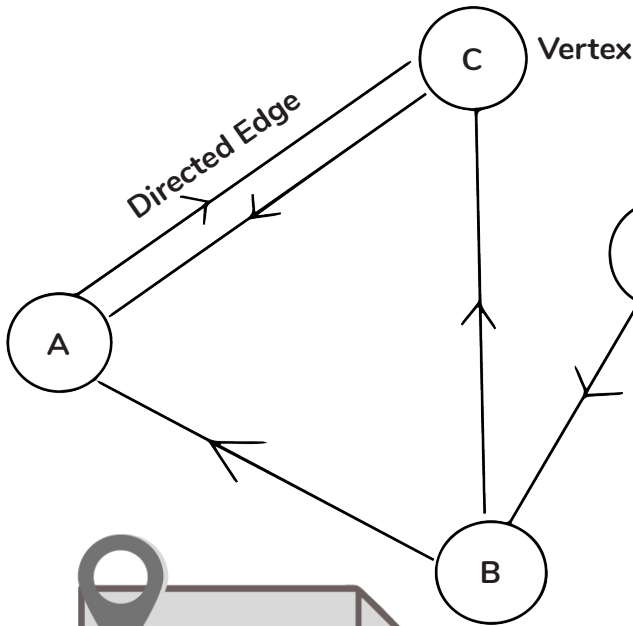
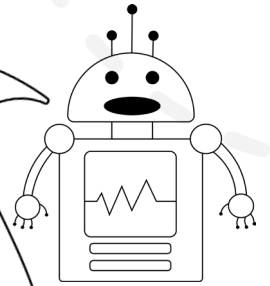


# Your Heart is a Graph

This activity was created by Kaja.



A graph is a set of **vertices** connected by **edges**. It's like a map that connects a bunch of places. This is a **directed graph**. We can think of a directed graph as a map with only one way roads. Each destination is called a vertex and each road is called an edge.



Graphs are useful to be able to see how information relates to each other. A literal example is a map! A map is a graph that shows how different cities are connected. GPSs use graphs to figure out the fastest or most efficient routes. If we use the image above, What's the fastest way to get from point C to point A? Try making a graph of your neighborhood!

Draw a graph that shows who you have met in the last week. Then draw more vertices to guess who all those people met. Could we use a map like this to learn more about contagious viruses?

ME

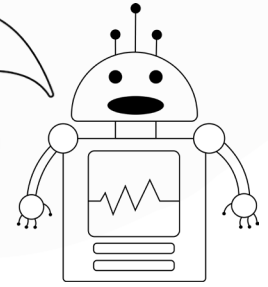
Another example of a graph is what social media uses to recommend friends! This is done by making a graph where each person that uses that platform is a vertex. Then if they follow someone you connect them with a line. Let's look at the image above as an example.

The vertexes (the people) are A, B, C and D. From the graph we can tell that A and D follow each other back. B follows both A and D but they are not following B back, luckily B does have one follower (C). If this was your platform who would you recommend to C?

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

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

Your body also contains a graph that tells us where our blood travels. In our body, the capillaries and the heart are the vertices. The veins and arteries are like edges that connect the capillaries, lungs, and heart. Arteries carry blood away from the heart, veins carry blood to the heart. On its way to and from the heart, the blood also travels through capillaries. The capillaries supply cells with nutrients from the blood and take away waste. This is how blood is carried all throughout our body.

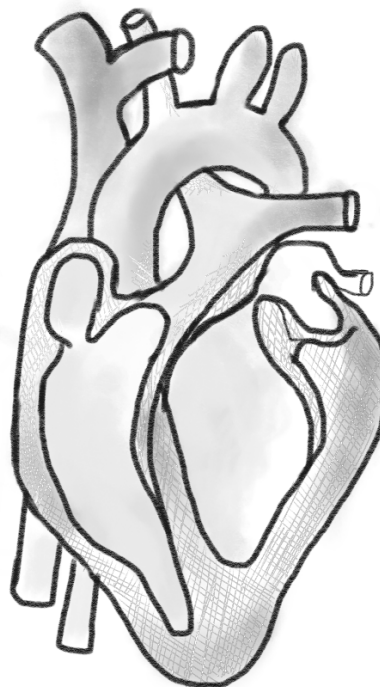


Can you draw a directed graph that shows how blood travels through our bodies? Use: atria, ventricles, septum, valves, aorta, pulmonary artery, pulmonary veins, superior and inferior vena cava.

**Pulmonary  
Capillaries**

**Capillaries  
of the right  
lung**

**Capillaries  
of the left  
lung**



**Capillaries  
of the lower  
body**