



**KENOSHA UNIFIED SCHOOL DISTRICT NO. 1  
CURRICULUM AND INSTRUCTIONAL SERVICES**

**COURSE SYLLABUS FOR ASTRONOMY (461011 and 461012)**

**Number of Credits:** 1      **Locations:** Bradford, Hillcrest, Reuther, Tremper

**Prerequisites:** Successful completion of Biology

**Course Description**

Students will study the universe as they cover the following topics: history of astronomy, gravity and motion, planets, stars, galaxies and the structure of the universe. This course places an emphasis on how astronomers gather information about distant objects without leaving the Earth.

**Course Standards**

Standard A: Science Connections

Standard B: Nature of Science

Standard C: Science Inquiry

Standard E: Earth Science

Standard G: Science Applications

Standard H: Science in Social and Personal Perspectives

*Explanations of standards and most essential benchmarks can be viewed at [www.kusd.edu](http://www.kusd.edu)*

**Lifelong Learning Standards**

- Knowledgeable person
- Effective communicator
- Quality producer
- Complex thinker
- Self-directed learner
- Contributing citizen

*Lifelong learning benchmarks may be viewed at: [www.kusd.edu](http://www.kusd.edu).*

**Course Outline**

1. Introduction to Astronomy
  - a. Scaling
  - b. Scientific Notation
  - c. SI Review distances in space
  - d. age of the universe
  - e. speed of light
  - f. star maps
  - g. motions in the sky
  - h. lunar phases
  - i. eclipses
  - j. Earth's shape & size
  - k. theories of the universe
  - l. classical astronomy
  - m. history of space exploration
  - n. heat & temperature
  - o. planetary configurations

2. Gravity & Motion
  - a. Speed & velocity
  - b. Acceleration and “g’s”
  - c. Newton’s Laws
  - d. Centripetal force
  - e. Universal gravitation
  - f. Mass of orbited bodies
  - g. Escape & orbital velocities
3. Light
  - a. definition
  - b. wave terminology
  - c. wave energy
  - d. Doppler effect
  - e. Wein’s Law
  - f. color theory
  - g. EM spectrum
  - h. light spectra
- 5) Telescopes
  - a. types of telescopes
  - b. optics
  - c. nonvisible wavelengths
  - d. false color
  - e. atmospheric windows
- 6) Project Research
- 7) The Solar System
  - a. The Earth
  - b. The Moon & The Space Race
  - c. Solar System Overview
  - d. Inner Planets
  - e. Outer Planets & Dwarfs
  - f. Asteroids, Meteors, & Comets
  - g. The Sun
- 8) Beyond the Solar System
  - a. Star properties
  - b. Stellar life cycles
  - c. Milky Way & other galaxies
  - d. Cosmology

**Board-Approved Instructional Materials**

Arny, Thomas T. (2008). *Explorations: An Introduction to Astronomy, (5<sup>th</sup> Ed)*. Glencoe McGraw-Hill.

## **Methods of Assessment**

Final exams should be cumulative in nature, emphasizing the most essential benchmarks for the course. Results of the final exam represent 20 percent of the final grade, but this single measure *may not* drop a student's grade by more than one letter grade. In courses that rely heavily on a major project, performance exhibition, etc., the project should be divided into stages or components and each of those should be graded separately, providing students with frequent and specific feedback.

## **Board-Approved Grading Scale**

Excerpts taken from School Board Rule 6452

### GRADING SCALE

A+=98-100 percent	B+=86-89 percent	C+=76-79 percent	D+=66-69 percent
A=93-97 percent	B=83-85 percent	C=73-75 percent	D=63-65 percent
A-=90-92 percent	B-=80-82 percent	C-=70-72 percent	D-=60-62 percent
			F=0-59 percent

### MAKE-UP WORK

Students submitting work up to ten school days late without prior approval may receive up to two grades lower on the work than they would have received if the work had been submitted on time (i.e., B+ lowered to a D+). Student work submitted after ten school days without prior approval shall not be accepted for credit and shall be recorded with a score of zero.

Upon returning to school after an absence, a student has the responsibility within the number of days equal to the length of the absence or suspension to meet with the teacher to develop a plan for making up missed work, quizzes, and examinations. A truant student has the responsibility on the first day he or she returns to the course/class to meet with the teacher to develop a plan for making up missed work, quizzes, and examinations. Lower grades may not be given for late work due to excused absences, suspension, or truancy unless the work is submitted later than agreed upon deadlines.

**See Rule 6452 in its entirety at: [www.kusd.edu](http://www.kusd.edu).**