

# **Basteltruppe**

## **4**

### **Digital vs Analog**

**Today we'll  
solve some  
mysteries**

# Analog



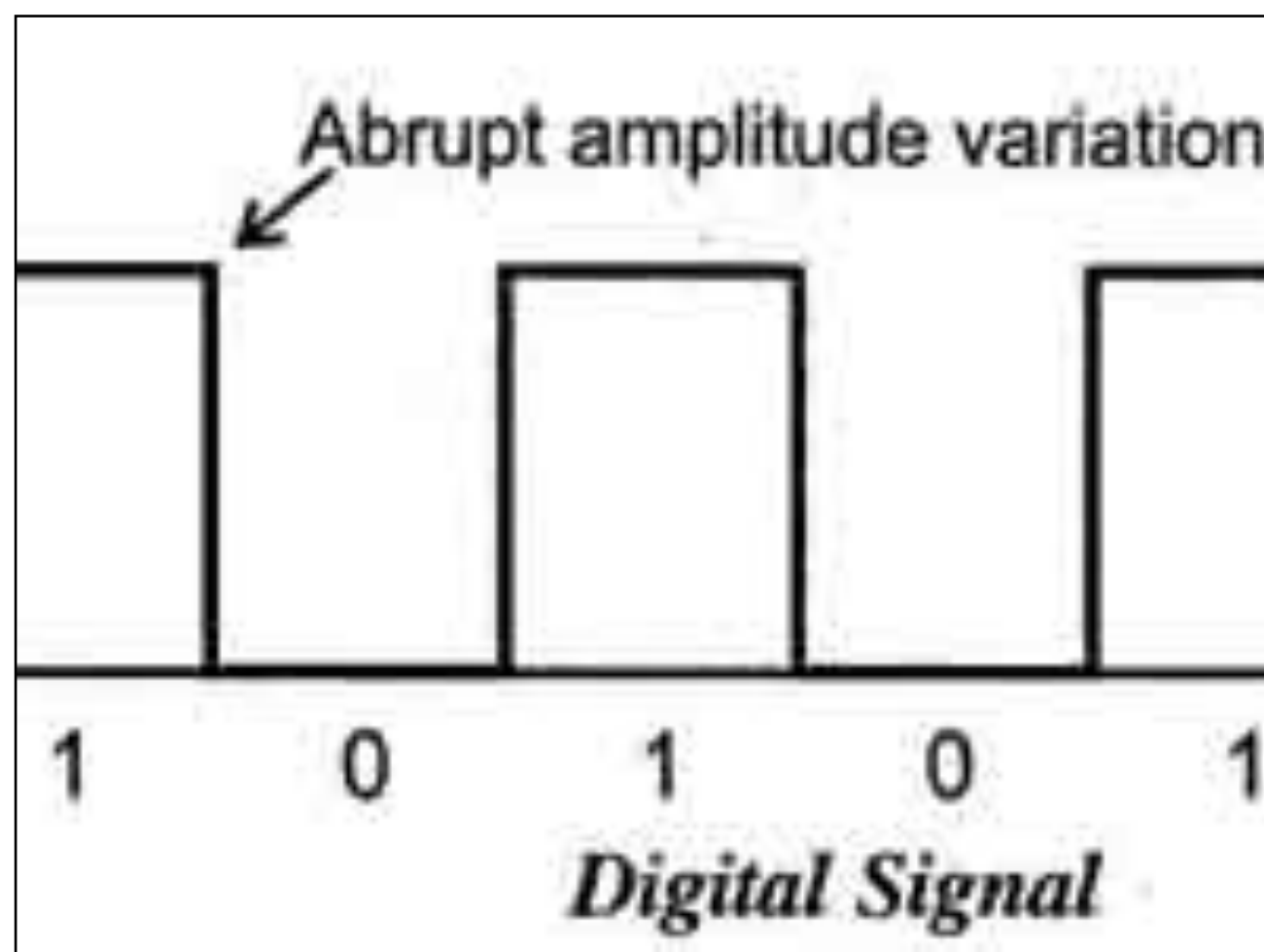
# Digital



# **Information vs Signal**

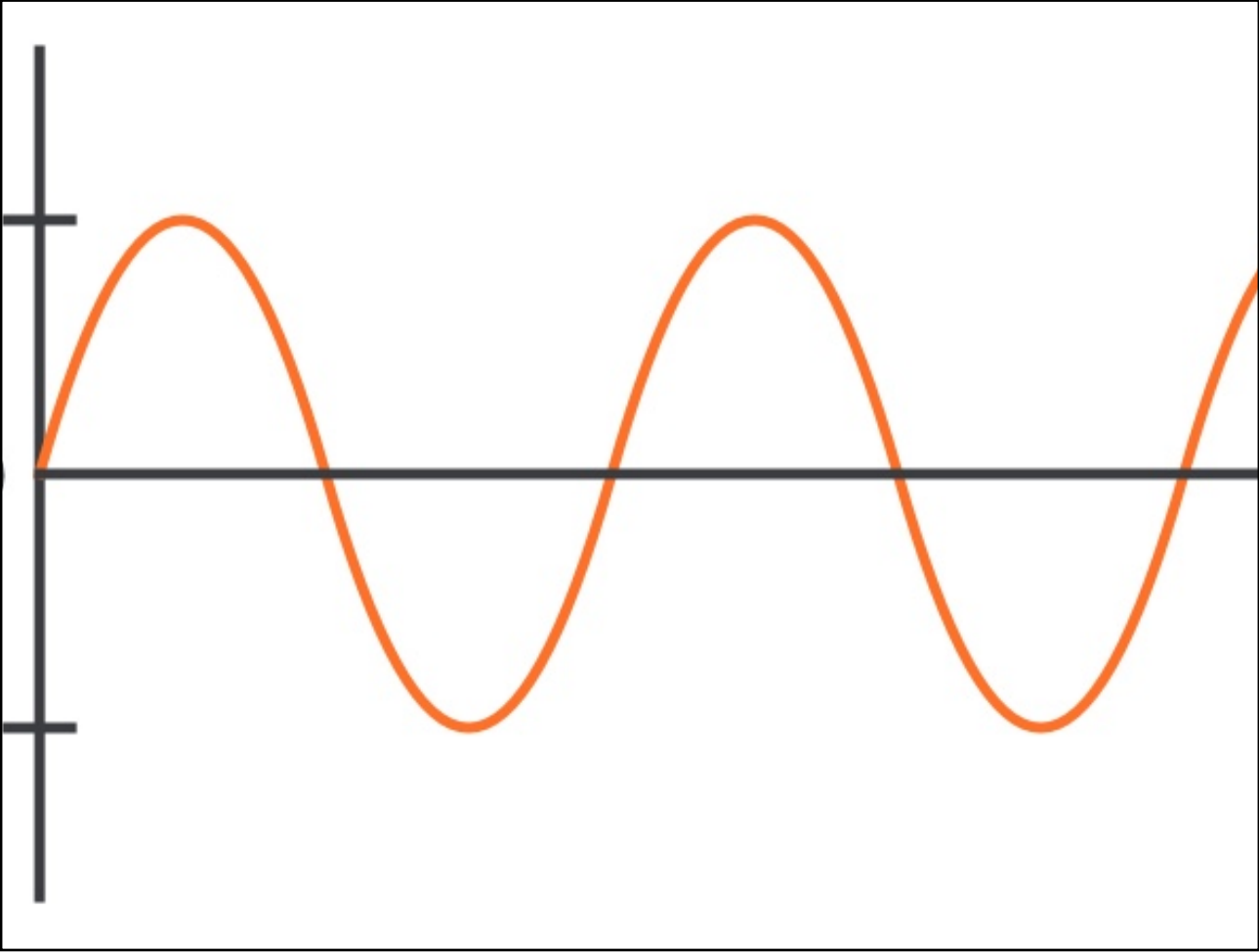
**Information  
What you  
want to  
transmit**

**Sending you**  
**42**  
**101010**



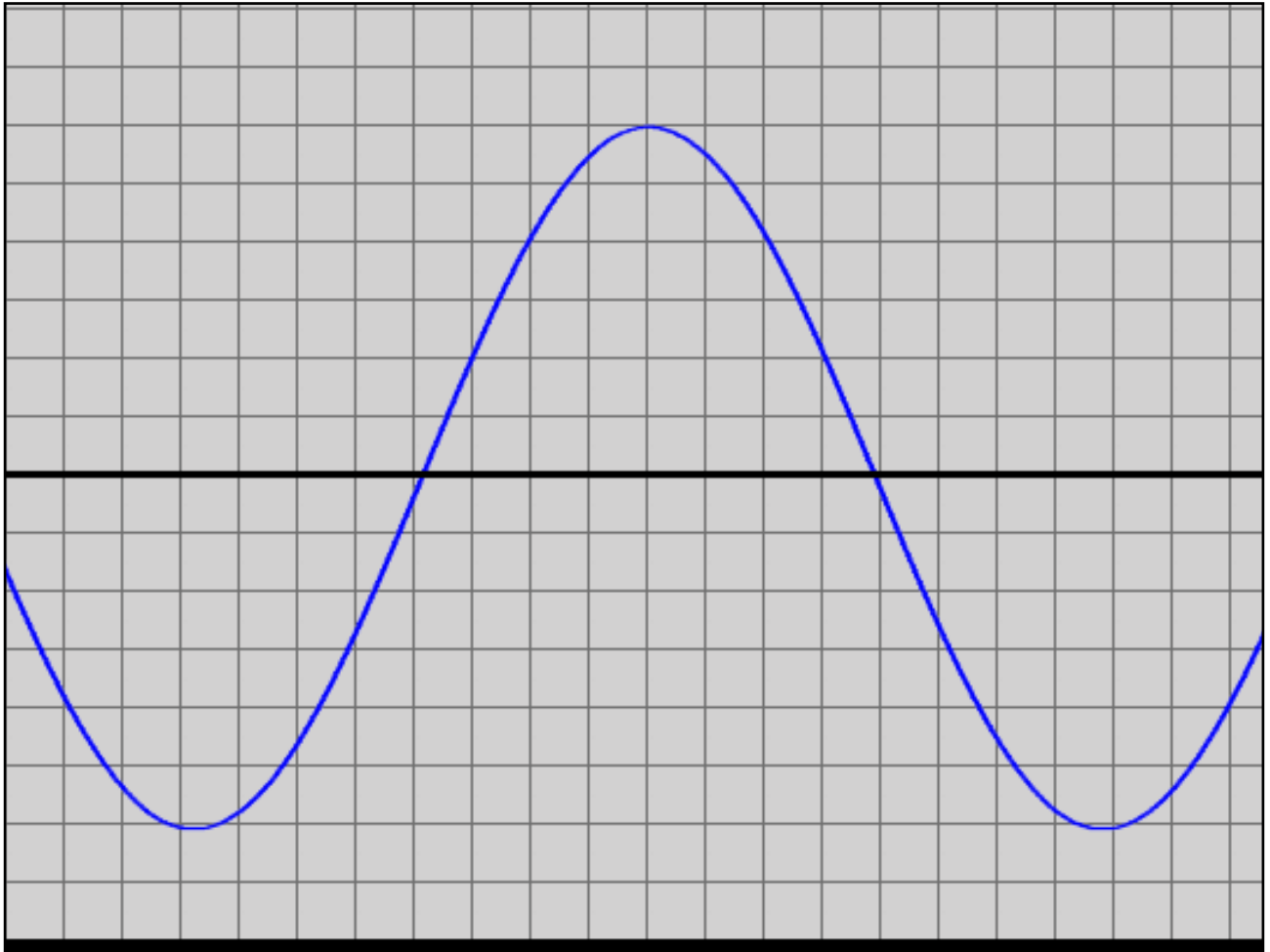


**Signal**  
**How you**  
**actually**  
**transmit it**



**We used  
Digital  
signals  
previously**

**How do you  
convert  
analog signals  
to digital  
information?**



- You have two variables
- The sampling rate and the resolution
- The higher the sampling rate, the higher frequencies you are able to measure
- The higher the resolution, the more exact you will approximate the curve

# **Analog to Digital Converter (ADC)**

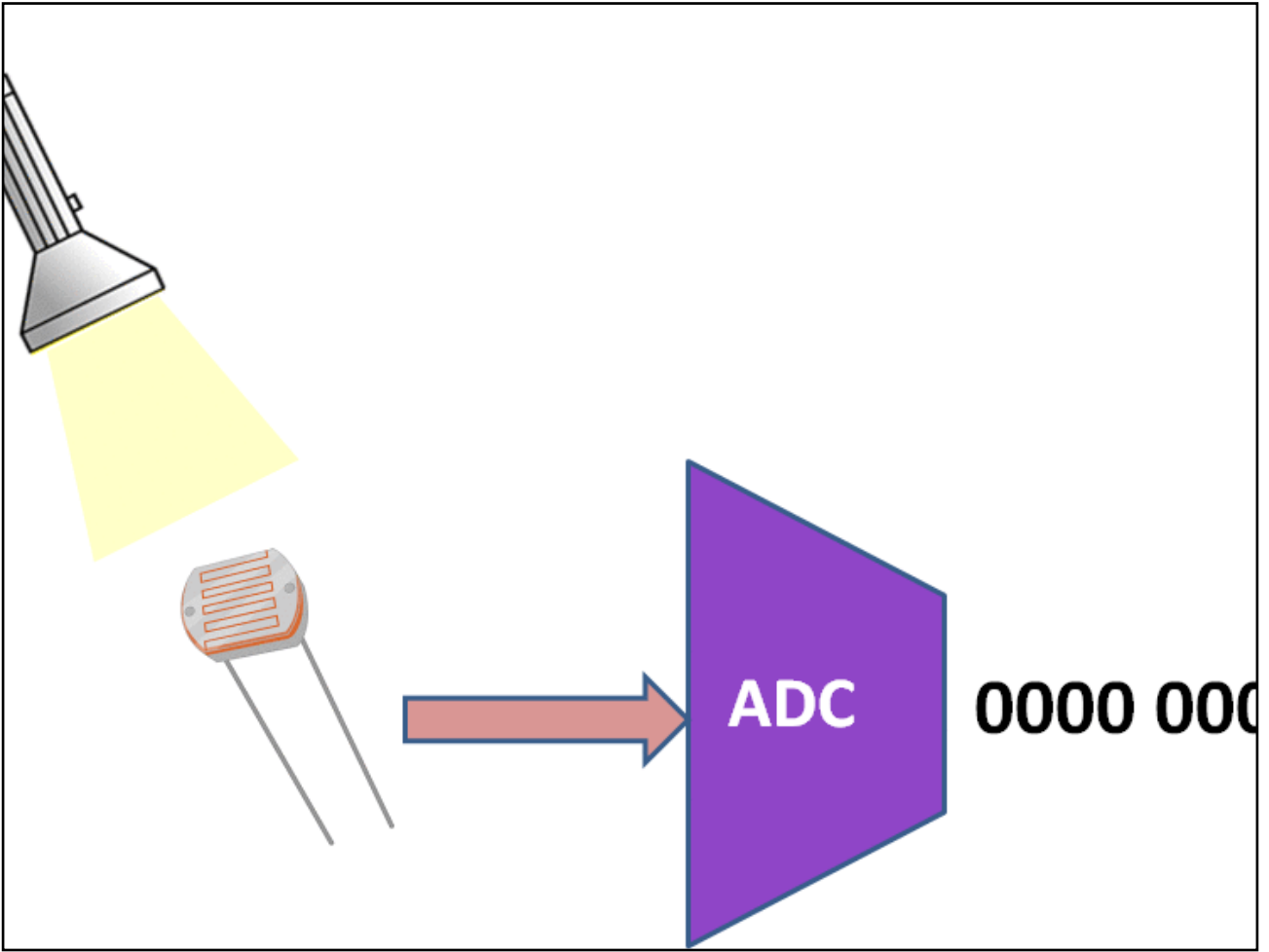
# **Your Arduino**

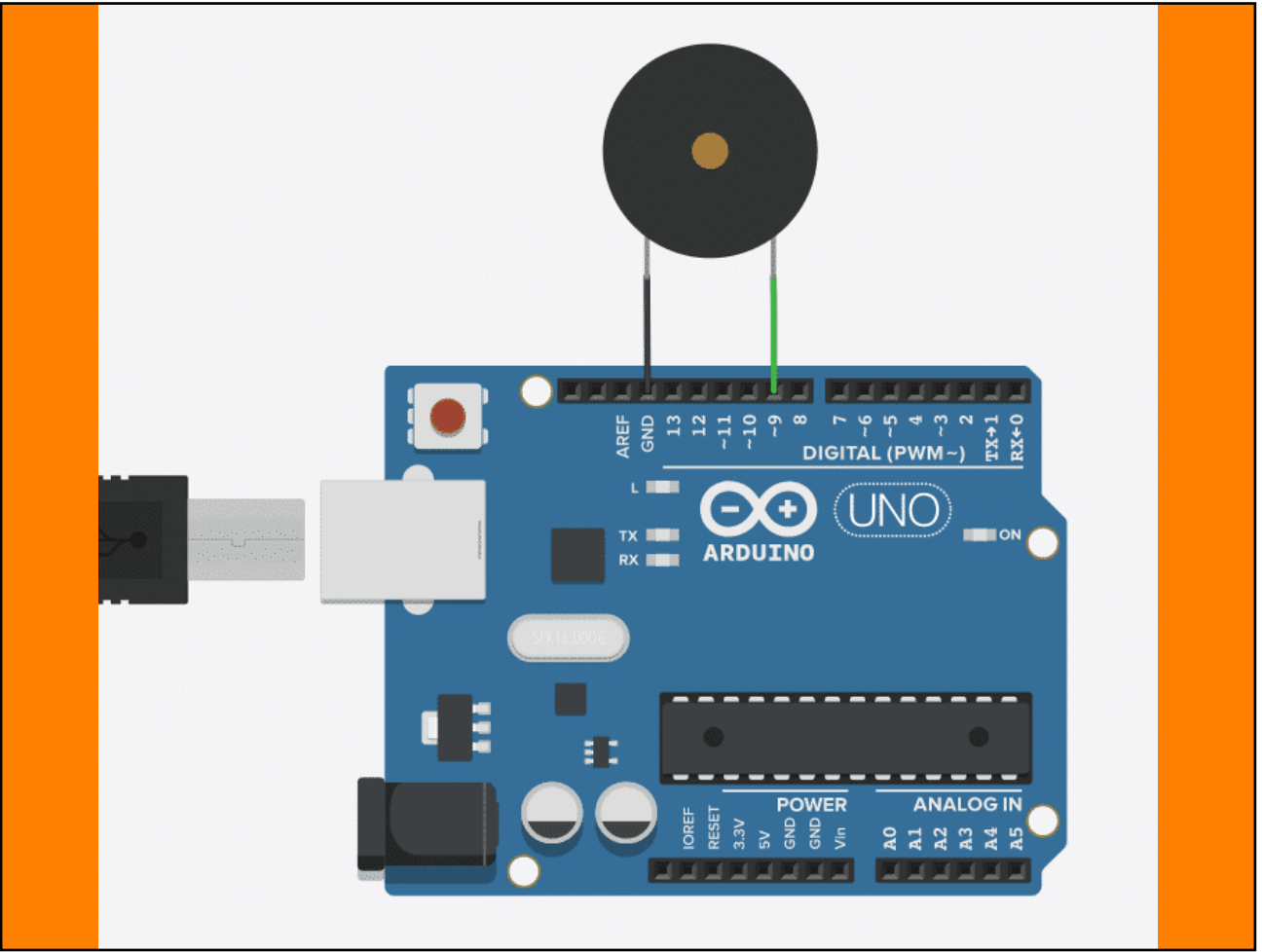
**10 Bit ADC**

**10000 Hz**

```
analogRead(A0);
```







# Exercise

- Connect 5V -> Photoresistor -> 10k Ohm Resistor -> GND
- Connect A0 to the second leg of the Photoresistor
- Print the analog value that you read
- How does light affect this value?
- Can you turn an LED on based on how much light reaches the Photoresistor?
- Can you control a buzzer with the Photodiode?