

SCIENCE EXPLORATION: SHORT WAVE

Ages:

12-14, 15-18

Description:

Girls will explore hot topics in STEM with the podcast [Short Wave](#). Produced by NPR, *Short Wave* explores everyday phenomena, recently uncovered mysteries, and the science behind what we hear in the news. *Short Wave* uses humor and creativity to excite people about science. Girls will connect the topics discussed to possible career paths.

This activity is inspired by the Girls Inc. [Eureka! program](#), a STEM focused program that exposes girls to career opportunities in STEM through hands-on activities taught by professionals in the field.

Parent/Guardians: The *Short Wave* episodes recommended in this activity were specially selected by the Girls Inc. team. We welcome families to listen to episodes with your girl so you can discover new ideas together! While girls are encouraged to explore additional episodes, you may prefer to check out the topics before they listen. Many recent episodes explore the novel Coronavirus and may warrant continued conversations between you and your girl. Here is an short segment from the Child Mind Institute that could help you start this conversation: [How to Talk to your Kids about the Coronavirus](#).

Time:

10-20 minutes daily

Materials Needed:

- Internet access on a phone, tablet, or computer
- A friend to listen with (optional)
- Paper (optional)
- Pencil, Markers (optional)

Instructions

Wow! I'm so excited to introduce you to the [Short Wave](#) podcast! Over the next week, we'll explore science and technology though stories related to female empowerment, conserving our environment, human gene editing, artificial intelligence, and sleep.

You can listen every day or pick the topics that interest you. Try listening at the same time every day to start a routine. Maybe before bed or when you're eating breakfast? On average, episodes are 10 -12 minutes long.



Let's get started!

Ready to start exploring? Follow the links below on a phone, tablet, or computer to listen to the episode of the day! Episode descriptions are from the *Short Wave* website.

If you're up for a challenge:

- As you're listening, write down the ideas you find interesting.
- Learn more about career opportunities related to topics from each episode by selecting the link under 'Connected Careers'.
- Discuss the questions in the Activity Recap with a friend or family member to think more deeply about what you learned.

Day	Episode	Min	Connected Career
Day 1	Finally, An All-Female Spacewalk NASA astronauts Christina Koch and Jessica Meir completed the first all-female spacewalk last week. The historic moment came 35 years after Kathryn Sullivan became the first American woman to spacewalk. We hear from Koch, Meir, and Sullivan. Former NASA chief scientist Ellen Stofan also tells us why she says this moment is long overdue.	12	Astronaut Mechanical Engineer Space Suit Designer Space Suit Engineer
Day 2	Is Failure to Prepare for Climate Change a Crime? That's the central question of an unprecedented lawsuit against a company whose chemical plant flooded during Hurricane Harvey in August 2017. Containers and trailers there caught fire, sending up a column of black smoke above the facility for days. Now Arkema (the company), an executive, and the local plant manager are facing criminal charges — recklessly emitting air pollution, and a third employee with assault.	11	Science Correspondent Environmental Lawyer Organic Chemist Environmental Engineer
Day 3	Food Waste + Poop = Electricity Some dairy farmers in Massachusetts are using food waste and manure to create renewable energy. Each farm produces enough to power about 1,500 homes. Not only does this process create electricity, NPR Science Correspondent Allison Aubrey tells us it also prevents the release of methane, a greenhouse gas.	9	Environmental Scientist Electrical Engineering

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Day 4	<p>Exploring the Canopy with 'TreeTop Barbie'</p> <p>Pioneering ecologist Nalini Nadkarni takes us up into the canopy — the area above the forest floor — where she helped research and document this unexplored ecosystem. Plus: the story of her decades-long effort to get more women into science, and how she found a surprising ally in the fight — Barbie.</p>	11	Ecologist
Day 5	<p>It's Okay to Sleep Late (But Do It For Your Immune System)</p> <p>Dr. Syed Moin Hassan was riled up. "I don't know who needs to hear this," he posted on Twitter, "BUT YOU ARE NOT LAZY IF YOU ARE WAKING UP AT NOON." Hassan, who is the Sleep Medicine Fellow at Brigham and Women's Hospital in Boston, speaks to Short Wave's Emily Kwong about de-stigmatizing sleeping in late, and why a good night's rest is so important for your immune system.</p>	10	Neuroscientist
Day 6	<p>Adversarial AI</p> <p>Artificial intelligence might not be as smart as we think. University and military researchers are studying how attackers could hack into AI systems by exploiting how these systems learn. It's known as "adversarial AI." Some of their experiments use seemingly simple techniques.</p>	9	Computer Programmer Information Security Analyst Data Scientist
Day 7	<p>A Revolutionary Experiment to Edit Human Genes</p> <p>Victoria Gray has sickle cell disease, a painful and debilitating genetic condition that affects millions of people around the world. But an experimental gene-editing technique known as CRISPR could help her — and, if it does, change the way many genetic diseases are treated. Correspondent Rob Stein tells her story, an NPR-exclusive.</p>	12	Geneticist

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ACTIVITY RECAP

Discovery Questions:

After you listen to each episode, talk to a friend or family member about all the new knowledge and questions you have. Think about the prompts below to get your conversation started.

- What is the most exciting thing you learned from this episode?
- What is one thing you learned about that you want to continue to explore? How did this idea make you feel when you heard it? Intrigued, excited, happy, angry, frustrated, sad, motivate?
- Why do you think the topics explored in this episode about are important? How do they relate to your day-to-day life?
- What is one career you learned about that you could see yourself pursuing? Why does this career interest you?
- Keep the conversation going! What else did you find interesting? There are so many episodes of *Short Wave*! What episode do you want to listen to next?
- With a parent/guardian's permission, share an idea you learned from your favorite episode on with Girls Inc. on our [Instagram](#) page with the tag @girlsincindy.

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