Students usually perform better with a set goal so I wish to run an experiment to see if students in my allocated year 9 class will be able to jump further if they know there is a set goal to reach.
The problem that I am investigating is does having a set goal to reach influence how far they will jump. ①
I think the experimental units will jump further with the set goal rather than when they don't because they'll have something to aim for.
The control will be jumping as far as they can without the goal.
The treatment will be jumping with the goal and seeing if they can jump further than the previous one.
The response variable will be how far the students can jump. The jumps will be measured twice –
once with no goal and once with a goal.
Controlled variables:
Each student will jump from the same starting line.
Both parts of the experiment will be conducted at the same time of day.
Students will wear the same uniform and the location will be the same.
They will jump with both legs together for both parts of the experiment.
Experimental steps:
Students will be told to stand on the marked line and jump as far as they can.
The length of the jump will then be measured. ②
Repeat for all students and then set up the goal they should try and reach.
They will be told to stand on the line to jump again and try to reach the goal.
This will be measured and recorded.

Control (cm)	Treatment (cm)	Difference (cm)
135	152	17
142	150	8
179	182	3
120	145	25
198	183	-15
160	167	7
150	158	8
124	141	17
180	182	2
140	155	15
137	148	11
165	188	23
150	160	10
145	165	20
165	154	-11
133	138	5
127	139	12
118	134	16

③

Box and whisker and dot plot of the differences between control (jumping with no goal) and the treatment (jumping with the goal)
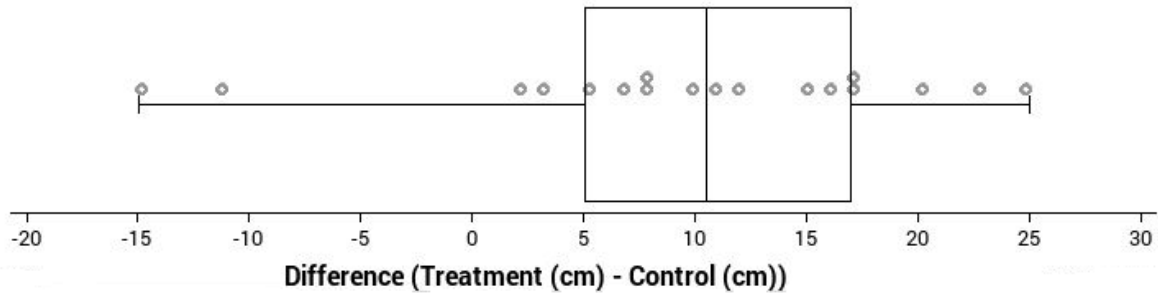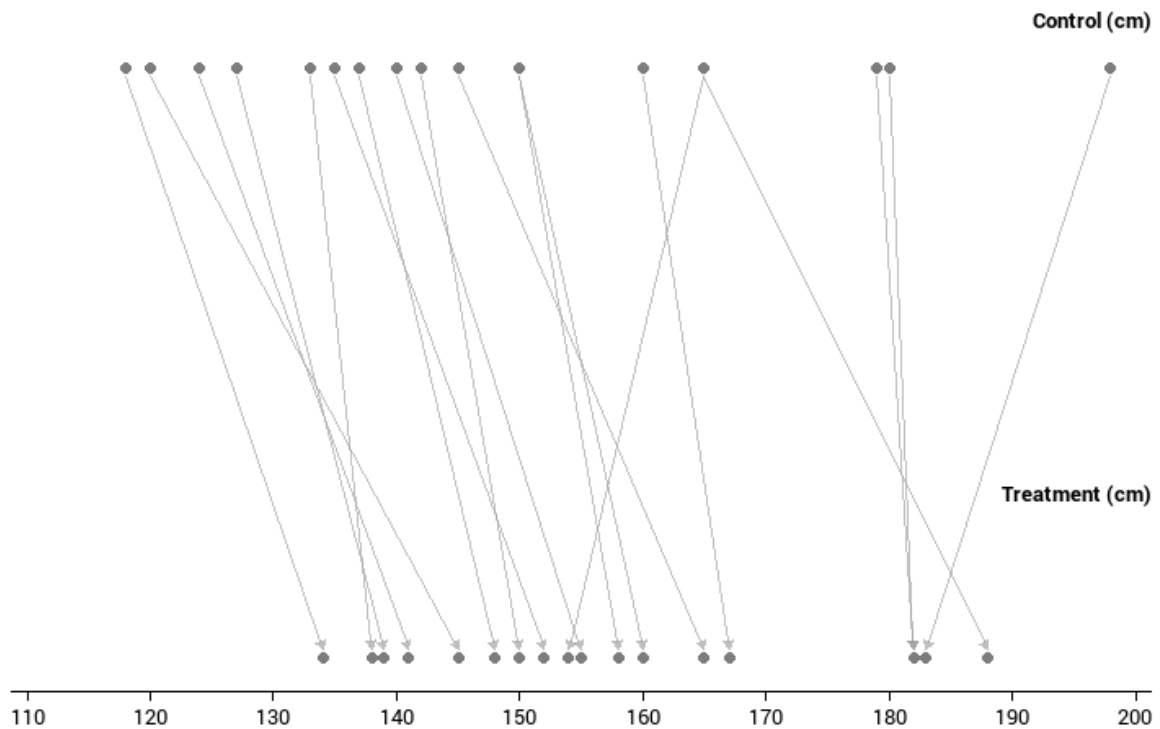

5 point summary:

Min	Q1	Med	Q3	Max
-15	5	10.5	17	25

IQR = 12, Range = 40

④

Link graph for how far they can jump

I can see from my link graph that almost all of the lines are going across to the right indicating to me that the year 9 students jumped further with the goal. Two of the lines are going the other way meaning two of the 18 students did not beat their previous jump.

The control results range from 118 to 198 whereas the treatment results range from 134 to 188. The range between the two jumps was 40. This is quite a big difference between the two jumps. The median difference was 10.5 cm meaning that students on average jumped 10.5 cm more with the goal.

⑤

The question that I investigated was does having a set goal influence the distance the students in my year 9 allocated class can jump. The answer to my question was Yes. It does influence the distance and the students tend to jump further knowing with a goal.

⑥