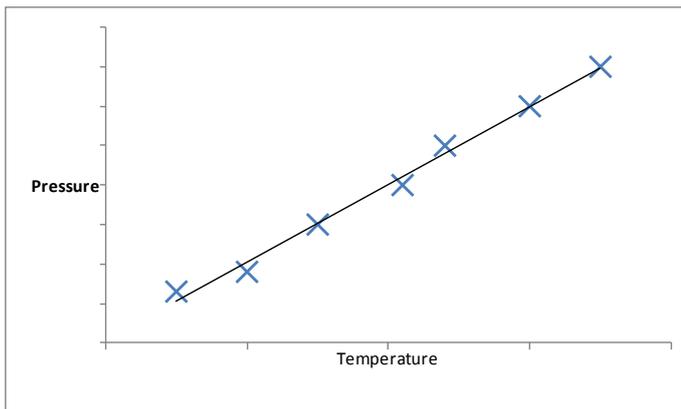


# Relationships

Sometimes we like to compare two variables (things that can change), to see how they relate to each other. This can allow us to make predictions about what might happen in a situation. Scientists often do experiments and plot graphs to look for these relationships.



## TASK A

The graph above shows how temperature and pressure are related in a given situation. Points have been plotted and a trend line (or line of best fit) added.

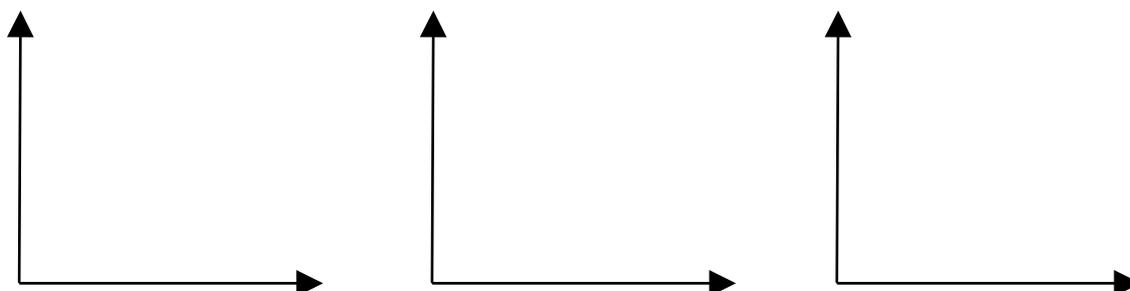
1. Discuss what a trend line does and how you think they are plotted.

We can make a statement:

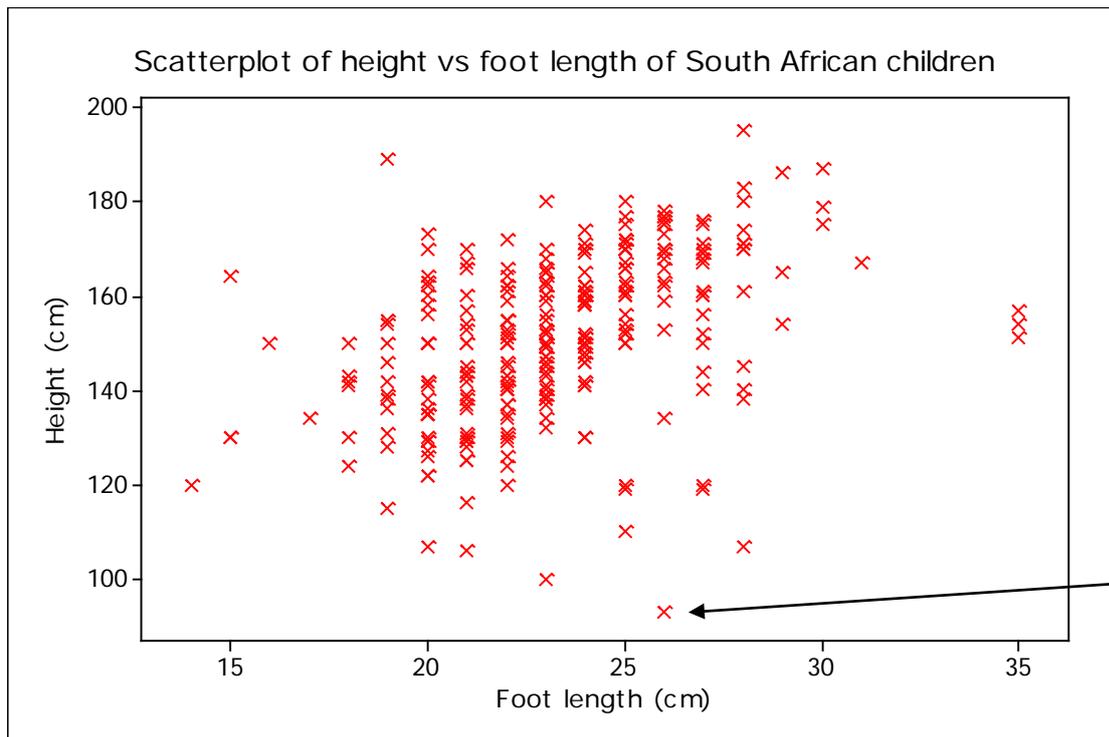
**As the temperature increases so does the pressure.**

We call this a positive correlation.

2. What do you think the gradient of the graph represents?
3. On the axes below sketch some graphs that show different relationships and label the axes with the variables.



# Relationships



## TASK B

The above graph shows the relationship between foot length and height for a random sample of South African children who completed the *CensusAtSchool* online questionnaire.

1. Why do think the data is so widely spread?
2. Describe the relationship between height and foot length for these South African children.
3. Where do you think the trend line (line of best fit) should go?
4. What do think about the point shown by the arrow?
5. We call data points that really doesn't fit the trend outliers. Mark other points on the graph above that you think may be outliers.
6. Why do you think outliers occur?

## TASK C

1. Collect the height and foot length of the children in your class and plot a scatter graph for these data.
2. Comment on the relationship suggested in your scatter graph.