Year A Cycle 1 – Our Universe, Our place

- General Topics to cover: How did the universe and everything in it come into being? Formation of the universe, Big Bang, Formation of galaxies and the solar system, Life cycle of stars, light spectra of stars, elements created by stars, Formation of the Wave Properties, Electromagnetic Radiation
- Cross Connection – History of scientific instruments and discoveries or we are made of star dust art/writing project or using a camera obscura to paint a picture like Vermeer (I am waffling)

Sources: Wisconsin Academic Standards for Science - https://dpi.wi.gov/sites/default/files/imce/science/WI-Standards-for-Science-2017.pdf

Read the Standards | Next Generation Science Standards (nextgenscience.org) - https://www.nextgenscience.org/search-standards

Table 1 summarizes the standards from the State of Wisconsin that apply to this cycle. The standards from NGSS are attached as PDF.

Standard	Objectives (from State)		
WISCONSIN STANDARDS FOR Science			
Standard SCI.ESS1: Students use science and engineering practices, crosscutting concepts, and an understanding of Earth's place in the universe to make sense of phenomena and solve problems.	CI.ESS1.A.h Light spectra from stars are used to determine their characteristics, processes, and lifecycles. Solar activity creates the elements through nuclear fusion. The development of technologies has provided the astronomical data that provide the empirical evidence for the Big Bang theory.	SCI.ESS1.B.h - Kepler's laws describe common features of the motions of orbiting objects. Observations from astronomy and space probes provide evidence for explanations of solar system formation. Cyclical changes in Earth's tilt and orbit, occurring over tens to hundreds of thousands of years, cause cycles of ice ages and other	

		gradual climate changes.	
Standard SCI.PS4: Students use science and engineering practices, crosscutting concepts, and an understanding of waves and their applications in technologies for information transfer to make sense of phenomena and solve problems.	SCI.PS4.A: Wave Properties - SCI.PS4.A.h The wavelength and frequency of a wave are related to one another by the speed of the wave, which depends on the type of wave and the medium through which it is passing. Waves can be used to transmi	SCI.PS4.B: Electromagnetic Radiation - SCI.PS4.B.h Both an electromagnetic wave model and a photon model explain features of electromagnetic radiation broadly and describe common applications of electromagnetic	SCI.PS4.C: Information Technologies and Instrumentation- SCI.PS4.C.h Large amounts of information can be stored and shipped
Standard: SCI.ETS2: Students use science and engineering practices, crosscutting concepts, and an understanding of the links among Engineering, Technology, Science, and Society to make sense of phenomena and solve problems.	SCI.ETS2.A: Interdependence of Science, Engineering, and Technology - SCI.ETS2.A: Interdependence of Science, Engineering, and Technology	SCI.ETS2.B: Influence of Engineering, Technology, and Science on Society and the Natural World	SCI.ETS2.B.h Modern civilization depends on major technological systems, such as agriculture, health, water, energy, transportation, manufacturing, construction, and communications. Engineers continuously modify these systems to increase benefits while decreasing costs and risks. New technologies can have deep impacts on society and the environment, including some that were not anticipated. Analysis of costs and benefits is a critical aspect of decisions about
Standard: SCI.ETS3: Students use science and engineering practices, crosscutting concepts, and an understanding of the nature of science and	SCI.ETS3.A: Science and Engineering Are Human Endeavors - SCI.ETS3.A.h	SCI.ETS3.B: Science and Engineering Are Unique Ways of	

engineering to make sense of phenomena and solve problems.	Individuals from diverse backgrounds bring unique perspectives that are valuable to the outcomes and processes of science and engineering. Scientists' and engineers' backgrounds, perspectives, and fields of endeavor influence the nature of questions they ask, the definition of problems, and the nature of their findings and solutions. Some cultures have historically been marginalized in science and engineering discourse. Scientists and engineers embrace skepticism and critique as a community. Deliberate deceit in science is rare and is likely exposed through the peer review process. When discovered, intellectual dishonesty is condemned by	Thinking with Different Purposes - SCI.ETS3.B.h Science is both a body of knowledge that represents current understanding of natural systems and the processes used to refine, elaborate, revise and extend this knowledge. These processes differentiate science from other ways of knowing. Science knowledge has a history that includes the refinement of, and changes to, theories, ideas and beliefs over time. Science and engineering innovations may raise ethical issues for which science and engineering, by themselves, do not provide answers	
Next Generation Science Standards – Attached as separate PDFs			