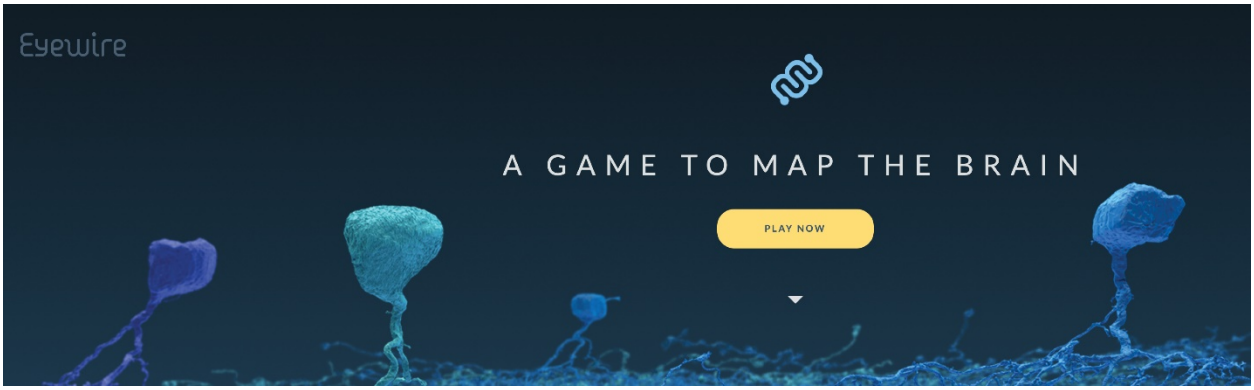
STEM CITIZEN:
PLAYING GAMES FOR SCIENCE

So… we've covered a lot of material! By now, you should feel very empowered as a Citizen Scientist about how you can contribute to advancing STEM learning around you. But with so much information, maybe you are still unsure how you can help?

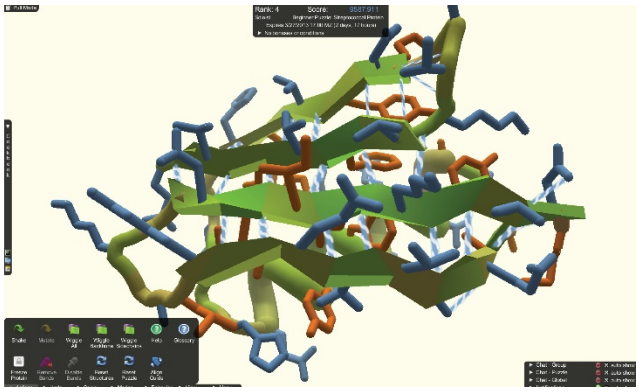
Did you know that you can play educational games that contribute to STEM research? These games help scientists learn more about how people think, bring awareness to important issues, and help find patterns and data missed by even the most advanced computers. Curious? Check out some of the games below!

Disclaimer: The majority of these sites are not affiliated with Ohio University. Always follow common sense internet safety guidelines when participating in online activities and get parent/guardian approval when setting up individual accounts.



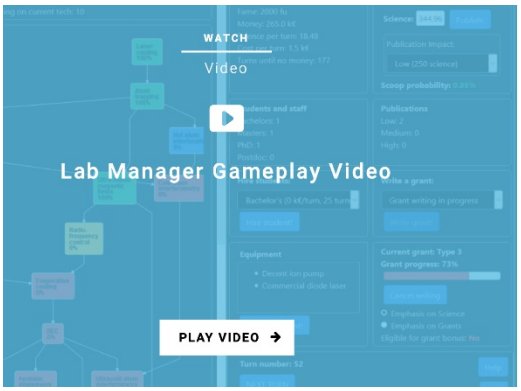
Eyewire: Interested in puzzles and patterns and how the brain works? Eyewire is a platform developed by neuroscientists at Princeton University who are dedicated to understanding the circuits and wiring of the brain by mapping neurons into a 3D puzzle. Players use imaging of neurons to find patterns, and this data is analyzed to improve neuron identification. Eyewire gaming advances neuroscience by helping researchers discover how neurons connect and network to process information. You also help develop advanced artificial intelligence (AI) and computational technologies for mapping the connectome. Players in Eyewire have charted never-before-known circuits and discovered new types of neurons – cool!!

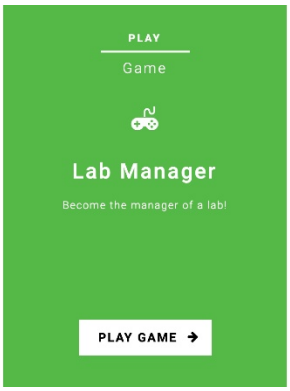
Tip: Pay close attention to the really helpful tutorials found here: https://blog.eyewire.org/category/tutorials/!



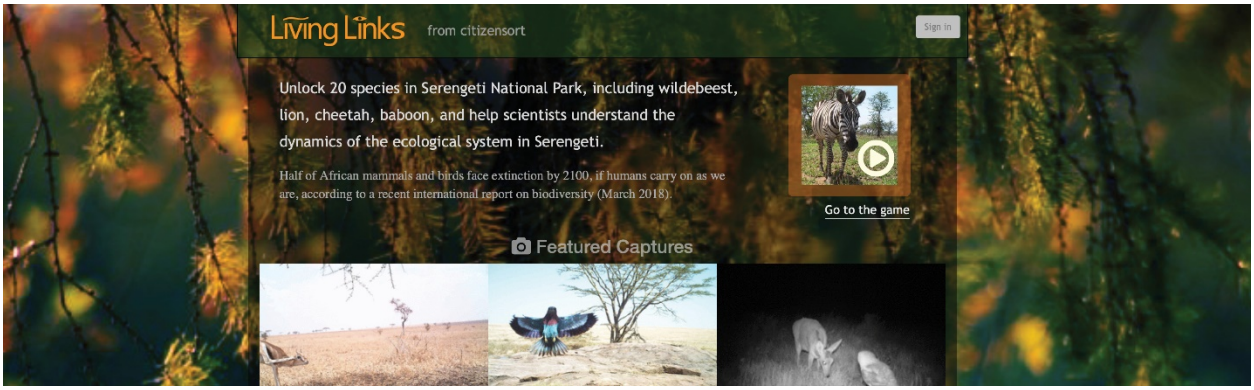
Foldit: Looking for a brain challenge? Foldit is all about exploring how proteins fold which is important to researchers to help understand how to combat diseases, create vaccines, and even find novel biofuels. The researchers have developed puzzles to determine if human pattern-recognition and puzzle-solving ability are more efficient than existing computer programs at pattern-folding tasks. Read all about the importance of this game and protein folding here. Foldit also shares facts about the different problems you encounter, relating it all back to real science. Thank you researchers and National Science Foundation!

Tip: Check out the Foldit YouTube channel found here https://www.youtube.com/channel/UCGjfDFjL-7rvhRRI2keqhcA for how-to videos and tips!

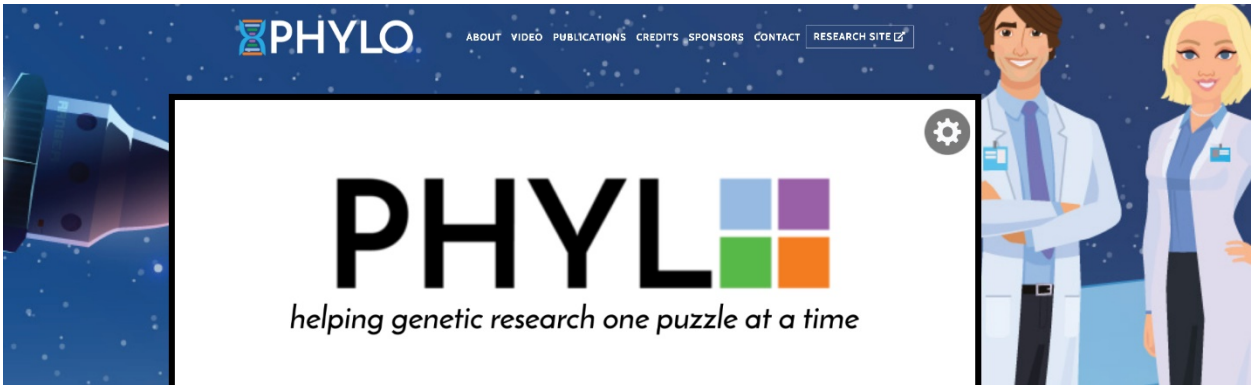




Lab Manager: If you have an interest in physics, or if you've ever thought about teaching science at the university level or being a science researcher, this game is awesome for career exploration! In this game, you are a lab manager in a physics lab, and you are responsible for balancing your budget, conducting research, hiring, and managing lab assistants, and writing grants and publications, all while trying to maintain a favorable reputation in the scientific community. It is a great game to better understand the real life responsibilities of a lab manager or researcher. It also teaches you about different topics in physics. (Lab Manager is just one of the many games hosted by ScienceAtHome, see below.)

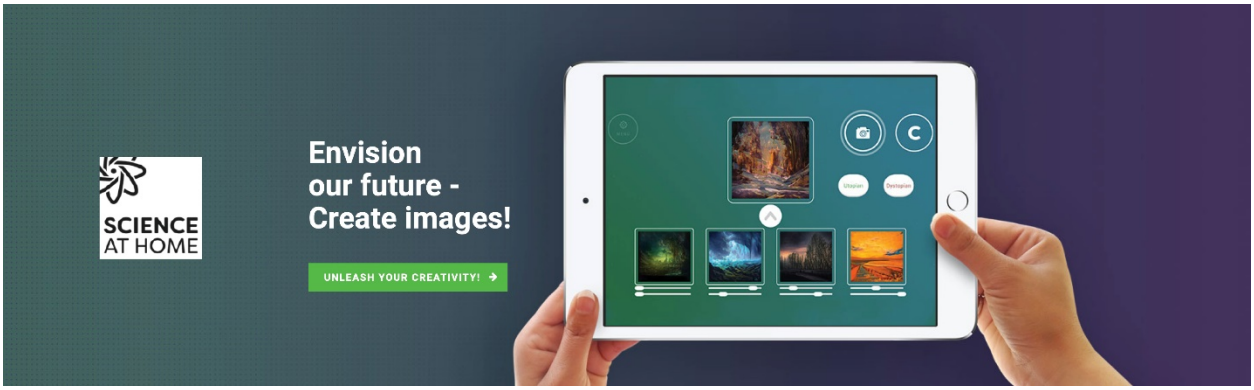


Living Links: Go on safari from your home! In this puzzle and pattern recognition game, you will help biologists by identifying animals of the Serengeti National Park from wildlife camera images. Watch the short tutorials on how to recognize and characterize different species such as wildebeest, zebras, cheetahs, and more! The players identify whether a certain animal is or is not in the wildlife camera images. This information is used to refine artificial intelligence (AI) software while helping biologists to survey animals the region. Especially cool for those with zoology interests! A collaboration project between Syracuse University and Snapshot Serengeti.



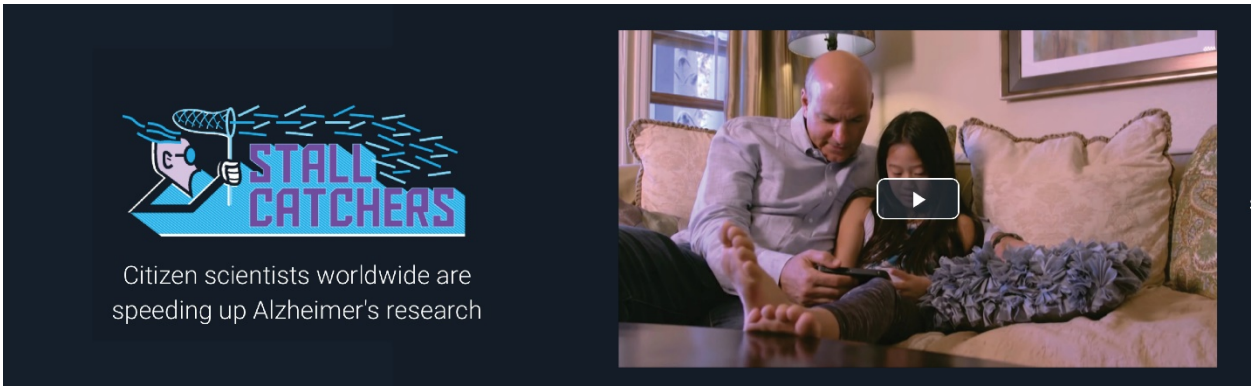
Phylo: Genetic sequencing as a game? Phylo is for you! In Phylo, players are genetic researchers trying to edit human genes to prepare them to return to Earth after humans left for thousands of years. The goal is to adapt humans to handle Earth's new conditions by editing their genes. The game works by having players match color patterns as precisely as possible to edit human genes to match those of life currently on Earth. Yes—this really helps scientists by using Citizen Science and artificial intelligence (AI) to more efficiently find patterns in DNA using real genetic sequences. Genetic patterns help us understand and treat diseases such as cancer.

Tip: Site host McGill University has posted a "What is DNA?" video on YouTube that may be helpful if you are new to genetics. Check it out here: https://youtu.be/eFLTW5EDUdg.



ScienceAtHome: ScienceAtHome is a project of Aarhus University and features nearly 20 different games related to STEM. Some help researchers to advance STEM fields, while others are just plain fun and educational! Check out some of these games to sharpen your matching, pattern-recognition, or puzzle game skills on a variety of STEM topics like Quantum Moves, Alien Code, and Tower Builder.

Tip: A fan favorite is Skill Lab: Science Detective which features fun mini games such as an archaeological hunt, a robot repairman, a chemistry matching game, a ratcatcher, and more!



Stall Catchers: Stall Catchers is looking for STEM Citizens to help researchers at Cornell University beat Alzheimer's. Players are shown real scans of mouse brains to identify "stalls" in blood flow that could be related to Alzheimer's. Thousands of players review the same data to help ensure accuracy, so don't worry if you aren't sure if you make a mistake! Stall Catcher is another game that uses puzzles and pattern recognition to solve important medical challenges.

Tip: Take a few minutes to watch the short videos on the homepage to better understand your goal and the importance of your participation.

Another great clearinghouse for more game links: https://citizensciencegames.com/!