




Junior Secondary Teaching Ideas

Room to Learn: Telling the Story of Australia's Classrooms

Start planning your involvement in National Literacy and Numeracy Week by looking at the core activity *Teaching Ideas*. Then continue here, where you will find more ideas to extend and continue the discussion with your class.

Suggestions marked with this symbol  are follow-up activities using the National Data which will be made available on the website, and emailed to registered schools, shortly after the Week finishes. Using the National Data will help your students build a true picture of Australia's classrooms, and how their classroom compares with others around the country.

Number

How big is your state or territory (see the table at the end)?

- How many classrooms the same size as yours could fit into each of the states and territories?
- How many students could fit into each of the states and territories?
- What are some of the ways to express big numbers?

Ratio

- What is the ratio between various room components in your classroom? (e.g. students and floor-space, furniture and free floor-space, windows and walls etc)
- What is the ratio between population and area for each of the states and territories? Is it what you expected?

Crowding



- Which of the year levels has the most crowded classrooms? Is there a pattern? Was it what you expected?
- Which of the states or territories has the most crowded classrooms?
- Which countries are most/least densely populated?

Shape

What is the shape of your classroom?

- Explore the various symmetries within the classroom, including the third dimension.
- Explore edges, faces and vertices through looking at the classroom itself and objects found there. Apply Euler's rule ($F + V = E + 2$).

See if you can find tessellations in the classroom (e.g., floor tiles, carpet squares, wall tiles, desks).

- Identify the different shapes.
- Copy these tessellations using paper or computer software.
- Explore the angles within the tessellations.
- Design your own tessellating shapes.

Measurement

How could you measure the height of your classroom?

- Make an estimate using known height(s) (e.g., door jamb).
- Count elements of a known size (e.g., bricks).
- Use a clinometer and trigonometry.

What is the volume of your classroom? Its capacity?

How square is your classroom?

- Explore Pythagoras' Theorem using the 3:4:5 ratio to see if the classroom walls are square to each other or the floor (perhaps using rulers and string).
- Discuss the level of accuracy of the measurements.

What generalisations can you make about the relationship between the area and the perimeter of different classrooms? Do classrooms with the biggest perimeter have the biggest area?



Age

Explore the different ages of your school buildings.

- When was the first school building built? Is there a commemorative plaque? Are all the classrooms and other buildings in the school the same age?
- Create a timeline and plot the different ages of the classrooms and other school buildings. If photographs are available, place them on the timeline.
- Interpret the timeline data to identify the time of most and least building activity. Why do you think the school has been added to? Compare what the school population was ten years ago to the present, and predict what it might be in ten years' time. How reliable do you think your answer will be?

Plot a graph of the number of classrooms built in Australia in each year(s).



- In what year(s) were the most/least number of classrooms built?
 - Can you find any link between the number of classrooms built and the population of Australia at the same time?
 - Is there any feature of the graph that might indicate estimations were made?
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Your Classroom

Make a plan of your classroom.

- What scale will you use?
- What features will you include? Why? Use a key or legend to identify different learning spaces.
- How will you present your plan? A drawing? Using computer software?

Make a model or diorama of your classroom.

- What scale will you use?
- What features will you include? Why? How will you identify the different features?
- What will you use to make your model? Could you create a 3D model using computer software?
- Photograph or draw your model from different perspectives.

What would the ideal classroom be like?

- Design a survey or questionnaire with a rating system.
- Brainstorm some categories. They might include room size, physical amenity (lighting, ventilation, climate control, noise), furniture arrangement, decor, technology availability etc.
- Administer the survey to your class (and perhaps other classes).
- Analyse the responses. What is most important factor? Least important?
- Present a design of the ideal classroom in response to the survey and compare with others.

State/Territory	Population	Area (km ²)
Australian Capital Territory	358,894	2,358
Christmas Island	1,493	135
Cocos (Keeling) Islands	628	14
Jervis Bay Territory	611	70
New South Wales	7,238,819	800,642
Norfolk Island	2,114	35
Northern Territory	229,675	1,349,129
Queensland	4,516,361	1,730,648
South Australia	1,644,642	983,482
Tasmania	507,626	68,401
Victoria	5,547,527	227,416
Western Australia	2,296,411	2,529,875