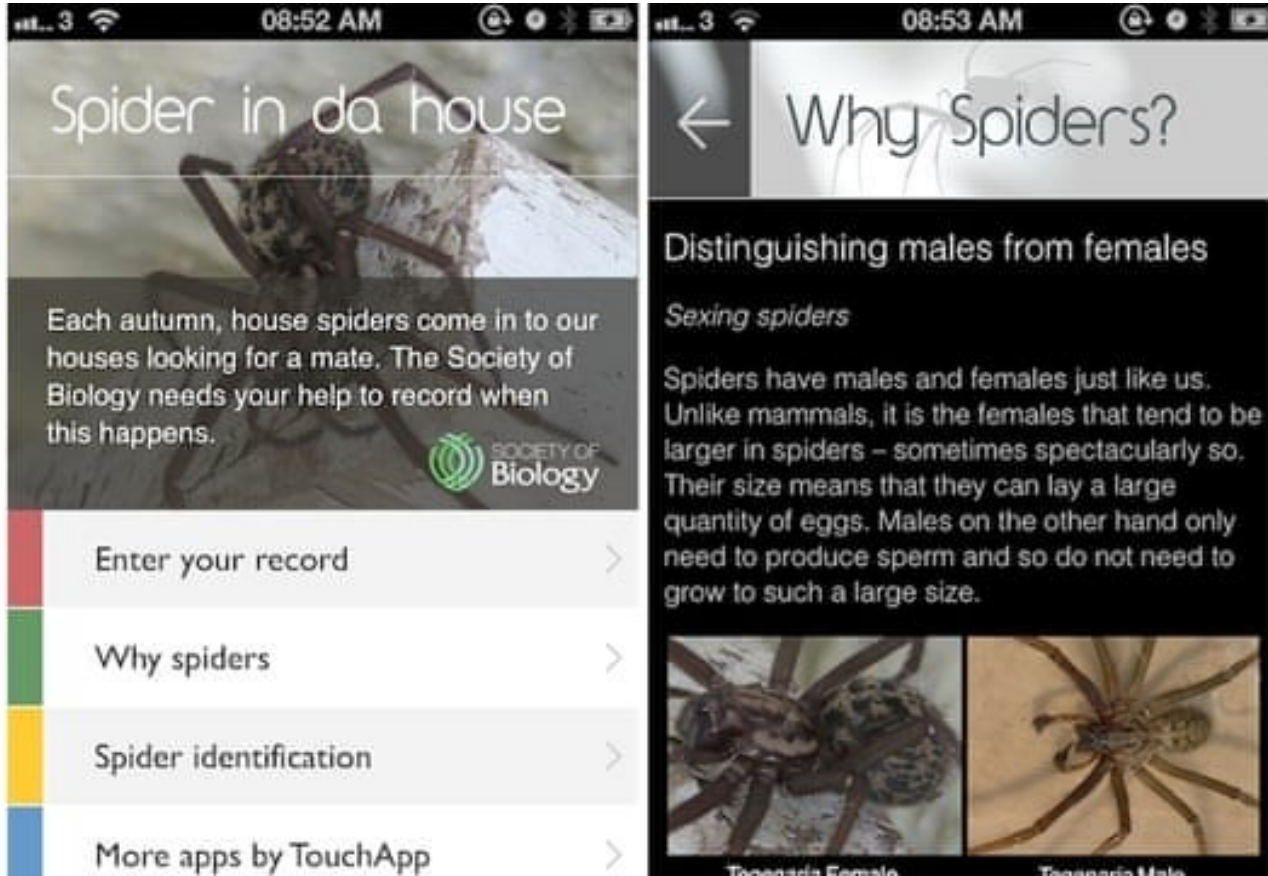
<https://doi.org/10.1111/ecog.03140>

Cited by: 3

Abstract

Many ant species produce winged reproductive males and females that embark on mating flights. Previous research has shown substantial synchrony in flights between colonies and that weather influences phenology but these studies have been limited by sample size and spatiotemporal scale. Using citizen science, we gathered the largest ever dataset (> 13 000 observations) on the location and timing of winged ant sightings over a three-year period across a broad spatial scale (the United Kingdom). In total, 88.5% of winged ants sampled were *Lasius niger*. Observations occurred from June to September with 97% occurring in July/August but exact temporal patterns differed substantially between years. As expected,





Environment ► Climate change Wildlife Energy Pollution More

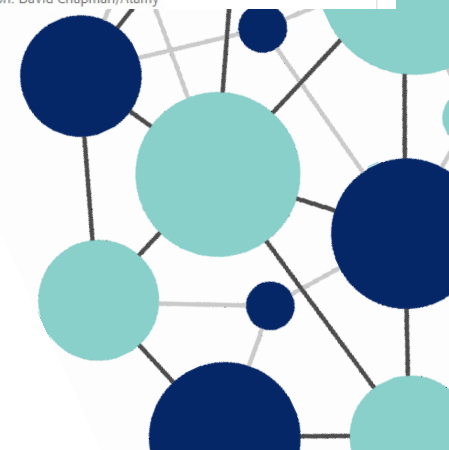
Wildlife

Spider app launched by ecologists

Spider in Da House will help identify 12 of the most common invaders frequenting homes during autumn mating season



▲ A wasp spider *Argiope bruennichi*, on its web in Cornwall, UK. Photograph: David Chapman/Alamy



Spatiotemporal variation in house spider phenology at a national scale using citizen science

Adam G. Hart¹

Rebecca Nesbit²

Anne E. Goodenough¹

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University of Gloucestershire,
Cheltenham, GL50 4AZ

² Royal Society of Biology,
Charles Darwin House,
12 Roger Street,
London WC1N 2JU

email: ahart@glos.ac.uk

Abstract

The seasonal appearance of *Tegenaria* and *Eratigena* (the best known of the UK genera termed house spiders) results in considerable public and media interest. Here, we present the largest dataset ever gathered on the occurrence of house spiders anywhere in the world. We collected almost 10,000 records from different locations within the UK (amounting to ~250× more locations and 25× more records than any previous study) over a six-month period. Using this dataset, which contained details of sighting dates, times, location within UK, location within the home, location within rooms, and sex, we were able to investigate a number of aspects of house spider ecology. Eighty-two percent of records were males, supporting previous studies that showed house spider surges in autumn are predominantly males seeking mates. Sightings peaked in mid-September with a significant northwest progression across the UK as autumn progressed. Daily activity peaked at 19.35 hrs and spiders were seen more or less uniformly throughout different rooms; we discuss why this is more likely to be due to spider ecology than human behaviour. Within rooms, there was a sex-based difference in ecology with females more common on ceilings and doors/windows and males more common on walls, possibly because of sex-specific differences in mobility.

Smith 1987)) and there is a lack of substantial published data at a national level.

Indeed, despite public interest, relatively little scientific research has been conducted on the ecology of house spiders in general (Jocqué *et al.* 2016). The studies that have been undertaken to date have been largely descriptive and spatially localized (e.g. Oxford & Smith 1987; Smithers 1990; Guarisco 1999; Jocqué *et al.* 2016) even, in one instance, being restricted to a single house (De Armas 2003). According to Jocqué *et al.* (2016), who studied the spiders associated with 43 houses in northern Belgium, the number of sightings increases substantially during late summer and autumn. The same study found that males are more likely to be seen than females, but this was based on a relatively low sample size of just 61 individuals of *Tegenaria* and *Eratigena*. The basic ecology of spiders within homes, including their use of different rooms and locations within those rooms, also remains largely unexplored, despite urban ecology and spatial distribution of organisms within the built environment being a growing area of interest.

In this study, we used citizen science to overcome the difficulties normally inherent in gathering sufficient data at large spatial scales (Hart *et al.* 2012). We use the resultant dataset of spider sightings at a national scale—the largest such dataset of house spider records anywhere in the world—to gain insights into spider ecology, including phenology, distribution within houses, and whether temporal and spatial patterns differ between males and females.

Material and methods

In collaboration with the Royal Society of Biology, we launched a free application for mobile phones and tablets (running on Apple and Android) called *Spider in da House*






Methods in Ecology and Evolution



Volume 9, Issue 11
November 2018
Pages 2194-2205

RESEARCH ARTICLE

Testing the potential of Twitter mining methods for data acquisition: Evaluating novel opportunities for ecological research in multiple taxa

Adam G. Hart , William S. Carpenter, Estelle Hlustik-Smith, Matt Reed, Anne E. Goodenough

First published: 04 September 2018 | <https://doi.org/10.1111/2041-210X.13063>

 PDF  TOOLS  SHARE

Abstract

1. Social media provides unique opportunities for data collection. Retrospective analysis of social media posts has been used in seismology, political science and public risk perception studies but has not been used extensively in ecological research. There is currently no assessment of whether such data are valid and robust in ecological contexts.
2. We used “Twitter mining” methods to search Twitter (a microblogging site) for terms relevant to three nationwide UK ecological phenomena: winged ant emergence; autumnal house spider sightings; and starling murmurations. To determine the extent to which Twitter-mined data were reliable and suitable for answering specific ecological questions the data so gathered were analysed and



Access



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Information

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Personal login

Email or Customer ID

Password

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LOG IN

> Purchase instant access



Games and virtual reality

- Some are more obvious with their science content than others
- Time consuming and expensive to develop
- Not always accessible due to console/ other tech costs
- Can be highly effective

Fight the bad bacteria!

Kill the bad **bacteria** and save the good ones.



Did you know you have good and bad bacteria in your intestines?

Cytokine messages tell your immune system which bacteria are bad.

Kill the bad bacteria

The graphic features a blue background. On the left is a black silhouette of a human figure with a pink and red illustration of the digestive system. A white line connects the intestines to a circular inset showing several purple, rod-shaped bacteria with flagella. To the right of the inset is a text box with the text 'Cytokine messages tell your immune system which bacteria are bad.' At the bottom right, there is a white button with a blue border containing the text 'Kill the bad bacteria'.



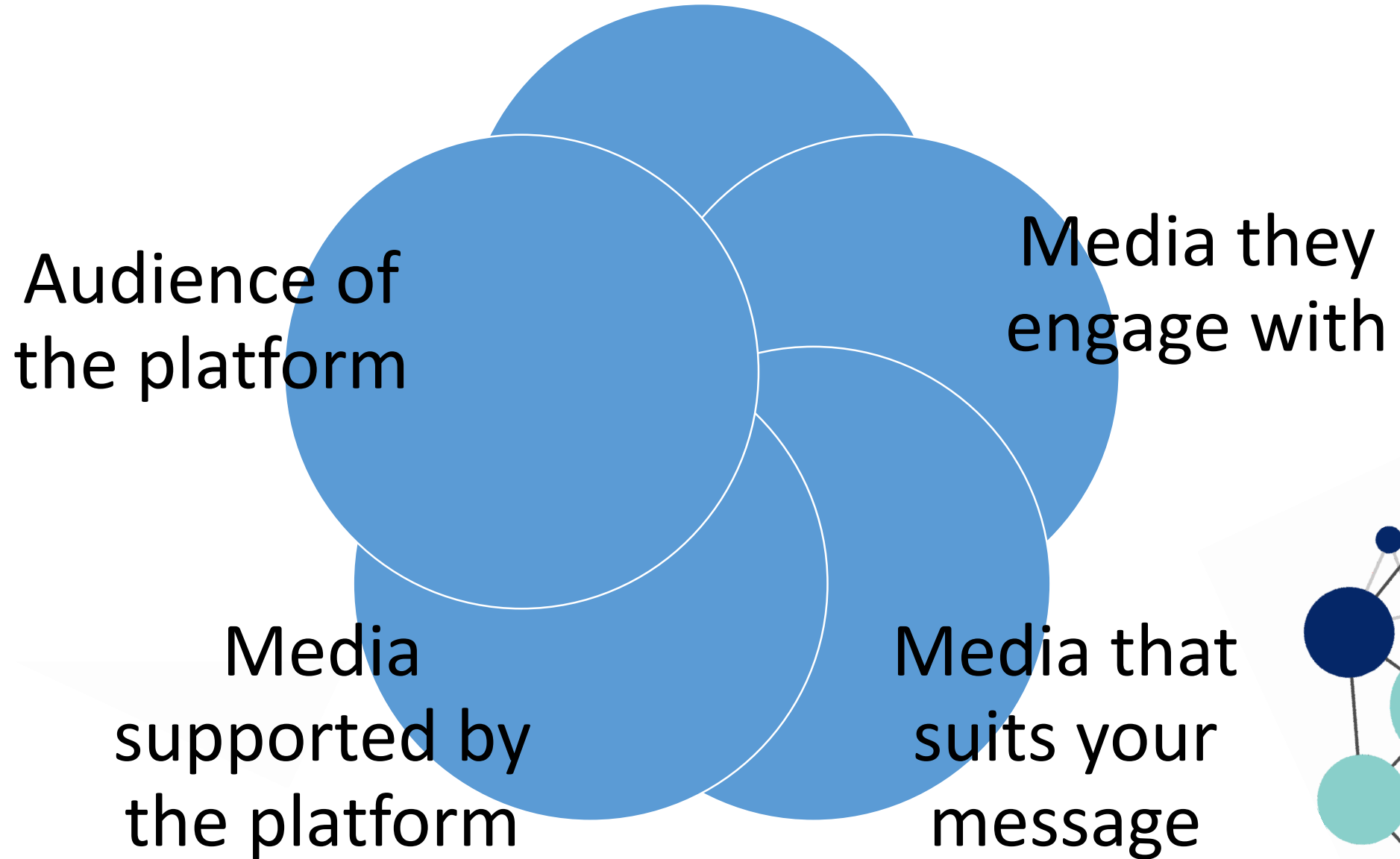
Things to consider when starting your own digital engagement project

Successful channels fulfil a unique audience/platform/content combination:

- Who is your target audience
- How do you want to engage them?
- What platforms are they currently using?
- What media is suited for that platform?
- Does that media suit how you wish to engage with them



Your audience



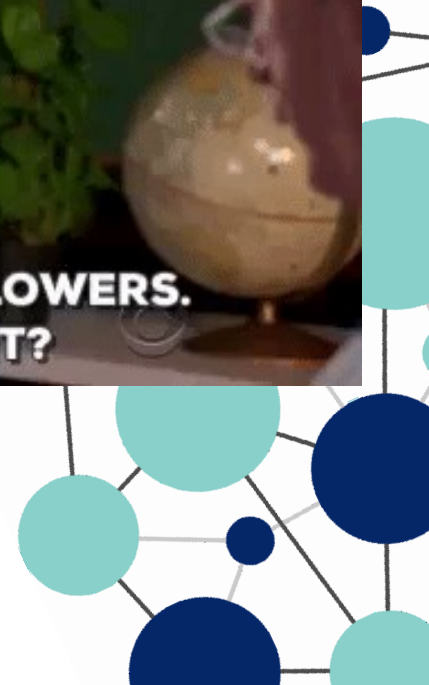
Things to consider before starting a new social media channel

- Is your audience/platform combination unique?
- Existing social media policies
- Security
- How you are going to build your audience
- Branding
- Tone, language, style etc
- Time needed to curate and post content



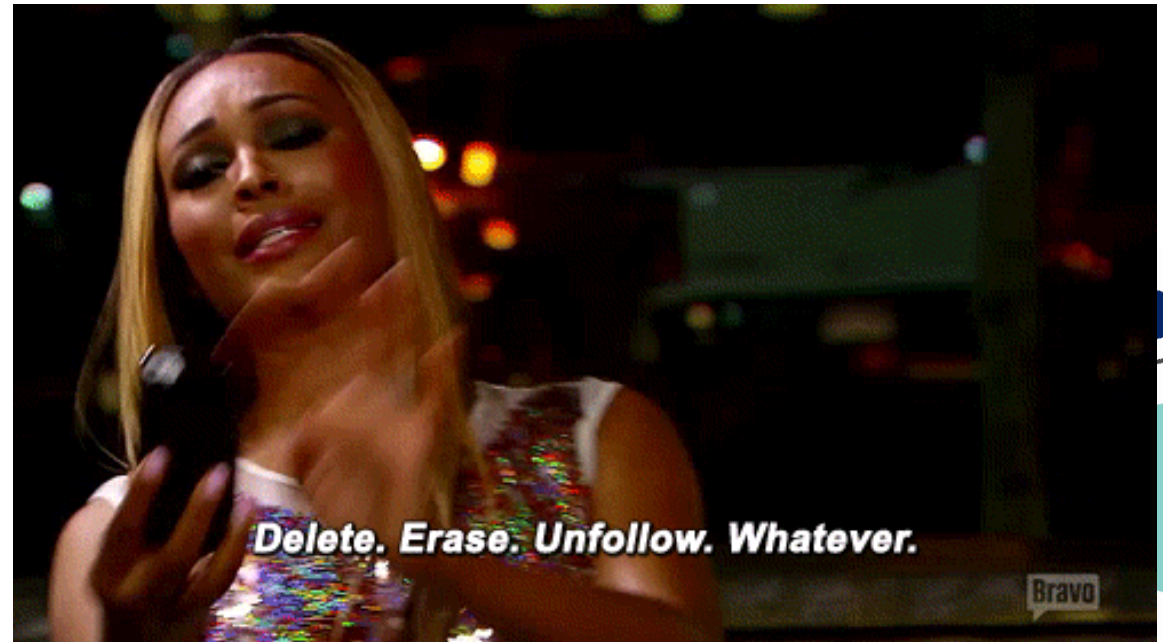
Building an audience

- Use overlapping channels and audiences to cross promote
- Use innate platform elements to reach new people already on the platform like hashtags
- Include in literature or other personal/organisational branding
- Interact with other accounts and other users
- Engage with your established audience
- Balance quality with quantity



Risks to consider...

- Security of the account
- Security of the person running the account (emotional and personal)
- Copyright issues
- Defamation issues
- Reputational issues
- Running out of steam: have an exit strategy



Minimising the risks

- Consult your organisation's communication team
- Find a social media policy, or devise your own
- Do not share logins and passwords
- Use different passwords, or even separate devices
- Don't use copyrighted material
- Don't share content you don't know to be true
- If in doubt, do not post



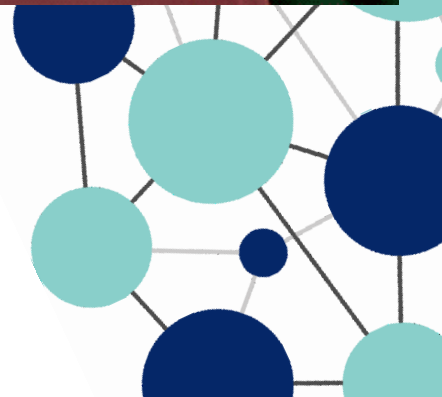
Evaluation!

- Lots of platforms have metrics available for free
- Match the metrics up to what you want to achieve
- Set realistic goals
- Be flexible
- Remember that some outputs can't be measured



Final thoughts

- Do some research first
- Be creative
- Who is your audience and what platforms are they using?
- Keep up to date with developments and keep exploring
- Trial and error is your friend; don't be afraid to make mistakes!



Any questions?

