

# 272-Q03

## BCTHS MECHATRONICS TECHNOLOGY

NAME: \_\_\_\_\_

START DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

COMPLETION DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

**TASK:** Proper disposal of electronic waste/recycling

**PERFORMANCE OBJECTIVE:** After completing the E-Waste/recycling lesson the student will list 10 electronic components/devices that must be recycled in the state of PA. The Student will score 70% on the quiz.

**ENABLING OBJECTIVE:** Complete Q01 and OSHA training

**TOOLS REQUIRED:** See Instructor

**SAFETY FACTORS:** *Prerequisite – Observe safety lesson  
Observe all school and classroom safety rules at all times*

### ACADEMIC ANCHORS:

*R11.A.1.3.5 Demonstrate after reading understanding of non-fiction text*

*R11.A.2.1.2 Identify meaning of content specific words used in text*

### CAREER & WORK ANCHORS:

*13.2.11.E – Demonstrate essential workplace skills.*

### PERFORMANCE CHECKLIST:

STUDENT CHECK	TASK TO BE COMPLETED	TEACHER SIGN OFF
_____	1. Identify academic anchors and complete learning guide AA01	_____
_____	2. Read info sheet	_____
_____	3. View Instructor theory lesson	_____
_____	4. View video @ <a href="https://youtu.be/fyuxWDkLdcl">https://youtu.be/fyuxWDkLdcl</a>	_____
_____	5. Complete quiz	_____

### PERFORMANCE LEVEL:

MASTERY      SATISFACTORY      FAMILIARIZATION      INSTRUCTED/CANNOT PERFORM

BUCKS COUNTY TECHNICAL SCHOOL – August 26<sup>th</sup> , 2021

\_\_\_\_\_  
INSTRUCTOR'S SIGNATURE

The following information is from the state of PA DEP website -  
<http://www.dep.pa.gov/Business/Land/Waste/Recycling/Electronics/Pages/Consumer-Information.aspx>

Electronic discards include laptops, cell phones, computers, monitors, televisions, printers, audio equipment, and other electronic devices. Today's consumer electronic products are characterized by rapidly evolving technology and a relatively short product life. The average lifespan of a computer is currently about three to four years, and advances in technology for all electronic equipment, particularly cell phones, soon renders them obsolete. Due to the relatively low price of new equipment, items that break or become obsolete are often discarded into the waste stream rather than being repaired or upgraded. Given the sheer volume of electronics and the hazardous materials they may contain, consumers and generators are encouraged to seek environmentally safe options such as reuse or recycling when their electronics reach the end of its useful life.

#### WHY ARE THEY POTENTIALLY HARMFUL?

Electronic equipment contains metals that, if not properly managed or contained, can become hazardous wastes:

- Cadmium - The largest source of cadmium in municipal waste is rechargeable nickel-cadmium (NiCad) batteries.
- Lead - Old monitors and televisions contain a cathode ray tube (CRT) that contain leaded glass. CRTs are the largest source of lead in municipal waste.
- Mercury - Some electronic equipment also contains recoverable quantities of mercury.
- Electronics may also contain other materials such as hexavalent chromium, brominated fire retardants, lithium, and phosphorous coatings that, if improperly disposed, can pose a threat to human health and the environment.

#### HOW CAN I GENERATE LESS ELECTRONIC WASTE?

##### **REDUCE - MAINTAIN AND KEEP EQUIPMENT AS LONG AS POSSIBLE.**

- Evaluate, compare and select desktop computers, notebooks and monitors based on their environmental attributes.
- A typical computer's lifespan is three to four years, but can be extended by two to three years with some upgrading.
- Buy a good monitor; it can last six to seven years or more. Keep it for use with your next computer.
- Always use a surge protector power strip with all electronic equipment.
- Donate old Cell Phones and working computers to those who need them.

In the AET program we responsibly recycle electronic equipment and send it to the recycling center. We recover some funds doing this and we are also being responsible by slowing the rate that landfills reach capacity. It is also required by law in Pennsylvania.

Safety required when recycling:

Always wear safety glasses

Always wear work gloves and work boots

Always wear a dust mask

Be careful of sharp edges on metal enclosures, circuit boards, brackets, screws, and chassis'.

Be careful when handling CRT, LCD, LED, and Plasma screens- they are glass and have sharp edges.

Be careful using hand tools- you will be using diagonal cutters, metal shears, hammers, chisels, and other tools that can cut and have sharp edges.

Things that we recover when recycling electronic products:

Plastic/rubber coated wire

Enamel coated wire

Coaxial type cables

Electrical wiring

Printed circuit boards

Transformers

Deflection Yokes

Batteries

CPU's

Memory Chips

Video, sound, and computer network cards

Motherboards

Power supply units

LCD, PLASMA, LED screens

Cathode Ray tubes and other vacuum tubes

Hardware, nuts, bolts, screws

Aluminum Heat Sinks

Steel covers, cabinets, metal brackets

Antennas

Remote controls

Toner modules

Ink cartridges

# GRADING RUBRIC

	Instructed/Cannot 0 points	Familiarization 1 point	Satisfactory 2 points	Mastery 3 points
Safety	Student rarely follows industry standard safety rules	Student needs to be frequently reminded to follow industry standard safety rules	Follows all industry standard safety rules, but required one reminder.	Student always follows all industry standard safety rules
Task	Student is unable to complete task	Student requires frequent assistance to complete task, and/or is familiar with some parts of the task	Student requires very little assistance to complete task, or has only completed task once or twice, but completed it satisfactorily with little to no assistance	Student can perform task with no assistance and has completed the task many times with no errors.

Mastery = 6 points

Satisfactory = 4-5 points

Familiarization = 2-3 points

Instructed cannot perform = <2 points