

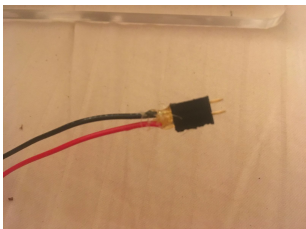


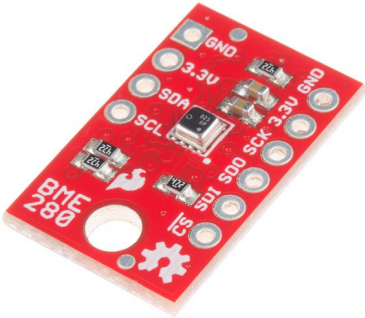
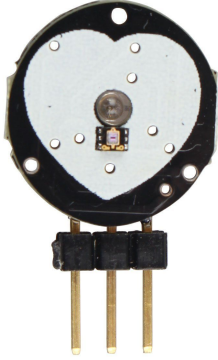



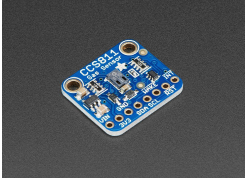





Sensor	Measures	Range
<p data-bbox="363 317 431 348">MQ4</p> 	<p data-bbox="704 317 912 348">Methane (CH₄)</p> <p data-bbox="618 359 824 390">Can measure in</p> <ul data-bbox="667 394 748 426" style="list-style-type: none"> <li data-bbox="667 394 748 426">• Air <p data-bbox="618 430 740 462">Good for:</p> <ul data-bbox="667 466 976 533" style="list-style-type: none"> <li data-bbox="667 466 976 533">• Monitoring microbial activity 	<p data-bbox="1057 352 1390 422">Methane is measured in ppm</p> <p data-bbox="1122 464 1325 495">300-10,000ppm</p>
<p data-bbox="363 590 431 621">MQ7</p> 	<p data-bbox="651 590 967 621">Carbon Monoxide (CO)</p> <p data-bbox="618 625 824 657">Can measure in</p> <ul data-bbox="667 661 748 693" style="list-style-type: none"> <li data-bbox="667 661 748 693">• Air <p data-bbox="618 697 740 728">Good for:</p> <ul data-bbox="667 732 932 871" style="list-style-type: none"> <li data-bbox="667 732 932 764">• Smoke detection <li data-bbox="667 768 932 837">• Car exhaust measurements <li data-bbox="667 842 932 871">• Finding Gas Leaks 	<p data-bbox="1081 625 1365 695">Carbon Monoxide is measured in ppm</p> <p data-bbox="1130 735 1317 766">10-10,000ppm</p>
<p data-bbox="342 905 448 936">Salinity</p> 	<p data-bbox="721 905 899 936">Conductivity</p> <p data-bbox="618 940 824 972">Can measure in</p> <ul data-bbox="667 976 792 1043" style="list-style-type: none"> <li data-bbox="667 976 792 1008">• Soil <li data-bbox="667 1012 792 1043">• Water <p data-bbox="618 1050 740 1081">Good for:</p> <ul data-bbox="667 1085 976 1190" style="list-style-type: none"> <li data-bbox="667 1085 976 1155">• Water quality monitoring <li data-bbox="667 1159 976 1190">• Detecting salt runoff 	<p data-bbox="1032 940 1414 1058">Soil salinity is measured in uS/cm (microSiemens per centimeter)</p> <p data-bbox="1114 1102 1333 1134">0.5-50,000uS/cm</p>
<p data-bbox="302 1220 488 1251">Soil Moisture</p> 	<p data-bbox="688 1220 932 1251">Relative Moisture</p> <p data-bbox="618 1255 824 1287">Can measure in</p> <ul data-bbox="667 1291 792 1358" style="list-style-type: none"> <li data-bbox="667 1291 792 1323">• Soil <li data-bbox="667 1327 792 1358">• Water <p data-bbox="618 1365 740 1396">Good for:</p> <ul data-bbox="667 1400 899 1470" style="list-style-type: none"> <li data-bbox="667 1400 899 1470">• Soil quality for gardening 	<p data-bbox="1040 1260 1406 1291">Moisture is measured in %</p> <p data-bbox="1170 1335 1276 1367">0-100%</p>
<p data-bbox="350 1503 440 1535">Diode</p> 	<p data-bbox="721 1503 899 1535">Temperature</p> <p data-bbox="618 1539 824 1570">Can measure in</p> <ul data-bbox="667 1575 792 1675" style="list-style-type: none"> <li data-bbox="667 1575 792 1606">• Soil <li data-bbox="667 1610 792 1642">• Water <li data-bbox="667 1646 792 1675">• Air <p data-bbox="618 1682 740 1713">Good for:</p> <ul data-bbox="667 1717 992 1856" style="list-style-type: none"> <li data-bbox="667 1717 992 1787">• Getting general temperature readings <li data-bbox="667 1791 992 1856">• Calibrating other sensors for the effect 	<p data-bbox="1040 1539 1414 1646">Temperature can be measured in C (Celsius) or Fahrenheit)</p> <p data-bbox="1032 1682 1414 1751">-55 to +125°C at an accuracy of +/- 0.5°C</p>

	of temperature	
<p>BME280</p> 	<p>Humidity, Pressure, Temperature, and Altitude Can Measure in:</p> <ul style="list-style-type: none"> • Air <p>Good for:</p> <ul style="list-style-type: none"> • Controlling for the effects of atmosphere • Calibrating other sensors for the effects of atmospheric variables 	<p>Temperature is measured in C (Celsius) or F (Farhenheit) -40-85C</p> <p>Pressure is measured in Pascals (Pa) 30,000-110,000Pa</p> <p>Humidity is measured in Percent 0-100%</p>
<p>Heart Pulse Sensor</p> 	<p>Measures Heart Rate Good for:</p> <ul style="list-style-type: none"> • Measuring stress levels • The effect of environment on the body 	<p>Measures heart rate as a voltage *any heart rate</p>
<p>Photoresistor</p> 	<p>Intensity Can Measure in:</p> <ul style="list-style-type: none"> • Air <p>Good for:</p> <ul style="list-style-type: none"> • Measuring brightness/darkness 	<p>Converts brightness (luminance (lux)) as a resistance 0.1-1000 lux</p> <p>More sensitive to certain colors 500nm-700nm (Green, Yellow, Red)</p>
<p>Electret Microphone</p>	<p>Sound Intensity Can Measure in:</p> <ul style="list-style-type: none"> • Air 	<p>Sound is measured by its pitch (frequency, Hz) and its loudness (decibels, dB)</p>

	<p>Good for:</p> <ul style="list-style-type: none"> Monitoring sound pollution Detecting if a car is passing by 	<p>10-10,000Hz</p> <p>0-100dB</p>
<p>Optical Dust Sensor</p> 	<p>Dust Particulate</p> <p>Can Measure in:</p> <ul style="list-style-type: none"> Air <p>Good for:</p> <ul style="list-style-type: none"> Checking air quality in vents, ducts, fans, or by roads 	<p>Dust particulate is measured by its density and particle size</p> <p>Detects fine particulate large than 0.8um in diameter</p>
<p>CCS811</p> 	<p>CO2 and Volatile Organic Compounds (VOC)</p> <p>Can Measure in:</p> <ul style="list-style-type: none"> Air <p>Good for:</p> <ul style="list-style-type: none"> Checking air quality in vents, ducts, fans, or by roads 	<p>CO2 is measured in ppm</p> <p>400-8192 ppm</p> <p>VOCs are measured in ppb</p> <p>0-1187 ppb</p>
<p>pH Sensor</p> 	<p>Measures pH levels</p> <p>Can measure in:</p> <ul style="list-style-type: none"> Water Soil <p>Good for:</p> <ul style="list-style-type: none"> Water and soil quality 	<p>Measures 0-14 on the pH scale</p>
<p>Water Quality Test Strips</p>	<p>Nitrate, Chlorine, Copper, Iron, Lead, Total Hardness, Alkalinity</p> <p>Can measure in:</p> <ul style="list-style-type: none"> Water <p>Good for:</p> <ul style="list-style-type: none"> Testing general water quality. 	<p>All of these measure by some concentration</p> <p>Alkalinity: 0-720ppm Hardness: 0-425ppm Nitrate: 0.0-20.0ppm Iron: 0.0-1.0ppm Copper: 0.0-2.0ppm Chlorine: 0.0-5.0ppm</p>

		Lead: -
<p>Turbidity</p> 	<p>Cloudiness/Haziness of Water</p> <p>Can measure in:</p> <ul style="list-style-type: none"> • Water <p>Good for:</p> <ul style="list-style-type: none"> • General water quality 	<p>Turbidity is measure as total suspended solids (TSS)</p>
<p>CAN WE MEASURE THE FOLLOWING:</p>		
<p><i>Look at it with the Microscope And you can use Methane and CO2 to detect bacterial activity. Discuss with your sensor experts!</i></p>	<p><i>Bacteria</i></p>	
<p><i>Water testing kids</i></p>	<p>Soil, Water, Air: copper, lead, Nutrients (nitrogen, phosphorus, potassium (NPK), and calcium),</p>	