

**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:**     ☒ One Semester                      ☐ Two Semesters                      ☐ Other (Describe)

**Units of Credit:** none (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:** ☒ Yes     ☐ No

**TEXTBOOK AND SUPPLEMENTAL MATERIALS**

**Continue using Board approved textbook?** ☒ 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

## **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**

- A. What are Waves?
- B. Properties of waves
- C. 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**

- A. Producing and detecting sounds
- B. Properties of Sound Waves
- C. Using Sound waves

##### Activities

What causes sound?

How do you know a sound's 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 oobla

Microphones, oscilloscope & sound generators-

Tuning forks and resonance tubes

#### **3- Electromagnetic Waves**

- A. Electromagnetic Radiation
- B. The Electromagnetic Spectrum
- C. 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

- A. Light, Matter and Color
- B. Reflection and Mirrors
- C. Refraction and Lenses
- D. 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 and reflection

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

- A. Magnets and Magnetic Fields
- B. Making Magnets Using Electric Current
- C. 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 ☒ No

**District-Wide Common Final Examination Required:** \_\_\_\_\_ Yes ☒ 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 ☒ No

*\*Warren County School District Policy 9741 and 9744 state, "All classes in grades 9-12 shall have a final exam."*

2. Does this course issue a mark/grade for the report card? ☒ Yes \_\_\_\_\_ No

3. Does this course issue a Pass/Fail mark? \_\_\_\_\_ Yes ☒ No

4. Is the course mark/grade part of the GPA calculation? ☒ Yes \_\_\_\_\_ No

5. Is the course eligible for Honor Roll calculation? \_\_\_\_\_ ☒ Yes \_\_\_\_\_ No

6. What is the academic weight of the course?

\_\_\_\_\_ No weight/Non credit

☒ Standard weight

\_\_\_\_\_ Enhanced weight