Name: _____

## Problems that can be solved using AI: Class List

Copy your class list below

**Video: What is AI?**

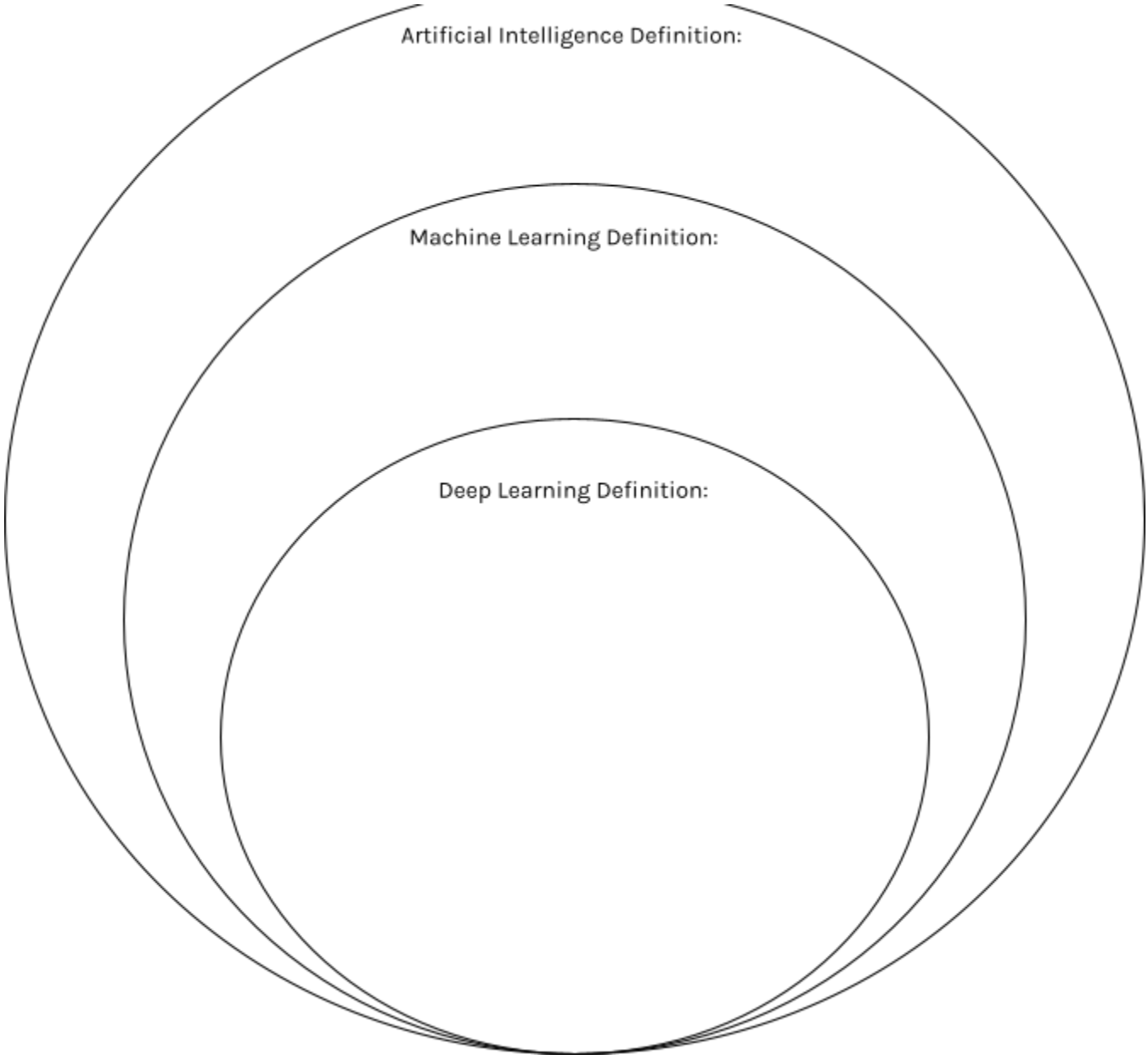
1. AI stands for:

2. Definition of AI:

3. Your notes:

## Video: Artificial Intelligence vs Machine Learning vs Deep Learning

Take notes on the differences between the three categories below.



Complete the sentences:

- All deep learning is

  _____

  and

  _____.

- But not all

  _____

  and

  _____ is

  deep learning.

- All machine learning is

  _____

- But not all

  _____ is

  machine learning.

## Video: Types of AI/ML Algorithms

Take notes below.

Linear regression definition:

Linear regression example(s):

Deep learning/neural networks definition:

Deep learning/neural networks example(s):

Naive Bayes definition:

Naive Bayes example(s):

## Video: Linear Regression

1. Linear regression uses a line of _____ to predict unknown values.

2. How does linear regression try to make the most accurate prediction?

3. What is the definition of (answer from number 2)?

4. What is the equation for linear regression (label the variables)?

5. What changes as the machine learning algorithm learns from the data (select 1)?
    a. Weights
    b. Biases
    c. Weights + biases
    d. X
    e. Y

## Activity: Human Neural Networks - Venomous vs Non-venomous Snakes

Part 1 - Training Notes:

Part 2 - Testing Guesses:

1.
2.
3.
4.
5.
6.

Part 3 - Performance Metrics

- Calculate your accuracy: number right = _____ % accuracy

**Activity: Neural Networks Playground**

Write down your observations about what happens to the model's performance when...

Epochs increase (find epochs and change the number of epochs in the playground):

Learning rate increases:

Number of hidden layers and number of total neurons increase:

**Video: Neural Networks**

1. Each neuron is connected to _____ the neurons around it

2. The first layer (that receives information) of an artificial neural network is called:

3. What organ (body part) is an artificial neural network based off of?

4. Each neuron applies a w_____ and a b_____ to the information it receives and then transmits to its surrounding neurons

5. Goal of a neural network: To change the weights and biases to repro_____ a desired lab_____

6. (At the end of the video), right down the summarized steps of how a neural network learns
    a. A bunch of neurons get an _____

    b. They apply w_____ and b_____ to that input and they pass that information on to _____ of the neurons in the next layer...

    c. All of that accumulates to get an out_____.

    d. Then, the network checks _____
    _____

e. It then sends this information about the _____ to the neurons that are in the _____ layers of the network

And those neurons can then change their w_____ and b_____ accordingly so that they can better _____
_____

**Reflection**

| I used to think | Now I think |
| --- | --- |
| • | • |
| • | • |
| • | • |
| • | • |
| • | • |

Anything else you want to share about your experience?

What was your favorite part of the curriculum?