Journal – Day 7

- Make sure you have your Design Your Own Experiment sheet completed, except for the last 2 boxes.

- Homework
  - PowerPoint Slides – Day 8
  - Unit 1 Vocabulary Quiz – TOMORROW – 9/7
  - Unit 1 HW and Test – 9/8

Types of Correlation

Positive Correlation

- ***The variables go in the SAME direction.***

Studying and grades hopefully has a positive correlation.

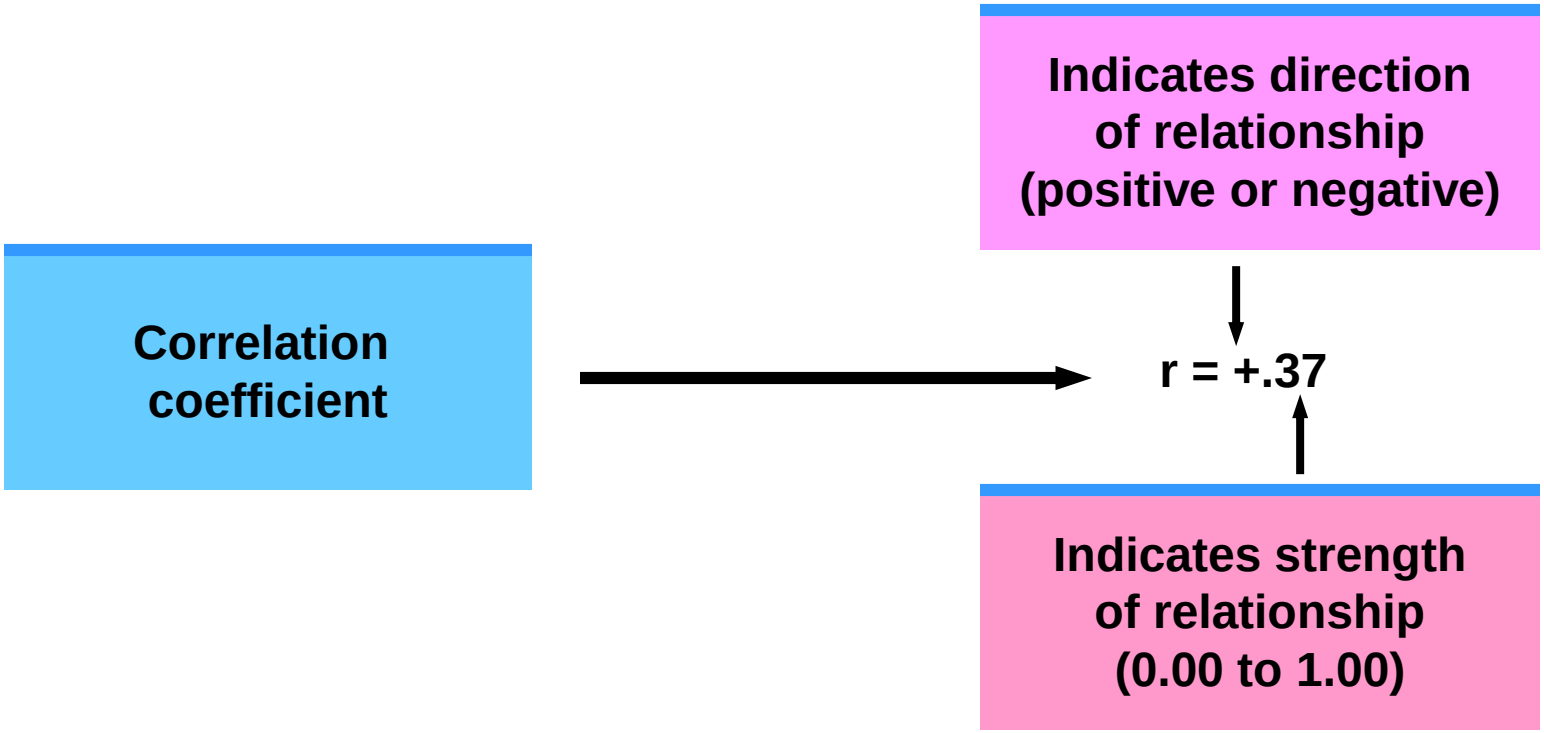
Negative Correlation

- ***The variables go in opposite directions.***

Heroin use and grades probably has a negative correlation.

Correlation

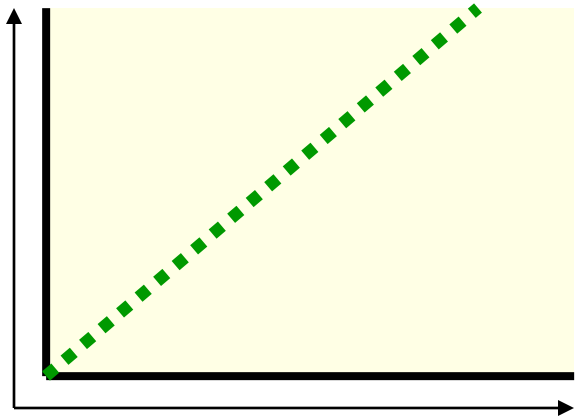
- **Correlation Coefficient**
  - ***a statistical measure of the extent to which two factors vary together, and thus how well either factor predicts the other***



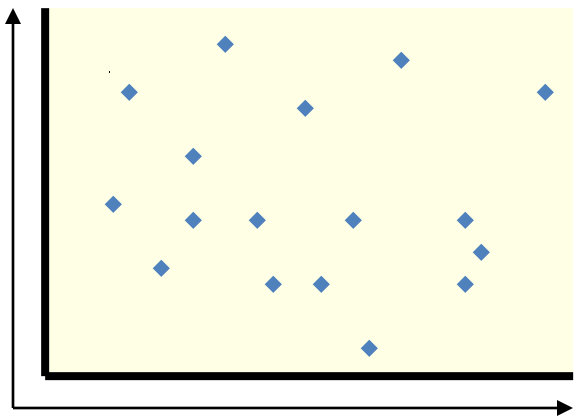
Correlation

- **Scatterplot**
  - ***a graphed cluster of dots, each of which represents the values of two variables***
  - ***the slope of the points suggests the direction of the relationship***
  - ***the amount of scatter suggests the strength of the correlation***
    - ***little scatter indicates high correlation***
  - also called a scattergram or scatter diagram

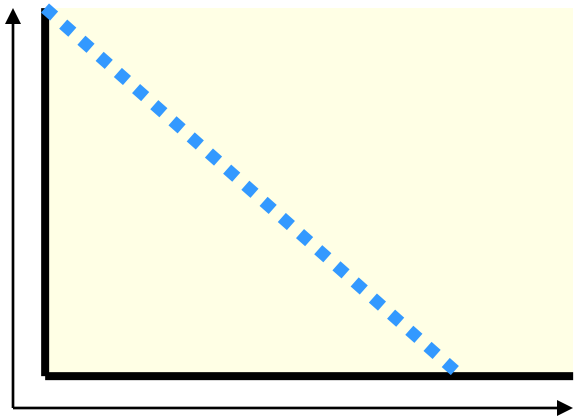
Correlation



Perfect positive correlation (+1.00)



No relationship (0.00)



Perfect negative correlation (-1.00)

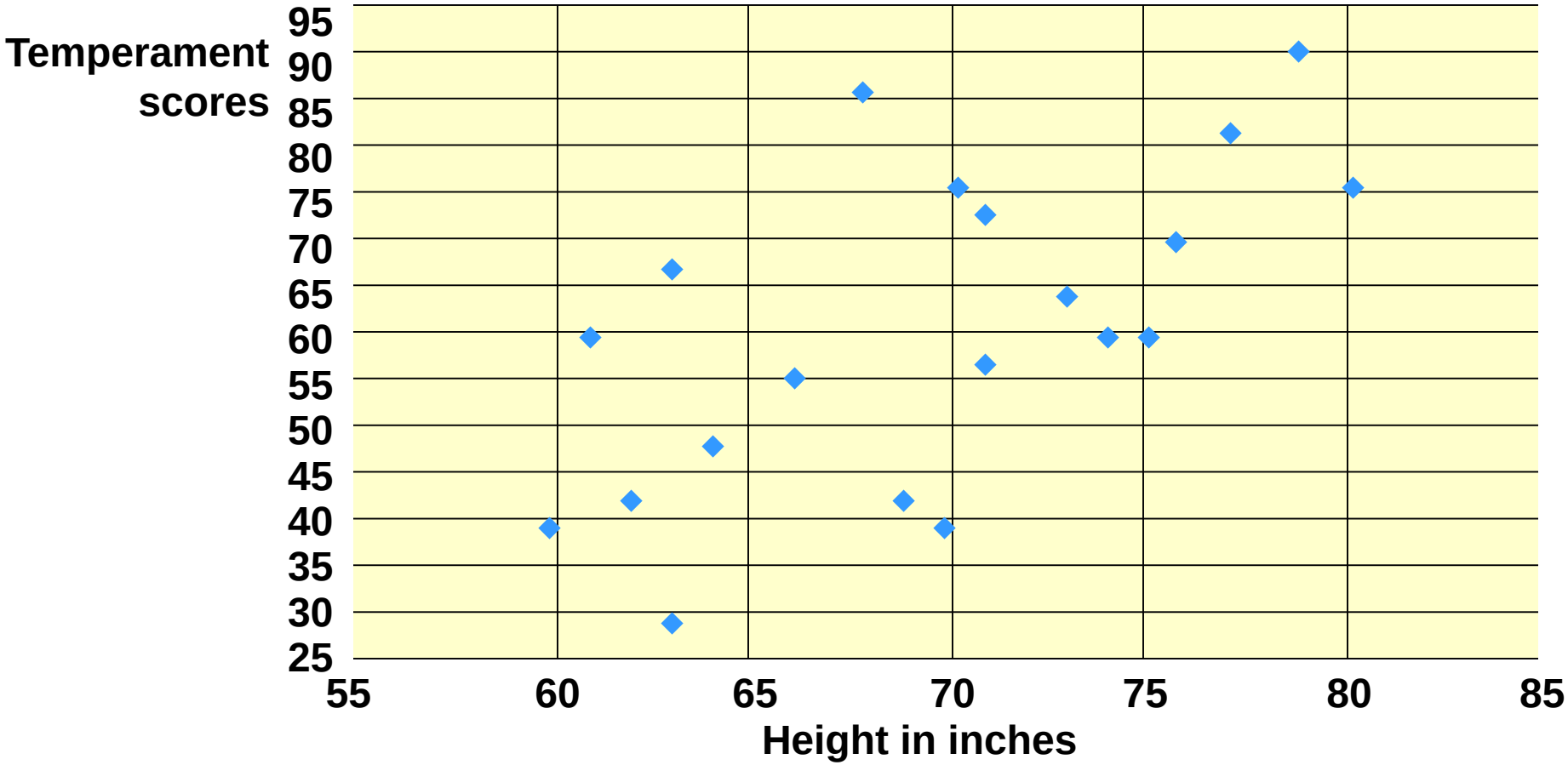
Scatterplots, showing patterns of correlations

Correlation

Height and Temperament of 20 Men

Subject	Height in Inches	Temperament	Subject	Height in Inches	Temperament
1	80	75	11	64	48
2	63	66	12	76	69
3	61	60	13	71	72
4	79	90	14	66	57
5	74	60	15	73	63
6	69	42	16	70	75
7	62	42	17	63	30
8	75	60	18	71	57
9	77	81	19	68	84
10	60	39	20	70	39

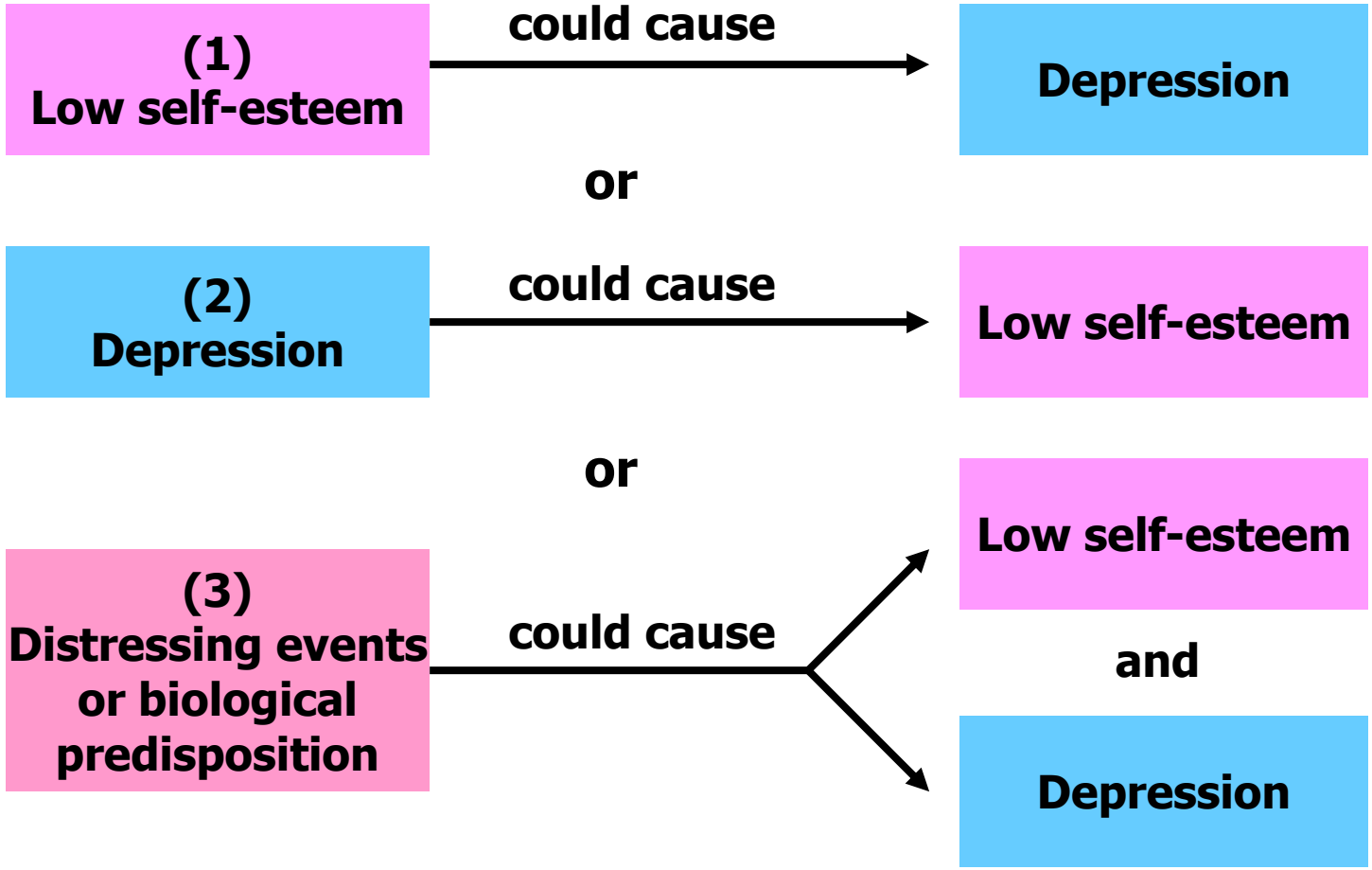
Correlation



Scatterplot of Height and Temperament

Correlation

Three Possible Cause-Effect Relationships

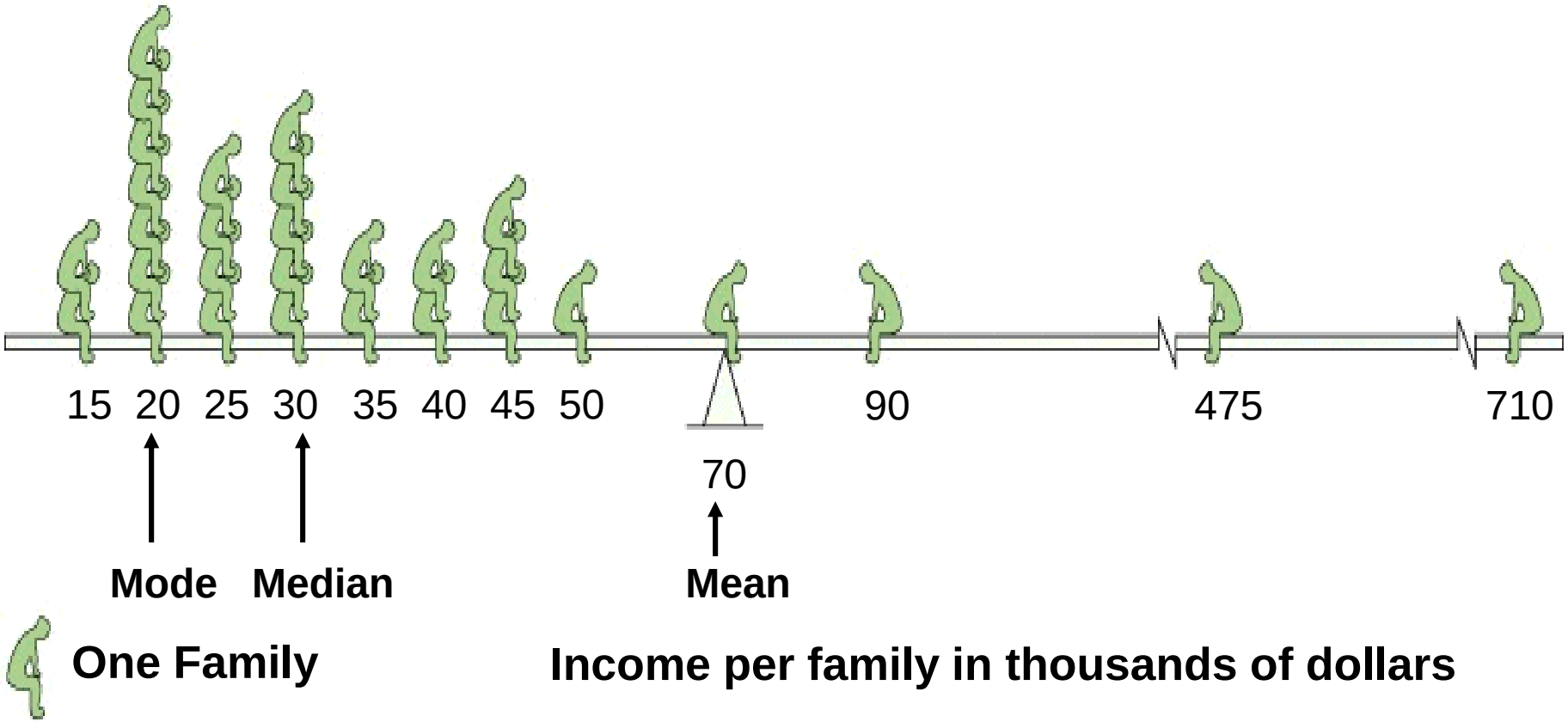


Statistical Reasoning

- **Mode**
  - ***the most frequently occurring score in a distribution***
- **Mean**
  - ***the arithmetic average of a distribution***
  - ***obtained by adding the scores and then dividing by the number of scores***
  - ***Could easily be thrown off by a couple of outliers***
- **Median**
  - ***the middle score in a distribution***
  - ***half the scores are above it and half are below it***

Statistical Reasoning

A Skewed Distribution



Statistical Reasoning

- **Range**
  - ***the difference between the highest and lowest scores in a distribution***
- **Standard Deviation**
  - ***a computed measure of how much scores vary around the mean***