

RECONCILIATION DATA: Sequence Overview

Summary of learning goals

This lesson interprets data of significance for Australian society, and provides an opportunity to develop and use mathematical skills in a humanities and civics context. The mathematical goals are to extend the students' growing repertoire of data graphs to include side-by-side column graphs and 100% bar graphs. Students use knowledge of percentage, interpreted informally and also calculated.

Australian Curriculum: Mathematics (Year 6)

ACMSP147: Interpret and compare a range of data displays, including side-by-side column graphs for two categorical variables.

ACMSP148: Interpret secondary data presented in digital media and elsewhere.

ACMNA132: Make connections between equivalent fractions, decimals and percentages.

Summary of lessons

Who is this Sequence for?

This sequence is designed for students who have a good working knowledge of basic column graphs and are ready to learn to represent more complex data sets. They need to be able to represent fractions as percentages. Students will also need sufficient understanding of Australian history and society to fully engage with the issues involved in Reconciliation, including some understanding of how life looks from an Aboriginal and Torres Strait Islander perspective.

Lesson 1: Face the Facts

Students are presented with data on Reconciliation in Australia. From this data, they make interpretive statements that are supported by the evidence. They use the original survey questions from the Reconciliation Barometer to collect data from a local population, and compare this with the national data set using a side-by-side column graph and a 100% bar graph.

Reflection on this sequence

Rationale

Mathematics extends beyond the physical and temporal restrictions of the maths classroom. The intention of this lesson is to use mathematics as a stepping-off point for a sensitive and personal reflection on attitudes towards indigenous people and culture within Australia.

The Reconciliation Barometer presents data collected from a bi-annual attitudinal survey conducted by Reconciliation Australia. The statistics provide a confronting and provocative profile of general community sentiment.

The intention of this lesson is to provoke young Australians to think broadly and carefully about what values they wish to see encouraged in the society in which they live.

reSolve Mathematics is Purposeful

Fluency - Students work with data and represent responses to questions using percentages as a way to compare populations, developing fluency with number and calculations in the process.

Problem solving - Many of the issues that are highlighted in the data from the Reconciliation Barometer are major social problems that our nation is currently engaged with. Mathematics cannot directly solve these problems, but it certainly provides tools and language to engage with the issues and represent the facts in the debate. Students are encouraged to participate in this debate and use their mathematical skills to examine attitudes and values of Australian people.

Reasoning - One of the primary functions of collecting data is to use it to answer questions or make statements of fact. This lesson provides an opportunity for students to start thinking and making reasoned and rational decisions about their own attitudes and responses to the question of reconciliation.

reSolve Tasks are Challenging Yet Accessible

All students are able to participate in the conversation around reconciliation. They are challenged to consider the issues of racism and prejudice from a personal perspective and reflect on their own thoughts.

reSolve Classrooms Have a Knowledge Building Culture

Students are encouraged to take action from this lesson, to start talking in their own school and community about the issues of racism and reconciliation. The opportunity is provided here to do more than just talk about these issues - students are invited to survey their own communities and collect data about some of the questions from the Reconciliation Barometer.

Acknowledgements

The staff at Reconciliation Australia were extremely helpful and supportive in the processes of developing the ideas behind this lesson. It is hoped that all Australian students would engage in the conversation around reconciliation and the future of our nation.

We value your feedback after this lesson via <http://tiny.cc/lesson-feedback>



RECONCILIATION DATA

Lesson 1: Face the Facts

Australian Curriculum: Mathematics - Year 6

ACMSP147: Interpret and compare a range of data displays, including side-by-side column graphs for two categorical variables.

ACMSP148: Interpret secondary data presented in digital media and elsewhere.

ACMNA132: Make connections between equivalent fractions, decimals and percentages.

Lesson abstract

Students are presented with data on reconciliation in Australia. From this data, they make interpretive statements that are supported by the evidence. They use the original survey questions from the Reconciliation Barometer to collect data from a local population, and compare this with the national data set using a side-by-side column graph and a 100% bar graph. This lesson may be spread over an extended inquiry in Humanities and Social Science.

Mathematical purpose (for students)

Conduct a survey to collect data to compare with an existing data set.

Mathematical purpose (for teachers)

This lesson interprets data of significance for Australian society, and provides an opportunity to develop and use mathematical skills in a humanities and civics context. The mathematical goals are to extend the students' growing repertoire of data graphs to include side-by-side column graphs and 100% bar graphs. Students use knowledge of percentages, interpreted informally and also calculated.

At the end of this lesson, students will be able to:

- Conduct a survey.
- Present data that they have collected.

Lesson Length 90 minutes approximately

Vocabulary Encountered Lesson Materials

- | | |
|---|--|
| <ul style="list-style-type: none"> • survey • side-by-side column graph • 100% bar graph • reconciliation | <ul style="list-style-type: none"> • Reconciliation Barometer slide show
1a Reconciliation Barometer powerpoint • Student Sheet 1 - Student Reflection (1 per student) • Student Sheet 2 - Reconciliation Barometer Survey (1 per pair of students) • Student Sheet 3 - Engaging with the Data (1 per student) • "Our history, our story, our future" video
https://www.youtube.com/watch?v=0CW_tDLo_oM |
|---|--|

We value your feedback after this lesson via <http://tiny.cc/lesson-feedback>



Starting the Conversation

Teacher Notes

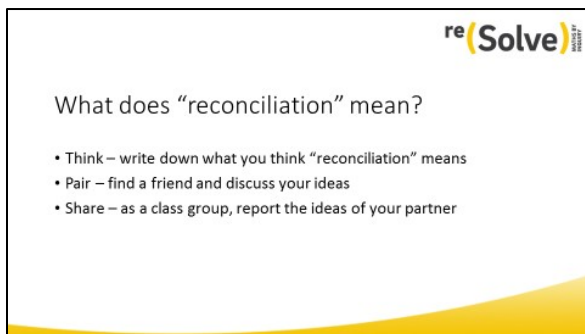
- There is a deliberate opportunity provided in this lesson for classes to explore issues relating to the reconciliation movement in Australia. Through this exploration, students will be able to engage with some significant issues that face our country. It is intended that this context will require students to use mathematical skills and knowledge outside of the traditional maths lesson.
- This lesson relies heavily on a slide show and a video. As with any lesson that utilises technology, it is important for the teacher to test the functionality of each element prior to the commencement of the lesson.

Reconciliation Australia

- Start the slide show Reconciliation Barometer
- Slide 3 - show the movie "Our history, our story, our future" - this should start automatically from the slide show, otherwise access it at: https://www.youtube.com/watch?v=0CW_tDL0_oM or at the Reconciliation Australia website - <https://www.reconciliation.org.au/>

Discussion

- Discuss Slide 4 - What does "reconciliation" mean? Write your responses on [Student Sheet 1 - Student Reflection](#).

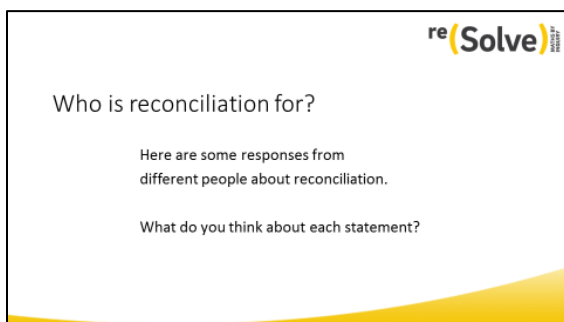


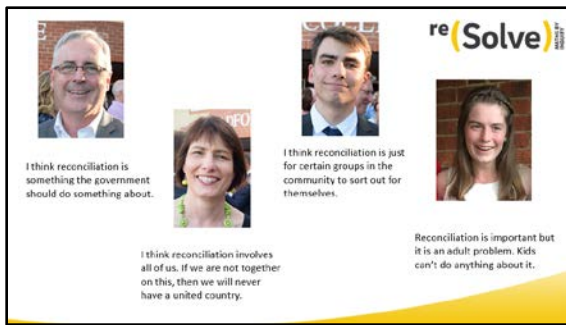
Teacher Notes

- When doing the "think, pair, share", ask the students to report back on their partner's ideas rather than their own.

Discussion

- Slide 5 - Who is reconciliation for?
- Ask the students to write down their responses to each statement on [Student Sheet 1 - Student Reflection](#).





Teacher Notes

- Each of the responses will appear one after the other as you click through them.
- Take the opportunity to pause between each response to consider what the statement says about reconciliation.

The Reconciliation Barometer

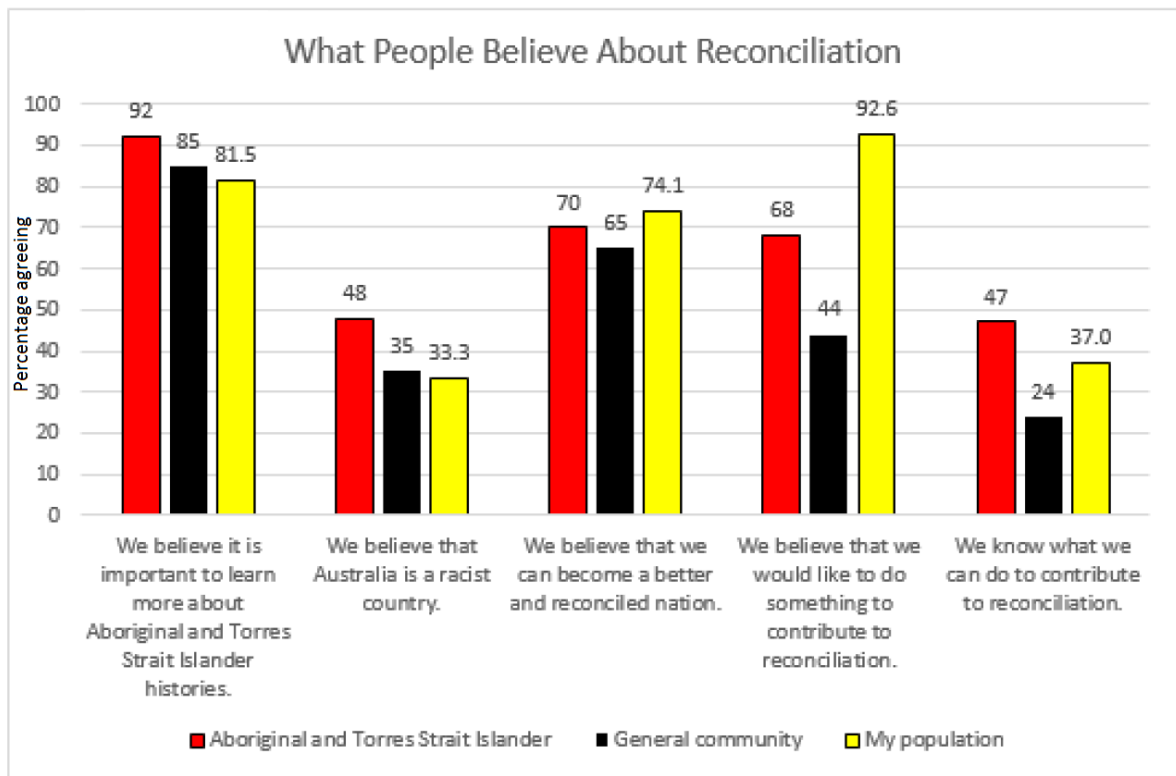
- The next section of the slide show (slides 7-19) will play through automatically.
- The data appears on a time delay, allowing students to mentally predict what they think the percentage for each population and each response will be.
- The complete Reconciliation Barometer 2014 report can be downloaded at https://www.reconciliation.org.au/raphub/wp-content/uploads/2015/10/RR7200-Barometer-Brochure_WEB.pdf
- Teachers may choose to use results from more recent barometer surveys as they become available.

Conducting a survey

- Once you have looked at the data, choose five of the statements that you would like to investigate further. The statements are provided on [Student Sheet 2 - Reconciliation Barometer Survey](#).
- Decide which five statements you will investigate.
- Decide who you are going to survey - your family, your class, your school.
- Ask your target group if they agree or disagree with each statement.
- Record the responses as a table on [Student Sheet 3 - Engaging with the Data](#).
- Use this table to construct a graph that shows the responses to these statements from the three groups - Aboriginal and Torres Strait Islander population, general population, your population.
- To do this, you will need to convert your "agree" results to a percentage.

Expected Student Response

	Agree	Agree %	Disagree	Disagree %
We believe it is important to learn more about Aboriginal and Torres Strait Islander histories.	22	81.5	5	18.5
We believe that Australia is a racist country.	9	33.3	18	66.7
We believe that we can become a better and reconciled nation.	20	74.1	7	25.9
We believe that we would like to do something to contribute to reconciliation.	25	92.6	2	7.4
We know what we can do to contribute to reconciliation.	10	37	17	63



Teacher Notes

- It is quite likely that you are going to end up with numbers that do not convert to percentages easily. Acknowledge with the students that this is a difficult step but that there are strategies that we can use to make these calculations accurately.
- Converting the data to percentages is necessary to compare with the survey results. This can be done by taking the responses as a fraction of the total number of people interviewed, then get the top number of the fraction (numerator) and divide it by the bottom number (denominator) and multiply by 100 to make it a percentage. Calculators can be used.

Enabling Prompt

- If we had 22 out of 25 people agree, what would that be as a percentage? How do you know? Will 22 out of 27 be a higher or lower percentage than this?
- We know that 22 people out of 27 agree with the first statement. To convert this to a percentage, you divide 22 by 27 (≈ 0.8148) and multiply by 100 = 81.48%

Teacher Notes

- This type of side-by-side graph is useful to show the response from each of the three groups for the various statements. It makes direct comparison very easy.
- The data that students collect may be very different from the example presented here.

Explaining your data

- Use the data that you have collected and presented to respond to these questions.
- Was there anything in the data that surprised you? What was it? Why was it surprising?
- What areas were the three groups closest in their responses? What areas were they furthest apart?
- Make three statements (one for each group) that can be supported by the data.
- Which of the five statements that you investigated would you like to explore more deeply? Why is this topic interesting to you?

Expected Student Response

- I was surprised that so many of the people that I surveyed wanted to do something about reconciliation. It is interesting that many people wanted to do something but not many knew what they could do.
- In my data, the responses were closest in the statement that we can become a better and more reconciled nation (9.1%). The biggest difference was in wanting to do something about reconciliation (48.6%).
- My three statements:
 1. The Aboriginal and Torres Strait Islander group agreed more strongly than the other groups that they knew what they could do to contribute to reconciliation but it was still less than 50%.
 2. The general community had the least interest in doing anything to contribute to reconciliation and had the least idea what they could do.
 3. My survey group was very strongly in favour of doing something to contribute towards reconciliation.

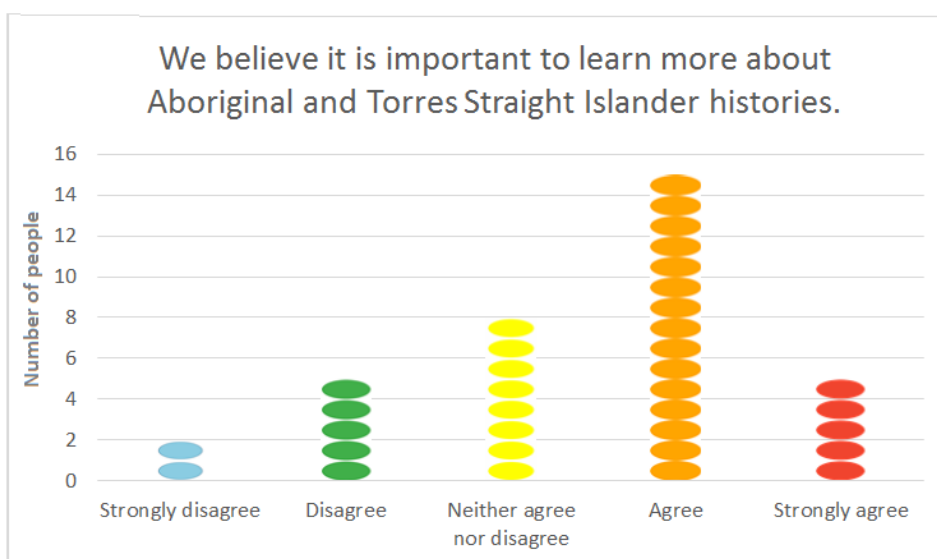
Digging deeper into the data

Conducting a survey

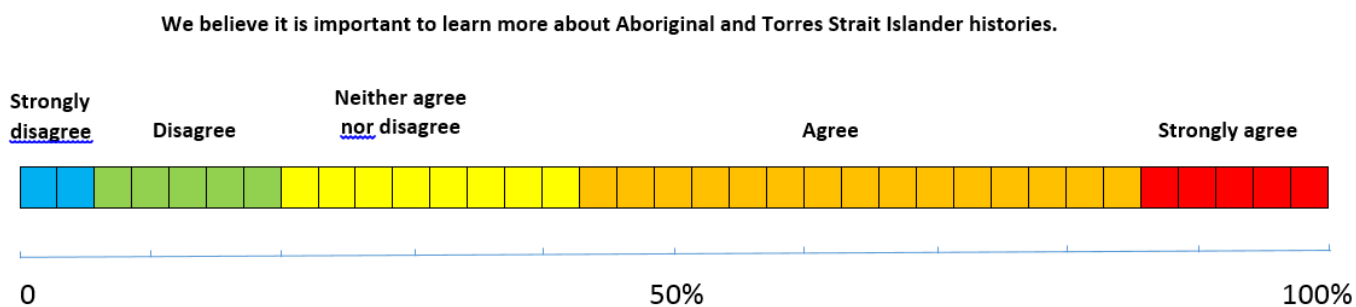
- Choose one of the statements from the Reconciliation Barometer to investigate more deeply.
- This time when you ask about the statement, give people the choice of five possible responses - strongly agree, agree, neither agree nor disagree, disagree, strongly disagree.
- Conduct the survey. Have 5 containers labelled with each of the responses - strongly agree, agree, neither agree nor disagree, disagree, strongly disagree.
- Give each person a counter to place in the container for their response, using a different colour for each.
- Once you have completed collecting your data, arrange the counters in a line keeping them together by colour to show the groups of responses.
- Convert to squares (using scale?) on horizontal 100% bar graph to show the proportion of each response.
- Other forms of presenting the responses might also be used (e.g. picture graph).

Expected Student Response

Example 1 - Data represented as coloured counters for each vote



Example 2 - Data represented as a 100% bar graph



Teacher Notes

- This activity might be best done as a group task or even as a whole class activity.
- You might decide to set this up as an active polling station in a central location in your school where all people who pass by can have their vote.
- There is an opportunity here for the teacher to demonstrate some of the capacity of commercially available spreadsheet software.

Enabling Prompt

- Providing a scale divided into deciles under the horizontal bar graph can assist students to get a “feel” for approximate conversions of fractions to percentages.

Activation

Reconciliation Action Plans

One priority in the work of Reconciliation Australia is the development of Reconciliation Action Plans.

Does your school have a Reconciliation Action Plan?

Does your school need a Reconciliation Action Plan?

To learn more about RAPs, visit <https://www.reconciliation.org.au/raphub>

Think, Pair, Share

"Reconciliation" means _____

Write your response to these comments about reconciliation:

"I think reconciliation is something the government should do something about."

"I think reconciliation involves all of us. If we are not together on this, then we will never have a united country."

"I think reconciliation is just for certain groups in the community to sort out for themselves."

"Reconciliation is important but it is an adult problem. Kids can't do anything about it."

Reconciliation Barometer Survey

Name: _____

The following data is taken from the 2014 Reconciliation Barometer. It reports the percentage of people who agreed with each of the Barometer statements.

Reconciliation Barometer Survey Statement	Aboriginal and Torres Strait Islander Australians	General community
We believe it is important to learn more about Aboriginal and Torres Strait Islander histories.	92%	85%
We believe that the policies of previous governments have been a cause of racial discrimination.	38%	17%
We believe that the relationship between the general community and the Aboriginal and Torres Strait Islander population is important.	96%	86%
We believe that Australia is a racist country.	48%	35%
We have experienced or witnessed racial prejudice in the past six months.	31%	13%
We believe that government departments can do more to reduce prejudice and discrimination.	76%	57%
We believe that we can become a better and reconciled nation.	70%	65%
We believe that we would like to do something to contribute to reconciliation.	68%	44%
We know what we can do to contribute to reconciliation.	47%	24%
We believe that Aboriginal and Torres Strait Islander cultures are important to Australia's national identity.	87%	72%
We are proud of Aboriginal and Torres Strait Islander cultures.	85%	57%

This is not all the data from the Reconciliation Barometer. For the complete report, visit: <https://www.reconciliation.org.au/wp-content/uploads/2015/10/ARB-report.pdf>

Choose five statements from the Reconciliation Barometer that you would like to collect your own data on.

Write these statements into the table.

Conduct a survey asking people if they are agree or disagree with each statement.

Statement from the Reconciliation Barometer Survey	Number who agree	Percentage who agree (%)	Number who disagree	Percentage who disagree (%)
1.				
2.				
3.				
4.				
5.				

Use this data to construct a side by side column graph, including the original data from the Reconciliation Barometer Survey for Aboriginal and Torres Straight Island people and for the general community.