

Name:

Date:

Class:

## Handout 3: Drawing a Homunculus and Getting Familiar with the Micro:bit

### Draw a Homunculus

**Instructions:** In the space below, draw a cross section of the brain and label the parts of the brain with the muscle movement they control.

Name:

Date:

Class:

## Get Familiar With the Micro:bit

### Group Activity Instructions

1. Gather your materials: computer or laptop, 1 micro:bit, and a timer.
2. Input the following code (either Python or MakeCode) on your computer or laptop to get the activity started.



3. Watch the following two videos of how to set up MakeCode coding guide and a demo of the working micro:bit: [https://www.youtube.com/watch?v=2yzT7\\_QGLLc&t=8s](https://www.youtube.com/watch?v=2yzT7_QGLLc&t=8s) (1:36 minutes) and <https://www.youtube.com/watch?v=8qzYWH10o6E> (00:29 minutes)
4. Set up your micro:bit to run with the program.
5. Make the heartbeat faster or slower by changing the delay time.
6. Animate other built-in images such as the small and large diamond or square.
7. Create your own animations using your own designs.
8. Challenge: Record the number of taps over a minute for five trials.
9. Before you start, predict how many movements of your finger or wrist are needed for specific actions per minute.
10. To run each trial:
  - a. One group member uses the stopwatch to measure 60 seconds.
  - b. One group member taps their finger or wrist in time with the animation.
  - c. One group member counts the number of taps over the 60 seconds. (For example, if the finger is moved 5 times to make the heart go faster, this is written down.)
  - d. One group member records the number of movements per minute at the end of the 60 seconds.

Name:

Date:

Class:

11. Repeat the activity five times (trials) and record how many movements you make with your (a) finger and (b) wrist per minute for each change in animation in the tables below. (Note: You will complete 10 trials total, five for your finger and five for your wrist.)

**Table 1: Qualitative data for the number of times per minute a finger was used for the beating heart micro:bit experiment**

Trial number	Beating heart fast	Beating heart slow	Small diamond	Small square	Large diamond	Large square	Student animation design #1	Student animation design #2
1								
2								
3								
4								
5								

**Table 2: Qualitative data for the number of times per minute a wrist was used for the beating heart micro:bit experiment**

Trial number	Beating heart fast	Beating heart slow	Small diamond	Small square	Large diamond	Large square	Student animation design #1	Student animation design #2
1								
2								
3								
4								
5								

12. List your observations.

Name:

Date:

Class:

13. Draw an updated homunculus using the data you just collected.