How to Podcast About Science

Dave Robinson

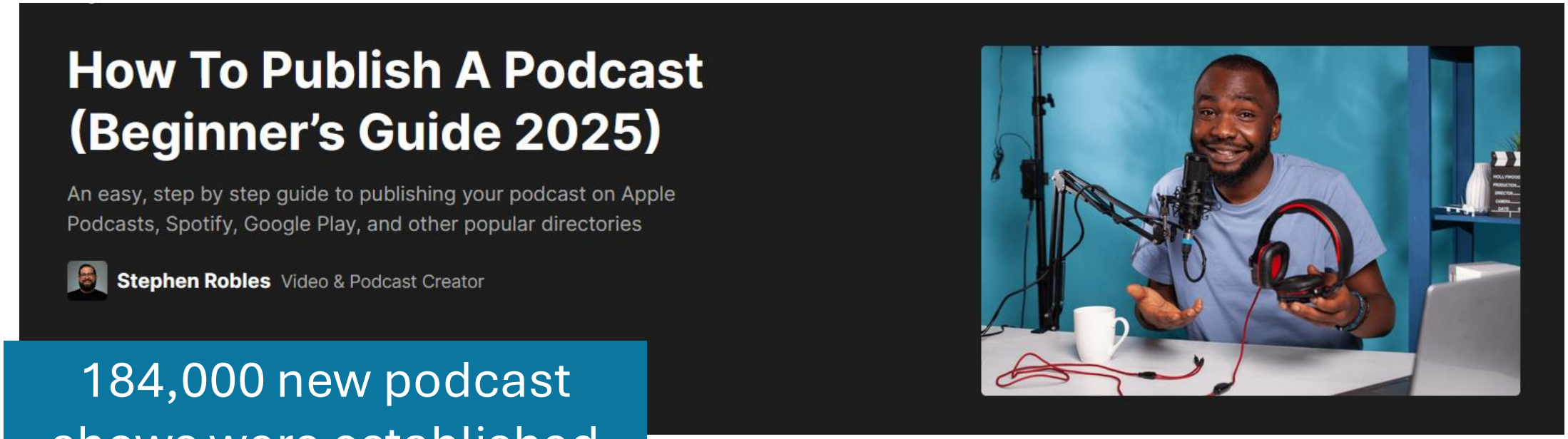
Professor Emeritus of Biology
Bellarmine University, Louisville

drobinson2@bellarmine.edu

502-553-6172

Why do we need podcasts about science?

- Podcasts are popular now (people can listen while multitasking).
- Fight stereotypes (e.g. that science is too difficult, uninteresting, or irrelevant).
- Put human face on science; Builds trust in scientists (*lower since COVID*).
- Fight misconceptions, conspiracy theories, and politicization.
- Inform public; encourage public awareness and action.
- Persuade policy decisions by government.
- Encourage evidence-based critical thinking in the general public.
- Encourage participation in citizen science projects.
- Encourage young people to pursue careers in science.
- Builds your own understanding; Keep you updated on latest advances.
- Wonderful challenge! How to explain, but not sensationalize/over-generalize.
- For academic Rank & Tenure – It is a type of 'community service' and/or 'scholarship'. For instance, I serve as a 'peer reviewer' for our contributors.



184,000 new podcast shows were established around the globe last year.

https://riverside.fm/blog/how-to-publish-a-podcast

In summary:

What we're covering today!

- Produce a few episodes as .mp3 audio files.
- Post them in a RSS feed hosted by a server like Podbean or SoundCloud.
- Submit your RSS feed to streaming platforms like iTunes or Spotify.
- Maintain your commitment by producing new episodes on schedule.

Our radio show & podcast has been on the air for 6.5 years (220 episodes)

BENCH TALK

The Week In SCIENCE

- Episodes are 29-minutes; broadcast weekly
- Each episode plays 6 times, over 2 weeks
- Broadcast on a low-power radio station
- Covers Louisville, KY and southern Indiana
- Potential audience of at least 300,000
- Livestreamed at www.forwardradio.org
- RSS feed is streamed on iTunes & SoundCloud as a podcast

Louisville, Kentucky's grassroots, volunteer-run, listener-supported community radio station

Station listenership might be ~500 people.
~45 people listen to our podcasts.
This is better than the average podcast!

Affiliate of: Pacifica Network

Bench Talk: The Week in Science

The Show's Mission Statement:

This show is about bringing science to the people. We want to be a clearinghouse for the research that is important to all of us. This includes the **natural** and **social sciences,** as well as **technology, engineering, mathematics,** and **STEM education** and **policy.** We scour the library stacks for scientific advances that are just too interesting to ignore.

Our 29-minute show is in the same format as a magazine……each episode is a collection of shorter stories.

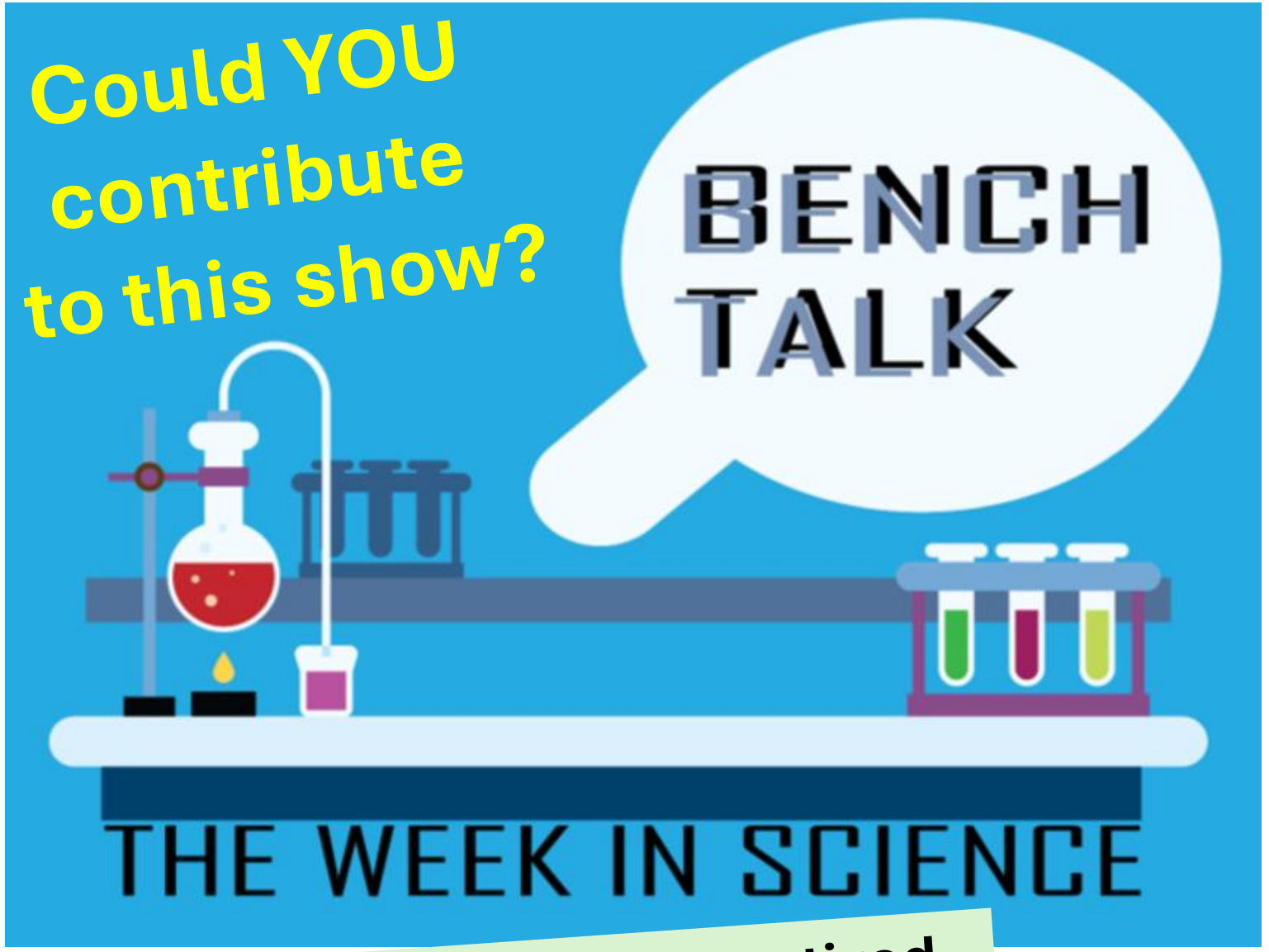
Average length of a story is 8 minutes, but they vary from 2 to 27 minutes.

https://www.fiverr.com/nina_mo/design-and-layout-magazine-and-cover-with-attractive-vis

Seeking: A diverse group of collaborators to add their own perspectives, expertise and styles.

Team Members & Collaborators:

- Scott Miller (physics/astronomy)
- Mary Williams (women in science)
- Amanda Fuller (STEM education)
- Leslie Moise (poet) '*STEM > STEAM*'
- Rob Weber (STEM policy/education)
- Mark Alsip ('Bad Science Debunked')
- Trent Garrison (geology; policy)
- Jon Dixon (graphics)
- *other contributors*

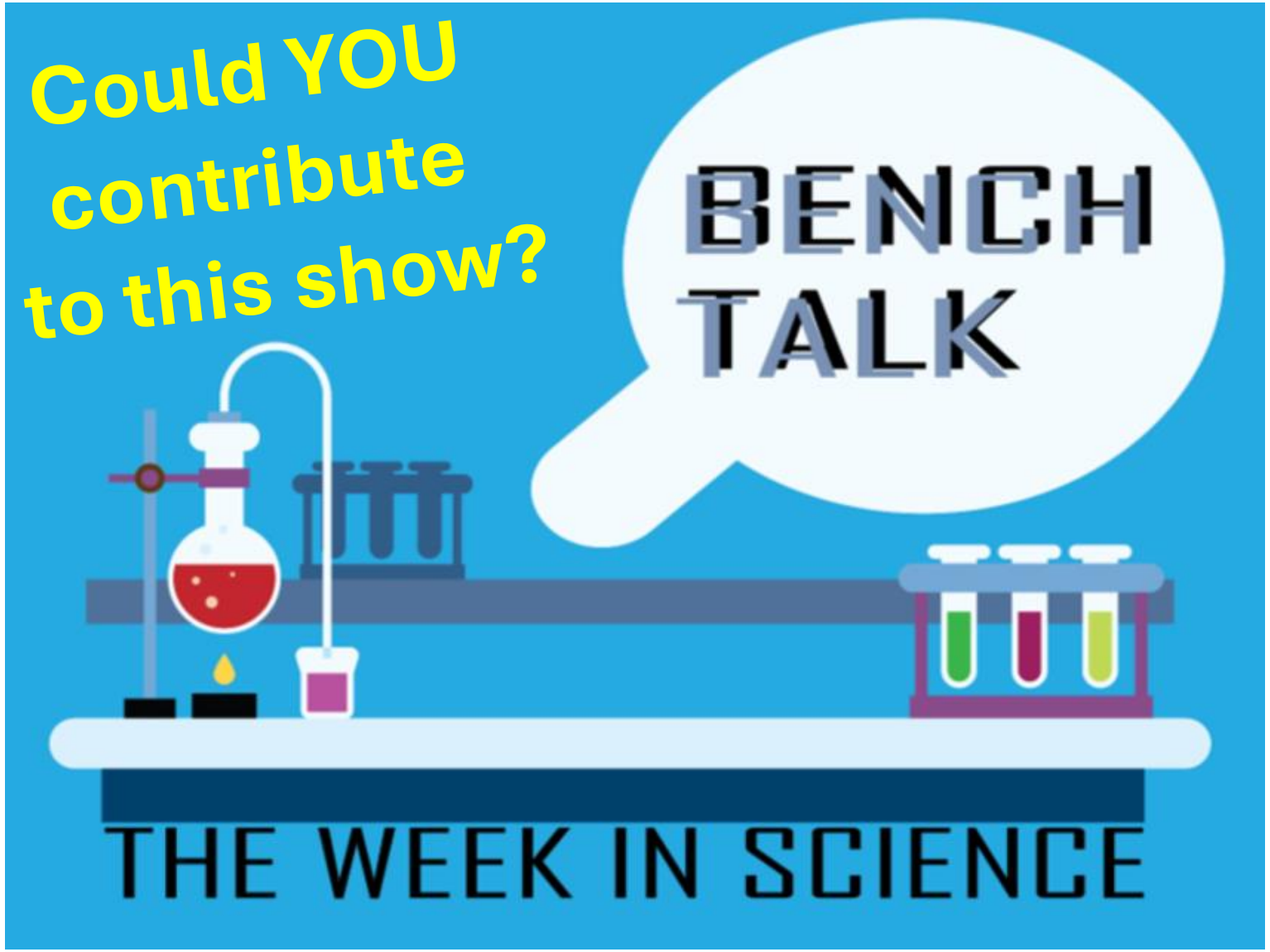


The show is not monetized. We all work for free!

We invite scientists and non-scientists to join us:

You could discuss.....

- your area of expertise.
- recent research publications outside of your expertise.
- basic or applied research.
- science history/biographies.
- science agencies (e.g. NASA)
- environment & sustainability.
- citizen-science opportunities.
- STEM education.
- science tourism in region.
- works of art related to science.



We cover a wide range of disciplines: natural & social sciences, math, computers, technology, engineering, anthropology, economics, political science, & history.

Topics We've Covered - Natural Sciences:

- Football & Concussions
- Epigenetics of Alcoholism
- Toxic Metals in E-Cigarettes
- The Coming Nova Explosion
- Controversial Career of Linus Pauling
- Fungi and Climate Change
- Hazards of Canadian Wildfire Smoke
- Lawsuits Against Monsanto Co. (herbicides)
- Citizen Science: Walrus from Space
- Plastics Affecting Male Sexual Development
- Why Do Older People Turn Gray?
- Was the COVID19 Virus Made in the Lab?
- Is Rand Paul Correct About Masks?
- Ancient Roman Concrete
- Nanodiamonds in Asteroids
- Dog Breed Identification & DNA
- Barge Accidents on the Ohio River
- Fecal Transplants
- Biomarkers for Autism
- Astronomical Sights of the Month
- Sea Level Rise
- Sound of a Black Hole
- Bubonic Plague Genes
- A New Disease of Beech Trees

Have to find a balance between discussing what people think they WANT to hear vs. what you think they SHOULD hear.

Topics We've Covered – Social Sciences:

- Effect of Music on the Brain
- Sleep Patterns in Primates
- How to Teach Mathematics
- Cosmetics During the Renaissance
- Do Pharmaceutical Ads Work?
- Nature vs. Nurture Debate
- Gender Dysphoria in Children
- Bird Watching & Mental Health
- Archaeology of Kentucky
- Ancient Female Hunters
- How to Deal With Election Stress

Science Policy:

- Science Bills in KY State Legislature
- The Tuskegee Study of Syphilis
- Lessons from the Holocaust
- Racism & Police Shootings
- Science Literacy & How Charts Lie
- Federal Forest-Fire Policy
- Do Anti-Violence Programs Work?
- Biowarfare in North Korea
- How Social Movements Succeed
- Street Violence in Chicago
- Creationism & White Supremacy
- White House Interference on COVID

But, FCC prevents us telling people what to do (e.g. who to vote for)

Scientists pride themselves on being unbiased, so we try to present multiple viewpoints on controversial issues.

But don't be afraid to voice your opinion. You are the expert!

Bench Talk: The Week in Science

Our shows are pre-recorded:

1. Some contributors might be able to speak extemporaneously

Bench Talk: The Week in Science

Our shows are pre-recorded:

1. Some contributors might be able to speak extemporaneously
2. Many work from a script written (and read) by the narrator

Writing scripts for podcasts is different than how scientists typically write.

Tips on script writing:

- Pick a topic you think is important or interesting; Doesn't have to be 'cutting edge'.
- Topic can be in your expertise, or a recent publication or event outside your sphere.
- Write for a general audience. Assume high-school science classes only.
- Use both the original research article, and journalistic interpretations, as sources.
- Write in a casual, conversational manner (it's not an academic paper!).
- Define scientific terms and uncommon acronyms. Describe complicated concepts.
- Provide historical context (or back-story) to the topic.
- Science is quantitative, so include some data (but feel free to 'round off').
- Be engaging, humorous and personable (*something I am still working on*).
- Academic plagiarism rules apply. Only quote short passages of another's work.
- We speak ~2 words/second (so a 960-word script takes ~8 minutes to read aloud)
- Don't be surprised if your finished script ends up being longer than originally intended. It takes time to describe things pleasantly, thoroughly and accurately.

Bench Talk: The Week in Science

Our shows are pre-recorded:

1. Some contributors might be able to speak extemporaneously
2. Many work from a script written (and read) by the narrator
3. Many conduct interviews (professional, graduate, undergraduate)

Tips on interviewing:

- You can interview in-person, by videoconference, or by recording a phone call.
- If in-person, make sure microphone picks up both people equally.
- Let guest know you will edit the recording to remove blunders (helps them relax)
- I write a script for myself, but don't have to show it to the guest. Just let guest know what is generally going to be discussed.....
- But you don't have to follow the script. Allow for spontaneity. Have a conversation.
- Start with easier questions to help speaker relax.
- Don't ask long, meandering questions. The guest should talk more than you.
- Guest shouldn't have to speak to their educational credentials...you should do that.
- So plan on recording a brief introduction about the guest (and topic) yourself.
- Truly listen to guest, rather than planning your next question while they are talking.
- Show your curiosity about the topic. Ask follow-up questions. 'Flesh' the topic out.
- Dig deeper into the topic with 'why' questions. Ask them to speculate.

Bench Talk: The Week in Science

Our shows are pre-recorded:

1. Some contributors might be able to speak extemporaneously
2. Many work from a script written (and read) by the narrator
3. Many conduct interviews (professional, graduate, undergraduate)
4. Use audio clips from public-domain sources (or with permission)

We still have to acknowledge sources!

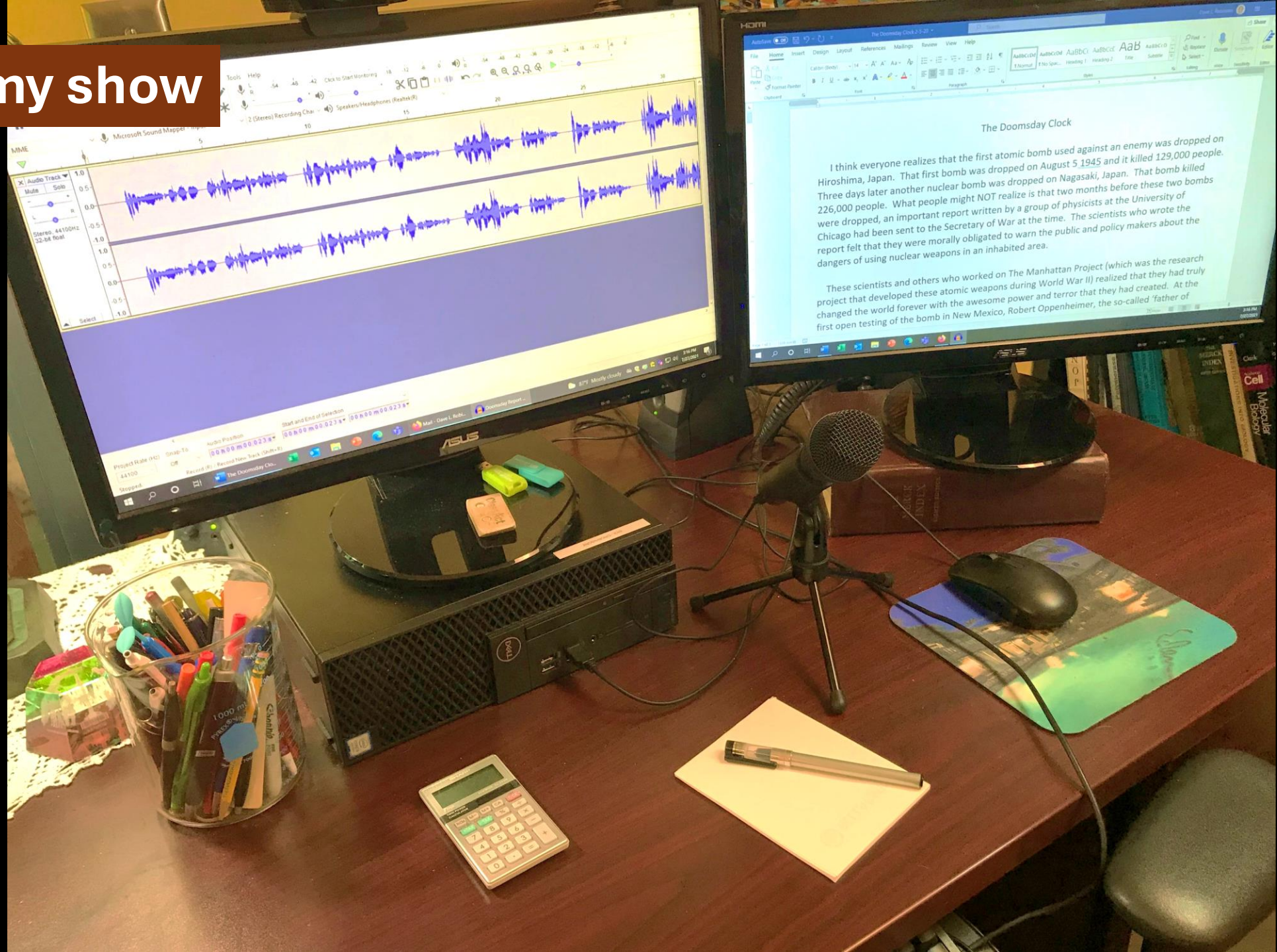
C-SPAN
Federal Government Proceedings

got science?
{ the podcast }
Union of Concerned Scientists

How I record my show

$50 microphone
(USB plug)

Two screens…
but could just
print script out



- Find a quiet place to record. Eliminate background noises (chirping birds, squeaky chairs, air conditioners, automobile traffic, airplanes, people).

- Smaller spaces seem to give a better sound (less echo); but not near too many walls. Cushioning (carpets, fabric) reduces the 'hollow' sound.

- Microphones can be relatively inexpensive ($50). Headsets will suffice. Camera & laptop microphones are lower quality, but sufficient.

- I position the microphone about a foot away to reduce mouth noises and breathing. Keep speaking distance constant.

- Record an entire story in one sitting. The quality of the sound can change even at different times of the day.

- Strengthen your voice ahead of time with exercises…like vocalizing the scales (saying 'ahh' as low and high as possible). There are others.

- Try to sound as natural as possible. There is nothing more boring than hearing someone simply reading their script outloud.

- Record your story in 1- or 2-minute snippets and make sure it sounds okay before moving on. If dissatisfied with it….re-record that snippet.

- Don't edit the story until completely finished.

- Be sure to record at least 30-seconds of silence so you can use that to eliminate background noises. Do this during the same recording session.

The microphone on a smartphone can be useful:

On an iPhone you can utilize recorded phone calls or Voice Memos:

- You can record a phone interview….(after calling, hit 'record' button in upper left)
- Or you can record yourself, or a lecture, or conversation using Voice Memo

Then….

- Save recording to your iCloud account by selecting 'Share', then 'Save to Files'
- Using your PC, login to your iCloud account (www.icloud.com)
- Download the recording to the hard-drive on your PC
- Open '**cloudconvert.com**' and ask it to convert an '.m4a' file to an '.mp3' file
- Download that '.mp3' file to your PC
- Import that file into Audacity for editing

I use '*Audacity*' software to record and edit individual stories……
……and to compose the entire show.

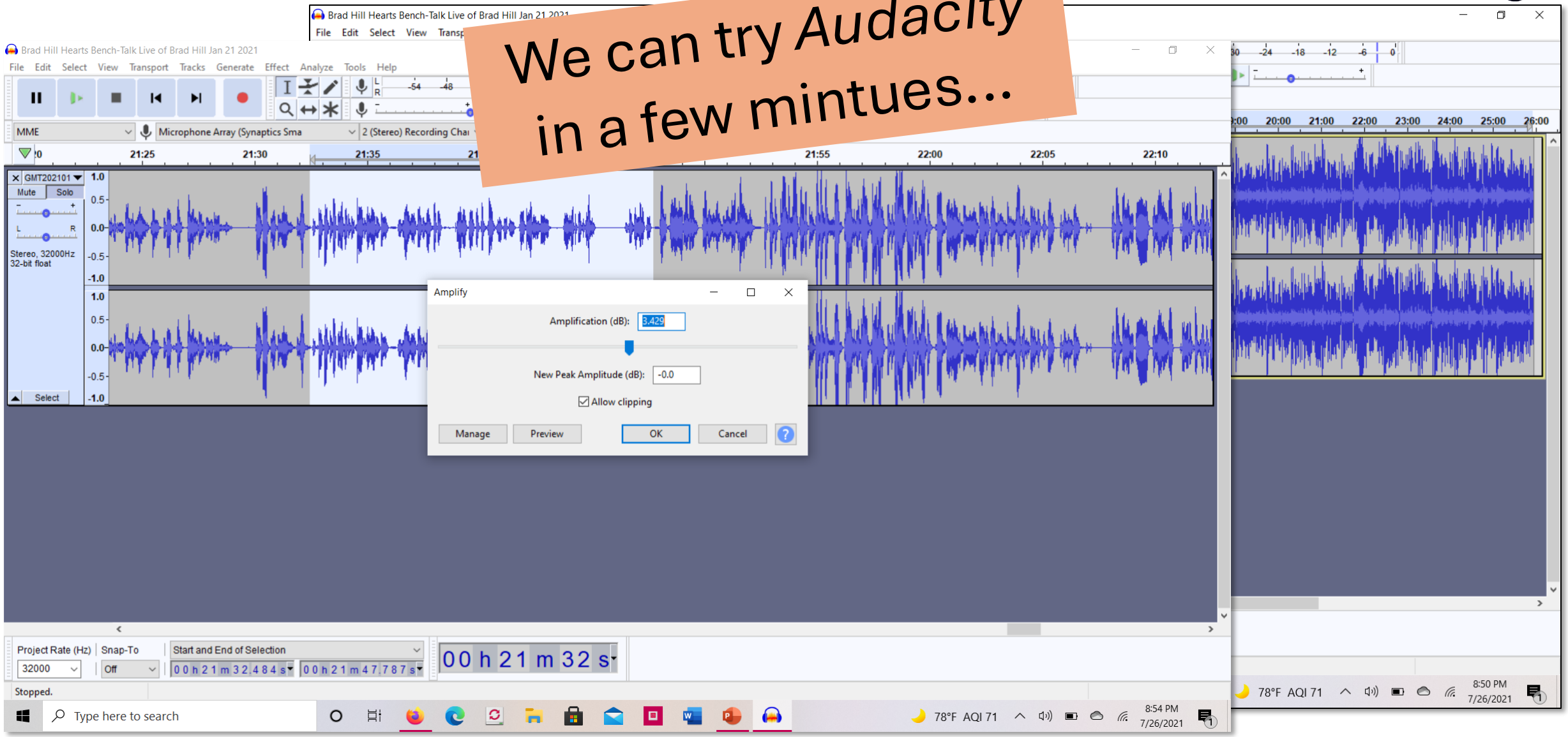
- It's free-of-charge to download onto a PC computer
- It's one of the most popular sound-editing packages around
- Very powerful and adaptable (used by professionals)
- Easy to learn the basics (can start recording in only 15 minutes)
- Lots of useful instructional YouTube videos (at beginner & advanced levels)
- Meant for PC computers; if using an Apple product try '*GarageBand*'

I use '*Audacity*' software to record and edit my individual stories.....

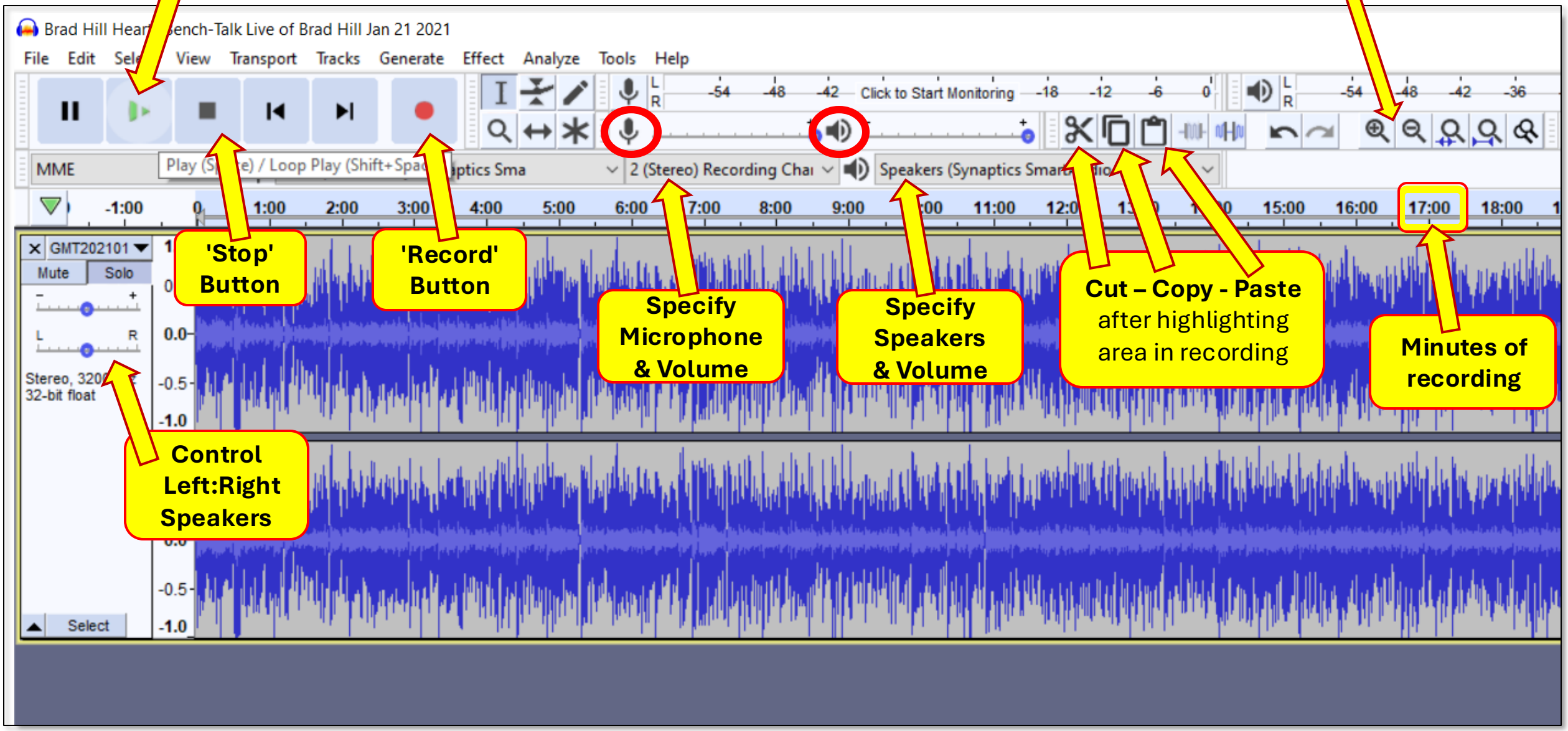
.....and to compose the entire show.

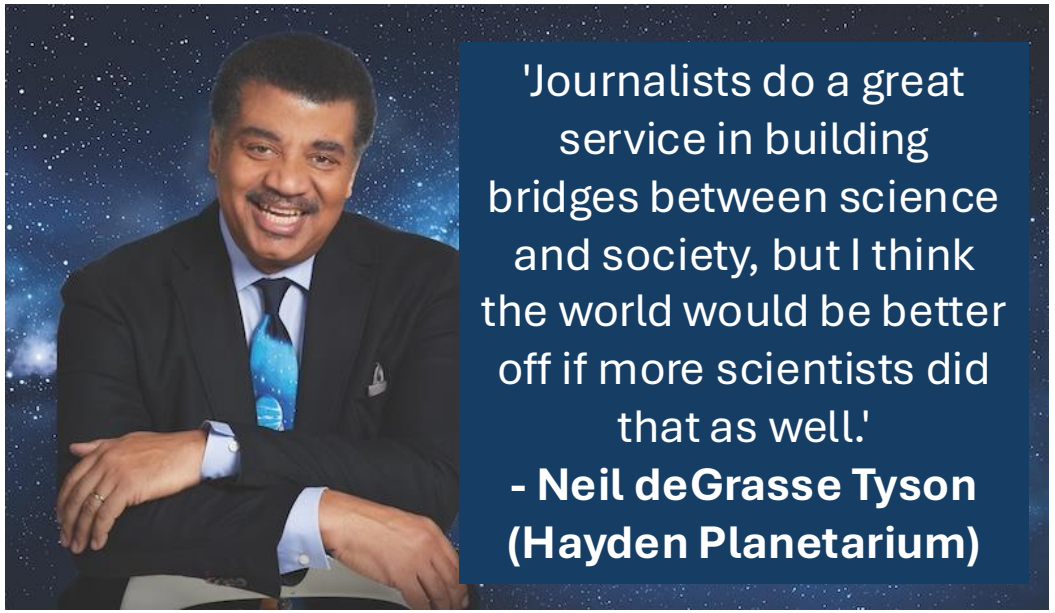
Audacity®

We can try *Audacity* in a few mintues...



Audacity®

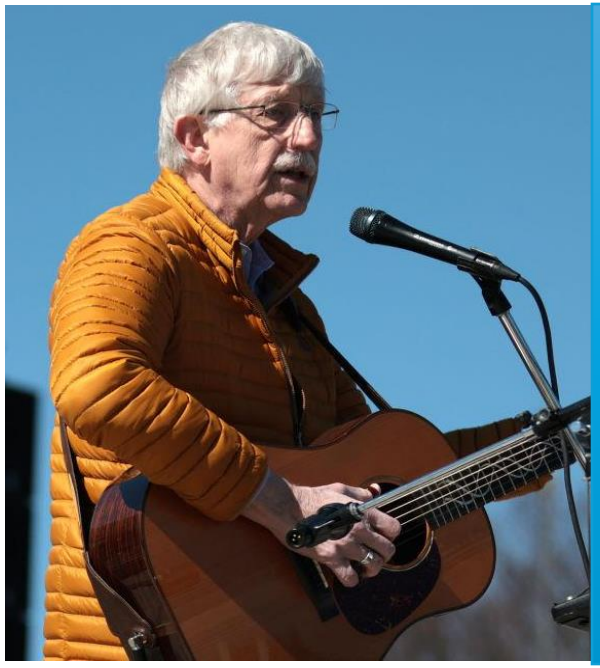

'Play' Button
'Stop' Button
'Record' Button
Specify Microphone & Volume
Specify Speakers & Volume
Cut – Copy - Paste after highlighting area in recording
Zoom In and Out Buttons
Minutes of recording
Control Left:Right Speakers
File Edit Sele View Transport Tracks Generate Effect Analyze Tools Help
Click to Start Monitoring
MME
2 (Stereo) Recording Chai
Speakers (Synaptics Smart
GMT202101
Mute
Solo
Stereo, 320
32-bit float
Select



'Journalists do a great service in building bridges between science and society, but I think the world would be better off if more scientists did that as well.'
- Neil deGrasse Tyson (Hayden Planetarium)

'Scientists should tithe 10% of their time on public education in science. This should be distinct from teaching ordinary courses at colleges & universities'
-Carl Sagan (Cornell)

Won't you join them...
(or even us)
...in bringing science to the public?



'I want to.....enlist all of the members of scientific societies, and give them the assignment to be communicators of what science is and what it can accomplish in a realistic, community-based way. We have a long way to go to actually convince a lot of Americans about just how important science is for our future.'
-Francis Collins (Director, NIH)

WFMP-LP 106.5 FM

Louisville Forward Radio

Dave Robinson

drobinson2@bellarmine.edu

502-553-6172 (call/text)

www.facebook.com/BenchTalkRadio

Show's QR Code: