



## Bay County Scientist in Residence Grant Project Participant Pre-Test

Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. Is the following statement true or false?

Thingiverse is a website operated by MakerBot Industries containing a repository of free 3D printer models.

2. Which is the most common type of CAD file for desktop 3D printers? (Choose one)

- A. 3MF
- B. OBJ
- C. STL
- D. PLY
- E. I don't know.

3. Is the following statement true or false?

The two most commonly used desktop 3D printing materials (filaments) are PLA (Polylactic Acid) and TPU (Thermoplastic Polyurethane).

4. The American Library Association's (ALA) Office for Information Technology Policy (OITP) released a report in May 2016 called "Progress in Making: Librarians' Practical 3D Printing Questions Answered." The report recommends the use of PLA plastic filament in public libraries for which two reasons? (Choose two)

- A. ABS plastic lets off fumes and can emit an odor.
- B. PLA plastic is biodegradable.
- C. TPU plastic is very expensive.
- D. PLA allows for faster printing of 3D models.
- E. I don't know.

5. Which two of the following are non-profits dedicated to getting kids excited about coding as a possible career? (Choose two)

- A. Code.org
- B. iCode
- C. Girls Who Code
- D. Tynker
- E. I don't know.

6. Which of the following statements are true. (Circle the letter if the statement is true.)
- A. Hour of Code is a global movement designed to demystify "code" and to celebrate and encourage students to learn computer science.
  - B. Instructors must have basic computer coding certification in order to provide official Hour of Code and Girls Who Code programs.
  - C. Hour of Code teaches basic coding using a visual programming language called Blockly.
  - D. Students must register online to use the tutorials available on the Hour of Code website.
  - E. I don't know.
7. Please describe, in one sentence, the basic function of an Arduino microcontroller board.
8. Which answer correctly lists the items needed to program an Arduino to control an object? (Choose one)
- A. Arduino, microcontroller board, USB cable, Arduino software
  - B. Arduino, USB drive, computer, Arduino software
  - C. Arduino, USB cable, computer, Arduino software
  - D. Arduino, power supply, computer
  - E. I don't know.

9. Draw a line from the terms in Column A to their definitions in Column B.

COLUMN A

Arduino
Code
Current
Microcontroller Board
Motor
Robot
Sensor
Voltage

COLUMN B

A flow of electric charge.
A machine that transforms electrical energy into mechanical energy.
A programmable, self-controlled device consisting of electronic, electrical, or mechanical units.
Computer instructions written in a programming language.
The rate at which energy, electricity or electromagnetic forces are drawn from a source.
A small, special purpose, computer.
An open source microcontroller board.
A device that detects and responds to some type of input from the physical environment.

10. Which answer below lists three of the necessary components required to build and operate a basic, remote-controlled robot?

- A. motor, microcontroller, remote
- B. microcontroller, LED sensor, motor
- C. Arduino, microcontroller, wheels
- D. actuator, robot arm, sensor
- E. I don't know.

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