Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Form: \_\_\_\_\_\_\_\_\_\_\_\_

Date Started: \_\_\_\_\_\_\_\_ November 2016 Date due: \_\_\_\_\_\_\_\_\_\_\_\_\_

Statistics Assignment

 All Blacks 2015

World cup team

Mini Investigation

This booklet is to be completed over three lessons. You must hand it in every day so it doesn’t get lost and I can check on your progress.

It is to be done individually and will be part of your assessment for this topic.

Please use a pencil & have an eraser handy. This means you can change your graphs and your writing to improve your work. There will be some marks for presentation.

You have been selected to investigate some aspects of the 2015 All Blacks team who won the men’s Rugby World Cup.

What sort of things do you think it would be interesting to find out?

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Have a look at the data on the next page. Come up with three different type of investigation questions that could be answered by analysing this data

Summary Question

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Comparative Question

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Relationship question

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**For one** of your questions above, write it out below as a full investigation ‘pose a question’

I am going to ……………………………………………………………..

……………………………………………………………………………

to see if I can find out…………………………………………………….

……………………………………………………………………………

This would be useful for………………………………………………….

……………………………………………………………………………

I am going to do this by………………………………………………….

…………………………………………………………………………....

I expect to find that ………………………………………………………

Now you are going to follow the tasks on the next pages which look at three different investigation questions. Each will be given to you at the beginning of the task.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ***NZ All Blacks*** | **Tests**  | **Age** | **Height** | **Weight** |
| **FORWARDS** |  |  |  |  |
| McCaw Ritchie | 142 | 34 | 187 | 108 |
| Read Kieran | 77 | 29 | 193 | 110 |
| Messan Liam | 42 | 31 | 188 | 108 |
| Retallick Brodie | 41 | 24 | 204 | 117 |
| Franks Owen | 72 | 27 | 183 | 116 |
| Coles Dane | 30 | 28 | 184 | 103 |
| Woodcock Tony | 115 | 34 | 184 | 120 |
| Mealamu Kevin | 126 | 36 | 181 | 108 |
| Kaino Jerome | 60 | 32 | 196 | 110 |
| Codie Taylor | 3 | 24 | 183 | 106 |
| Crockett Wyatt | 40 | 32 | 193 | 116 |
| Faumuina Charlie | 27 | 28 | 185 | 125 |
| Franks Ben | 43 | 31 | 185 | 120 |
| Romano Luke | 20 | 29 | 199 | 119 |
| Whitelock Samuel | 66 | 26 | 203 | 114 |
| Cane Sam | 24 | 23 | 189 | 103 |
| Vito Victor | 28 | 28 | 192 | 112 |
| **BACKS** |  |  |  |  |
| Kerr- Barlow Tawera | 15 | 25 | 187 | 89 |
| Perenara TJ | 15 | 23 | 184 | 94 |
| Barrett Beauden | 30 | 24 | 187 | 92 |
| Slade Colin | 20 | 27 | 183 | 90 |
| Feikitoa Malakai | 11 | 23 | 187 | 99 |
| Milner-SkudderNehe | 2 | 24 | 180 | 90 |
| Smith Ben | 41 | 29 | 187 | 91 |
| Carter Daniel | 106 | 33 | 178 | 94 |
| Savea Julian | 35 | 25 | 193 | 108 |
| Smith Conrad | 88 | 33 | 186 | 95 |
| Nonu Ma’a | 97 | 33 | 182 | 108 |
| Naholo Waisake | 1 | 24 | 186 | 96 |
| Williams Sonny Bill | 26 | 30 | 194 | 108 |
| Smith Aaron | 41 | 26 | 171 | 85 |
|  |  |  |  |  |
|  |  |  |  |  |

**Task One – Summary Question**

 **How do the ages of the 2015 All Blacks world cup team vary?**

 1. First put the ages in order

|  |
| --- |
| **AGE** |
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 2. Calculate the following statistical measures

|  |  |
| --- | --- |
| **Statistics** |  |
| Highest (Maximum) |  |
| Upper Quartile |  |
| Median |  |
| Lower Quartile |  |
| Lowest (Lowest) |  |
| Range |  |
| Mean |  |
| Mode |  |

|  |  |  |
| --- | --- | --- |
| **Age** | **Tally** | **Frequency** |
| 23 |  |  |
| 24 |  |  |
| 25 |  |  |
| 26 |  |  |
| 27 |  |  |
| 28 |  |  |
| 29 |  |  |
| 30 |  |  |
| 31 |  |  |
| 32 |  |  |
| 33 |  |  |
| 34 |  |  |
| 35 |  |  |
| 36 |  |  |
| Total |  |  |

 3. Complete the frequency table below

4. I notice that ……………………………………………………………………………………..

 5. Using your frequency table complete the bar graph below for the ages of the All Blacks (remember the bars DO NOT touch) and give titles to the graph and axes.



6. By looking at the graph I can see that…………………………………………….........

 ………………………………………………………………………………………………………

 I also notice that……………………………………………………………………………….

 ……………………………………………………………………………………………………….

 I interpret from ………………………………………….that……………………………….

 ………………………………………………………………………………………………………..

7. Draw a Box and Whisker plot below for the ages of the All Blacks

8. Use your graph and your statistics to write at least 3 ‘I notice… statements (descriptive & interpretive) - to help you answer the question. **How do the ages of the ALL Blacks vary?**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Task Two** – **Comparative Question**

CONCLUSION: Write a summary of this investigation where you say what question was being asked, who was being studied and what your major findings are (with some evidence). Tell the whole story as if it was an article for a news item or comment page and your writing was all that people would see.

**How do the heights of the Forwards compare to the heights of the Backs?**

1. Draw a Back to Back stem and leaf plot in the space below

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- |
| 20 |
| 19 |
| 18 |
| 1716 |

Key

|  |  |
| --- | --- |
|  | = |

1. Calculate the following statistics

|  |  |  |
| --- | --- | --- |
| **Statistics** | **Forwards** | **Backs** |
| Highest (Maximum) |  |  |
| Upper Quartile |  |  |
| Median |  |  |
| Lower Quartile |  |  |
| Lowest (Minimum) |  |  |
| Range |  |  |
| IQR (Interquartile range) |  |  |
| Mode |  |  |
| Mean |  |  |

1. Draw a side- by- side box and whisker plot below

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 204 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 202 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 200 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 198 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 196 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 194 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 192 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 190 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 188 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 186 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 184 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 182 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 180 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 178 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 176 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 174 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 172 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 170 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

1. Write at least 3 statements to analyse your results (use your graphs and statistical measures) with evidence. I notice…. I found that…… I interpret from ………………..that…………………

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

CONCLUSION: Write a summary of this investigation where you say what question was being asked, who was being studied and what your major findings are (with some evidence). Tell the whole story as if it was an article for a news item or comment page and your writing was all that people would see.

**Task Three – Relationship Question**

**What is the relationship between the height and weight of the 2015**

**All Blacks team that won the men’s rugby world cup?**

1. Draw a scatter plot below of the weight vs height.

2. Write at least 3 sentences below about any patterns you notice. (Use your graph to help you answer the question) Use statements of what you notice directly and also interpretation statements of what you see fits the data.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Task Four: (Extension for maximum marks)**

**PPDAC investigation**

You may want to look at the data for the current All Black team and compare some aspect of the two teams. Follow all parts of the statistical enquiry cycle.

* Pose a question (fully –what, who for, why?
* Plan how you will get the data, how will you analyse it, what is your prediction
* Data – collected, tables
* Analyse – measures, graphs
* noticing, interpreting
* Conclusion – fully answer the question and tell the whole story, what does this investigation lead you to wonder?