

# OUR ONLY EARTH

A Framework For Geographical Problem Solving



# TROUBLED Skies

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**YEARS  
7-10**





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# Links to the Australian Curriculum

## Sustainability as a Cross-Curriculum Priority

Sustainability – both social and environmental – is the overarching theme of all seven books in the Our Only Earth series. For this reason, Our Only Earth has strong links with the Australian Curriculum, in which sustainability is identified as a cross-curriculum priorities that guides learning across all subject areas. The following table lays out the guiding principles of sustainability in the Australian Curriculum, all of which are integrated into the Our Only Earth framework.

CODE	ORGANISING IDEAS
Systems	
OI.1	The biosphere is a dynamic system providing conditions that sustain life on Earth.
OI.2	All life forms, including human life, are connected through ecosystems on which they depend for their wellbeing and survival.
OI.3	Sustainable patterns of living rely on the interdependence of healthy social, economic and ecological systems.
World Views	
OI.4	World views that recognise the dependence of living things on healthy ecosystems, and value diversity and social justice are essential for achieving sustainability.
OI.5	World views are formed by experiences at personal, local, national and global levels, and are linked to individual and community actions for sustainability.
Futures	
OI.6	The sustainability of ecological, social and economic systems is achieved through informed individual and community action that values local and global equity and fairness across generations into the future.
OI.7	Actions for a more sustainable future reflect values of care, respect and responsibility, and require us to explore and understand environments.
OI.8	Designing action for sustainability requires an evaluation of past practices, the assessment of scientific and technological developments, and balanced judgments based on projected future economic, social and environmental impacts.
OI.9	Sustainable futures result from actions designed to preserve and/or restore the quality and uniqueness of environments.

ACARA 2014, "Sustainability," Australian Curriculum v7.0, <http://www.australiancurriculum.edu.au/CrossCurriculumPriorities/Sustainability>

## Sustainability in the Australian Curriculum: Geography

In addition to being a cross-curriculum priority, sustainability is also specifically emphasised in the Australian Curriculum: Geography as one of seven key concepts for developing geographical understanding. The table on page 10 displays the content descriptions for Years 7–10 that develop this progression. Teachers should view this table to see the elements of the Australian Curriculum: Geography that can be taught using the Our Only Earth series.

**Sustainability in the Australian Curriculum: Geography for Years 7–10**

YEAR 7	YEAR 8	YEAR 9	YEAR 10
<p>The nature of water scarcity and ways of overcoming it, including studies drawn from Australia and West Asia and/or North Africa (ACHGK040)</p> <p>The influence of environmental quality on the liveability of places (ACHGK045)</p> <p>The strategies used to enhance the liveability of places, especially for young people, including examples from Australia and Europe (ACHGK047)</p>	<p>The human causes and effects of landscape degradation (ACHGK051)</p> <p>The ways of protecting significant landscapes (ACHGK052)</p> <p>The causes and consequences of urbanisation, drawing on a study from Indonesia, or another country of the Asia region (ACHGK054)</p> <p>The management and planning of Australia's urban future (ACHGK059)</p>	<p>The challenges to food production, including land and water degradation, shortage of fresh water, competing land uses, and climate change, for Australia and other areas of the world (ACHGK063)</p> <p>The capacity of the world's environments to sustainably feed the projected future population to achieve food security for Australia and the world (ACHGK064)</p> <p>The effects of the production and consumption of goods on places and environments throughout the world and including a country from North-East Asia (ACHGK068)</p> <p>The effects of people's travel, recreational, cultural or leisure choices on places, and the implications for the future of these places (ACHGK069)</p>	<p>The human-induced environmental changes that challenge sustainability (ACHGK070)</p> <p>The environmental worldviews of people and their implications for environmental management (ACHGK071)</p> <p>The application of human-environment systems thinking to understanding the causes and likely consequences of the environmental change being investigated (ACHGK073)</p> <p>The application of geographical concepts and methods to the management of the environmental change being investigated (ACHGK074)</p> <p>The application of environmental economic and social criteria in evaluating management responses to the change (ACHGK075)</p> <p>The issues affecting the development of places and their impact on human wellbeing, drawing on a study from a developing country or region in Africa, South America or the Pacific Islands (ACHGK078)</p>

Adapted from ACARA 2014, Australian Curriculum: Geography v7.0, <http://www.australiancurriculum.edu.au/humanities-and-social-sciences/geography/curriculum/F-10>



# 1

## The Overview

### Suggested Activities for the Global Issue Overview

**(approximate time: 1 hour)**

The Overview contains interesting information on your global challenge and will ready students for more in-depth information. The intent of the Overview is to provide your class with a quick survey of the main issues while piquing their curiosity and their desire to learn more.

One way to introduce students to the Overview is to first have them quickly brainstorm what they already know about the topic. They can do this individually or as a group. You may want to list or chart their information on the board. Another option would be to list the information on an overhead sheet or on a sheet of project paper so that students can refer back to their original suggestions and then add new information when needed.

Copies of the Overview are distributed after the discussion. Suggest your class read silently through the material once to pick up general information. For the second reading, have students note at least three facts that are particularly interesting to them. Ask the students to prepare to teach these three facts to a small group of students or to the whole class. Suggest they make visuals, a riddle or a short poem to help teach the others. Give the students about fifteen minutes to prepare.

After the students have shared their three facts, ask the class for additional questions they might have about the global issue. You may want to suggest they consider questions asking who, what, where, when, why and how. As the students begin to share their questions, you may want to list them on the board or on a sheet of paper for future reference. Later, as the students progress through their studies, they may want to note answers they have found to their questions.

# 2 Letter Writing



## Writing to Organisations for Information

**(approximate time: 1 hour)**

In order to gather current information on the global challenge, you will want to initiate a letter-writing activity to various organisations at the beginning of the unit. It often takes four to six weeks to receive information. However, the wait is well worth it, as the materials will provide relevant and up-to-date information. For a quicker response, depending upon your locality, you can also call organisations and ask them to send information.

To introduce this letter-writing activity, ask the class to consider questions they have about the issue at hand. Explain that writing letters to public and private organisations is an effective way of gathering information on a topic where data is continually changing.

Begin by providing students with copies of "Organisations to Write to for Information". Brainstorm with them about what elements to include in a letter that requests information. Assign groups, pairs or individual students to contact an organisation. You may want to suggest that they create an outline before writing. It's important for students to be specific in their requests for materials. Depending upon the age and ability level of your students, you may wish to format a sample letter.



# 3 Classroom Activities

## Understanding the Problems of Air Pollution

In order to help students better understand the problems of air pollution, you may want to do one or more of the following activities with your class.

### 1. How Dirty is the Air Around You?

**Materials Needed:**

- approximately 12 to 15 glass jars, one for every two students in the class
- several jars of petroleum jelly (Vaseline)
- slips of paper cut to fit into the glass jars

Divide the students into pairs. Give each pair one jar and one slip of paper. Student pairs will need to share the jars of vaseline. Have the students smear their glass jars with petroleum jelly. The students should then locate a place around the outside of the school to place their jars. They should write the location of their jar on a slip of paper and insert it into the jar. After seven days, the students should bring their jars back into class. Each pair should examine their jars to see if any particles were collected and how many particles are visible. The students can then share their results with the rest of the class. Try to determine which location around the school has the dirtiest air.

### 2. Where Are the Sources of Air Pollution in Your Community?

Have the students draw a map of their local community or city. Locate on the map the major sources of air pollution in their area. Suggest that students note freeways and main highways, electrical power plants, dumping grounds, chemical plants and industrial centres. Have the students brainstorm other possible sources of air pollution to locate on their maps as well.



# 4 Fact Cards

## Cooperative Learning With Fact Cards

On the following pages you will find fact cards about your global issue. What follows is a description of a cooperative learning activity that will, in one or two hours, introduce your students to a number of facts. Not only will the students cooperatively learn from each other, they will be exposed to a vast amount of material from this activity.

You will note that there are four categories of fact cards, each category with a total of eight cards, 32 in all. Divide your class into four groups of approximately eight students in each, or if you'd rather, divide them into approximately eight groups of four students each. Each group is then assigned one of the four categories to study.

After the categories are assigned and the student groups are physically arranged, each group then receives cards from one of the four categories. Each student takes one card which contains three facts. Students are then responsible for completing the following activities:

- Read the three facts on the cards. (approx. 5 minutes)
- Teach group members their three facts. (approx. 5–10 minutes)
- Learn the facts from the other group members. (approx. 5–10 minutes)
- Decide, as a group, on 8–14 facts to teach the rest of the class by preparing a class presentation. (approx. 20–30 minutes)
- Teach the group's facts to the other groups in the classroom so that all may learn from each other. (approx. 30–60 minutes)



# 5 Scavenger Hunt



## Discovery: A Scavenger Hunt

A Scavenger Hunt is an exciting way to learn about any topic. Designed as a data collecting activity, it is a motivating way to encourage students to collect facts and information from a variety of sources. Many of the items collected or created will encourage students to think more deeply about their topics.

The intent of the Scavenger Hunt is to prepare students for the section on Researching Your Topic. The Scavenger Hunt also provides an abundance of information in a variety of ways – pictorials, maps, graphs, charts, models, poems, t-shirts, brochures, reports and posters.

The materials gathered during this activity are valuable for the research section. They provide a good resource for quick information when students are problem-solving. Some of the items such as songs, charts and murals may also be displayed or used in the final presentations on the last day of the Summit. If your Summit is going to be a school-wide or community event, these displays are an excellent way to inform others about the issues your class has studied.

### Structuring a Scavenger Hunt

Introduce this activity by asking students if they have ever participated in a scavenger hunt. Explain that they will work together in teams to collect data or create as many of the projects on the Scavenger Hunt list as possible, within a given amount of time. If you would like this to be a competitive activity, the group that collects the most points may be declared the winner.

Divide your class into groups of approximately four students and pass out the Scavenger Hunt list. Tell the class they will have six days to gather information and create their products. On the seventh day, the points are tallied and the information is shared. It is recommended that some class time be initially provided so that groups may meet and work collectively on their projects.

After handing out the Scavenger Hunt information, give students 15 to 20 minutes to go over the list and plan a strategy. Stress the importance of developing a

# 6 Map Activity



## Where in the World? A Brief Geography Lesson

This activity will provide students with the opportunity to develop map-reading skills. Each student will need a small map of the world that includes longitude and latitude lines. You should have a large world map to demonstrate your explanations.

First, explain the concepts of longitude and latitude to the students. You might want to share the fact that these imaginary lines enable us to locate any point on earth. Latitude lines run around the world parallel to the equator. The equator has a latitude of 0 degrees. The North Pole has a latitude of 90 degrees north, sometimes shown as +90 degrees. The South Pole has a latitude of 90 degrees south, which is sometimes written -90 degrees. Ask students to locate the equator and the North and South Poles.

Longitude lines run north and south. Most nations count longitude east and west beginning with an imaginary line at Greenwich, England. Greenwich lies at 0 degrees longitude. A place halfway around the world from Greenwich is at 180 degrees longitude. The earth is divided into two hemispheres, each with 180 degrees. Longitude locations west of Greenwich are referred to as west longitude and those east of Greenwich have east longitude locations. Ask students to locate Greenwich and areas east and west of Greenwich as well.

Once students understand the concepts of longitude and latitude, ask them to look at their maps and find the longitude and latitude of major cities such as Sydney, Melbourne, Perth or Darwin. Have them look for a country and give the coordinates which the nation encompasses. When students are able to identify the correct meridians, they are ready to move on to the next activity.

