NAME_____
PERIOD_____ DATE_____

PART A – Transistors – 20 pts

REVIEW>>>So far – you have learned about the four parts of a computer system (input, output, processor and memory). You also learned the functions that occur inside the microprocessor – fetch, decode and execute. Fetch retrieves the code from memory and hands it to decode. Decode "reads" the code and determines which function is to be performed. Execute does the math and then returns the data to memory. The only thing that a computer does is math and it does it a million times a second. Computers only understand digital information the form of binary code – essentially 1's and 0's. When we used the camcorders earlier this year, you still had to have some type of storage device – somewhere to hold the 1's and 0's until we loaded them into the computers for editing.

PREVIEW: Today's movie is about TRANSISTORS. In the video, you will be learning some basics about how electricity works and the role that transistors play.

Take some time to think about how electricity works….
Compare the flow of electricity through powerlines to the flow of water through pipes. How are they the same? How are they different? How are they controlled? You have approximately 5 minutes to write your answers in complete sentences.

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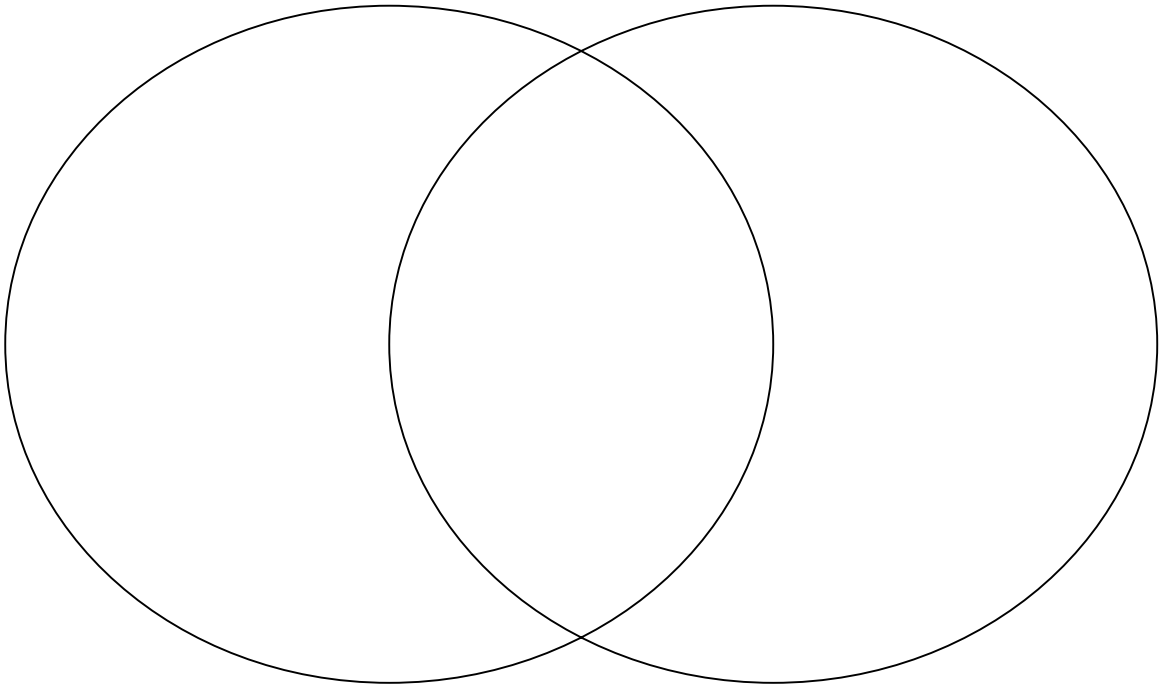

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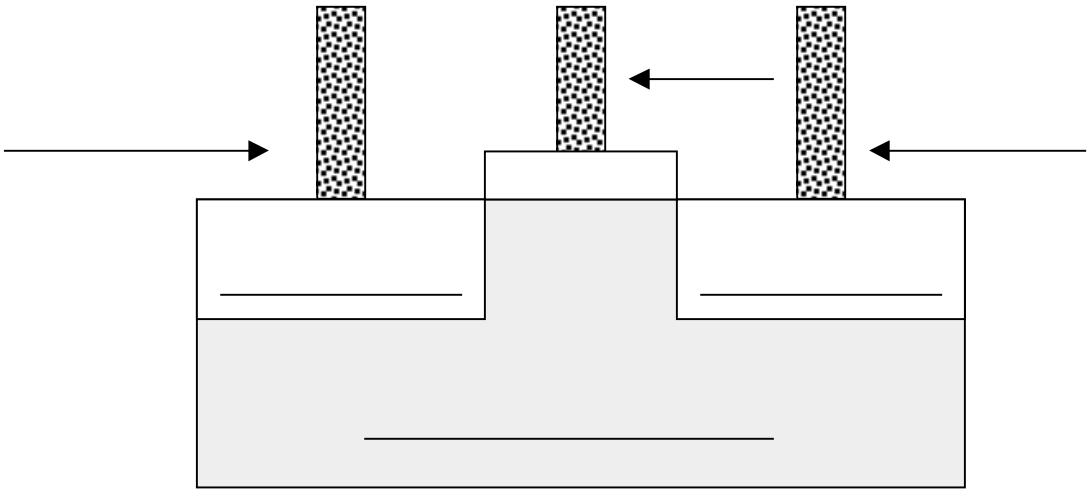
PART B: 50 pts. Notes From Video. Review prior to the video so you will know what to look for while viewing the latest from our friend, Tim.

Transistors are unique _____ switch. It is unique because it has no moving parts. The main job of the transistor is to control the flow of _____. Transistors are made primarily from _____ also known as _____. Pure crystalline _____ does not conduct electricity well because of the way electrons are shared between neighboring atoms. However, adding impurities helps to change the crystalline structures.

If you add **boron** to silicone, electrons can move more easily and is called **p-type silicon** (p for positive or lacking in electrons). If you add **phosphorus**, the resulting mixture is called *n-type silicon* – n for negative or an abundance of electrons.

Transistors are called _____ because they conduct electricity. When the charge is applied to the gate, electrons can flow through the source from the source to the drain.

A transistor has a few main parts including the source, n-silicon, p-silicon, gate, and the drain. Be sure to fill in the drawing with the proper label.



Describe how the transistor works using the labeled model above. Use directional arrows to help describe the movement of the electricity through the transistor.

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PART C: Follow-up (homework) 50pts

Complete the following diagram using what you have learned so far this year in computers. Explain how the flow of information moves from through the computer system using all applicable terminology. For those new to class, there are notes available at www.mayebteach.org and from the intel website, www.intel.com/education. Look for the INSIDE THE COMPUTER section on the website. Include examples for each of the items and explain how they work. Draw direction arrows to show the flow of information through the model below. If you need additional room, use the back of this page for your written description. Must be legible.

Input

Processor

There are three main functions that occur in the microprocessor. Explain what they are and how they work…

Memory

What are the types of memory?

Transistors

Explain how these work and relate to how the 1's and 0's work.

Output