

ASTRONOMY SYLLABUS (Fall Semester): Astronomy is the study of matter and energy outside of earth's atmosphere. It involves some of the most challenging questions in science, including the question of how everything that exists was created. This course will help students develop a systematic capacity to reason about matter and energy across all branches of science.

CLASS MATERIALS: 3 ring-binder; Chromebook (charged and ready to go!); loose leaf paper or notebook; pen/pencil; and school assignment notebook.

CLASS EXPECTATIONS:

1. BE PREPARED.

- a. All assignments will be posted on google classroom. The calendar for what we will be doing each day is also posted on google classroom.
- b. Bring materials with you daily (including your Chromebook & assignment notebook).
- c. Bring your **CHARGED Chromebook** with you daily.

2. BE RESPONSIBLE.

- a. Be on time and at your desk when the bell rings. If you are tardy, you will be disciplined according to the school's tardy policy.
- b. Homework, labs, and projects will be due at the beginning of class. Late assignments will be accepted, but only until the end of the unit.
- c. If you are absent, please make up quizzes immediately and tests within two days. Labs must be made up within a week. Please refer to the absent policy in your student handbook for extension criteria.

3. BE RESPECTFUL.

- a. Leave coats, hats, etc. in your locker. Purses, backpacks, and bags must be kept underneath your desk or chair. Only books and study materials are allowed on desks. All materials must remain out of the lab area unless approved by the teacher.
- b. Phones are to be turned off and put away. **Phones and devices are not to be used unless given permission.**
- c. Please remove Apple watches, smart watches, fitness trackers etc. and place them into a backpack (or other secure container) on test/quiz days. You will not be allowed to wear them when taking a test or quiz.
- d. If you leave on a bathroom pass, please leave your phones in your backpack etc. Phones are not allowed in the bathrooms.
- e. Respect one another and the equipment in the room. **Anyone who creates an unsafe lab environment will be asked to leave - you will need to make up this time outside of class.** You are responsible for any broken lab equipment.
- f. Do not leave the classroom until the teacher dismisses you.

NEED EXTRA HELP? When extra help is needed, retakes, or missing/absent work please set up a time to meet with me:

1. Before school
2. During lunch and learn
3. During your study hall period

GRADING:

1. The grading scale in Astronomy follows the scale in your student handbook. Each semester will be worth 90% of your grade and the other 10% will be the final exam.
2. Students work is weighted according to the following:
 - a. Assessments: 55%
 - b. Labwork: 45%

CURRICULUM: A Typical “Weekly” Schedule

Part 1: Introduction

- Data Dive
- Discussion & Developing Explanations

Part 2: Core Ideas

- Core Ideas
- Revisions of Part 1 Explanations

Part 3: Investigation

- Investigation (lab)
- Revisions of Part 1 Explanations

Part 4: Review & Assessment

- Reviewing Objectives
- Critiquing Ideas
- Assessment

Part 5: Life Connections

- Weekly Recap
- Side Quest (student personal projects)

NGSS STANDARDS:

HS-ESS1-1: Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun’s core to release energy that eventually reaches Earth in the form of radiation.

HS-ESS1-2: Construct an explanation of the Big Bang theory based on astronomical evidence of light spectra, motion of distant galaxies, and composition of matter in the universe.

HS-ESS1-3: Communicate scientific ideas about the way stars, over their life cycle, produce elements.

HS-ESS1-4: Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.

Semester Schedule

How the Sun Works

Week 1: What is matter? What is energy?

Week 2: What’s inside the sun?

Week 3: How is the sun changing as it “burns”?

Week 4: Where does the sun’s energy come from?

Week 5: Unit Assessment

The Life of Stars

Week 1: How long do stars last?

Week 2: Why do stars die?

Week 3: What happens after stars die?

Week 4: Unit Assessment

How It All Began

Week 1: How can we determine the universe’s size?

Week 2: How can expansion determine the universe’s age?

Week 3: What can we learn from background radiation?

Week 4: Unit Assessment

Navigating Space

Week 1: How and why do things orbit in space?

Week 2: How can we predict orbits?

Week 3: Unit Assessments

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