**Warren County School District**

**PLANNED INSTRUCTION**

**COURSE DESCRIPTION**

**Course Title:** Science 8 Elective (May The FORCE Be With You)

**Course Number:** 00302

**Course Prerequisites:** None

**Course Description:**

May the FORCE be with you is a one semester elective designed for eighth grade students. Students will explore wave, light, and electrical energies along with a look at magnets. Exploration of each of these will include careers, everyday life applications and include both activities and laboratories that focus on scientific inquiry

**Suggested Grade Level:** Eighth Grade

|  |  |  |  |
| --- | --- | --- | --- |
| **Length of Course:** |  [x]  One Semester | [ ]  Two Semesters | [ ]  Other (Describe) |

**Units of Credit:** .5 Middle Level Credit (Insert ***None*** if appropriate)

**PDE *Certification and Staffing Policies and Guidelines* (CSPG) Required Teacher Certifications**:

CSPG Middle Level Science, Chemistry, Physics, General Science

**Certification verified by WCSD Human Resources Department**: [x]  Yes [ ]  No

**TEXTBOOK AND SUPPLEMENTAL MATERIALS**

**Continue using Board approved textbook?** [x] Yes [ ]  No (*If yes, then complete the information below.*)

**Board Approved Textbooks, Software, Supplemental Materials:**

**Title: Physical Science**

**Publisher: McGrawHill**

**ISBN #: 978-0-07-677305-3**

**Copyright Date: 2017**

**Date of WCSD Board Approval: 3/12/2018**

**BOARD APPROVAL:**

**Date Written:**  2/14/18

**Date Approved:**  3/12/2018; *March 11, 2019 Revised Credit*

**Implementation Date:** 2018-2019

**SPECIAL EDUCATION AND GIFTED REQUIREMENTS**

The teacher shall make appropriate modification to instruction and assessment based on a student’s Individual Education Plan (IEP) or Gifted Individual Education Plan (GIEP).

**COURSE OVERVIEW**

(*List the content to be taught*)

**1-** Waves

1. What are Waves?
2. Properties of waves
3. Wave Interactions

Activities

How to make a wave.

Finding the natural frequency of a rope on the ground.

Measuring wave speed.

Transverse waves on slinky- frequency and wavelength and wave speed

Tuning fork in a bowl of water

Demonstration students replicating transverse and longitudinal waves

Demonstration- compression and rarefaction on a slinky

2-Sound

1. Producing and detecting sounds
2. Properties of Sound Waves
3. Using Sound waves

Activities

What causes sound?

How do you know a sounds direction?

Demonstration- How can sound blow out a candle.

Loudness, decibel scale demonstration with Phone apps, computer apps

Make A Musical Instrument.

Sound Waves in a string cup

Speaker and ooblak

Microphones, oscilloscope & sound generators-

Tuning forks and resonance tubes

3- Electromagnetic Waves

1. Electromagnetic Radiation
2. The Electromagnetic Spectrum
3. Using the Electromagnetic Spectrum

Activities

Electrical and magnetic fields relationships.

How do electromagnetic waves differ.

Marshmallows in a microwave.

Spectroscope and gas tubes.

4- Light

1. Light, Matter and Color
2. Reflection and Mirrors
3. Refraction and Lenses
4. Optical Technology

ACTIVITIES

How to make a rainbow-

How 3 d glasses work-

How Modern 3 D glasses work

Mirror writing .

How can you demonstrate the law of refraction.

How does a lens affect light.

Filters absorption andreflection

Build a periscope

Color mixing in light

5- Electricity

A. Electric Charge and Electric Forces

B. Electric Current

C. Electric Circuits

ACTIVITIES

How can you bend water? – balloon, funnel, large bowl, beaker

How to light a light bulb- D battery, coated wire and small round bulb

Basic circuits-conduction, series parallel

6- Magnetism

1. Magnets and Magnetic Fields
2. Making Magnets Using Electric Current
3. Making Current With Magnets

Activities

Magnetic North.

When is a wire a magnet?

Making a motor.

What is an electromagnet?

Magnetic Field demonstration.

**ANCHORS AND STANDARDS**

**Standard - 3.1.8.A9**

* Compare and contrast scientific theories.
* Know that both direct and indirect observations are used by scientists to study the natural world and universe.
* Identify questions and concepts that guide scientific investigations.
* Formulate and revise explanations and models using logic and evidence.
* Recognize and analyze alternative explanations and models.
* Explain the importance of accuracy and precision in making valid measurements**.**

**ASSESSMENT**

**Portfolio Assessment:**  Yes X No

**District-Wide Common Final Examination Required:**  Yes X No

**Course Challenge Assessment** (Describe)**:**

**WRITING TEAM:** Warren County School District Teachers

**WCSD STUDENT DATA SYSTEM INFORMATION**

1. Is there a required final examination? Yes X No

***\*Warren County School District Policy 9741 and9744 state, “All classes in grades 9-12 shall have a final exam.”***

1. Does this course issue a mark/grade for the report card? X Yes No
2. Does this course issue a Pass/Fail mark? Yes X No
3. Is the course mark/grade part of the GPA calculation? X Yes No
4. Is the course eligible for Honor Roll calculation? X Yes No
5. What is the academic weight of the course?

|  |  |  |
| --- | --- | --- |
|  No weight/Non credit |  X Standard weight |  Enhanced weight |
|  |  |  |