Idt-7 Use computational thinking procedures to analyze & solve problems.

Name _____ Period _____

The Journey Inside SM :
Digital Information

Save in your directory as ***your name journey inside binary.***

Lesson 1: What is Binary Code?

Directions: Use the http://www.intel.com/content/www/us/en/education/k12/the-journey-inside/explore-the-curriculum/digital-information/lesson1.html website to complete the units in this series. Choose Lesson 1 on the right side of your screen and complete the questions below after reading the paragraph and watching the video.

1. The code computers use to express the digital information they process is called the _____ code because it consists of only two symbols—___s and ___s.
2. The "bi" in "binary" means_____.
3. They use only those two numbers to express the flow of electricity through a_____.
4. It is either on or it's off—on is ____, off is ____.

Lesson 2: A Bit of This and That

Directions: Choose Lesson 2 on the right side of your screen and complete the questions below after reading the paragraph and watching the video

1. For a computer to _____or respond to a command, it has to be translated into the only language a computer knows: the 0s and 1s of the _____number system.
2. The 0s and 1s represent the ___and ___of the transistors.
3. A _____ what you would call one of these 0s or 1s.

Lesson 3: How Computers Work with Pictures

Directions: Choose Lesson 3 on the right side of your screen and complete the questions below after reading the paragraph watching the video, and completing Activity 2.

1. A computer is made up of millions of electronic _____ (transistors).
2. They're either on or off, _____or_____.
3. Your computer screen has hundreds of thousands of dots arranged in rows and_____.
4. Each dot is a picture element or_____.
5. Each of these pixels displays some combination of red/green/blue according a device called a _____ _____ _____VGA)
6. The VGA translates binary-coded information (0s and 1s) into the _____ combinations required to make up an image on your computer screen.
7. How many lines of pixels does a typical computer monitor have _____

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8. How many pixel are in each line _____

9. Which means the computer monitor has over _____ individual pixels

10. What are the primary colors _____, _____, and _____.

ACTIVITY 2: PIXEL PICTURES

Make your own picture or design using pixels. Click a square to color a square. Click the square again to remove the color. *NOTE: The result should be a recognizable picture.* Make a screen shot of your picture by **holding the CTRL key and the PRINT SCREEN key**. Then **paste** your picture in a Word document. Save it as **Your Name Binary activity 2**

Lesson 4: Binary Numbers

Directions: Choose Lesson 4 on the right side of your screen and complete the questions below after reading the paragraph, watching the video, and completing Activity 1 & 2.

1. The binary system that computers use to store and process information is a base _____ system.

2. The decimal system is a base _____ system.

Activity 1: Decimal and Binary Numbers

1. What is the Binary code for 1: _____ 3: _____ 5: _____ 7: _____9_____

2. What is the Binary code for 2: _____ 4: _____ 6: _____ 8: _____10_____

3. Choose a number _____ what is its binary code _____

Hit Next

4. Choose a Binary code _____ what is its number _____

Activity 2: Number Conversion

What is the Binary code for:

11 ___ ___ ___ ___
12 ___ ___ ___ ___
13 ___ ___ ___ ___
14 ___ ___ ___ ___
15 ___ ___ ___ ___

We will be skipping Lesson 5

Lesson 6: ASCII—An Alphabet for Computers

Directions: Choose Lesson 6 on the right side of your screen and complete the questions below after reading the paragraph, watching the video, and completing Activity 1 & 2.

1. To make it easier for computers to communicate with each other, a standard _____has been created:

2. ASCII stands for _____ _____ Code for _____ _____

3. ASCII is an _____-bit code.

4. It uses eight bits to represent a _____, number, or punctuation mark.

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5. What is the smallest unit of digital information _____

6. 8 bits = 1 _____

Activity 1: The Name Game

1. What is your name in ASCII Code?

_____ _____ _____ _____ _____ _____ _____

Activities 2 and 3 (ASCII CODE CHART IN ACTIVITY 3)

Write a secret message with a 48 character limit. **Click Code It in Activity 2.** Write down the **ASCII Code here** for a classmate to decode**. Do not help them decode the message**. Write down the name, first and last, of the classmate who is decoding your message (or trying to), and what he or she says it means.

NAME OF CLASSMATE:

MESSAGE IN CODE:

CLASSMATE'S DECODED MESSAGE: