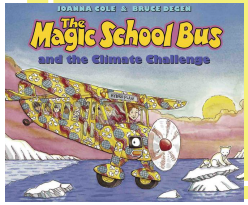
Take This Book

Read:
The Magic School Bus and the Climate Challenge
by Joanna Cole
ISBN 978-0-590-10826-3 HC

Relate to NZ context



Years 3-4

GEOMETRY

Shape and measurement
Recognize that the Magic School Bus is a 3D cuboid shape. Identify and explore other 3D shapes, listing faces, edges and corners.

Have students open out small boxes and 'discover' nets. Provide card and have students measure accurately, create a net for, and make a bus (cuboid) given a choice of dimensions in centimetres. Have them write about its features. Attach (bottle top) wheels and paint.

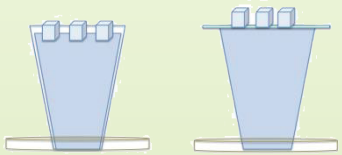
Shape and location
Make available a world globe. Recognize the earth is a (near) sphere. Make a sphere with playdough, locate NZ, Arctic, Antarctic, on their sphere. Mark the equator, Investigate hemispheres. Have students describe features of a sphere, hemisphere. Describe the location of NZ on the earth relative to the equator and the poles.

MEASUREMENT

Standard capacity, temperature and time measures
Conduct an ice melting experiment, measuring temperature, capacity, and duration, reading scales to the nearest whole number.

State 'hypothesis': **'Ice melting at the north *and* south poles will cause the ocean to rise.' Investigate.**
Have student pairs set up and monitor experiment, learning to read standard units litres (and ml), and temperature on a scale. Monitor and record experiment results every 15 minutes, learning to read time at quarter hour intervals on an analogue and digital clock. Students make ice cubes. Discuss freezing process and measure *temperature*.

Student pairs use two drinking glasses of identical *capacity*. Measure to prove they hold the same amount. Fill first glass nearly to the top, float ice cubes. Fill second to the top. Place two drinking straws across the glass (representing the land) Place same number of ice cubes on the straws. Place both glasses on dishes in the sun. Read the *temperature*.



North Pole
No land

South Pole
Antarctica
Land

Predict what will happen, monitor and discuss results with reference to temperature, liquid measures and duration. Discuss results, relate to the hypothesis and to global warming information.

Facts: There is no land at the North Pole.
Ice floats there on water.
When it melts it *will not* cause the ocean to rise.
Antarctica is land. When ice on land melts it *will* cause the ocean to rise.

STATISTICAL INVESTIGATIONS AND LITERACY

Plan an investigation into climate change opinions/experiences of parents or whanau. Eg. Have them record on a survey, their responses to questions such as:
Are....
- Our temperatures today warmer, the same, cooler...
- Damaging storms happening in our area more often, the same, less often...
- Droughts happening in our area more often, the same, less often...

...than when you were a child?
Gather, sort and present the results of an investigation using a tally chart and bar graph, naming axes. Interpret summary data and critique another's data display.

If results show that people surveyed believe that the climate is changing, have students suggest 'reasons ' and gather data on the perceived 'best solution'.

NUMBER AND ALGEBRA

Read ***The Magic School Bus***.
As part of ongoing numeracy learning, find and record number facts from the book. Using appropriate facts, pose ***contextual*** number problems that require students to apply basic facts knowledge, partitioning strategies to addition and subtraction problems and demonstrate these on a number line, repeated addition and simple multiplication strategies, and equal sharing strategies to find fractions of sets and regions.

Eg. In April 150 tonnes of ice are left in a small bay. This is ¾ of the amount that was there 1 month before. How many tonnes were there in March? If melting continued at the same rate, in what month would there be no ice in the bay?

Use contexts to explore simple number patterns. Describe in words the change that is happening (rule). Algebra allows us to quantify change.