# Arduino Code Comments for the Teacher

```cpp
#include <LiquidCrystal.h>

LiquidCrystal lcd(12,11,5,4,3,2); // this indicates which pins on the LCD will be utilized

const int switchPin = 6; // this sets a constant called switchPin to analog pin 6 on the Arduino
int switchState = 0; // this sets the integer called switchState to 0 (or low)
int condVol; // this sets an integer called condVol which is used in later calculations in the code below

void setup() {
  Serial.begin(9600); // establishes a connection to the Arduino at a baud rate of 9600
  lcd.begin(16,2); // instructs the LCD to begin displaying
  pinMode(switchPin, INPUT); // sets analog 6 as an input pin
}

void loop() { // everything between these curly braces will loop
  condVol = analogRead(40); // this sets the integer condVol equal to the value read from analog 0 on the Arduino
  float voltage = condVol * (5.0/1023.0); // calculation of relative conductivity, essentially this is a measure of the voltage drop across the probe. As the conductivity increases, the voltage drop across the probe also increases
  lcd.setCursor(0,0); // instructs LCD to go to the first line, first space
  lcd.print(\"Rel Conductance\"); // instructs LCD to display \"Rel Conductance\" beginning on the first line, first space of the LCD display.
  lcd.setCursor(0,1); // instructs LCD display to go to the second line, first space.
  lcd.print(voltage); // display the relative conductivity from the probe on the second line, first space. Note that the object called /\ is the calculation performed on line 19 in the code
  delay(50); // delay before looping, numerical values are in milliseconds
}
```

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Build and Test a Conductivity Probe Activity—Arduino Code Comments for the Teacher