Adjust Plot Labels

Step 1: Set the theme and load your data.

```r
# 1) Set up the themes used in these videos:
library(ggplot2)

theme1 <-  theme(plot.margin = margin(5, 5, 5, 5, "pt"),
        panel.grid.major = element_blank(),
        panel.grid.minor = element_blank(),
        panel.background = element_blank(),
        panel.border = element_rect(colour = "#393f47", fill = NA, size = 2),
        axis.text = element_text(size = 15),
        axis.title.x = element_text(size = 15),
        axis.title.y = element_text(size = 15),
        plot.title = element_text(face = "bold", size = 20))
ourTheme1 <- list(theme1, scale_color_manual(values = c('#393f47', '#b31b1b', '#fbb040', '#92b2c4')))

theme2 <-  theme(plot.margin = margin(10, 10, 10, 10, "pt"),
        panel.grid.major = element_blank(),
        panel.grid.minor = element_blank(),
        panel.background = element_blank(),
        panel.border = element_rect(colour = "#393f47", fill = NA, size = 2),
        axis.text = element_text(size = 15),
        axis.title.x = element_text(size = 15),
        axis.title.y = element_text(size = 15),
        plot.title = element_text(face = "bold", size = 20))
ourTheme2 <- list(theme2, scale_color_manual(values = c('#393f47', '#b31b1b', '#fbb040', '#92b2c4')))

# 2) Load data from the National Oceanic and Atmospheric Administration's
# Atlantic hurricane
# database and convert variables to factors where necessary.
library(tidyverse)

# read in the storm data:
storms <- read.csv("storms.csv")

# set the storm category to be a factor:
storms$Category <- factor(storms$Category, levels = -1:5)

# set the measurement date/time to be a factor:
storms$Date <- factor(storms$Date, levels = unique(storms$Date))

# look at the storm data:
view(storms)

# 3) Filter the data to only use observations for Hurricane Sandy:
sandy <- storms %>% filter(Name == "Sandy")
```

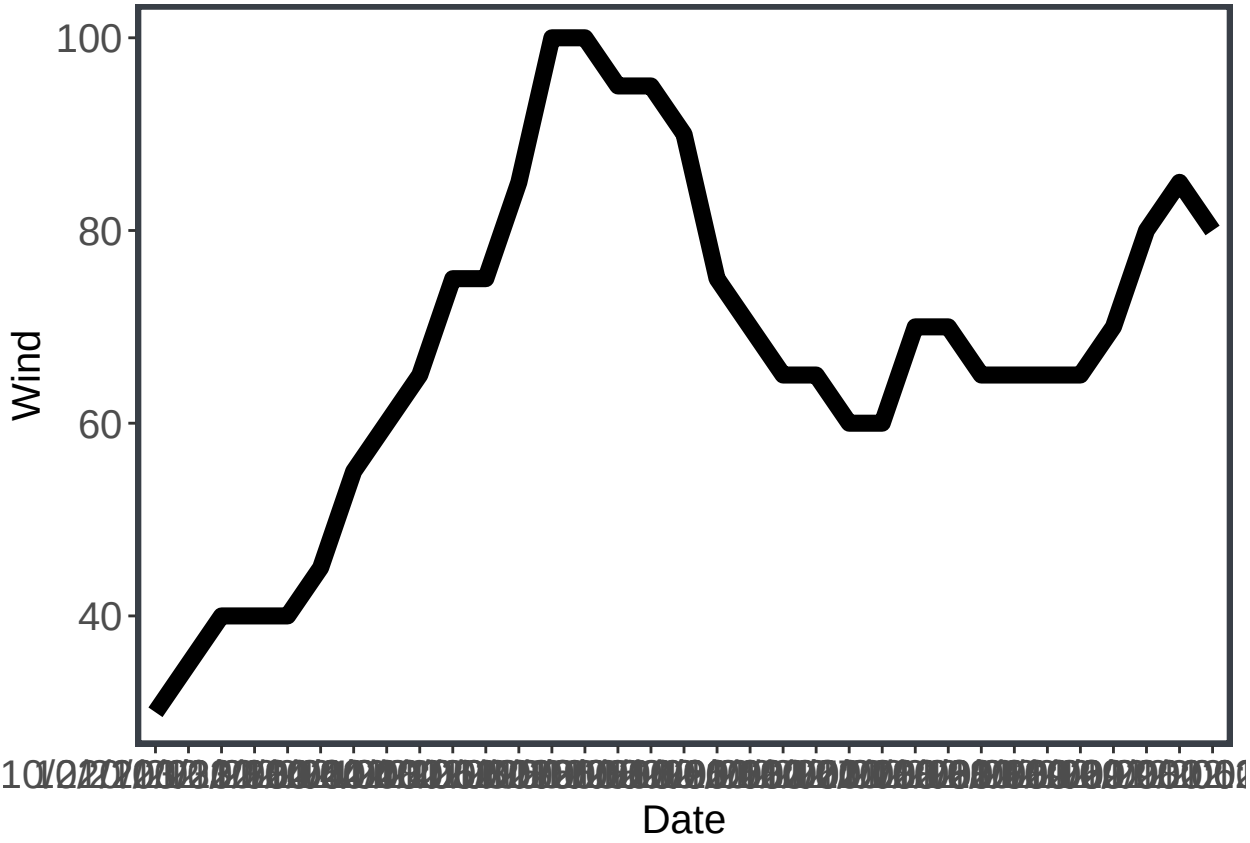
```r
# 4) Create a data set with observations only for Hurricanes Katrina, Sandy, and Wilma:
sampleStorms <- storms %>%
filter(Name %in% c("Katrina", "Sandy", "Wilma"))
```

Step 2: Show Hurricane Sandy's wind speed over time.

Use geom_line() to make a line plot that shows how Sandy's wind speed changed over time:

```r
ggplot(sandy, aes(x = Date, y = Wind, group = 1)) +
  geom_line(size = 3) +
  ourTheme1
```

```
## Warning: Using 'size' aesthetic for lines was deprecated in ggplot2 3.4.0.
## i Please use 'linewidth' instead.
## This warning is displayed once every 8 hours.
## Call 'lifecycle::last_lifecycle_warnings()' to see where this warning was
## generated.
```

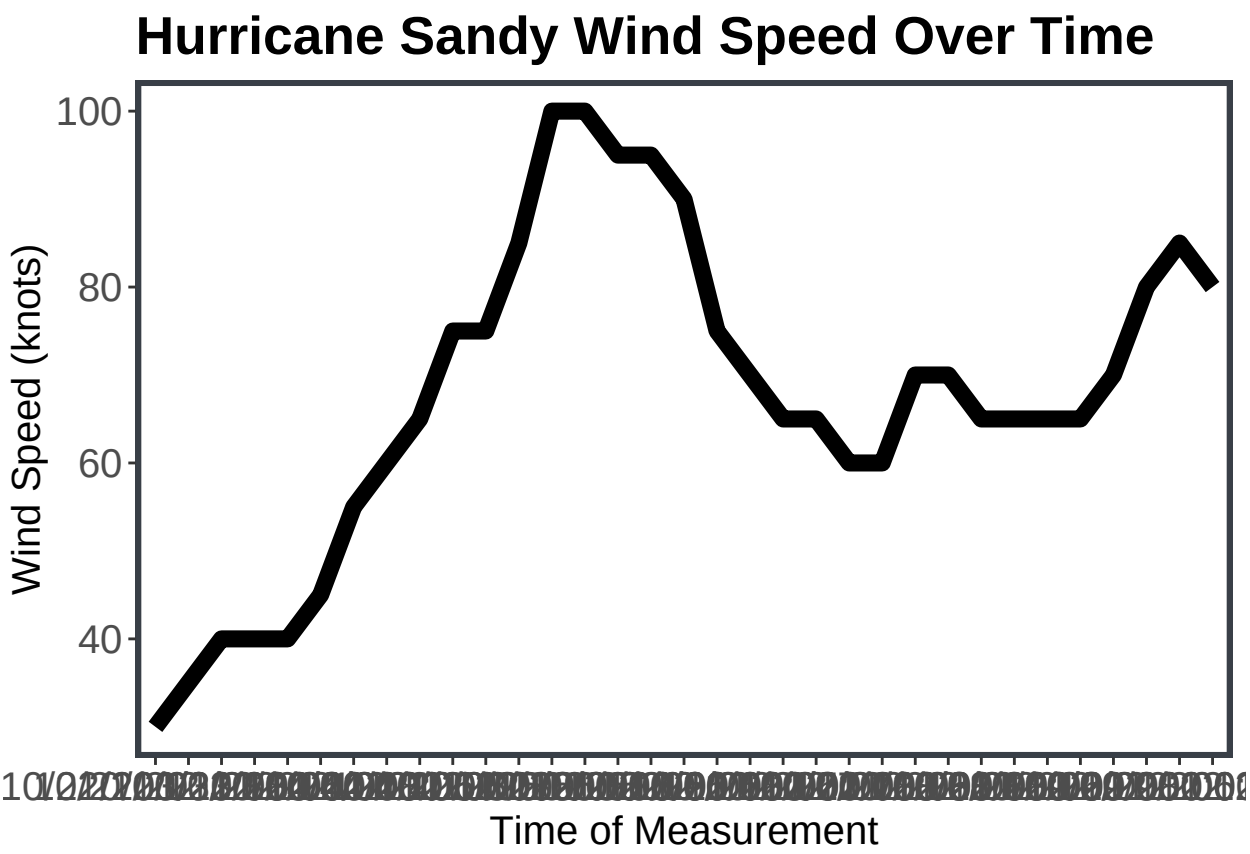


Step 3: Add axis labels and a plot title.

The function xlab() changes the x-axis label, the function ylab() changes the y-axis label, and the function ggtitle() changes the title:

```r
ggplot(sandy, aes(x = Date, y = Wind, group = 1)) + geom_line(size = 3) +
  xlab("Time of Measurement") +
  ylab("Wind Speed (knots)") +
  ggtitle("Hurricane Sandy Wind Speed Over Time") +
```

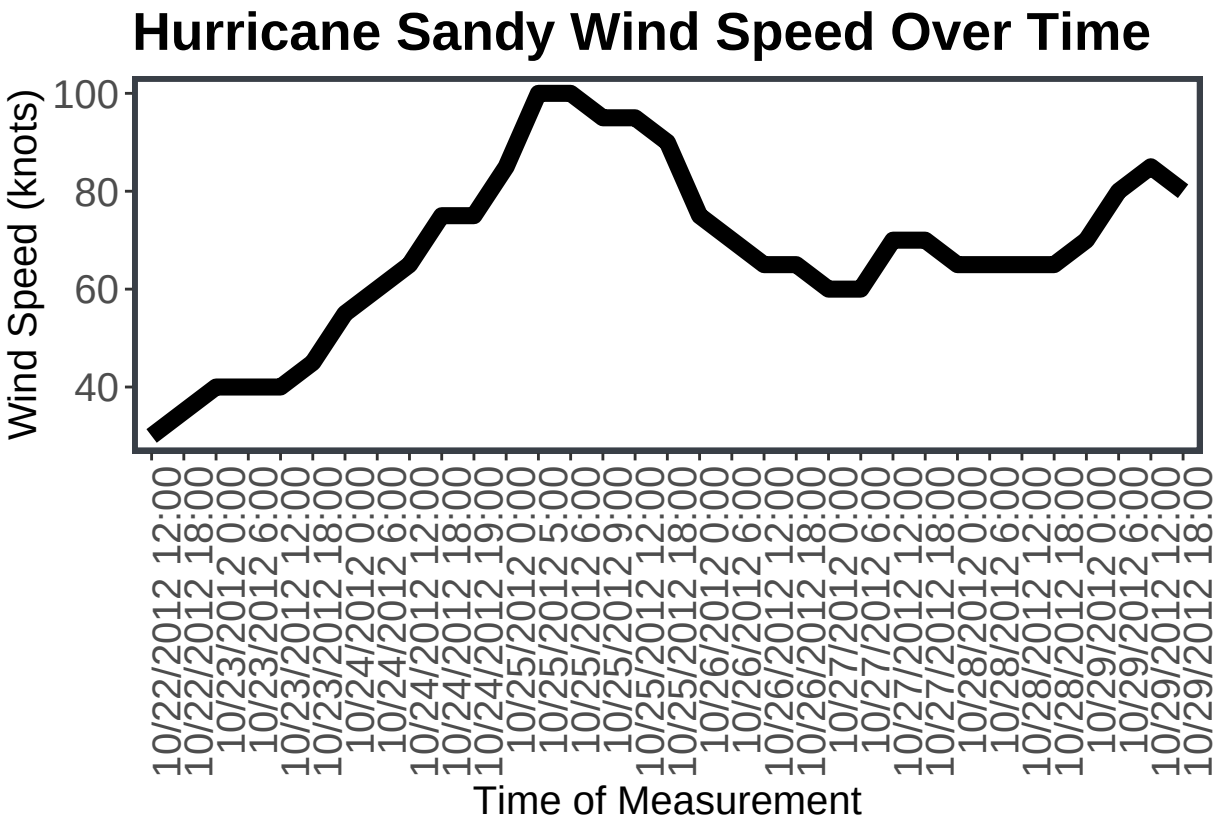
```
ourTheme1
```



Step 4: Rotate the x-axis tick-mark labels.

The timepoint labels in the previous graph were impossible to see since they overlapped each other. You can use the function theme(axis.text.x = element_text(angle = 90, hjust = 1)) to rotate the x-axis labels so they're vertical:

```
# theme(axis.text.x = element_text(angle = 90, hjust = 1)) rotates the x-axis tick labels so that they'
ggplot(sandy, aes(x = Date, y = Wind, group = 1)) +
  geom_line(size = 3) +
  xlab("Time of Measurement") +
  ylab("Wind Speed (knots)") +
  ggtitle("Hurricane Sandy Wind Speed Over Time") +
  theme(axis.text.x = element_text(angle = 90, hjust = 1)) +
  ourTheme2
```


Hurricane Sandy Wind Speed Over Time
Wind Speed (knots)
100
80
60
40
10/22/2012 12:000
10/22/2012 18:000
10/23/2012 0:000
10/23/2012 6:000
10/23/2012 12:000
10/23/2012 18:000
10/24/2012 0:000
10/24/2012 6:000
10/24/2012 12:000
10/24/2012 18:000
10/25/2012 0:000
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10/28/2012 6:000
10/28/2012 12:000
10/28/2012 18:000
10/29/2012 0:000
10/29/2012 6:000
10/29/2012 12:000
10/29/2012 18:00
Time of Measurement