



2020-2021 School Year Science Standards Work Plan

Learning Goals: Familiarize yourself with your grade level Science Standards so that you can teach them in the 2020-21 school year

Success Criteria: Plan out Science lessons for 1st quarter and create a supply list of items to order (if needed) to carry out any interactive Science activities you may plan for your students by Friday, May 15, 2020

Process for familiarizing yourself and feeling competent to teach your grade level Science Standards:

1. Go to the **ADE website** and download your grade level Science Standards
 - a. <https://www.azed.gov/standards-practices/k-12standards/standards-science/>
 - b. There is a copy for each of you: **A Framework for K-12 Science Education** in the CRC (Tuesday, April 21 after 12 noon) – it is not imperative that you have it now, but it is a nice resource. You can also download a copy of the PDF at:
<https://www.nap.edu/catalog/13165/a-framework-for-k-12-science-education-practices-crosscutting-concepts>

2. **Watch the 3 Recorded Webinars** ~ They will help ground you in the new Science Standards:
 - a. **Science Webinar Videos:**

We Have New Standards Now What: Navigating the Documents – 21 minutes

General overview video about the *Framework for K-12 Science Education*. You will want the Full document of the Science Standards in front of you when you watch this video. You will appreciate that there is NO order in which to teach the Science Standards.

5-E Instructional Model and Science Notebooks - 44 minutes

good information about the instructional shifts in the new Science Standards. Primarily moving away from worksheets and rote memorization to engaging students in questioning the world around them. AZ is not an NGSS state, but we are a Science Framework state that uses the 3 Dimensions of science. This video is nice because it discusses that Science is not just about steps and procedures, but asking the how and why questions. The good part of the video is that it is information that you are familiar with when you all worked on the Science Grant several years ago. At about the 13-minute mark is information about Science Notebooking. The presenter discusses the difference in a Science notebook, a journal, and a log. Then at around the 20-minute mark the 5 E Model is explained: Engagement, Exploration, Explanation, Elaboration, and Evaluation.

Phenomenon-Based 3-Dimensional Instruction – 47 minutes

It does go over the Science standards again and is redundant information from the first two videos, so skip ahead to after 17:17 minutes. Helps with understanding the coding of the standard, and then delves deeper into the 3 Dimensions of the standard and understanding the “doing” the science and having the opportunity to choose the Cross-Cutting Concept to use as a lens to look at the phenomenon being questioned. At about 21:27 minutes the presenter gives us a deeper understanding of scientific phenomenon and how to choose the right phenomenon to study in your classroom. This area will explain why we may not want to adopt a specific set of curriculum books, but rather our students interests would push what to investigate. Good conversation for later.



Phenomenon Resources Presented at end of Video:

- Phenomena for NGSS: <https://www.ngssphenomena.com/>
- Project Phenomena: <https://sites.google.com/site/sciencephenomena/>
- The Wonder of Science: <https://thewonderofscience.com/phenomenal>
- Project SING Phenomena: <http://questlc.org/phenomena/#phenomena>
- Webicosm – phenomena of fruit decomposing <https://www.youtube.com/watch?v=c0En-BVbGc>

3. **Explore Resources** within the themes of your grade level Science Standards
 - a. Remember the Science Standards do NOT have to be taught in a specific order, but can be taught in an order that makes sense for the other content areas you are teaching – or based on what is happening in the community, our seasons/weather, your mood, or questions your students have about the themes within your grade level Science content.
 - b. There is a ton of resources on the ADE Science site – do NOT get into the weeds looking at everything.
4. By **Friday, May 15** map out your instructional plan for the first quarter of 2020-21 SY
 - a. Create a list of supplies to order for the first quarter Science activities
5. Your “go to” people resources for Science are Sherry Ayala and Gayl Howell – not to mention that you have staff experts – please reach out with any questions or additional support that you may require.

Teachers All Core	STEM Teaching Tools Guidance	Supporting Students’ Science Learning	http://stemteachingtools.org/news/2020/guidance-for-supporting-science-learning-during-covid-19?fbclid=IwAR12Ph21OGaN7wKWa-WFLUioITSDrq29cGagxGehpPFSSsoSI3pgoHoRE TU
K-12 All Core	National Energy Education	NEED energy learning games, activities, videos	https://www.need.org/distancelearning/
K-MS All Core	Sandbox	Fun, and engaging STEM videos Tools work best if you take time to explore each connected resource Site is organized by music, so it can be hard to navigate resources to specific needs	https://okgosandbox.org/
K-5 Earth & Space	NASA Climate Kids	Toolbox for learning about global climate change	https://climatekids.nasa.gov/
K-5 All Core	Mystery Science	Teachers – tons of lesson ideas; Students can explore different activities, including videos and games	https://mysteryscience.com/school-closure-planning
K-12 All Core	University of Colorado	PheT Varied topics across contents and grades Great to visualize demonstrations and labs that may require a lot of time and equipment Not as compelling as real-world simulations, many tools require Java	https://phet.colorado.edu/
6-12 Earth & Space	University of Colorado	PheT is an interactive Earth & Space site for 6 th -12 th grade students	https://phet.colorado.edu/en/simulations/category/earth-science
K-12 All Core	NOVA	Documentaries and supporting activities let students experience science as scientists	https://www.pbs.org/wgbh/nova/

		May need to include a pre-video activity to engage students throughout the whole documentary NOVA's amount of resources can be overwhelming	
K-12 Life; Physical	National Science Digital Library	lesson plans, primary sources, activities, homework assignments and more	https://nsdl.oercommons.org/
K-12 Earth & Space	National Geographic	Geography lessons that are rooted in weather, animal science, history, and culture Resources like activities, videos, photos, interactive maps, guides, etc.	https://www.nationalgeographic.org/education/
Teachers All Core	Going 3D with GRC lesson	3-Dimensional Classroom Lessons	https://sites.google.com/3d-grcscience.org/going3d
PK-12 All Core	Skype a Scientist	Skype a Scientist-	https://docs.google.com/forms/d/e/1FAIpQLSfgUuzLQIWjnXr8thUniXD0nb-wy10gEW9FwLQjefSyFARZO/viewform
PK-MS Physical	PBS Kids - Design	engineering challenges directions for how to build various machines videos of other peoples' inventions	https://pbskids.org/designsquad/
PK-12 Earth & Space	GLOBE Observer	an international network of citizen scientists and scientists working together to learn more about our shared environment and changing climate	https://observer.globe.gov/en/toolkit
PK-12 Life; Earth & Space	Discovery Education	Virtual fieldtrips without leaving your classroom or home	https://www.discoveryeducation.com/community/virtual-field-trips/
PK-12 Life	Natural History Museum	A range of nature-themed activities and crafts	https://www.nhm.ac.uk/take-part.html
PK-12 Life	American Museum of Natural History	A Science Website for kids from the American Museum of Natural History	https://www.amnh.org/explore/ology
PK-12 Life	Houston, TX Zoo Site	Come to the Houston Zoo and enjoy a look at the animals through live cams	https://www.houstonzoo.org/explore/webcams/
PK-12 Life	Monterey California Aquarium	Monterey Bay Aquarium has set up live cams to watch the antics of marine life	https://www.montereybayaquarium.org/animals/live-cams
6-12 Life	Sponsored by University of Colorado	PheT is an interactive biology site for the 6 th -12 th grade Science enthusiast	https://phet.colorado.edu/en/simulations/category/biology
K-12 Life	Georgia Aquarium	Web cams set up to watch marine life	https://www.georgiaaquarium.org/webcam/beluga-whale-webcam/
3-12 Life	The Biology Corner	The Biology Corner has fun activities and engaging videos of the natural world	https://www.biologycorner.com/

PK-6 Life	The Family Farms of Canada	Immerse yourself in Canadian Farm and Food Tours Learn about Dairy cows, sheep farms, grain farms and more	https://www.farmfood360.ca/
PK-12 Earth & Space	NASA's Space Place	Space Place to explore Earth & Space activities, games, videos, and crafts	https://spaceplace.nasa.gov/
PK-12 Earth & Space; Physical	National Oceanic and Atmospheric Administration on weather site	A site dedicated to weather Kids can view weather satellites, videos, trade wind maps and other fun weather related activities	https://scijinks.gov/
3-12 Earth & Space; Physical	National Oceanic and Atmospheric site	NOAA site dedicated to satellite and information services	https://www.nesdis.noaa.gov/
6-8th Earth & Space; Physical	The Science Spot	The Science Spot is dedicated to 6 th - 8 th grade earth & space science	https://sciencespot.net/Pages/classearth.html
3-12 Earth & Space; Physical	Nasa sponsored	The real surface of Mars; recorded by NASA's Curiosity Rover	https://accessmars.withgoogle.com/
K-12 Life	Teach Engineering	Technology engineering collection of STEM activities, videos, activities, and games	https://www.teachengineering.org/curriculum/browse?subjectArea=Physics
6-8 Life	The American Chemical Society	6 th - 8 th grade chemistry activities, videos	https://www.middleschoolchemistry.com/