Georgia Science

# Astronomy

Adopted 2019

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| **Obtain, evaluate, and communicate information to assess the validity of historical theories of astronomy.** SAST1 | **a.** **Ask questions to investigate the daily/seasonal motions of the sky and communicate the significance of constellations, for navigation and time-keeping.** SAST1.A |
| | **b.** **Obtain, evaluate and communicate information about how ancient structures, instruments, philosophies and civilizations influenced ancient astronomy.** SAST1.B |
| | **c.** **Construct an argument based on evidence to support the scientific claims made by the heliocentric model.** SAST1.C |
| | **d.** **Use mathematics and computational thinking to relate Kepler's Laws to Newton's Law of Gravitation.** SAST1.D |
| | **e.** **Construct an explanation for how technological advances in the design of reflecting and refracting telescopes have improved our ability to study the universe.** SAST1.E |
| **Obtain, evaluate, and communicate information to explain astronomical observations made from the point of reference of Earth.** SAST2 | **a.** **Develop and use models to evaluate the relationship between the relative positions of the Earth, Moon and Sun and observable phenomena.** SAST2.A |
| | **b.** **Plan and carry out an investigation using the celestial sphere to explain how latitude and time of year affect visibility of constellations and other celestial objects.** SAST2.B |
| | **c.** **Develop and use models of relative orbital motion of planets within our solar system to explain retrograde motion.** SAST2.C |
| | **d.** **Use mathematics and computational thinking to explain the relationship between the properties of light and the vast distances in the cosmos.** SAST2.D |
| | **e.** **Plan and carry out an investigation to analyze the electromagnetic spectrum and spectroscopic data to obtain information about the inherent properties and motions of objects.** SAST2.E |
| **Obtain, evaluate, and communicate inf th** | **a.** **Develop and use models to explain the formation of the solar system.** SAST3.A |
| | **Develop and use models to explain the chemical composition and characteristics of the Sun and other solar system objects.** SAST3.B |

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| **solar system and the properties of celestial objects within it.** SAST3 | **c.** **Ask questions to investigate and communicate major properties of our solar system bodies and the zones they inhabit.** SAST3.C |
| **Obtain, evaluate, and communicate information to describe the scientific view of the origin of the universe, the evolution of matter, and the development of galaxies.** SAST4 | **a.** **Construct an argument from evidence in support of the Big Bang theory.** SAST4.A |
| | **b.** **Use models to describe the conditions of the early universe that led to the formation and evolution of matter as well as the birth of the first stars and galaxies.** SAST4.B |
| | **c.** **Construct an explanation using indirect evidence to support the existence of dark matter and dark energy.** SAST4.C |
| | **d.** **Develop and use models to relate how galactic evolution occurs through mergers and collisions.** SAST4.D |
| **Obtain, evaluate, and communicate information about the connections between mass, gravity and fusion with respect to the life cycle of stars.** SAST5 | **a.** **Develop and use models to explain the process of stellar evolution from star birth to star death, including binary systems.** SAST5.A |
| | **b.** **Construct an argument based on evidence from the Hertzsprung-Russell diagram to assess the properties of stars, including density, luminosity, temperature, rates of fusion, and spectral class.** SAST5.B |
| | **c.** **Ask questions to evaluate evidence that predicts the lifespan and final stage of stellar evolution based on mass.** SAST5.C |
| | **d.** **Construct an argument based on evidence that explores the connections among various cosmic phenomena and leading theories.** SAST5.D |
| **Obtain, evaluate, and communicate information to discuss how the past, current, and future explorations of space impact our investigations of the connections between cosmic phenomena and conditions necessary for life.** SAST6 | **a.** **Construct an argument based on evidence of the significance of historical and future space exploration as they relate to leaps in technology, cultural cooperation, knowledge, and inspiration.** SAST6.A |
| | **b.** **Analyze and interpret telescopic data of various electromagnetic spectra in order to evaluate the uses and advantages of the data from each.** SAST6.B |
| | **c.** **Construct an explanation for the existence and importance of habitable zones, habitable planetary bodies, and possible signatures of life in our own and in other solar systems.** SAST6.C |
| | **d.** **Construct an explanation of how astronomical and planetary hazards and global atmospheric changes have impacted the evolution of life on Earth.** SAST6.D |