WARREN COUNTY SCHOOL DISTRICT

VIRTUAL PLANNED INSTRUCTION

COURSE DESCRIPTION

Course Title: Astronomy
Course Number: 10381
Course Prerequisites: None

Course Description: See Attachment

Suggested Grade Level: Grades 9-12
Length of Course: One Semester
Units of Credit: .5
PDE Certification and Staffing Policies and Guidelines (CSPG) Required Teacher Certifications:
CSPG 40
To find the CSPG information, go to https://www.education.pa.gov/Educators/Certification/Staffing%20Guidelines/Pages/default.aspx
Certification verified by the WCSD Human Resources Department: ☒Yes ☐No

WCSD STUDENT DATA SYSTEM INFORMATION

Course Level: Academic
Mark Types: Check all that apply.
☒F – Final Average ☒MP – Marking Period ☐EXM – Final Exam

GPA Type: ☐ GPAEL-GPA Elementary ☐ GPAML-GPA for Middle Level ☒ NHS-National Honor Society
☒ UGPA-Non-Weighted Grade Point Average ☒ GPA-Weighted Grade Point Average

State Course Code: 03004

To find the State Course Code, go to https://nces.ed.gov/forum/sced.asp, download the Excel file for *SCED*, click on SCED 6.0 tab, and chose the correct code that corresponds with the course.

TEXTBOOKS AND SUPPLEMENTAL MATERIALS

Supplemental Materials: Accelerate Education (Virtual Academy)

Curriculum Document

WCSD Board Approval:
Date Finalized: 9/19/2019
Date Approved: 11/4/2019
Implementation Year: 19-20

SPECIAL EDUCATION, 504, and GIFTED REQUIREMENTS

The teacher shall make appropriate modifications to instruction and assessment based on a student's Individual Education Plan (IEP), Chapter 15 Section 504 Plan (504), and/or Gifted Individual Education Plan (GIEP).

ASSESSMENTS

PSSA Academic Standards, Assessment Anchors, and Eligible Content: The teacher must be knowledgeable of the PDE Academic Standards, Assessment Anchors, and Eligible Content and incorporate them regularly into planned instruction.

Formative Assessments: The teacher will utilize a variety of assessment methods to conduct in-process evaluations of student learning.

Effective formative assessments for this course include: Lesson quizzes, projects, discussion boards, and module exams

Summative Assessments: The teacher will utilize a variety of assessment methods to evaluate student learning at the end of an instructional task, lesson, and/or unit.

Effective summative assessments for this course include: Semester exams

Astronomy: Exploring the Universe

Why do stars twinkle? Is it possible to fall into a black hole? Will the sun ever stop shining? Since the first glimpse of the night sky, humans have been fascinated with the stars, planets, and universe that surrounds us. This course will introduce students to the study of astronomy, including its history and development, basic scientific laws of motion and gravity, the concepts of modern astronomy, and the methods used by astronomers to learn more about the universe. Additional topics include the solar system, the Milky Way and other galaxies, and the sun and stars. Using online tools, students will examine the life cycle of stars, the properties of planets, and the exploration of space.

Unit 1: The Earth, Moon, and Sun Systems

Learning Objectives:

- Learn about the interactions between the Sun, Earth, and Moon.
- Describe how the motion of the Earth causes seasons and night-day cycles.
- Identify the characteristics and phases of the moon.
- Explore how the moon's gravitational pull manipulates tides on Earth.
- Distinguish between a lunar eclipse and a solar eclipse.

Unit 1 Assignments

Assignment	Type	Score
The Earth, Moon, and Sun Systems: Unit Text Questions	Homework	10 points
The Earth, Moon, and Sun Systems: Online Astronomy Lab Questions	Homework	10 points
Unit 1 Discussion Assignment 1	Discussion	5 points
Unit 1 Discussion Assignment 2	Discussion	5 points
Unit 1 Quiz – The Earth, Moon, and Sun Systems	Quiz	15 points

Unit 2: The Universe

Learning Objectives:

- Describe the study of the cosmos.
- Discuss the theory of the origin of the universe.
- Examine the evidence that supports the Big Bang theory.
- Examine the composition of matter and how it is distributed within the universe.
- Describe the theories of evolution and fate of the universe.

Unit 2 Assignments

Assignment	Type	Score
The Universe: Unit Text Questions	Homework	10 points
The Universe: Online Astronomy Lab Questions	Homework	10 points
Unit 2 Discussion Assignment 1	Discussion	5 points
Unit 2 Discussion Assignment 2	Discussion	5 points
Unit 2 Quiz – The Universe	Quiz	15 points

Unit 3: Stars

Learning Objectives:

- Describe the composition and characteristics of stars.
- Learn how astronomers identify and describe constellations such as Ursa Major, Ursa Minor, Orion, and Cassiopeia.
- Analyze and characterize stars by their physical and chemical properties.
- Explain the use of diagrams and models in obtaining physical data on stars.
- Examine the evolution of stars.

Unit 3 Assignments

Assignment	Type	Score
Stars: Unit Text Questions	Homework	10 points
Stars: Online Astronomy Lab Questions	Homework	10 points
Unit 3 Discussion Assignment 1	Discussion	5 points
Unit 3 Discussion Assignment 2	Discussion	5 points
Unit 3 Quiz – Stars	Quiz	15 points

Unit 4: Galaxies

Learning Objectives:

- Differentiate and describe the types of galaxies within the universe.
- Characterize the Milky Way.
- Identify how galaxies are organized and distributed within the universe.
- Describe the evolution of galaxies.
- Examine the forces that shape galaxies of stars.

Unit 4 Assignments

Assignment	Type	Score

Galaxies: Unit Text Questions	Homework	10 points
Galaxies: Online Astronomy Lab Questions	Homework	10 points
Unit 4 Discussion Assignment 1	Discussion	5 points
Unit 4 Discussion Assignment 2	Discussion	5 points
Unit 4 Quiz – Galaxies	Quiz	15 points

Astronomy Midterm Exam

Learning Objectives:

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the first four units in this course (Note: You will be able to open this exam only one time.)

Midterm Assignments

Assignment	Type	Score
Astronomy Midterm Exam	Exam	50 points
Midterm Discussion Assignment	Discussion	5 points

Unit 5: Inner Planets

Learning Objectives:

- Describe how planetary matter is distributed within the solar system.
- Explain the formation of the solar system.
- Differentiate and describe the inner planets within our solar system.
- Identify the shared characteristics among all inner planets in the solar system.
- Explain the features of Earth that are essential to the development of life.

Unit 5 Assignments

Assignment	Type	Score
Inner Planets: Unit Text Questions	Homework	10 points
Inner Planets: Online Astronomy Lab Questions	Homework	10 points
Unit 5 Discussion Assignment 1	Discussion	5 points
Unit 5 Discussion Assignment 2	Discussion	5 points
Unit 5 Quiz – Inner Planets	Quiz	15 points

Unit 6: Outer Planets

Learning Objectives:

- Differentiate and describe the unique characteristics of the outer planets in the Solar System.
- Identify the shared features and characteristics among the outer planets in the Solar System.
- Describe the arrangement and distances between the outer planets.
- Explain why Pluto is no longer classified as a true planet of the Solar System.
- Compare and contrast the outer planets with Earth.

Unit 6 Assignments

Assignment	Type	Score
Outer Planets: Unit Text Questions	Homework	10 points
Outer Planets: Online Astronomy Lab Questions	Homework	10 points
Unit 6 Discussion Assignment 1	Discussion	5 points
Unit 6 Discussion Assignment 2	Discussion	5 points
Unit 6 Quiz – Outer Planets	Quiz	15 points

Unit 7: The Sun

Learning Objectives:

- Identify the five regions of the Sun.
- Discuss the structure and composition of the Sun.
- Learn about nuclear fusion in the Sun, including the proton-proton chain reaction.
- Examine solar activity, such as sunspots and solar flares.
- Define and discusses solar eclipses.

Unit 7 Assignments

Assignment	Type	Score
The Sun: Unit Text Questions	Homework	10 points
The Sun: Online Astronomy Lab Questions	Homework	10 points
Unit 7 Discussion Assignment 1	Discussion	5 points
Unit 7 Discussion Assignment 2	Discussion	5 points
Unit 7 Quiz – The Sun	Quiz	15 points

Unit 8: Comets, Asteroids, and Meteors

Learning Objectives:

- Define *comet, asteroid, meteoroid, meteor,* and *meteorite.*
- Examine the origin of comets and how their tails form.
- Discuss the location of asteroids in the Solar System.
- Learn about the different types of meteorites.
- Investigate how comets, asteroids, and meteorites influence life on Earth.

Unit 8 Assignments

Assignment	Type	Score
Comets, Asteroids, and Meteors: Unit Text Questions	Homework	10 points
Comets, Asteroids, and Meteors: Online Astronomy Lab Questions	Homework	10 points
Unit 8 Discussion Assignment 1	Discussion	5 points
Unit 8 Discussion Assignment 2	Discussion	5 points
Unit 8 Quiz – Comets, Asteroids, and Meteors	Quiz	15 points

Astronomy Final Exam

Learning Objectives:

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from units five to eight in this course – the last four units. (Note: You will be able to open this exam only one time.)