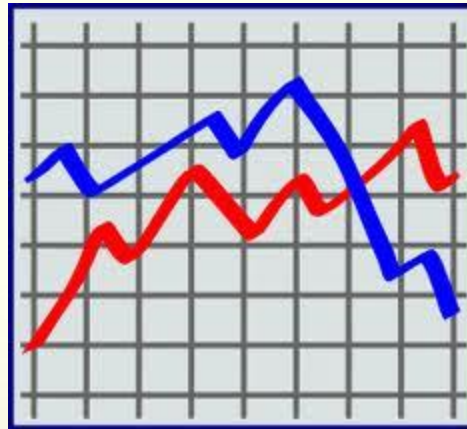
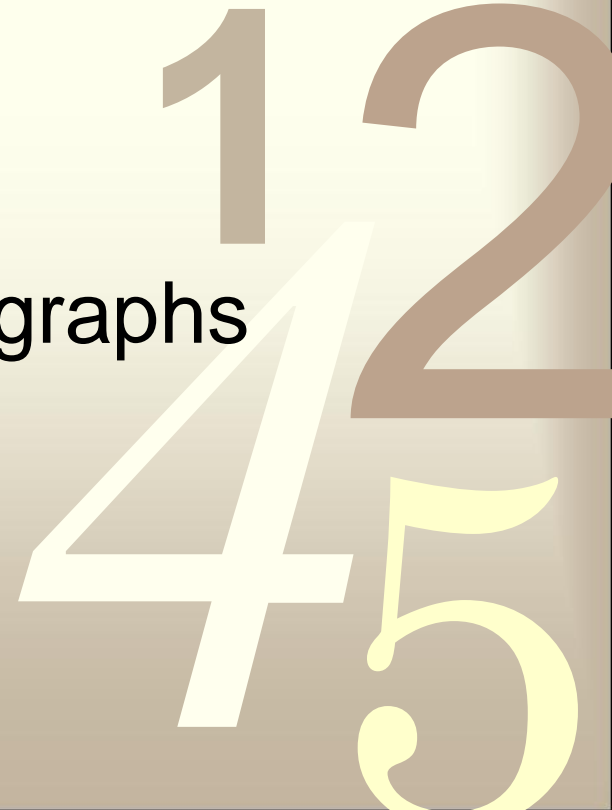


# Graphing Skills

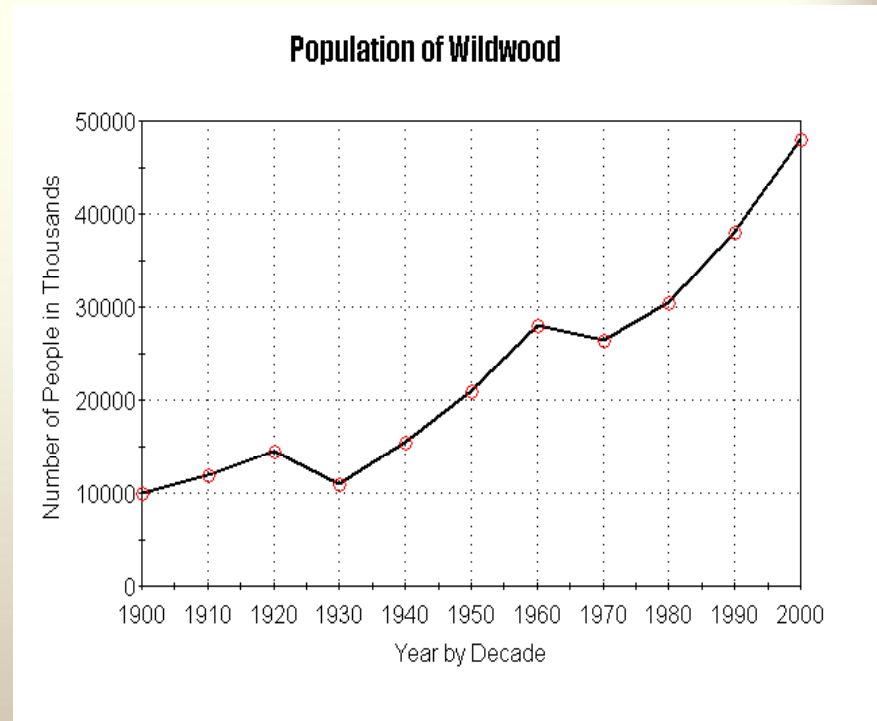


How to set up successful graphs  
in Science class!



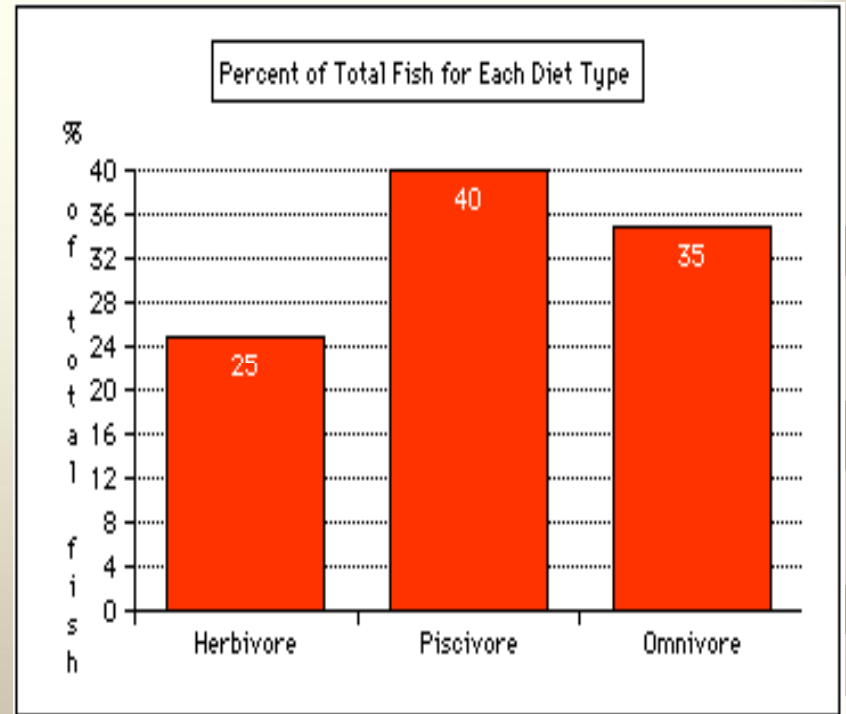
# Line Graphs

- Used to show data that IS **continuous**.
- Points are plotted using x- and y-axis
- Points are **connected**
- Shows relationship between **IV and DV** (how/if the IV affects the DV)
- Many times, the IV plotted on the X-axis is **time**



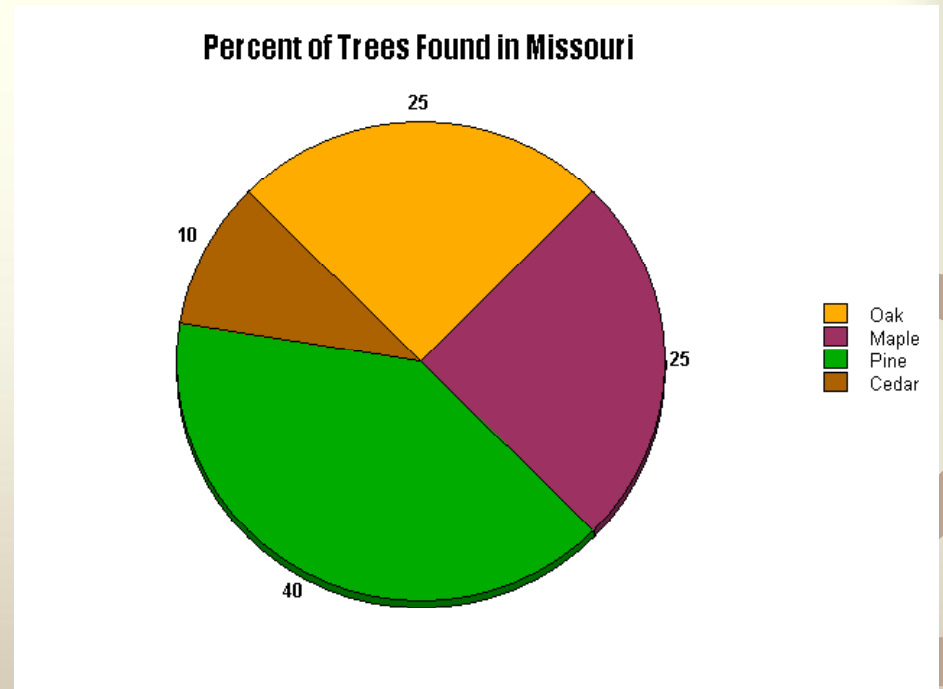
# Bar Graphs

- Data is **NOT** continuous
- Bars typically don't touch
- Allows us to **compare** descriptive data like amounts or percentages or **categories**
- There is no order to the categories on the X-axis



# Pie Graphs

- Data is **NOT** continuous
- Usually presents data as a “part of a whole” or as **percentages**
- Categories add up to **100%**



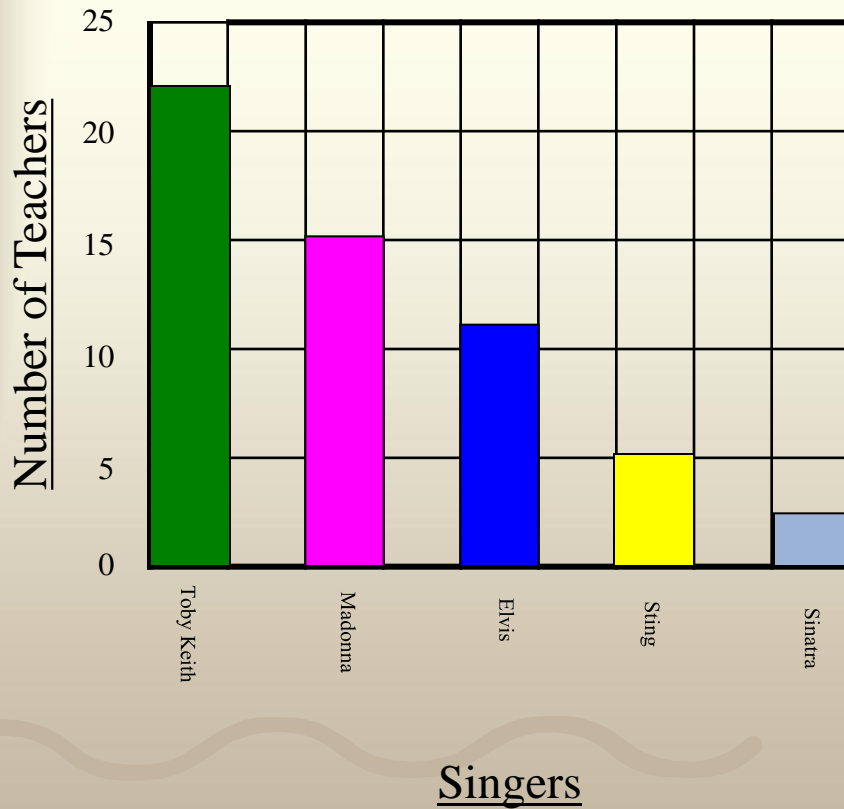
# Which type of graph?

0011

#	Description	Line	Bar	Pie
Ex	Amount of each color of M&M's in a bag		X	
1	Heating a pan of water over a time period	X		
2	Shows number of students earning A's, B's, C's		X	
3	Measuring the percentage of each gas in air			X
4	Shows the percentage of allowance spent on different things			X
5	Shows height change over 15 year period	X		

# TAILS

Teachers' Favorite Singers



T – Title

A – Axis

I – Interval

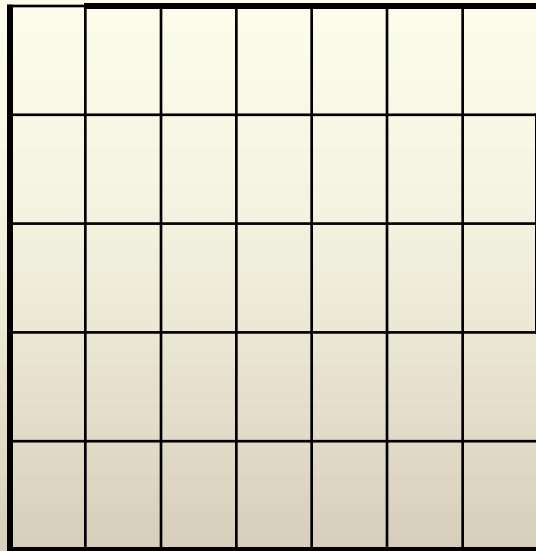
L – Labels

S – Scale



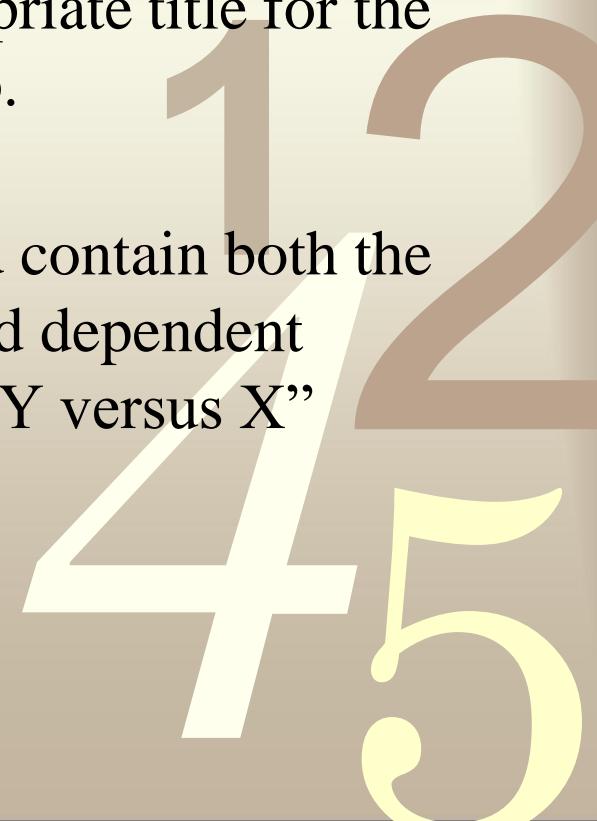
# TAILS

## Teachers's Favorite Singer



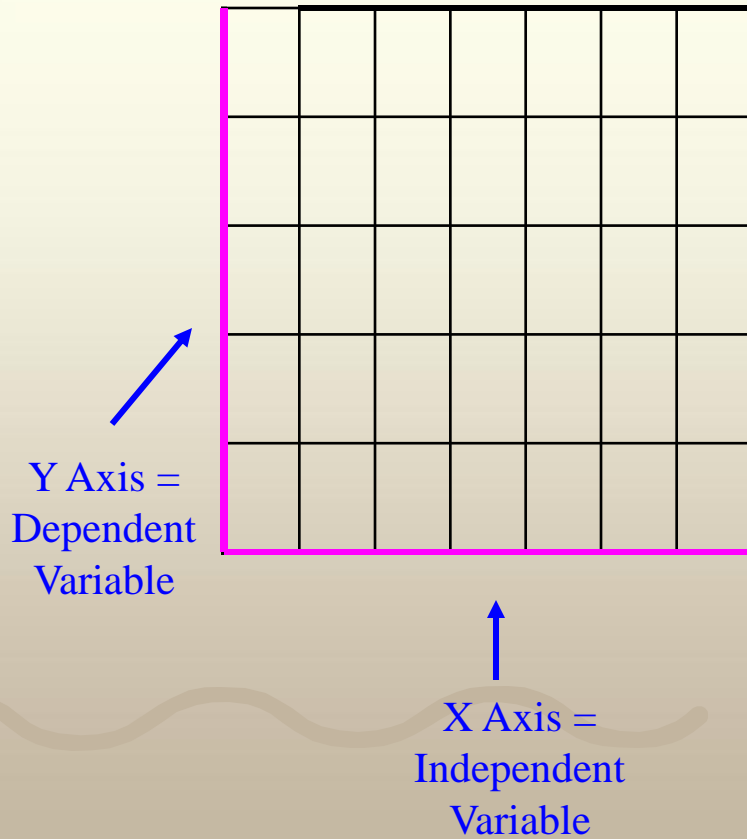
## T - Title

- Write an appropriate title for the graph at the top.
- The title should contain both the independent and dependent variables. Ex. "Y versus X"



# TAILS

## Teachers's Favorite Singer



**T** - Title

**A** - Axis





# TAILS

## Teachers's Favorite Singer

Decide on an appropriate scale for each axis.

Choose a scale that lets you make the graph as large as possible for your paper and data

**T** - Title

**A** - Axis

**S** - Scale



# How to determine scale

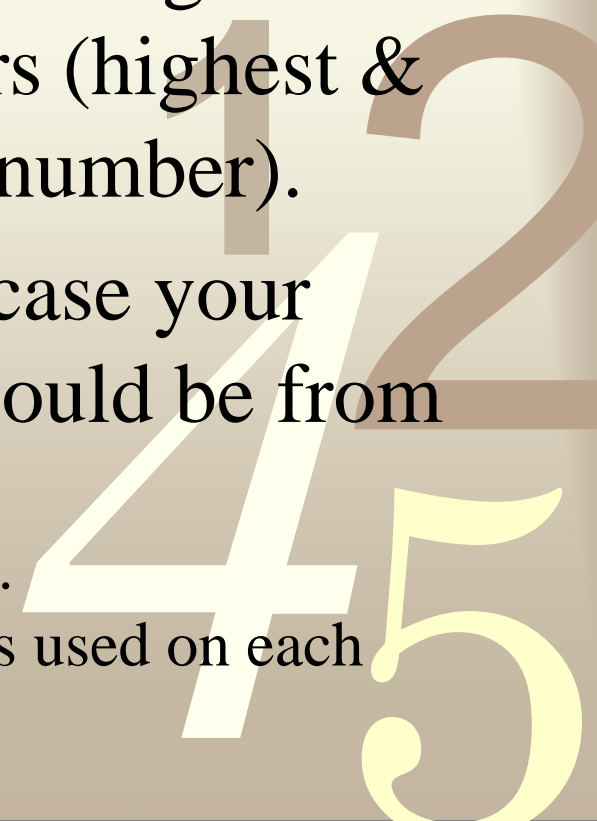
0011

Favorite Singer	Number of Teachers
Toby Keith	22
Madonna	15
Elvis	11
Sting	5
Sinatra	2

- Decide on an appropriate scale for each axis.

The scale refers to the min and max numbers used on each axis. They may or may not begin at zero.

- Scale is determined by your range of numbers (highest & lowest number).
- In this case your scale would be from 2 – 22.



# How to determine Intervals

0011

Favorite Singer	Number of Teachers
Toby Keith	22
Madonna	15
Elvis	11
Sting	5
Sinatra	2

- The interval is decided by your scale.
- In this case your scale would be from 2 – 22 and you want the scale to fit the graph.
- Subtract and Divide by how many intervals (spaces you have)
- The best interval would be to go by 5's.

# TAILS

## Teachers's Favorite Singer

The amount of space between one number and the next or one type of data and the next on the graph.

What do you count by? 1's, 2's, 5's, 10s?

Choose an interval that lets you make the graph as large as possible for your paper and data

T – Title

A – Axis

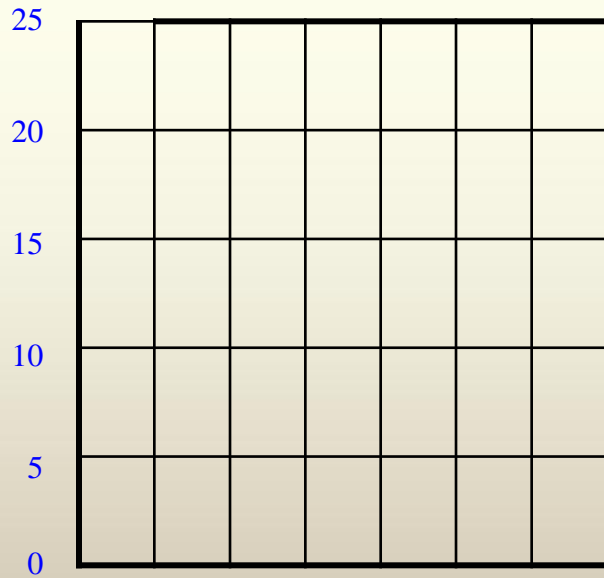
I – Interval

S – Scale



# TAILS

## Teachers's Favorite Singer



T – Title

A – Axis

I – Interval

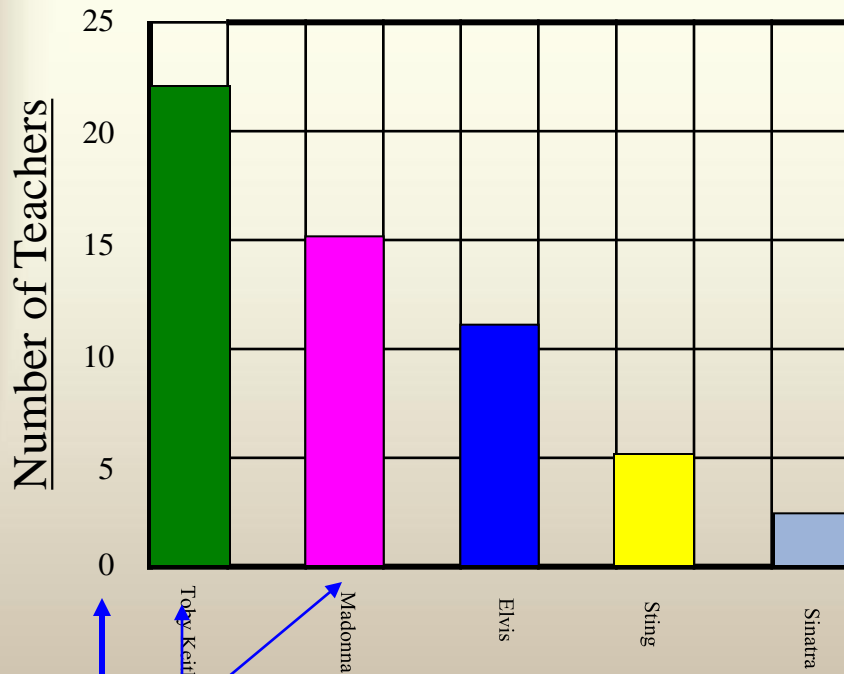
S – Scale



0011

# TAILS

## Teachers's Favorite Singer



LABEL your bars (Singers)

data points

What do these numbers mean?  
What do these colors mean?

T – Title

A – Axis

I – Interval

L – Labels

S – Scale

# Summary

## Scale & Interval

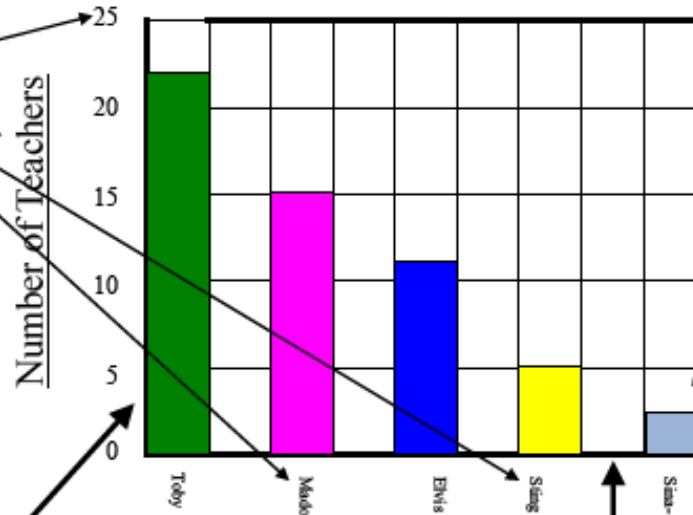
Choose a scale that lets you make the graph as large as possible for your paper and data  
Choose an interval that lets you make the graph as large as possible

## Title

### Teachers's Favorite Singer

## Labels

Label both axis & data points



Y Axis  
(Dependent Variable)

Singers

X Axis  
(Independent Variable)

### **When to use a bar graphs**

- Used to show data that are not continuous.
  - Allows us to compare data like amounts or frequency or categories
  - Allow us to make generalizations about the data
  - Help us see differences in data
- ### **Line Graphs**
- For continuous data
  - useful for showing trends over time

# DRY MIX

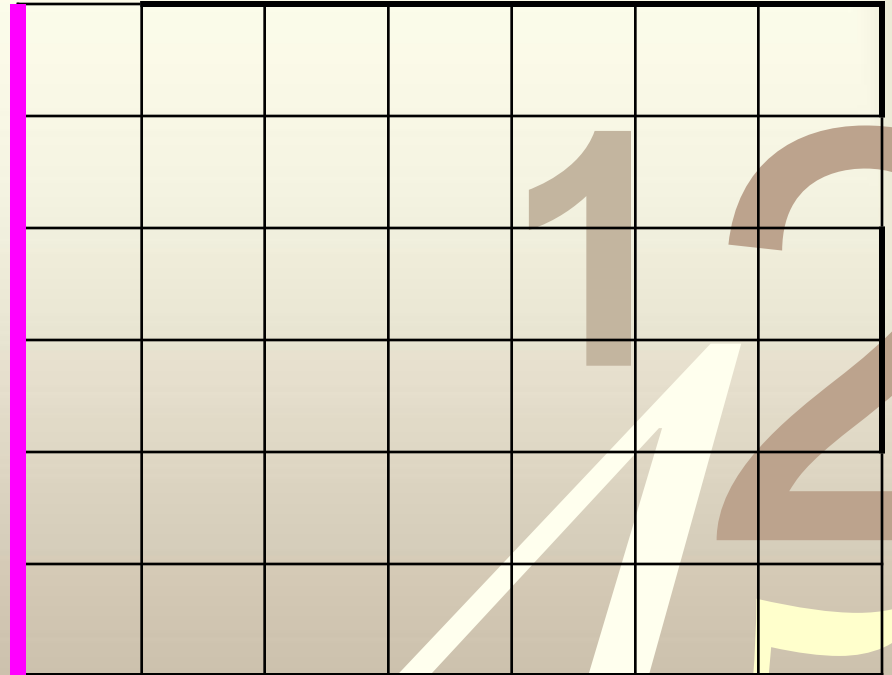
0011  
D – Dependent  
variable

R – Responding

Y – y-axis

Y Axis

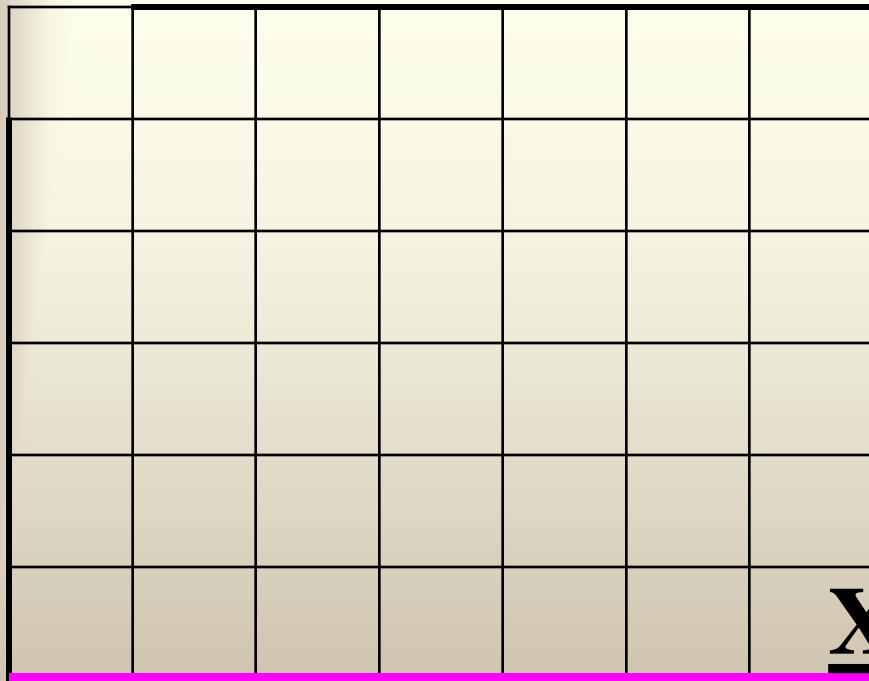
This is for your  
dependent variable-  
what you are  
measuring (is  
expected to change)





# DRY MIX

0011



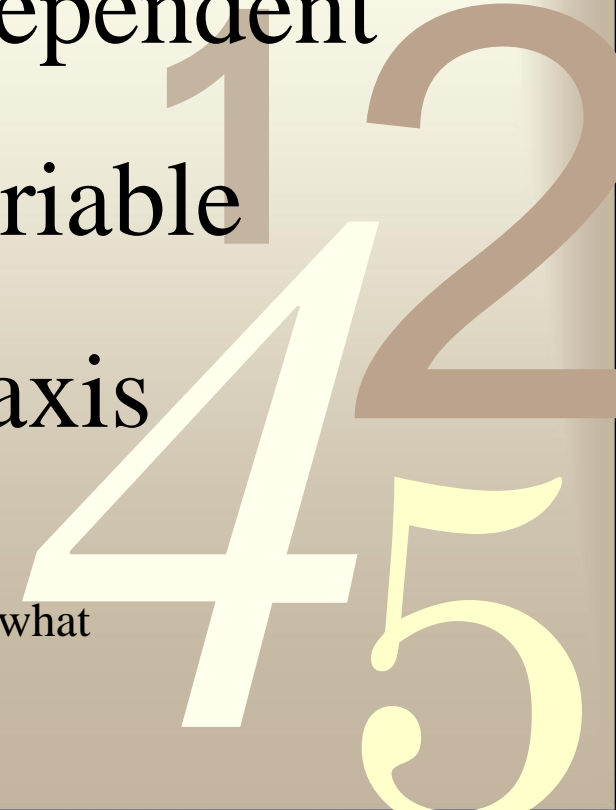
M – Manipulated

I – Independent

variable

X Axis – x-axis

(This is for your independent variable-what YOU change)

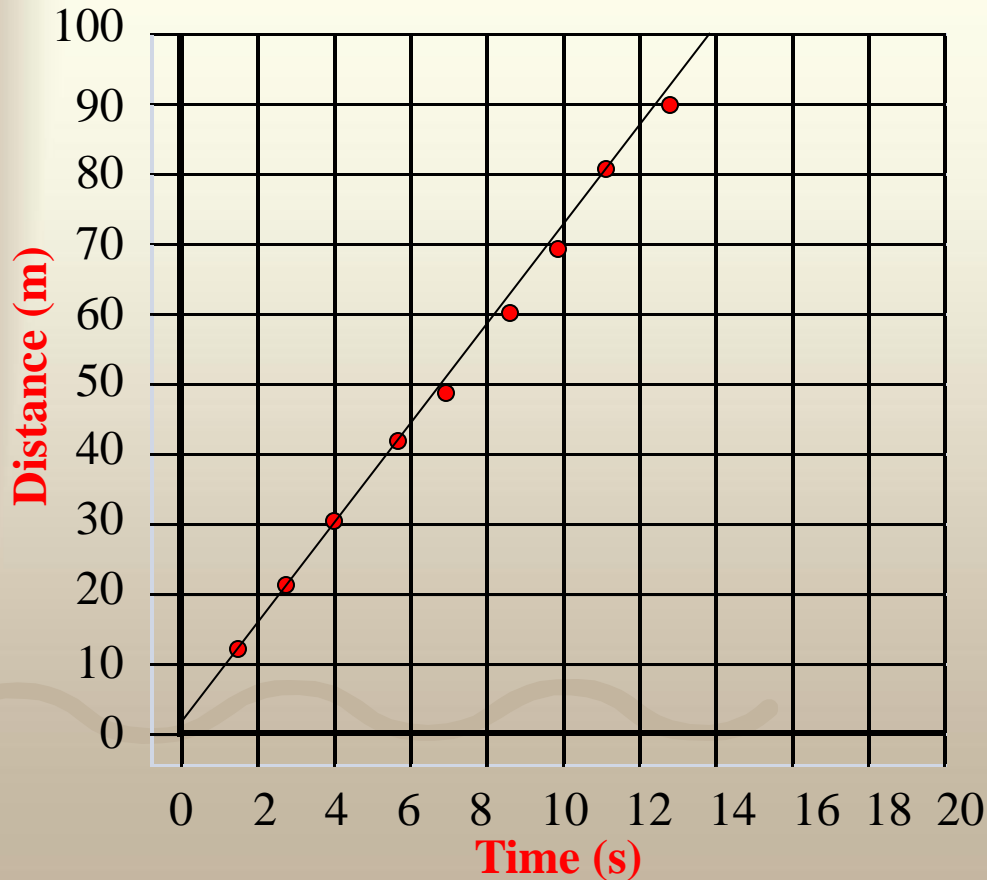


# Create a line graph!

T A I L S D R Y M I X

0011

**“Distance over time”**



<b>Y</b>	<b>X</b>
<b>Distance (m)</b>	<b>Time (s)</b>
<b>10.3</b>	<b>1.5</b>
<b>20.2</b>	<b>2.9</b>
<b>29.8</b>	<b>4.3</b>
<b>40.4</b>	<b>5.8</b>
<b>49.1</b>	<b>7.0</b>
<b>60.9</b>	<b>8.7</b>
<b>70.2</b>	<b>10.0</b>
<b>80.1</b>	<b>11.4</b>
<b>90.6</b>	<b>12.9</b>

# Any Questions?

0011

