

JOURNAL

OLIPHANT PAPER :

THE QUALITY OF DRINKING
WATER IN SOUTH
AUSTRALIAN PLAYGROUNDS

NAME: SHANZA ISMAIL / YEAR: 7

NORWOOD PRIMARY SCHOOL



2/10/20

TO DO :

- Research on internet to find information about simple measures to find quality of water.

RESULT :

- pH and TDS (Total Dissolved Solids)
- Found EC (electrical conductivity) is related to TDS
- $EC = 2 \times TDS$

SOURCES USED

- US EPA
- World Health Organisation
- SA Health

BOOKMARKED !!

NEED TO —

- * Research and understand safe pH level and TDS levels

4/6/20

TODO :

- Research more on pH and TDS
- Find out what they are
- impact on our health/safe level

RESULT :

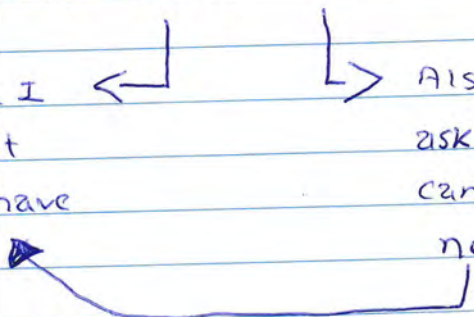
- safe pH → between 6.5 and 8.5
- TDS - below 300 is excellent quality
- 14 levels of pH → acidic - neutral - alkaline

NEED TO START THINKING ABOUT THE PLAYGROUNDS TO VISIT

WHEN DAD IS FREE NEED TO ASK ABOUT LOCATION TO GO TO AND TEST

NEED TO ASK STEM COORDINATOR IF I NEED A RISK ASSESSMENT FORM

I don't think I need to fill it out cause I have no risks. ↙ ↘ Also need to ask when she can fill it if I need it



5/6/20

TO DO :

- write a short paragraph on both pH and TDS
- In the paragraphs include:
 - what it is
 - safe level
 - basic background information
 - impact on health

RESULTS :

- Finish writing paragraph
- started editing

WHAT I FOUND OUT

- Water which has a really low pH or a really high pH is sign of heavy metal pollution
- Some people say drinking Alkaline water prevents cancer, reduces ageing etc. but there is no scientific evidence
- Acidic water can dissolve the metal of water pipes
- Acidic water can lead to cancer, high blood pressure, brain damage etc.
- high TDS water might have iron, arsenic, nitrate, sulphate and lead

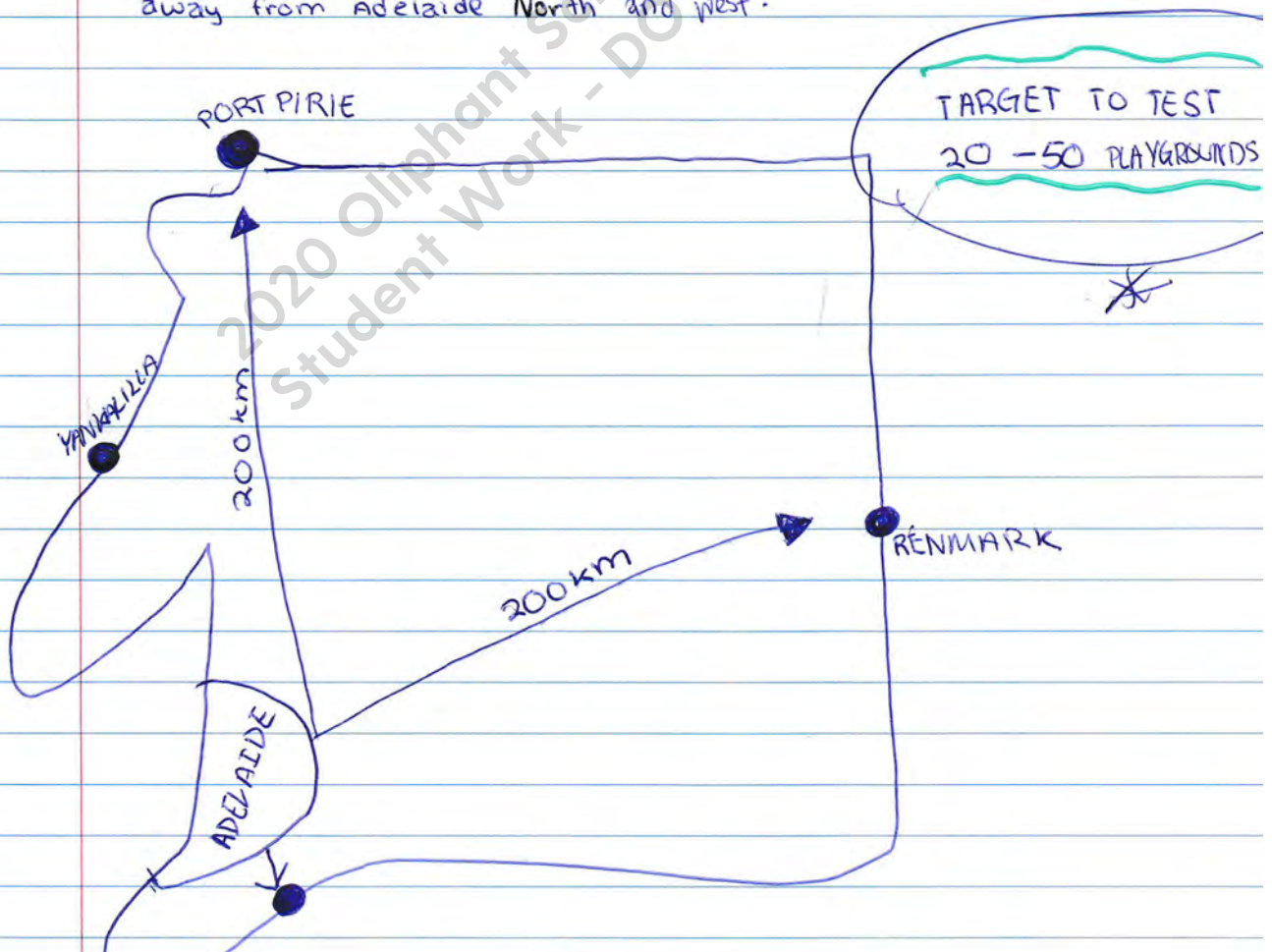
616120

TO DO :

- ASK dad for a pH and TDS meter
- plan out locations
- ask parents what the furthest destination we can go to is

RESULTS :

- ordered two \$15 meters from Ebay
- we decided the furthest point we would go to is 200km away from Adelaide North and west.



15/06/20

PLAN FOR NEXT SATURDAY (20th June)

- Testing water sources from playgrounds close to the Adelaide city.
- Expecting to receive both meters; pH and TDS tomorrow

WHAT I EXPECT FROM RESULTS

- I expect that the pH would be 6.5 to 9.5 and TDS lower than 300 since SA WATER supplies all the water in South Australia.

safe level range

WHAT TO DO

- Need to research on how to write a good scientific report and what to include in it

20/06/20

TO DO

- check car to see if I have everything ready
- load the car with the meters, cups, ziplock bags, a pen, paper etc.

RESULTS

- I had everything in the car and I tested nine different places for their water quality

DATA

- | | |
|--|----------|
| - Semaphore Beach Playground: pH: 7.76 | TDS: 168 |
| - G.E Hunter Reserve: pH: 7.75 | TDS: 81 |
| - Apex Park West Beach: pH: 7.87 | TDS: 94 |
| - Glenelg Foreshore Play Space: pH: 8.67 | TDS: 139 |
| - Ashley Street Playground: pH: 7.92 | TDS: 130 |
| - Carnarvon Reserve Playground: pH: 7.64 | TDS: 109 |

OBSERVATION

- All of the results except Glenelg Foreshore Play Space are in the safe range. Glenelg Foreshore Play Space has a 0.17 increase over the safe range making it have a higher alkalinity in its water.

I suspect these are rainwater.

21/05/20

Data :

- The Bert Dix Memorial Park : pH : 9.49 TDS : 106
- Waikerie Community Garden : pH : 7.86 TDS : 142
- Barmera Playspace : pH : 7.57 TDS : 124
- Monash Adventure Park : pH : 8.16 TDS : 114

THOUGHTS :

- What causes some water in places to be really alkaline or acidic

MUST DO :

- Look into and research things that cause water to become really acidic or alkaline.

OBSERVATIONS

- I saw after looking at today's results that The Bert Dix Memorial Park had a high alkaline water. The safe level is 6.5 - 8.5 and this result is 9.49, the highest pH so far.

27/06/20

DATA

- Steamroller Park Playground | pH: 9.03 TDS: 154
- Sturt Reserve Children's playground | pH: 7.54 TDS: 165

QUESTIONS

- Is there a connection between TDS and pH if so what is it?

HOPES

- To find and gather more results so that I can make a comparison between pH and TDS.

OBSERVATIONS

From today's results I found that the Steamroller park playground had a pH of 9.0. It is my second most high alkaline result.

29/6/20

Data

- Carisbrook Park : pH : 7.55 TDS : 148

THINGS TO DO :

- Begin planning out what to include in Inquiry

HOPES :

- To be able to collect a variety of different locations for testing

MORE REFERENCES

- Read SA water quality reports (bookmarked)
 - Medical News Today website
 - Mayo Clinic
 - World Health
 - SA Water
- Bookmarked and Read

1/7/20

TO DO :

- Start writing the inquiry
- begin the introduction and include
 - what the study is
 - how it is beneficial
 - why measuring pH and TDS is important

RESULTS:

- finished writing introduction
- started editing paragraphs

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Student Work - DO NOT COPY

02/7/20

Data :

- Soldiers Memorial Garden Playground : PH : 7.60 TDS ; 193



OK result

IDEAS :

- For Chapter 3 I can make it about testing location
- include pictures / labels
- a table of locations
- method of how I collected the water
- make a map to put in my chapter (of locations)

THINGS TO DO

- Think about more things to include in my inquiry report

Introduction
data
analysis
conclusion

05/07/20

Data:

- Flinders View Park : pH: 9.38 TDS: 136
- Bowman Park : pH: 9.36 TDS: 145
- Adelaide Square Playground : pH: 9.39 TDS: 141
- Wallaroo Adventure Playground : pH: 9.73 TDS: 154
- Snowtown Centenary Playground Park : pH: 9.18 TDS: 156

IDEAS

- Make chapter 4 about my testing equipment and method
- include photos of the meters and tables of info

OBSERVATIONS

- today we traveled north and we were surprised to find that all my results for pH were all above the safe range which is 6.5-8.5. They were all so alkaline with results that were over 9 as a pH level.

07/07/20

Data:

- Clontarf Skate Park: pH: 7.55 TDS: 249

IDEAS:

- I can include some maps in my inquiry
- a pH map and TDS one and just the locations so far

WHAT I DISCOVERED TODAY

- Today I discovered that you can create your own map with locations you want on google maps.

MORE IDEAS:

- I am thinking of making maps for pH and TDS to include in my inquiry by using google maps and the snipping tool.

Data:

10/07/20

- Sixth Avenue Reserve : pH: 7.61 TDS: 185
- Alison Avenue Reserve : pH: 7.56 TDS: 186
- South Bank Boulevard Reserve : pH: 7.40 TDS: 185
- Play and Fun Rotary Park : pH: 7.49 TDS: 186
- St Fishers Playground : pH: 7.51 TDS: 274
- Warland Reserve : pH: 7.71 TDS: 276
- Kent Reserve : pH: 7.55 TDS: 308
- Lakala Reserve : pH: 7.52 TDS: 263
- Starfish Park : pH: 7.35 TDS: 304
- Railway Terrace Playground : pH: 7.46 TDS: 290
- Richard Ballard Park : pH: 7.51 TDS: 271
- Yankalilla skate Park : pH: ~~7.6~~ 7.81 TDS: ~~266~~ 266
- Yankalilla Playground : pH: 7.81 TDS: 266

OBSERVATIONS

- We traveled south of Adelaide and found that the TDS was higher than what is said to be excellent by the World Health Organisation (300 and below)

QUESTIONS / NEED TO DO

- Why is the TDS higher in the south than the north? I need to find out why this is happening!

11/7/20

Data:

- Gumeracha : pH: 7.78 TDS: 152

THINGS TO DO :

OK results

- put my ideas to paper and write stuff and install pictures and tables into my inquiry
- Create a table of my locations & towns, pH, TDS and dates
- * Add the table into chapter 5 which is all about the recorded measurements and Analysis

OBSERVATIONS

- During the testing I found that many playgrounds did not have a water source.

QUESTIONS

- Why did so many playgrounds not have drinking taps/fountains?

12/7/20

Data:

- Sanders Park : pH : 9.25 TDS : 143
- Auburn Park and Playground : pH : 9.54 TDS : 146
- Davidson Reserve : pH : 9.62 TDS : 146
- Rhyne Playground : pH : 7.86 TDS : 142

THINGS TO DO :

- Put everything into the inquiry ready for the last set of results which I will go and get tomorrow

FOUND TWO MORE REFERENCES

- 'Find my Health' website
 - 'The Berkeley' website
- bookmarked!

→ similar to the World Health Organisation but (WHO) says water below 300 for TDS is excellent to drink however Find my Health says it is unacceptable to drink as there are no minerals in the water but we are going to stick with World Health Organisation.

13/07/20

Data:

- Civic Park : pH : 7.82 TDS : 128
- Ridge Park : pH : 7.54 TDS : 163

THINGS TO DO :

- Enter last results into the inquiry
- edit and read over written work

IDEAS :

- Make numerous graphs and charts making it easy to convey all results

MORE THINGS TO DO :

- Add the charts into the inquiry
- Edit more

OBSERVATIONS

Today we took 2 more results to make it 40 near our home however these results are normal and safe.

14/07/20

THINGS TO DO IN THE NEXT WEEK

- Put results in Microsoft Excel
- Plot results in google maps for pH and TDS
- Observing high pH in north and high TDS in South
↓
 - Still I can't figure out the reason for this
- Generate charts using Excel for all regions
- Some common terminology I found in the articles I read which I think would be helpful in my report are
 - This report investigates -
 - Figure 1 shows
 - Figure 1 presents
 - It can be observed from figure 1
- Conclusion is the summary of the whole report
- Abstract is the summary of the conclusion
- Diagrams and tables -