Annotated Resource List

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High School

Introduction: For this assignment I tried to focus on resources that were geared more toward Astronomy. A couple of the resources I had already found and was planning on using, the others were found as I was looking for something for upcoming lessons. Since we are supposed to try to use NASA resources, I tried to find resources that would work for my students. I found many of them were too much for the students that I have in the class. I did struggle finding appropriate resources that fit for a high school astronomy class, but were a little lower level than high school. My overall goal is to find a list that balances scientific accuracy, accessibility, and opportunities for inquiry based learning. I want my students to be able to use resources that are out there that have real data and visualizations that can connect them to astronomy concepts.

1.

Title of the resource	NASA Exoplanet Archive
Web Link	https://exoplanetarchive.ipac.caltech.edu/
Course and topic	Astronomy / planets or stars
3-5 sentence description of the resource	This is an up-to-date website that provides detailed datasets on confirmed exoplanets, including their host stars. Users can find interactive tables and tools for students wishing to examine real astronomical data. Students can also explore how exoplanet discoveries are made and validated.
3-5 sentences describing how it can be used in a lesson	This resource will introduce students to authentic data and the process of scientific discovery. Students can search for planets around stars of different sizes, compare orbital periods, or graph planet size versus distance from their star. This can also be used to do research in a chosen habitable zone and use the database to find evidence.
Modifications needed to use this resource in teaching	Depending on the level of student, I may provide step by step directions or screenshots to help students find the site's tools. Giving only a few exoplanets or stars to research. Use graphic organizers to help record observations and conclusions.
Other information	

2.

Title of the resource	WorldWide Telescope
Web Link	https://worldwidetelescope.org/
Course and topic	Astronomy / constellations, seasonal skies, galaxies, wavelengths of light
3-5 sentence description of the resource	This resource is a visualization tool that lets students explore the sky, Earth, and the universe using datasets from different telescopes

	and missions. Students can fly through space while viewing multi-wavelength observations from real telescopes. It can also be used for guided tours, time lapse animations, while helping students to visualize the scale of our solar system.
3-5 sentences describing how it can be used in a lesson	Students could take a guided tour of the Milky Way or compare how objects appear in different wavelengths of light. This could be used to view seasonal constellations by changing the date and location. This would also be a great lesson for students to get an idea of the scale, distance and structure of the universe.
Modifications needed to use this resource in teaching	A modification that might be needed is to introduce this site in stages, starting with a simple tour. Create a scavenger hunt to give students a guide, instead of letting them navigate anywhere.
Other information	

3.

Title of the resource	Stellarium Web
Web Link	https://stellarium-web.org/
Course and topic	Astronomy / Stars
3-5 sentence description of the resource	This resource is a planetarium that simulates the night sky that can be seen with the naked eye, binoculars, or a telescope. It is a 3D view of stars, planets, the Moon, and other objects in the sky. The students can manipulate the time, location, the object being searched, and label constellations.
3-5 sentences describing how it can be used in a lesson	This is a great site that allows students to view the night sky in an interactive and hands-on way. In a lesson, students could track planetary movements or observe how the sky changes with the seasons and locations. Another use would be to create an activity where students compare observations with the simulated sky to reinforce concepts like rotation, orbit, and apparent motion of the stars.
Modifications needed to use this resource in teaching	Structured guidance may be needed to focus students on what you want them to reinforce. Step-by-step instructions on settings will be helpful. Create guided questions to help students document their observations.
Other information	

4.

Title of the resource	Surface and Air Temperatures Throughout the Day
Web Link	https://mynasadata.larc.nasa.gov/mini-lessonactivity/surface-and-air-temperatures-throughout-day
Course and topic	Earth Systems / Urban Heat Islands
3-5 sentence description of the resource	This is a mini lesson from My NASA Data that helps students analyze how surface and air temperatures change over a 24 hour period. Students look at line graphs to compare ground temperature

	and air temperature, just above the surface. The activity encourages observation of daily temperature between urban and rural areas.
3-5 sentences describing how it can be used in a lesson	Students will analyze a provided graph to identify trends between ground and air temperature in rural and urban areas. Students then discuss factors influencing these differences. This activity can be extended to come up with ideas for minimizing the urban heat island.
Modifications needed to use this resource in teaching	The graphs can be discussed as a class, create a guide with questions that help students analyze the data.
Other information	

5.

Title of the resource	NASA Earthdata Search
Web Link	https://search.earthdata.nasa.gov/
Course and topic	Meteorology / weather and climate
3-5 sentence description of the resource	This resource provides Earth science datasets collected by NASA satellites. It includes information on climate, land cover, oceans, and atmospheric conditions. Students can filter by location, time, and dataset type. It allows for students to explore patterns and trends in Earth systems.
3-5 sentences describing how it can be used in a lesson	One way to use this is finding climate trends and analyzing them. Students will look at local temperatures and precipitations data and create graphs to identify long-term trends. Another way this can be used is to track natural events, such as wildfires, hurricanes, droughts, then present findings in a map or as a presentation.
Modifications needed to use this resource in teaching	One modification would be to preselect data for students to analyze so they do not get overwhelmed by the amount of available data. Provide step-by-step instructions on how to filter the data.
Other information	

6.

Title of the resource	National Environmental Satellite, Data, and Information Service
Web Link	https://www.nesdis.noaa.gov/
Course and topic	Meteorology / atmosphere
3-5 sentence description of the resource	This resource provides environmental satellite data that monitors weather, oceans, and atmospheric conditions. There is real-time and archived pictures for students to analyze patterns. Students can view storm movement, sea surface temperature, or atmospheric changes.
3-5 sentences describing how it can be used in a lesson	In the classroom, students could use this to track storms using satellite images and analyze the changes over time. Investigation of ocean temperature changes and discuss possible impacts on the marine ecosystem. Students can explore the ozone levels or air pollution to analyze trends of human impact on a local area.

Modifications needed to use this resource in teaching	Provided specific datasets to avoid the overwhelming amount of information in the resource. Provide guided questions to help students keep their observations and patterns in an organized fashion. Whole class demonstrations will also help some students to see how to use the resource.
Other information	