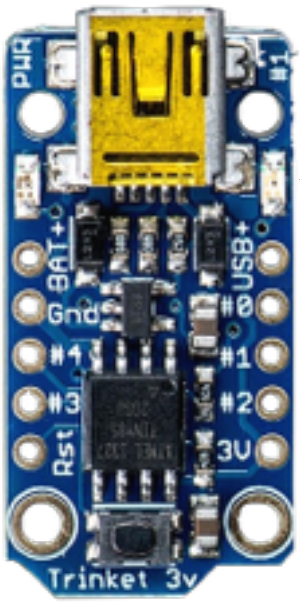
Trinket Reference Sheet Eli Whitney Museum / Week 6

Name:

link tiny.cc/rover6



Power LED

Battery + *(6V)*

Ground

USB { Pin 4*† / Pin 3

Reset Pin

USB Power *(5V)*

Pin 0†

Pin 1† *(LED)*

Pin 2*

3.3V Power

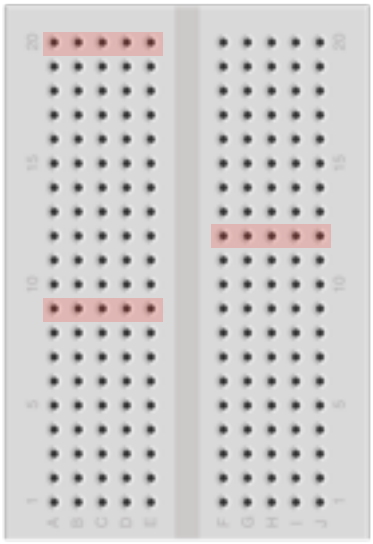
Reset Button

*analog read

†analog write

Upload programs when **Red LED** is blinking.
Press reset button or plug in to computer.

Breadboard



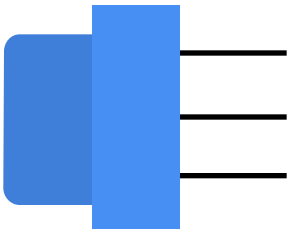
Horizontal holes are connected *(per side)*.

Conditionals:

```
if(a == b) {
  // do this if a=b
} else if (a > b) {
  // do this if a>b
} else {
  // otherwise do this
}

while(a == b) {
  // loops while a = b
}
```

Potentiometers (knobs):



3V

analog output

Ground

Servo

Control

Power (5V)

Ground

Every program needs:

```
#include <rover.h>
void setup() {
}

void loop() {
}
```

Basic Functions:

```
pinMode(pin#, INPUT/OUTPUT);
digitalWrite(pin#, HIGH/LOW);
digitalRead(pin#); → HIGH/LOW
analogRead(pin2or4); → 0 to 1023
analogWrite(pin0,1,4, 0 to 255);
delay(#ofMilliseconds);
```

Variables:

```
// declaration:
int foo = 0;

// set value
foo = digitalRead(0);
```

Robot Functions:

```
rover(leftPin, rightPin);

start();
stop();

straight(-60 to 60);

turnL(-60 to 60);
turnR(-60 to 60);
rotate(-60 to 60);

// cal values are 0 to 1
cal(left, right)
```

Windows

You need to install a driver. It is in the “usbtiny-driver” folder. Run the Installer.

Mac

You might get an error telling you that the program is damaged. It isn’t. Control-click on the app and select “Open”.
If that doesn’t work, Open System Preferences > Security > “Allow apps downloaded from:” **Anywhere**.

Setting Up Arduino at Home

1. Go here: tiny.cc/rover6
2. Download the Arduino software (it’ll take a while).
3. Download your programs.
4. Download and install the library.
5. In Arduino, choose Tools > Board > **Adafruit Trinket 8 MHz**
6. Then choose Tools > Programmer > **USBtinyISP**
7. Remember to press the reset button before uploading.

Buying Components at Home

Adafruit sells the Trinkets, as well as many other components. *www.adafruit.com*

You can also get components at Sparkfun, RobotShop, Pololu, or your local Radioshack.

A part list is posted on the class web page.

Alternative Code Editor

You can also check out https://codebender.cc/, a free online code editor for the Arduino. You'll have to install a browser extension, and make sure you select "Adafruit Trinket 8MHz". Click the [+] button to add the library files.

elimbaum@gmail.com if you need help