

Fiber Optics and Lasers



Name: _____ Rotation #: _____ Hour Code: _____ Date: _____

Name: _____

LESSON 1 – Morse code

Name Transmission

Instructor's Initials: _____

How else can you send Morse code? _____

Why is Morse code limited by speed and accuracy? _____

LESSON 2 – Data Transmission

Experiment 1

Instructor's Initials: _____

LESSON 3 – Voice Transmission

Experiment 1 Say hello and your partners name while instructor listens.

Instructor's Initials: _____

Experiment 2

Instructor's Initials: _____

LESSON 4 – Radio Transmission

Show the radio signals being sent over the fiber optic cable and **explain it**.

Experiment 1

Instructor's Initials: _____

Experiment 2

Instructor's Initials: _____

Environmental Impacts Response – on a separate sheet of paper, write a response to this question.

- What are some concerns about installing Fiber Optic cables and how can those concerns be avoided and/or minimized?

LESSON 5 – How Light Behaves

Describe the results of the light / water experiment.

- Washer - _____
- Pencil - _____
- Why did this happen? _____

LESSON 6 – Laser Light

How does this experiment demonstrate the differences between laser and ordinary light?

LESSON 7 - Lasers

Chalk experiment

Why can you see the laser beam when chalk dust falls through it?

Laser Experiments

Upon completion of the laser experiments (**In your own words**) explain how fiber optic cables work.

Career Research

What career do your interests place you into the “communications” field?

Extension if time permits (extra credit)

Write a one-page (typed) paper on communication careers. Include details such as a job description, income, school requirements, and any other interesting details about the career.

FIBER OPTICS & LASERS “NOTES”

Be sure to take notes at this module!!

Equipment- Ask instructor for specific equipment / materials needed in each lesson.

LESSON 1- Make sure you always pull the plugs out by their plastic ends. Make sure the fiber optic cable plug end has the “TAB” in the “SLOT” on the trainer. Send your name to your partner with Morse Code.

LESSON 2- Instructor must check off experiment before taking it apart.

LESSON 3- Say “HELLO AND YOUR PARTNERS NAME” over the fiber optic trainer. Show instructor and explain what is happening.

LESSON 4- Get the AUDIO INTERFACE CABLE FROM THE INSTRUCTOR. Be careful with it, it breaks easily. Pull the plug out by the plastic end of the plug.

Show and explain what is happening in the radio experiment.

ENVIRONMENTAL IMPACTS RESPONSE - complete this on a separate sheet of paper and staple to packet.

LESSON 5- Read in the TECHNOLOGY textbook p. 348.

All activities that involve water will be done at the sink table.

LESSON 6- Write the answers to the questions on the worksheet.

LESSON 7- Get the Laser Kit, the Safety Glasses and the Laser Pen from the instructor.

Do the part where you sprinkle the chalk dust **over the classroom garbage can**. Don’t use too much dust.

Answer the questions on the worksheet. CAREER RESEARCH - Write response on worksheet.

EXTRA CREDIT- SEE ME IF TIME ALLOWS