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| Cambridge Raspberry Jam | |
| Name |  |
| Age |  |
| Parent |  |

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| Beginners worksheet #7 | |
| Project | Temperature sensor |
| Description | In this project you will learn how to wire and program a temperature sensor. Let’s see how hot the room is. |

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| Tools required | | | |
| □ Raspberry Pi SD card | □ 1 X Red LED | □ 7 x m/f jumper wires | |
| □ Keyboard | □ 1 X Blue LED | □ 5 m/m jumper wire | |
| □ Monitor + Cable | □ 2 x 330 Ω resistors | □ Buzzer |  |
| □ Power supply | □ 2 4.7k Ω resistors | □ Temperature sensor (DS18B20) | |
| □ Breadboard | □ Push button |  | |
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| Code |
| TURN ON THE LEDS “7\_temperature.py”  import os  import glob  import time  #initialize the device  os.system('modprobe w1-gpio')  os.system('modprobe w1-therm')  base\_dir = '/sys/bus/w1/devices/'  device\_folder = glob.glob(base\_dir + '28\*')[0]  device\_file = device\_folder + '/w1\_slave'  def read\_temp\_raw():  f = open(device\_file, 'r')  lines = f.readlines()  f.close()  return lines  def read\_temp():  lines = read\_temp\_raw()  while lines[0].strip()[-3:] != 'YES':  time.sleep(0.2)  lines = read\_temp\_raw()  equals\_pos = lines[1].find('t=')  if equals\_pos != -1:  temp\_string = lines[1][equals\_pos+2:]  temp\_c = float(temp\_string) / 1000.0  temp\_f = temp\_c \* 9.0 / 5.0 + 32.0  return temp\_c, temp\_f    while True:  print(read\_temp())  time.sleep(1) |

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| This one is a little different you need to run the following commands before running the code.  1. “sudo modprobe w1-gpio”  2. “sudo modprobe w1-therm”  3. “cd /sys/bus/w1/devices”  4. “ls –l”  total 0  lrwxrwxrwx 1 root root 0 Jan 31 20:34 28-000004d50803 -> ../../../devices/w1\_bus\_master1/28-000004d50803  lrwxrwxrwx 1 root root 0 Jan 31 20:34 w1\_bus\_master1 -> ../../../devices/w1\_bus\_master1  If you see “28-000004d50803“ << this then it’s working!!! ☺  5. Change directory “cd Desktop/gpio\_python\_code/”  6. Create file “touch 7\_temperature.py”  7. Enter the code above code  Once complete “Ctrl + x” then “y” then “enter”  8. To run the python code “sudo python 7\_temperature.py” << See what the temperature is! |