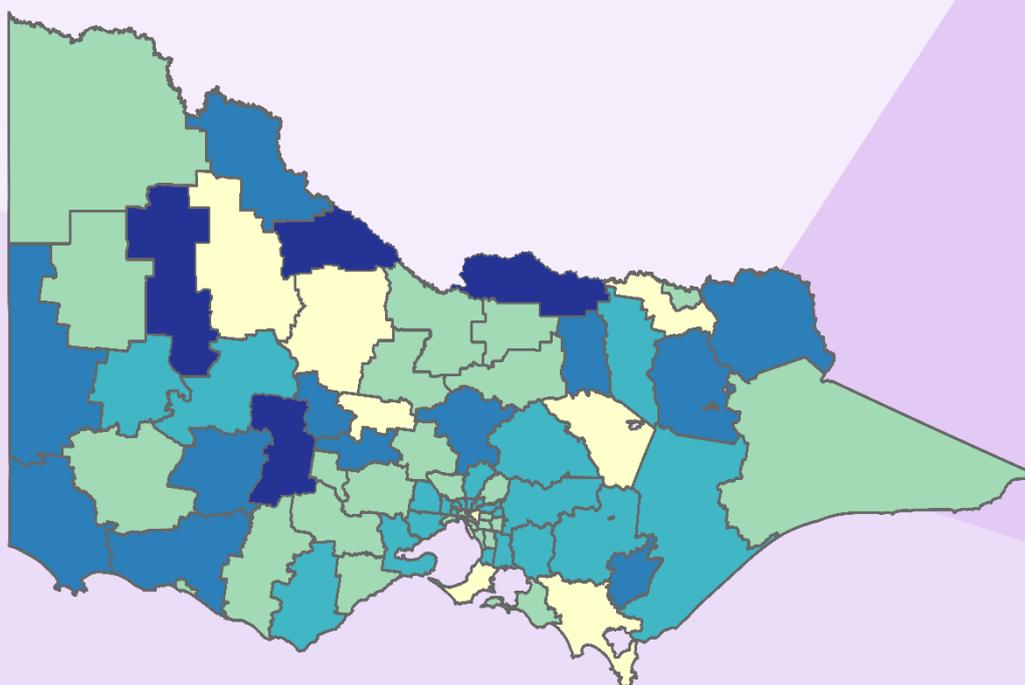# Empowering change through data: exploring human wellbeing in Victoria with geospatial technologies

Geography Level 9-10: Student guide

Geography Teachers' Association of Victoria

March 2026

Women's Health Vic

gtav

The Geography Teachers' Association of Victoria (GTAV) is the peak body for Geography education in Victoria.
GTAV is an incorporated, not-for-profit, professional membership association supporting Geography teachers. Our mission is to achieve excellence in Geography education in Victoria through leadership and advocacy, building teacher capacity, providing student support, and developing curriculum resources.

Women's Health Victoria is a statewide, feminist, not-for-profit organisation leading the pursuit of gender equity in health.
All of our work contributes to gender-transformative health systems in Victoria. We deliver vital support services and empowering health information to the community. We share evidence and recommendations to challenge bias in the health system. We build capacity in the health sector to achieve equitable health outcomes.

Summary

This enquiry-driven resource is aligned with the Victorian Curriculum 2.0 for Level 9-10 Geography.

Students will investigate local and statewide patterns of wellbeing, build spatial data skills, and develop a critical understanding of gendered health inequities.

Features:

- Five structured, teacher-facing lesson plans aligned with key curriculum content and skills

- Five accompanying student activity worksheets that scaffold data interpretation and analysis

- Student-led list of call to action activity suggestions encouraging changemaking and local application

- Seamless integration of the **Victorian Women's Health Atlas** with relevant geographical topics.

- Use of both primary and secondary data sources, including opportunities for students to collect local data.

- Explicit interconnections to community action, allowing students to apply their learning in real-world contexts

Contents

Acknowledgement of Country

Women's Health Victoria (WHV) acknowledges the Traditional Owners of the land we work on, the Wurundjeri people of the Kulin Nation. We pay our respects to their Elders past and present and acknowledge their continued custodianship of these lands and waters. As a statewide organisation, we also acknowledge and pay our respects to the past and present Elders and Traditional Owners of the lands and waters across Victoria.
We recognise that sovereignty was never ceded and that we are the beneficiaries of stolen land and dispossession, which began over 230 years ago and continues today.

Our Commitment to Gender Diversity

Women's Health Victoria's focus is women (cis and trans inclusive) and gender diverse people. We address gendered health issues and are committed to supporting all people impacted by gender inequity who can benefit from our work. As a proud intersectional feminist organisation, Women's Health Victoria is working towards meaningful inclusivity, guided by and supporting people who identify as women, trans, intersex and gender diverse. We will seek and value feedback and be accountable to our partners and stakeholders from diverse communities.

Framing the enquiry

Learning focus

Students explore how human wellbeing can be measured and mapped, and develop skills in using the **Victorian Women's Health Atlas** to compare data at different scales.

Success criteria

- I can define human wellbeing and explain how it varies between places and scales.

- I can use the Victorian Women's Health Atlas to explore indicators such as fertility rate or asthma.

- I can compare data across Local Government Areas (LGAs) and between genders.

- I can describe simple patterns and interconnections between wellbeing indicators.

- I can frame an open-ended research question about an aspect of wellbeing in my local area.

- I can describe how the Atlas supports gender equity in health.

Human wellbeing refers to a person's satisfaction and quality of life. Geographers are interested in how this can be measured and the way it varies over time and space.

Wellbeing varies over many scales: from global to local. On a global scale, there are countries where most people enjoy high levels of wellbeing and other countries where wellbeing is generally much lower. Sometimes, these countries are located beside each other. In the same way, wellbeing also differs on a local scale. There are many variations in wellbeing between the regions of Victoria, for example.

In this set of lessons, you will explore the ways in which these variations can be measured and mapped, and you will use your geographical skills to explore these variations at the local scale. You will learn more about the area in which you live and the people who live there.

Measuring and mapping wellbeing

Many organisations work to improve the wellbeing of Victorians and to reduce inequalities that exist across the state. One of these is Women's Health Victoria, with a focus on achieving gender equality in health. A key part of this focus is to collect health data from across the state and to present it in the form of digital maps on the **Victorian Women's Health Atlas**, a free online mapping tool.

What makes **the Atlas** unique is that it separates the data for men and women, allowing geographers to not only compare data for different parts of the state, but also to compare the ways in which wellbeing differs according to gender.

Exploring the Victorian Women's Health Atlas (the Atlas)

Follow these steps to create and explore a map that relates to an aspect of wellbeing in Victoria.

1. Access the **Victorian Women's Health Atlas** at https://victorianwomenshealthatlas.net.au/

    The home page lists the 8 map themes. Behind these buttons are more than 90 different indicators that you can use to create maps.
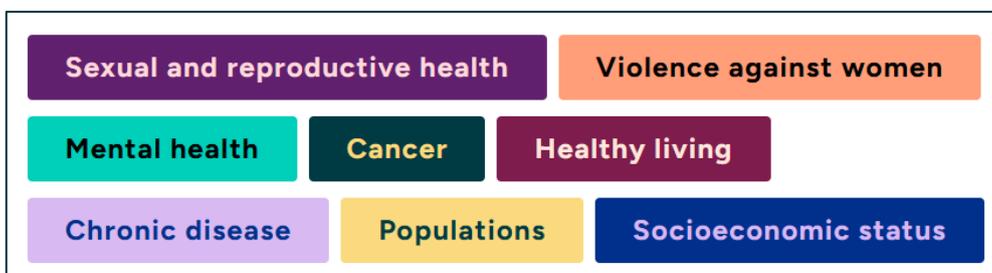
2. Select 'Sexual and reproductive health' as the priority health area.

3. On the next screen, select 'Total fertility rate' as the indicator, then select 'Rate (lifetime)' and 'Female'. Then click 'SHOW'.

Examine an indicator in this health area

| Adolescent birth | Birth | Chlamydia | Contraceptive IUD (MBS 35503) | Endometriosis | Gonorrhoea |
| Hepatitis B | HIV | Hysterectomy | Medication abortion (PBS 10211K) | Syphilis | ✓ Total fertility rate |

Select measure and sex

Rate (lifetime) ⌄   and   Female ⌄   SHOW   CANCEL

4. This will open the following screen.

On this map, Victoria is divided into 79 Local Government Areas (LGAs).
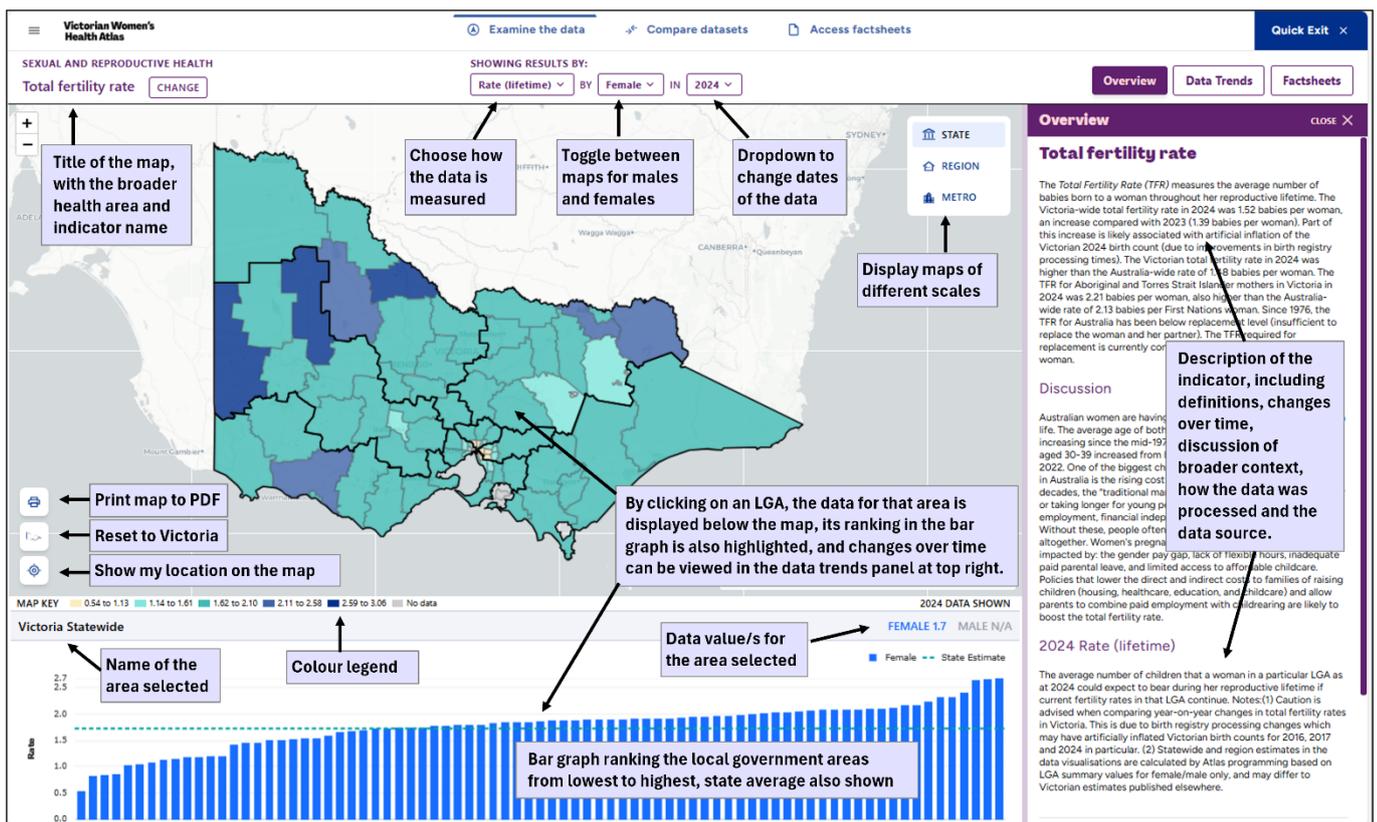
Questions:

Use the tools on this map to complete the following:

Q 1.1   What does 'Total fertility rate' (TFR) measure?

Q 1.2   What is the Victorian average fertility rate?

Q 1.3   How has this changed over time?

Q 1.4   In which LGA is the fertility rate the lowest in 2024?

Q 1.5   Change the scale of the map to find the LGA in which you live.
          What is the fertility rate in your LGA?

Q 1.6   Is the fertility rate in your LGA higher or lower than the state average?

Q 1.7   How has the fertility rate in your LGA changed over time?

Q 1.8   Is this similar or different to the change over time at the state level?

You can also use **the Atlas** tools to **compare** different indicators. This allows you to view any two maps side-by-side and look for possible visual interconnections between them.

For example, you could test to see if fertility rate appears to be interconnected to whether women are born in Australia or born overseas. You could frame this as a theory like this:

> **My theory is that LGAs with a lower percentage of women born in Australia will have a higher fertility rate than LGAs with a higher percentage of women born in Australia.**

To test this theory, follow these steps:

1. Click on 'Compare datasets' in the menu above the maps'.

2. Use the mapping menus as follows: Populations → Born in Australia → Show % → and Female.

3. This should open another map and bar graph that sit beside the Total fertility map you have already created. See image on next page.

4. Change the view from State to Metro

SEXUAL AND REPRODUCTIVE HEALTH - Total fertility rate
Rate (lifetime) ∨ by Female ∨ in 2024 ∨

POPULATIONS - Born In Australia
% ∨ by Female ∨ in 2021 ∨

MAP KEY   0.54 to 1.13 1.14 to 1.61 1.62 to 2.10 2.11 to 2.58 2.59 to 3.06 No data   2024 DATA SHOWN
Greater Dandenong   FEMALE 1.51   MALE N/A

MAP KEY   30.0% to 49.9% 50.0% to 62.9% 63.0% to 79.9% 80.0% to 84.2% 84.3% to 87.5% 87.6% to 94.9% No data   2021 DATA SHOWN
Greater Dandenong   FEMALE 35.7%   MALE 37.5%

5. Click on the bar for the LGA that has the lowest percentage of women born in Australia. In the above example, this is Greater Dandenong where 35.7% of all females were born in Australia.

6. Notice that the fertility rate data for Greater Dandenong has also been highlighted in the bar graph on the left-hand map. Change the year dropdown on the left-hand map to 2021 (to match the year of the right-hand map). Note that Greater Dandenong had a fertility rate of 1.63 in 2021.

7. Explore the interconnections between the two sets of data by clicking on the bars for each LGA. For example, click on the bars for the LGAs with the five lowest and the five highest fertility rates.

Questions:

Q 1.9   What do you notice about the percentage of women who were born in Australia:
(a) for the 5 LGAs with the lowest fertility rates:

Q 1.9   (b) for the 5 LGAs with the highest fertility rates:

Q 1.10   Your theory was 'that LGAs with a lower % of women born in Australia have a higher fertility rate than LGAs with a higher % of women born in Australia'. Based on the 2021 data, does your research prove or disprove this theory?

Comparing data for females and males

So far, we have focused on mapping and comparing data within and between different geographic regions, but the **Victorian Women's Health Atlas** has one more important feature. It can be used to compare the levels of wellbeing experienced by men and women.

To demonstrate this, create a map for:

Chronic disease → Asthma → Rate per 10,000 → Show for female → Metro region.

Questions:

Q 1.11   What pattern do you notice?

Q 1.12   Now change to the map for male.
         What changes do you notice between these two maps?

Q 1.13   Does your LGA conform to this pattern?

You have now used key tools in the **Victorian Women's Health Atlas,** and you can use these skills to explore your own Local Government Area in greater depth.

Exercise:

Complete the following table for your LGA:

	Atlas map theme **Indicator** → Measure	**Males: my LGA**	**Males: Victoria**	**Females: my LGA**	**Females: Victoria**
A	Chronic disease **Asthma** → Rate (per 10,000)				
B	Healthy living **Food insecurity** → % Worried yes VPHS 2023				
C	Socioeconomic status **Loneliness** → % VPHS 2023				
D	Socioeconomic status **Multiculturalism** → % Makes life better VPHS 2023				
E	Socioeconomic status **Local Councillors** → % F/M				
F	Healthy living **Current smokers** → % VPHS 2023				
G	Violence against women **Stalking, harassment and threatening behaviour** → Rate (per 10,000)				
H	Socioeconomic status **Unpaid domestic work** → % 15 hours+ per week				

Summing up:

Q 1.14 Using the data in your completed table as evidence, do people living in your LGA experience wellbeing above or below the averages for the state of Victoria?
Use statistics in your answer.

Q 1.15 The vision of **Women's Health Victoria** is 'gender equity in health.'
How do the maps in the **Victorian Women's Health Atlas** help to achieve this?

Starting an enquiry

Now that you have explored the **Victorian Women's Health Atlas**, it's time for you to choose an aspect of wellbeing which you would like to explore in greater depth. There are two possible ways to select your area of interest:

You could either:

a. Choose **one** of the indicators from the LGA table on which you would like to focus

OR

b. Choose a theme that explores **two or more** indicators. For example, if you are interested in who has a say in your local area, you could focus on indicators D, E and F from the table.

Exercise:

Write your area of focus in this box:

Now frame your area of focus as a question you would like to explore. Keep your question **open** rather than **closed** so that it allows you to explore the underlying issues in depth. For example:

*   *How many people per 10,000 in my LGA experience asthma?* is a **closed** question as it can be answered with a single piece of data.
*   *Why do asthma rates differ across the state?* is an **open** question as it allows you to explore the issue of chronic disease in depth.

Collecting data

Learning focus

Students learn to collect, evaluate and record primary and secondary data ethically and systematically.

Success criteria

- I can explain the difference between primary and secondary data.

- I can find and record reliable, relevant secondary data about a wellbeing issue.

- I can identify and apply ethical practices when collecting data
  (e.g., informed consent, anonymity).

- I can design a short, focused survey that gathers information related to my research question.

- I can collect and record accurate primary data from my local area or school community.

- I can cite my sources using a bibliography or reference tool.

In the previous lesson you collected data from the **Victorian Women's Health Atlas** in relation to wellbeing in Victoria. This was secondary data as someone else had collected and processed it so that you could use it. In this lesson, you will use your research skills to collect more secondary data and fieldwork skills to collect primary data on an aspect of wellbeing in your local area.

At the end of Lesson 1, you created a question based on an aspect of the wellbeing data in the **Victorian Women's Health Atlas**.

Exercise:

Write your question in this box:

This is now called your **research question**. You may like to check with your teacher if you have a suitable research question. You will collect data related to this question in this lesson; in the next few lessons you will process and represent this data so that you can reach some valid conclusions.

Collecting secondary data

To explore your research question in depth, you need to collect information from a range of sources. Whenever you are using secondary sources, you must always evaluate them for their relevance, reliability and bias.

Atlas data

The first step is to make sure that you have all of the relevant information from **the Atlas**. Follow these steps to access this information. The example outlined here is for the indicator related to asthma:

1. Using the steps outlined in the previous lesson, create a map for your chosen indicator.

2. Find the **Atlas** explanatory text that relates to your chosen indicator. This can be found in the Overview panel to the right of your map.

3. The first text section **describes and introduces the indicator**. It summarises the Victorian statewide statistics mapped in the Atlas, including any differences by sex.
    Here is the first paragraph of information for the Asthma indicator:

> **Asthma**
>
> Asthma is a lung disease characterised by inflammation and narrowing of the airways in response to a trigger, making it difficult to breathe. In the 2021 Census, over half a million Victorians (543,120 people) self-reported ever being diagnosed with asthma. This total comprises 55% (299,085) females and 45% (243,975) males. The age breakdown for the number of Victorian females living with a diagnosis of asthma is: 0-14 years (29,242); 15-24 years (33,867); 25-34 years (48,698); 35 to 44 years (45,485); 45 to 54 years (41,644); 55 to 64 years (38,061); 65 to 74 years (34,513); 75 to 84 years (19,939) and 85 years+ (7,636). As at 2021, the crude self-reported population rate (not age-standardised) for living with a diagnosis of asthma is 499 per 10,000 for females and 398 per 10,000 for males (average of Victorian local government areas).

4. The second text section labelled 'Discussion' provides **broader context** for the indicator, with a focus on impacts for women and gender equity in health.

5. The third text section explains **how this data was collected and measured**. The **Atlas** text for asthma rates, as an example, reveals that the data was based on 'self-reported.' This usually means that people were asked to complete a questionnaire that included a question about disease. In this case, the questionnaire was the Australian Census, one of the most reliable sources of wellbeing data.

Other reliable sources

Now it's time to use your research skills to collect secondary information from other reliable sources that relate to your research question.

Exercise:

Use the templates provided on the following pages to record and evaluate the secondary sources you find while exploring your research question

Tips for students:

- Use the internet to begin your search.

- Include at least three secondary sources to support your enquiry

- Try to focus on websites ending in .gov (government), .org (organisation) or .edu (education), as these tend to be more reliable than .com (commercial) websites.

- Make sure that you record the sources of your material .

- Use https://www.mybib.com/ to create a properly formatted bibliography at the end of your report.

- Check for explanatory text and definitions to understand how data is collected (eg: Census, surveys, or administrative data)

- Summarise the most important data or findings from each source, don't copy text directly

Asthma worked examples:

Here are some examples of secondary sources for asthma:

Asthma indicator - Victorian Women's Health Atlas

Chronic respiratory conditions: Asthma - Australian Institute of Health and Welfare

Asthma, 2022 | Australian Bureau of Statistics

Asthma Support, Treatment & Resources in Australia

Asthma: Policy | VIC.GOV.AU | Policy and Advisory Library - school operations

'Clean Air for all Victorians' must be an election priority to reduce the significant health risk air pollution poses for people with asthma - Asthma Australia

Here is the first Asthma source recorded in the template

Secondary sources template:

Source title / Organisation	Victorian Women's Health Atlas
Website / URL	https://victorianwomenshealthatlas.net.au
Type of source (eg: government, organisation, education, media)	Not-for-profit health organisation
Key information / data found	Asthma rates per 10,000 for females and males across Victoria
Relevance How well does this source answer or inform your research question?	Highly relevant, provides local gendered health data
Reliability Who collected or published this data? Is it trustworthy?	Data collected by Women's Health Victoria using ABS Census, reliable
Bias Does the source favour one view, or does it present facts fairly?	Minimal bias, presents official statistics only
Date of the data / date updated	2021 Census

Secondary sources template:

Source title / Organisation	
Website / URL	
Type of source (eg: government, organisation, education, media)	
Key information / data found	
Relevance How well does this source answer or inform your research question?	
Reliability Who collected or published this data? Is it trustworthy?	
Bias Does the source favour one view, or does it present facts fairly?	
Date of the data / date updated	

Source title / Organisation	
Website / URL	
Type of source (eg: government, organisation, education, media)	
Key information / data found	
Relevance How well does this source answer or inform your research question?	
Reliability Who collected or published this data? Is it trustworthy?	
Bias Does the source favour one view, or does it present facts fairly?	
Date of the data / date updated	

Secondary sources template:

Source title / Organisation	
Website / URL	
Type of source (eg: government, organisation, education, media)	
Key information / **data found**	
Relevance How well does this source answer or inform your research question?	
Reliability Who collected or published this data? Is it trustworthy?	
Bias Does the source favour one view, or does it present facts fairly?	
Date of the data / **date updated**	

Source title / Organisation	
Website / URL	
Type of source (eg: government, organisation, education, media)	
Key information / **data found**	
Relevance How well does this source answer or inform your research question?	
Reliability Who collected or published this data? Is it trustworthy?	
Bias Does the source favour one view, or does it present facts fairly?	
Date of the data / **date updated**	

Collating your primary data

One of the key skills of geography is to collect primary data in response to a research question like the one you wrote in the box above. The following activity outlines a fieldwork activity that you could use to collect data.

When conducting fieldwork you must act in an ethical way. Ethics refers to the correct way to behave and think. It is important to always act in an ethical way when conducting a geographic inquiry. For example, people who you survey must be told who you are and how you intend to use their answers.

Exercise:

Conduct a think, pair, share activity on the ethics of collecting data in public.
Think about this in terms of a list of dos and don'ts

Fieldwork dos	Fieldwork don'ts
People who you survey must be told who you are	You must never criticise the answers that people give.
People who you survey must be told how you intend to use their answers.	

Creating a survey

One of the most useful ways to collect data on the levels of wellbeing in your school is to ask people to respond to a set of questions about their own wellbeing. By collating and processing this data you will gain insights into wellbeing in your local area. The more data you collect, the more accurate and useful it will be.

Create a series of questions that you could ask other students in your school to help you explore your research question. You should avoid asking them an open question such as 'why do you think asthma rates are so high in our local area?' This type of question is likely to result in answers that either give too little information (e.g. 'I don't know really') or too much information.

Better questions give respondents a few options from which they choose one. Here are some examples:

Asthma

How common do you think it is for young people to experience a long-term health condition (like asthma, diabetes, or another chronic illness)?
☐ Very common
☐ Somewhat common
☐ Not very common
☐ I'm not sure

How much do you feel students your age understands about chronic diseases and their impact on daily life?
☐ Not much
☐ A little
☐ A fair amount

Threatening behaviour

Do you think most young people know where to go for help if they experience harassment or feel unsafe?
☐ Yes
☐ No

Unpaid domestic work

How often do you help with unpaid jobs at home (like cleaning, cooking, or caring for family members)?

☐ Never

☐ Sometimes

☐ Often

☐ Every day

Do you think people in your family share unpaid work fairly?

☐ Yes, mostly

☐ No, not really

☐ I'm not sure

Representation and voice

Do you feel people your age are listened to when it comes to decisions in your school or community?

☐ Yes

☐ Sometimes

☐ No

Who do you think is best at representing your ideas or concerns?
(You can choose more than one.)

☐ Teachers

☐ Parents

☐ Friends

☐ Community leaders

☐ Youth groups

☐ Other: _____

You should aim for no more than 5 questions as people generally won't answer a survey if there is more than this. You then need to consider how you will collect your data. If you are using paper, you need a separate piece of paper for each person you survey. You could also use an online survey tool or app such as Survey Monkey but make sure you know how it works before you conduct your fieldwork.

Completing your fieldwork

Once you have designed your survey questions, it's time to collect your data. Keeping in mind the ethics of collecting data and other safety considerations outlined by your teacher, conduct your survey with students in your school.

Make sure that you:

- Record your information as accurately as possible

- Survey as many people as you can: remember that the more you survey, the better your data

- Try to ask a range of people. For this reason, it might be a good idea to survey classes from a few different year levels, and include a question "What is your year level?" with multiple choices.

Consider whether you want to be able to analyse and report your survey results by sex (as the **Victorian Women's Health Atlas** does). If yes, you may decide to include an optional question "What is your sex?" with recommended multiple choices being:

☐ Female
☐ Male
☐ Another term
☐ Not stated

Representing data

Learning focus

Students develop data-handling and geospatial skills to represent data through graphs and maps.

Success criteria

- I can collate my data clearly using a table or spreadsheet.

- I can use Microsoft Excel (or similar) to create accurate graphs showing patterns in my data.

- I can use BOLTSS conventions to label and interpret maps.

- I can select appropriate graph types (bar, pie, line) for different data sets.

- I can use maps and graphs together to show spatial patterns and interconnections.

- I can combine multiple data sources (Atlas, fieldwork, and online data) into a clear visual report.

In the previous lessons you collected secondary data from the **Victorian Women's Health Atlas** and primary data from your fieldwork. Now it's time to process and analyse what you have discovered and to present it using visual tools such as graphs and maps.

The first step in representing your data is to get it all together in a format that you can use. This is called **collating**. If other students in your class also asked the same questions during your fieldwork you need to get their results, and they need to get yours. The best way to put all this information together is in a table. You can create one using a programme such as Microsoft Word or Microsoft Excel. One of the advantages in using Excel is that it is relatively simple to create graphs from the data you have entered into the table.

This step-by-step guide will show you how to collate your data using Excel and then how to use the data to create meaningful graphs.

Collating your primary data

1. Open a blank workbook in Microsoft Excel. At the bottom of the workbook, you will notice that the workbook currently contains 1 sheet. You will create one sheet for each question you asked in your survey. Right click on 'Sheet 1' and rename it with the name of the question from your survey. For example, 'Q1 Long-term health condition.'

2. The workbook is divided into columns and rows and each box on the workbook is called a cell.

    -   Click on cell A1 and enter the first option you asked in your first survey question.
    -   In the example in the image below, the first column (A) is the options asked about how common it is for young people to experience a long-term health condition.
   -   The second column (B) is the number of respondents who gave each of these options.
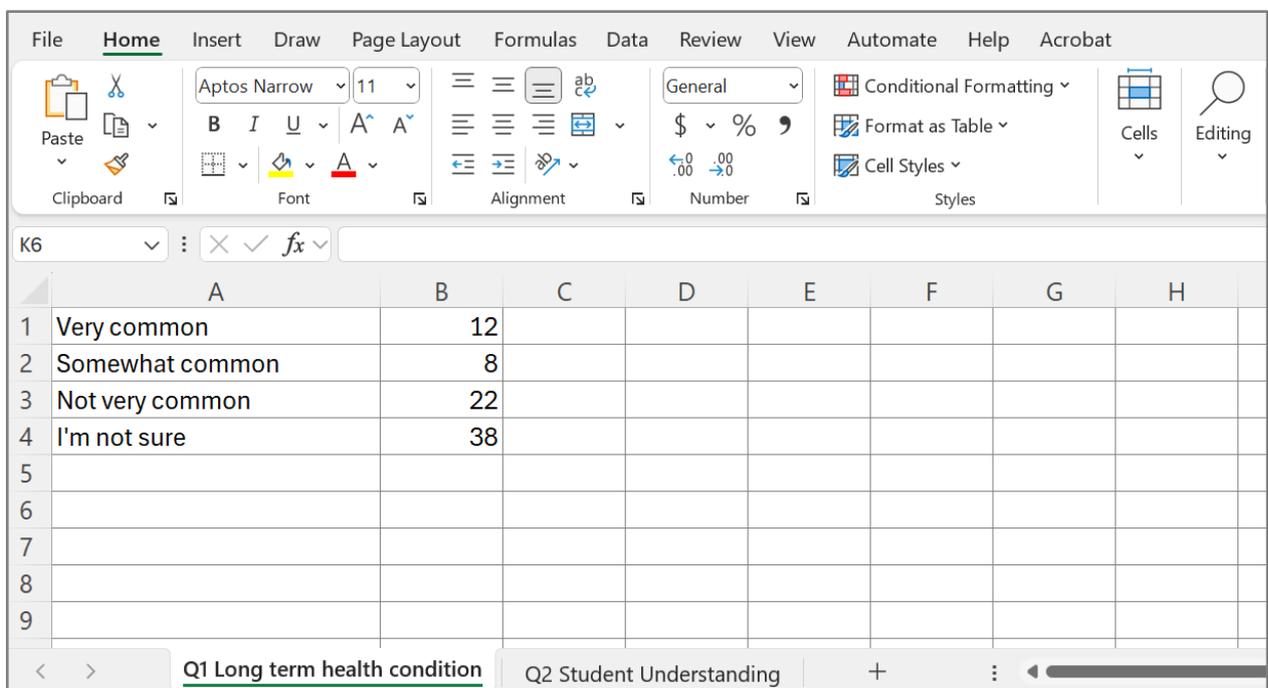
3. Add another sheet by clicking on the + symbol at the bottom of the workbook and repeat steps 1 and 2 for your next question.

4. Complete this until all of your data is collated. Make sure that you save your workbook.

Creating graphs

It is now time to create graphs that display the data that you have collected and collated. Graphs allow you and other people to make sense of your data and to identify patterns, including the interconnections between different datasets. Follow these steps to create a graph using Microsoft Excel.

1. Open your workbook to the first page.

2. Use your mouse to highlight all the cells that contain data.

3. Open the 'insert' menu.

4. Click on 'recommended charts' and change the tab at the top of this popout box to 'all charts'.
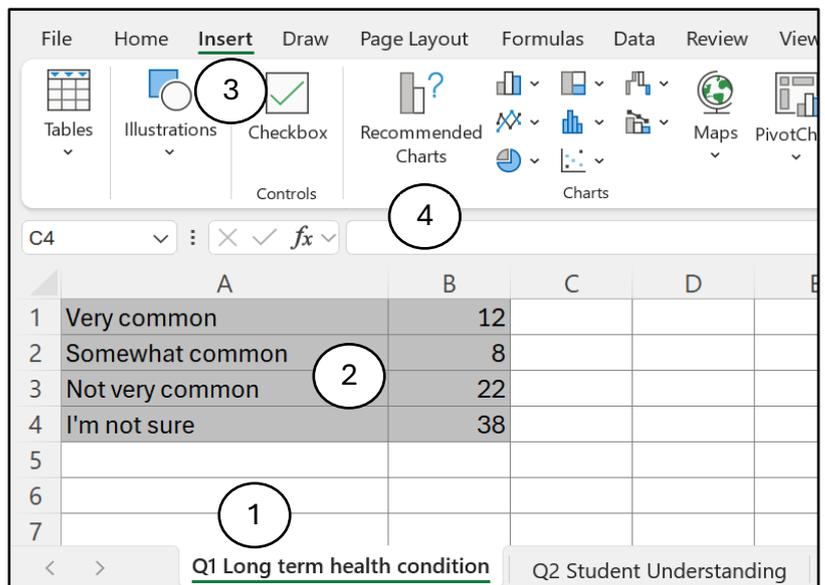
5. It's now time to decide what type of graph best shows your data. You should use the same type of graph to display the data for all your questions so think about which one would be best to display this data. Commonly, bar graphs and pie graphs are used to display data collected in a survey. Click on the graph you have selected in the left-hand menu. This will create your graph and give you several options for the way you wish to display it.
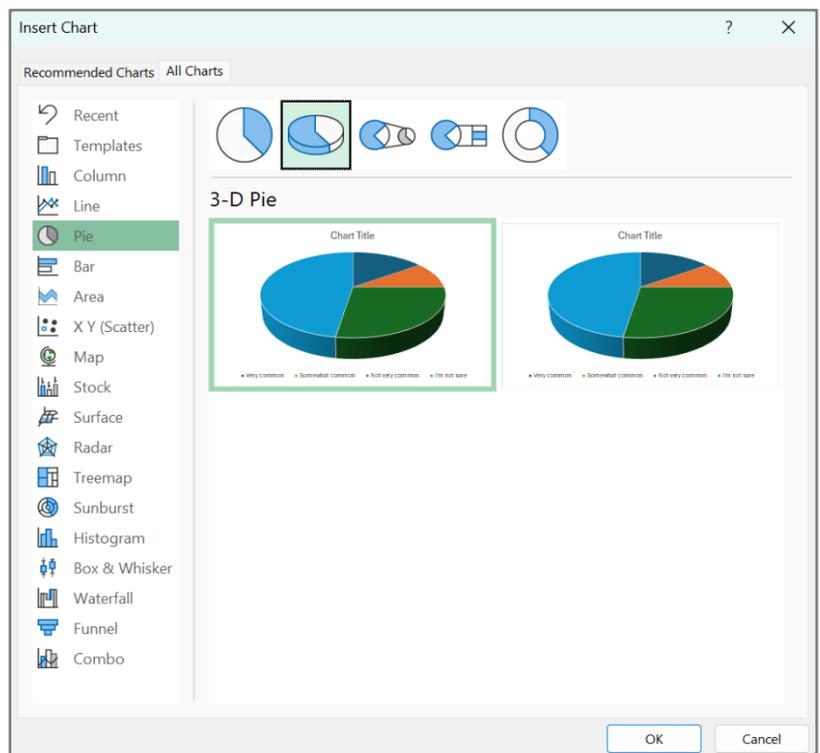
6. Click 'OK'.

7. You can now click on the various elements of your graph to change the way in which it is formatted and to add a suitable title. It is also a good idea to add data labels from the 'add chart element' menu.

Q1. How common do you think it is for young people to experience a long-term health condition (like asthma, diabetes, or another chronic illness)?

- Very common
- Somewhat common
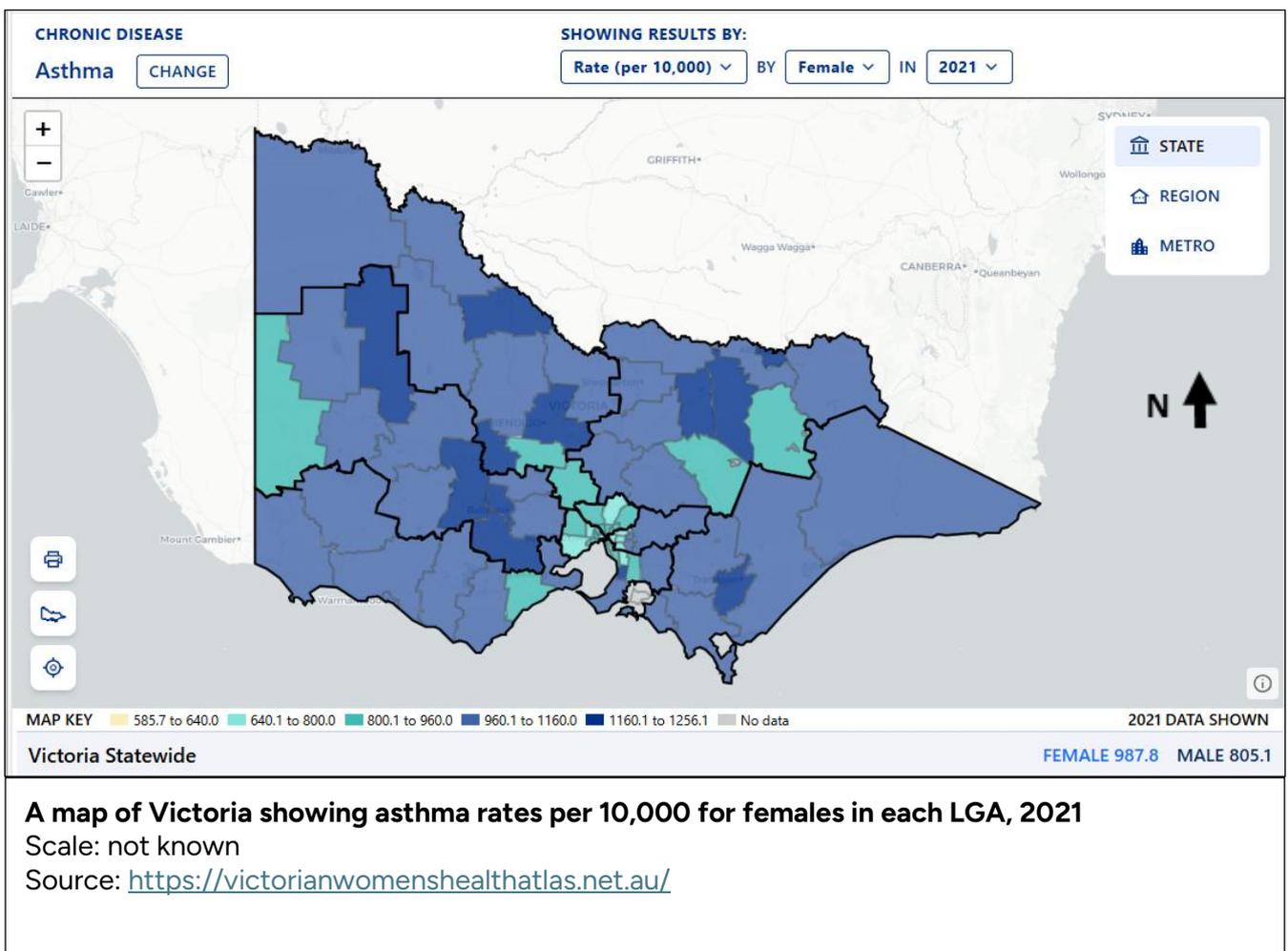- Not very common
- I'm not sure
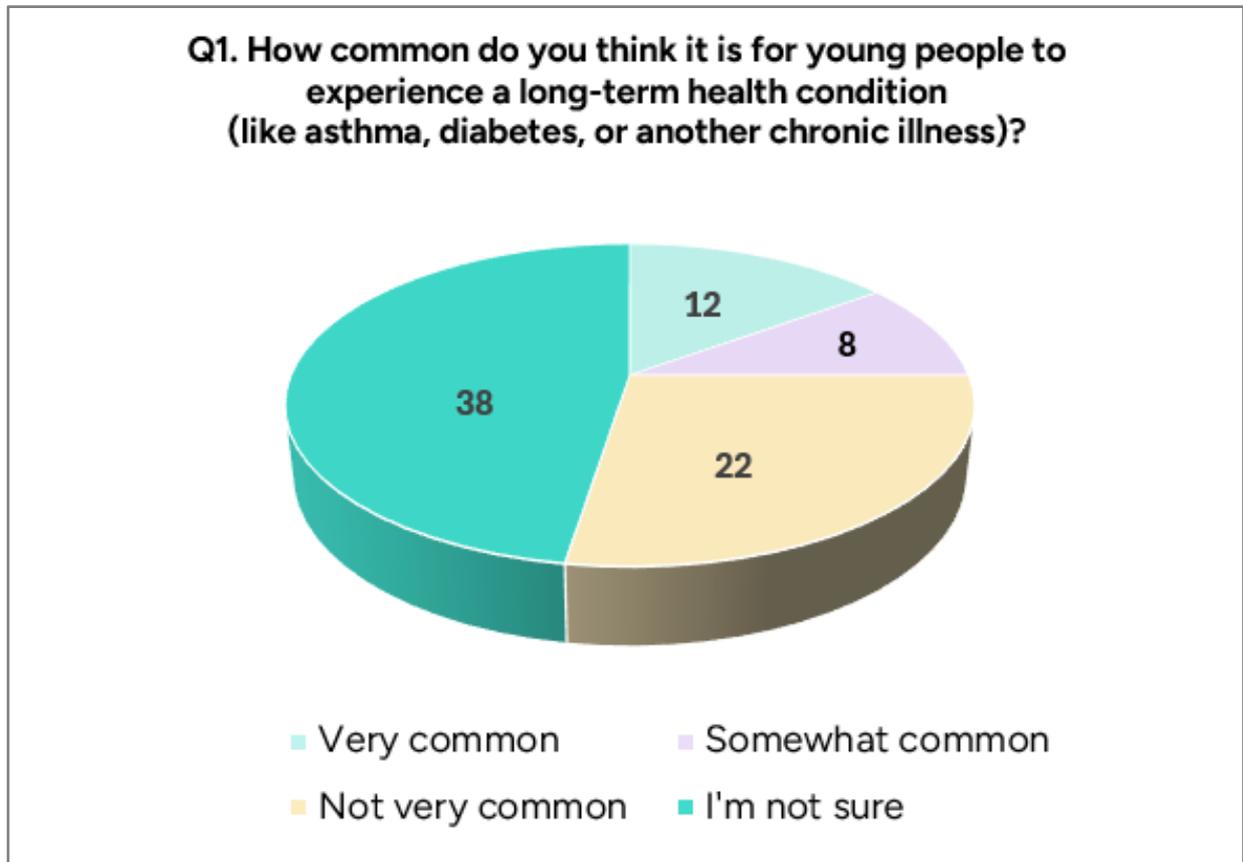
8. When you are satisfied with the overall look of your graph, save your workbook. You can now right click on the graph and copy it to other documents.

9. Complete steps 1-8 for each of your survey questions.

Creating maps

Another key element of your report will be maps collected from the **Victorian Women's Health Atlas** and other reliable sources that you used during your research. Before snipping a map from **the Atlas**, you should drag the part of the map you need over to the legend so that your snip contains both the map and the legend. You should also add BOLTSS (Border, Orientation, Legend, Title, Scale and Source) elements to complete your map.

Tip: You can access a pre-formatted map (statewide, region or metro) from **the Atlas** by using the print icon. This puts the map and bar chart on page 1, and the text on the page 2 (whatever you have selected or highlighted on the map or bar chart is what will be reproduced in the downloaded image). You can then take a snip to put in your report.

A map of Victoria showing asthma rates per 10,000 for females in each LGA, 2021
Scale: not known
Source: https://victorianwomenshealthatlas.net.au/

Putting it together

In the next lesson, you will analyse your data and make some conclusions about what you discovered. To make this easier, you should make some decisions about the format of your final report. Field reports are usually presented as a printed or electronic document but there are other options you could discuss with your teacher.

Options include a display programme such as PowerPoint, Prezi or Canva. You could also use a programme specifically designed to display geographic data such as ArcGIS Story Maps at **https://storymaps.arcgis.com/**

Whichever format you choose, you should load your graphs and maps onto them as this will help you when you prepare your final report in the next lesson.

Interpreting & concluding

Learning focus

Students apply analytical skills to interpret data using PQE and draw conclusions supported by evidence.

Success criteria

- I can describe patterns, trends and anomalies in my data using the PQE method.

- I can use quantitative evidence to support my interpretations.

- I can integrate primary and secondary data to answer my research question.

- I can write a clear and reasoned conclusion that explains possible causes or consequences.

- I can evaluate how personal beliefs or experiences may have influenced my conclusions.

- I can identify how wellbeing outcomes differ across people and places, and why.

The final parts of a geographic enquiry are to interpret the data that you have collected and then to reach a conclusion about your research question.

Identifying patterns

In your research, you have created a series of graphs and maps. You should now describe the pattern of each of them in a few sentences.

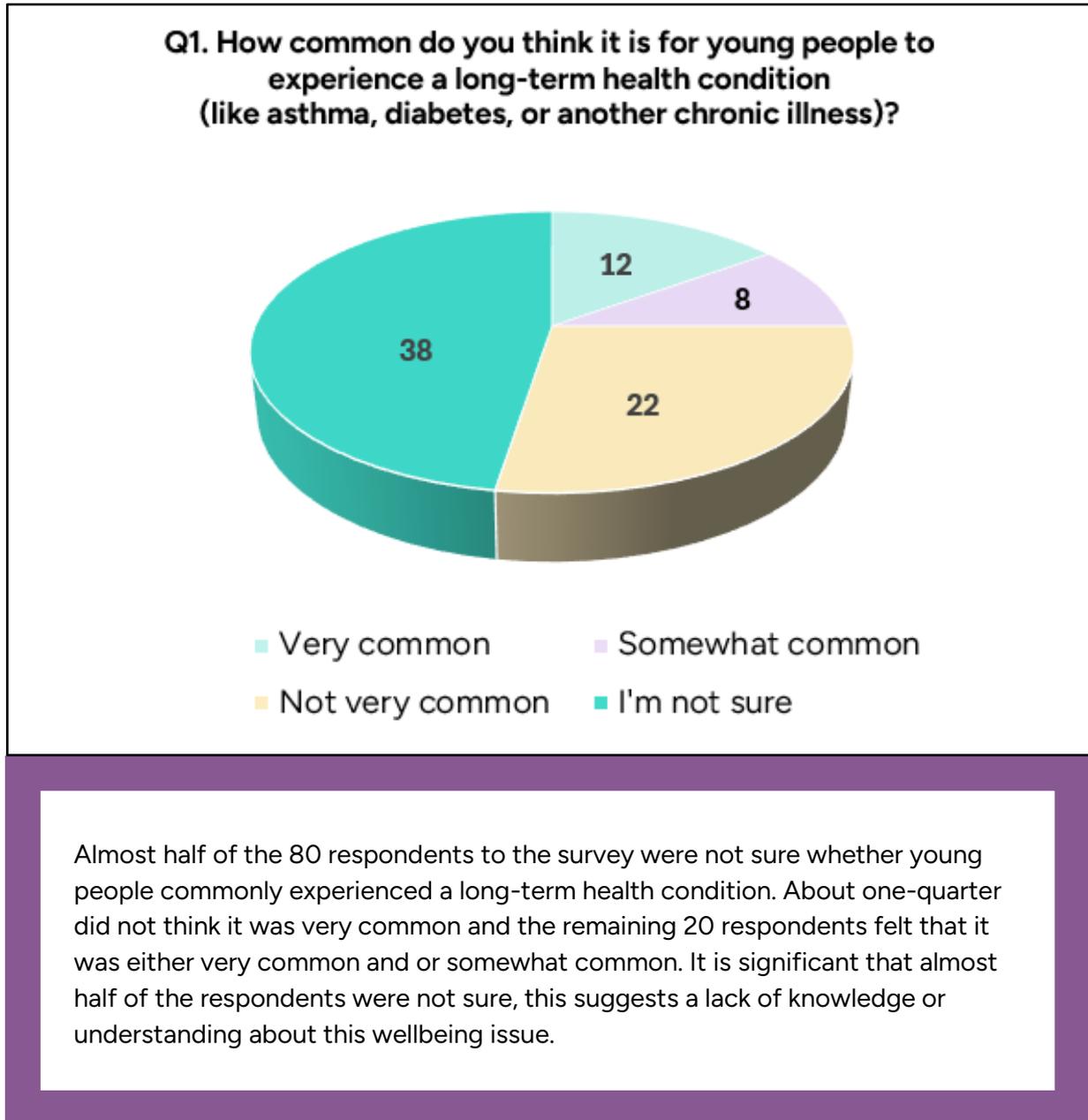**For each of your graphs**, follow these steps:

1. Describe the overall trend or pattern.

2. Describe the rate of change when your graph is showing change over time (e.g., the change is rapid/gradual).

3. Point out any data points that don't fit the overall pattern. These are called anomalies.

4. Include some figures as evidence.

5. In the final sentence, point out the most significant aspect of your graph.

Example description

Below is an example of this type of description for the following pie graph.

- As it does not show change over time there is no need to include step 2, and
- There are no anomalies so there is no need to complete step 3.

Q1. How common do you think it is for young people to experience a long-term health condition (like asthma, diabetes, or another chronic illness)?

- Very common
- Somewhat common
- Not very common
- I'm not sure

Almost half of the 80 respondents to the survey were not sure whether young people commonly experienced a long-term health condition. About one-quarter did not think it was very common and the remaining 20 respondents felt that it was either very common and or somewhat common. It is significant that almost half of the respondents were not sure, this suggests a lack of knowledge or understanding about this wellbeing issue.

When describing the pattern on a map, follow these steps, known as the PQE method
(Pattern → Quantify → Exception)

1. Describe the overall trend or pattern.
2. Quantify the pattern you described by using data from the map.
3. Point out any exceptions to the pattern.

Example PQE

Here is an example, using the map below. When writing your description of the map, you may need to refer to the source to find the names of each LGA you wish to include, and the relevant data for these LGAs.
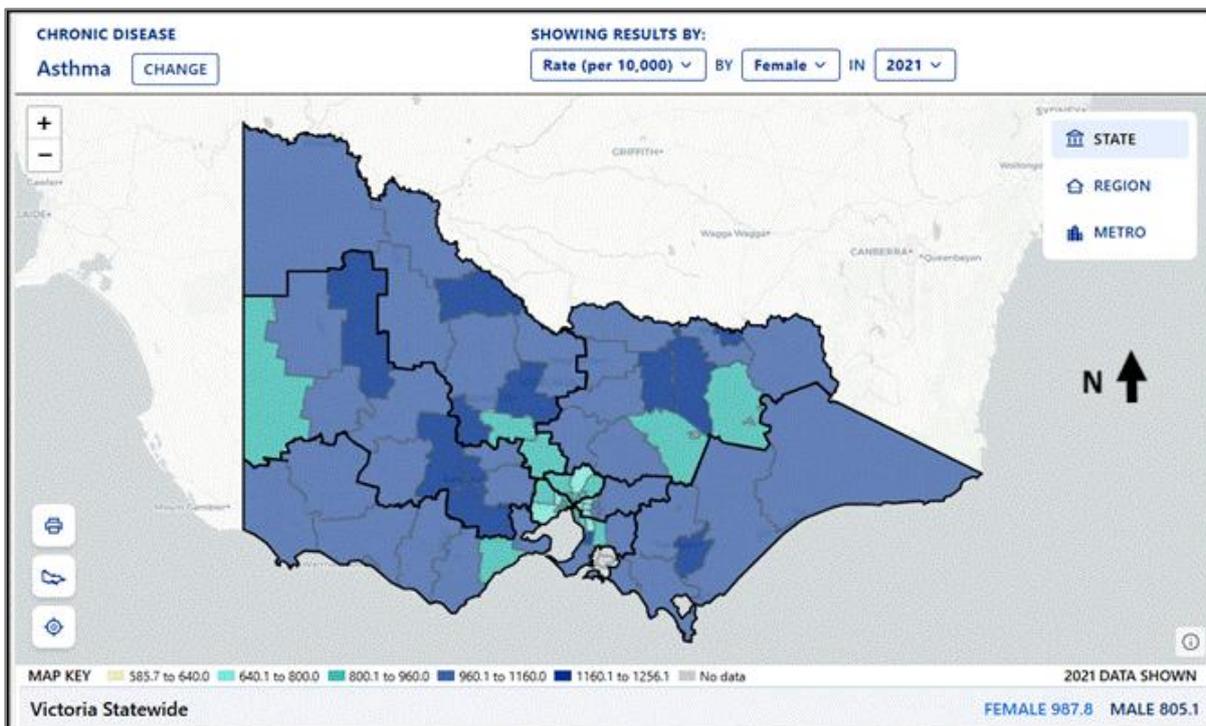
Pattern: Asthma rates are significantly higher in rural Victoria than in metropolitan Melbourne.

Quantify: Of the ten LGAs where more than 1,160 females from every 10,000 have ever been diagnosed with asthma, nine are in rural Victoria. These include Wodonga and Wangaratta in the north-east and the Pyrenees, Central Goldfields and Golden Plains in the west of the state. Conversely, the eleven LGAs where asthma rates are the lowest (less than 640 per 10,000) are all in metropolitan Melbourne.

Exception: An exception to this pattern is Frankston, an urban LGA with a female asthma rate of 1163/10,000 placing it in the highest category.

Reaching conclusions

Now it's time to bring it all together and to reflect on what you have found throughout this geographic enquiry. Start by looking back to your research question which has framed your enquiry. What are your most significant findings in relation to this question. Write a paragraph that uses both primary and secondary data in response to your research question. Here are some things you may like to consider in your paragraph:

- How have your personal beliefs and attitudes influenced your research? For example, did you choose to focus on asthma rates because you are asthmatic, or you have a friend or family member with the condition?

- Draw conclusions about the impacts of your geographic issue on people, places, and the environment. For example, do you believe that a lack of understanding about asthma rates may make people vulnerable to this condition?

- Include the reasons why you have reached a particular conclusion.

Example conclusion

Here is an example of the way to bring together primary and secondary data to reach a valid conclusion:

> Asthma rates in Victoria are amongst the highest in Australia (*Australian Bureau of Statistics*) with people in rural areas much more likely to experience this long-term condition than those in metropolitan Melbourne (*Victorian Women's Health Atlas*). This may be due to one of the key triggers for asthma attacks being grass pollen (*Asthma Australia*) which is more likely to be present in farming areas rather than city areas. Despite the high rates of asthma in Victoria, many people are unaware of how common it is amongst young people (*personal surveys*).

Call to action

Learning focus

Students apply their learning to real-world action, proposing or participating in initiatives that promote wellbeing and gender equity.

Success criteria

- I can identify a wellbeing or equity issue that needs attention in my local community.

- I can use data and evidence to explain why this issue matters.

- I can suggest realistic actions or solutions that individuals or groups could take.

- I can create a call-to-action product (e.g., letter, poster, presentation, campaign, or media piece).

- I can explain how my action connects to social justice, inclusion, or gender equity.

- I can reflect on how geographical knowledge and skills can promote positive change.

Now that you have completed your geographic enquiry about an aspect of wellbeing in Victoria you may like to respond and try to bring about change in your community.

For example, did you find

- Inequalities between male and female health outcomes in Victoria?

- Inequalities in health outcomes between different regions in Victoria?

- Aspects of health and wellbeing that you found confronting or concerning?

Call to action

- Do you want to do something about it?

- Do you want to inspire other people to do something about it?

- There are many things that you can do, some of them individually and some in a group.

Some examples of these actions are on the next pages.

Use classroom discussions as an opportunity to voice your opinions on equality and justice.

Support a charity that works to reduce inequalities in wellbeing. Volunteer your time, your money or your skills and talents.

Create a poster or blog that creates awareness about an issue and gives examples about how to act to improve the situation.

Individual actions

Identify an area of inequality in your school or community and create a project to address it.

Donate food to a local food bank.

Use your survey findings to write an action letter to a relevant local authority, organisation or decision-maker. This letter could include:
- A summary of your enquiry focus and survey purpose
- Key findings or quotes from your data
- A clear explanation of the issue identified
- A suggested action or solution
- A respectful request for the issue to be considered

Potential recipients could include local councils, school leaders, youth groups, health services or relevant MPs (depending on the topic and scale of your inquiry)

Support those businesses that have inclusive employment policies that result in jobs for marginalized people.

Prioritise long term help rather than one off donations. For example, mentoring a student for whom English is not their first language.

In your day-to-day interactions, practice inclusivity and respect toward everyone, regardless of their background or differences.

Contact your local, state or federal government representative to advocate for changes to policies and laws to reduce inequalities.

Work with your school's leaders to advocate for policies that make your school more inclusive and fairer for everyone.

Work together to create content (videos, posters, podcasts) that raises awareness of social justice issues and educates your peers.

Collective actions

Promote peace-building and restorative justice practices such as restorative circles at your school to address conflicts and reduce bullying.

Work with a group of friends to create technology-based solutions that can help bridge the gap between students or communities with unequal access to resources.

Collaborate to create inclusive school events that celebrate diversity and promote unity among students from different backgrounds.

Start a Social Justice Club at your school that focuses on issues like racial inequality, gender discrimination, or poverty. Host discussions, organize fundraisers, and create events to raise awareness.

Glossary

A

anomaly
A data point that does not fit the expected pattern or trend.

anonymity and confidentiality
Ensuring that people's names and personal details are not revealed in data or reports.

asthma rate (per 10,000 people)
The number of people per 10,000 who have been diagnosed with asthma in a particular area.

Atlas (Victorian Women's Health Atlas)
A free online mapping tool showing health and wellbeing data for Victorian women and men. The Atlas allows users to compare wellbeing indicators by gender and geography, supporting action towards gender equity in health.

B

bias
When information or data favours one side or perspective unfairly. Geographers must recognise and reduce bias in both data collection and analysis.

BOLTSS
A checklist for good map design: Border, Orientation, Legend, Title, Scale, and Source.

Born in Australia (%)
An indicator showing the proportion of women or men in an area who were born in Australia, used to analyse diversity and possible cultural patterns in wellbeing.

C

call to action
A suggested individual or collective step people can take to promote change, for example, writing a letter to local council or creating a school campaign about wellbeing.

chronic disease
A long-term health condition such as asthma, diabetes, or heart disease that can affect a person's daily life.

civic participation
The ways people take part in community and political life, such as volunteering, writing to MPs, or joining campaigns.

conclusion
A reasoned statement that answers the research question, supported by data and evidence.

correlation
A relationship or interconnection between two sets of data. For example, asthma rates might correlate with air-quality levels.

count
The total number (of persons, notifications, services etc.) within a given time period.

E

ethics or ethical research
Doing research in a fair, safe, and respectful way, including gaining consent, protecting privacy, and not causing harm to participants.

F

fieldwork
An investigation carried out in a real-world environment to collect primary data, such as surveying students about their wellbeing.

G

gender equity in health
The fair distribution of resources, opportunities, and health outcomes between people of all genders. It recognises that some groups may need more support to achieve equal health outcomes.

gendered health inequities
Differences in health that result from gender roles, discrimination, or unequal access to care. For example, higher rates of unpaid domestic work among women.

geospatial technologies
Digital tools used to collect, analyse, and display data about places, such as the **Victorian Women's Health Atlas** or ArcGIS StoryMaps.

H

human wellbeing
A measure of how satisfied people are with their lives and how well their basic needs are met, including health, safety, education, income, and connection to community. Geographers study how wellbeing varies across places and over time.

I

Indicator
A population characteristic that can be measured – often selected to describe an aspect of health or wellbeing – e.g. Asthma, Born in Australia, Trust in the health system, Unpaid domestic work.

informed consent
When participants are told who is collecting the data, what it will be used for, and agree to take part voluntarily.

interpretation
Making sense of data by identifying what patterns, trends, and anomalies show.

L

Local Government Area (LGA)
Victoria is divided into 79 defined municipal areas (34 cities, 38 shires, 6 rural cities, and 1 borough), each with an elected Council to manage local issues and represent community needs. The Victorian Women's Health Atlas displays data for all 79 LGAs.

M

measure
A standard unit used to express the size, amount, or degree of something, – e.g. the number of victim reports, the percentage of people who participated, the rate of births per 1,000 women.

P

PQE (Pattern, Quantify, Exception)
A structure for describing spatial data
- *Pattern*: describe the overall trend
- *Quantify*: use data or numbers
- *Exception*: note outliers or areas that don't fit the trend

primary data
Data you collect yourself through methods like surveys, interviews, or fieldwork.

priority health areas
Broad themes under which the **Victorian Women's Health Atlas** content is grouped.

R

rate

The total number divided by a common denominator – often 1,000 or 10,000 people living in an area. This allows for comparison between areas of differing populations.

relevance

Whether the data directly relates to the question being asked.

reliability

How consistent or trustworthy data is. For example, data from the census is more reliable than an online poll.

representation and leadership indicators (Local Councillors, CEO Gender, Chief Executives and Managers)

Atlas measures showing how men and women are represented in decision-making and leadership roles in local councils and across industries.

research question

An open, focused question guiding an enquiry, for example:
Why do asthma rates differ across Victoria?

S

scale (geographical scale)

The level at which something is studied, such as global, national, regional, or local (like an LGA). Changing the scale can change how patterns appear on a map.

secondary data

Data that has already been collected, processed, and shared by others, for example, census data or datasets shown in the Victorian Women's Health Atlas.

social justice

Fairness in how opportunities, resources, and rights are shared in society, particularly for groups who experience disadvantage.

socioeconomic status

A measure that combines education, income, and occupation to show people's access to resources and opportunities.

spatial differences

Variations that occur across space, for example, when one Local Government Area (LGA) has higher asthma rates or lower income levels than another.

Stalking, harassment and threatening behaviour (Rate)

An Atlas indicator based on the number of incidents reported to police, by sex of the affected person, per 10,000 people living in the local government area. This dataset includes incidents by any means: in-person, via mail, phone or online.

T

Total fertility rate (TFR)

The average number of children a woman could be expected to have over her lifetime, based on trends in a particular area.

U

unpaid domestic work

Household or caring tasks that are not paid, such as cooking, cleaning, or looking after children. The Atlas measures the percentage of people who do 15 or more hours of this work per week.

V

Violence against women

An Atlas priority health area with multiple indicators about perceptions of safety and gendered experience of forms of violence - based on community surveys and incidents reported to police.