



# BECOME A GALAXY DETECTIVE WITH REDSHIFT WRANGLER

## Do NASA Science LIVE!

Look at real light from faraway galaxies and help scientists learn more about the Universe using citizen science. **No experience needed, just curiosity!**

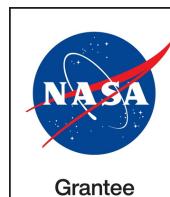
Learn more about **Redshift Wrangler**



[SciStarter.org/Redshift-Wrangler](https://SciStarter.org/Redshift-Wrangler)



**SciStarter**  
Science we can do together.



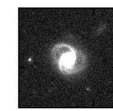
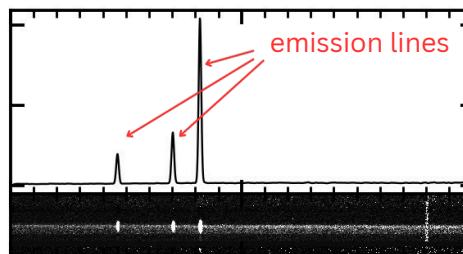
# Become a galaxy detective with Redshift Wrangler!

**What are we looking at?** Galaxies give off light in many colors. When we spread the light into a *spectrum* (using something like a prism), some colors shine brighter than others. Those bright spots are called **emission lines**, and they help scientists learn more about the galaxy, like what it's made of and how far away it is.

Here are three steps to help you get started and investigate the spectral fingerprints of distant galaxies with Redshift Wrangler:

## STEP 1: Look for tall, skinny, spikes in the graph.

*These spikes are “**emission lines**.” They are places the galaxy is glowing brighter in a specific color of light.*

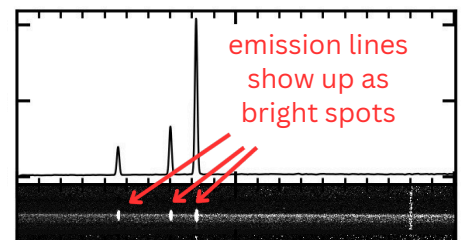


**Galaxy** = a huge collection of stars, dust and gas

**Spectrum** = the light from the galaxy, spread out into colors

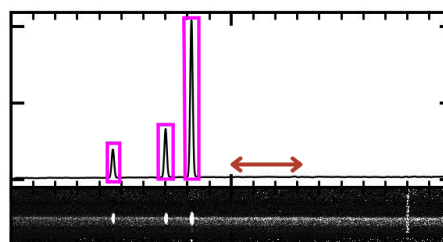
## STEP 2: Look for bright blobs in the picture below the graph.

*These blobs sit directly below spikes in the graph and show exactly where the galaxy is shining in that color. If you see a spike and a matching blob, you've found a real **emission line**!*



## STEP 3: Use the drawing tool to box every spike you can find.

*Draw a box around **every emission line spike** in the graph. The bright blobs can help you make sure you've found the right ones.*



**Redshift:** the light from distant galaxies gets *stretched* as the Universe expands, making emission lines appear at redder colors. The position of the lines tells us how much the galaxy's light has shifted (it's *redshift*!)

**Why does this matter?** By finding emission lines, you're helping scientists measure galaxy distances and discover how galaxies grow and evolve across cosmic time. Thanks for all of your help, we couldn't do it without you!



You're officially a Redshift Wrangler! You can help us inspect more real galaxy data on Zooniverse