

A LEADING-EDGE CONTRIBUTION TO CLIMATE CHANGE LEARNING

Review by David Selby

Rowan Oberman (2016) *Creating Futures: 10 Lessons Inspiring Inquiry, Creativity & Cooperation in Response to Climate Change for Senior Primary Classrooms*, Dublin: Education for a Just World (Trócaire/Centre for Human Rights and Citizenship Education, Dublin City University Institute of Education).

Creating Futures offers a comprehensive climate change education programme for upper primary school pupils. It comprises ten lessons that, in reality are mini-programmes, each being likely to spill over several lessons of normal duration (estimated timings for lessons and activities are not given). Commendably, it avoids the tendency in many climate change education packs to give preponderant focus to the science of climate change (the ‘greenhouse effect’) and to technological fixes (‘green’ technology and renewable energy). Rather, it is a balanced cross-curricular resource that successfully draws upon and integrates curriculum areas as it explores not only the science of climate change but also underlying societal and economic drivers, related ethical and values aspects, climate adaptation and mitigation efforts, and present as well as likely future effects and impacts.

The resource employs an impressively diverse and imaginative range of pedagogical approaches that includes multiple small and large group discussion formats, team enquiries, role play, simulation games, responding to film, futures thinking and envisioning, and creative arts, crafts and writing. Students are unlikely to experience any sense of activity *déjà vu* as they move through the lessons. Activities are supported by visually attractive, high quality learning stimulus materials in the form of graphics, colour photographs and discussion cards.

The resource opens by providing answers for teachers to ten questions they themselves are likely to pose about climate change and climate change education. Texts in response to the ten questions explain climate change, its consequences and human responses in simple, accessible and summarised ways. The opportunity is also used to debunk prevailing myths (such as the myth that links holes in the ozone layer to the heating of the planet). This ‘What Teachers Need to Know’ introductory section will give teachers a sound knowledge base as well as reassurance in teaching what remains a contentious issue.

Each lesson begins with an outline of lesson purpose and content, lays down a ‘key question’ as well as ‘key points of learning’, identifies links to curricular strands and units and enumerates teacher and student resources for the lesson. The first lesson section, ‘Greenhouses and Glaciers’, focuses on the science of climate change. Lesson 1 involves students in understanding the difference between ‘weather’ and ‘climate’ and how knowledge of climate trends is derived from looking for changes in annual weather patterns over a thirty-year period. There are weather measurement tasks, an empirical investigation of the veracity of weather proverbs in the light of observed Irish weather phenomena and a meteorological card sorting exercise in which children determine whether weather or climate are being described.

Lesson 2 has students explore the story of the Earth through geological and human time before engaging in a sorting exercise designed to evoke initial thoughts on both the causes and effects of climate change. Lesson 3 looks further at how we know that the climate is changing. For this the class is divided into inquiry groups looking at tree ring evidence, geographical (especially glacier shrinkage) evidence, mathematical evidence (correlating carbon dioxide emission and global average temperature rise graphs, 1900-2000) or historical photographic evidence.

The second section, ‘Factories, Fairness and Floods’, takes students further into the causes, consequences and ethics of climate change. Lesson 4

asks ‘who causes climate change?’ and this brings us to one of the outstanding and distinctive features of the resource: its head-on treatment of climate injustice whereby those least responsible for greenhouse gas emissions are suffering most. The lesson begins with a brainstorming session in groups on who is responsible for climate change. It goes on to involve students in a bingo sheet activity in which students find out about actions peers have taken that either fuel or are ameliorative of climate change. There follows an activity sequence whereby the class first divides into groups representing, proportionally, the population of different continents, then, second, redistributes the chairs (symbolising units of economic wealth) between groups to represent the respective wealth levels of different continents. This leaves a number of students in the Asian, African and South American groups standing and chair-less! Groups are then given their continent’s (paper) greenhouse gas cloud. This brings out in sharp relief the per capita responsibility of the wealthy, metaphorical ‘north’ of the planet for greenhouse gas emissions. Questions are asked about the fairness of the situation, likely climate futures if people around the world were to live like those in Europe and North America, and about students’ emotional responses to what the activity has revealed.

Having taken a look at the historical links between industrialisation and climate change, Lesson 5 looks at personal actions and choices contributing to climate change as well as types and gradations of climate change vulnerability using case study role-play cards of children from different parts of the world. Solutions to climate vulnerability are then approached by groups through a funding allocation exercise in which groups determine how, and in what proportions, to allot money to twelve climate change adaptation and mitigation projects.

Lesson 6 turns to the issue of biodiversity and climate change. This series of seven activities is, overall, to be greatly welcomed in that it breaks free from the ‘nature as resource’ mentality that has beset so much education for sustainable development, the students at various points being asked to consider both instrumental and intrinsic valuing of nature. Working with

environmental case study sheets, groups are asked to build and present a case for protecting, *inter alia*, coral reefs, Irish bogs, polar bears, rice agriculture and bees. Less agreeably, they go on to discuss and vote upon ‘which part of nature to save first’, a valuing exercise that seems to rub against the resource’s prevailing holistic grain. The class then predicts what is likely to happen to the different ‘parts of nature’ they are considering in the light of four given climate change scenarios. A ‘green heart’ exercise then leads the students into considering the reasons why they hold a particular aspect of nature dear (they draw their chosen ‘part of nature’ within a green heart graphic using the surrounding paper space to explain their valuing). Then, students move on to stand beside one of eight ‘nature statements’ posted on the classroom wall, each ‘statement’ laying out a particular reason for valuing nature. The statements include instrumental reasons (‘they are food for humans’), aesthetic reasons (‘they are beautiful’), intrinsic reasons (‘they are living things’) and reasons arising out of an integrative sense of connectivity (‘they are our home’).

The third section of lessons, ‘Discussing, Deciding and Designing’, moves on to explore responses to climate change. Lesson 7 turns to future thinking beginning with a brainstorming of climate change futures followed by an autobiographical exercise to show how past, present and future are interlinked and how decisions and behaviours today influence the future. Attention then turns to transport and climate change with an exercise in which groups score modes of transport against factors such as price, speed, comfort and environmental impact (health might have been included here) followed by class discussion. From what has been discussed they conclude by designing and presenting what they hold to be the most appropriate modes of transport for the future. Following a brainstorm on possible climate change actions that could be taken, Lesson 8 involves a role-play exploring the dilemma of whether or not to extract oil from a newfound source under the school, the group role cards being designed to lay multiple economic, environmental and quality of life perspectives on the table.

Lesson 9 looks at climate change leadership. First, students consider what leadership involves by deciding what are the most important indicators of effective leadership as laid out on ten ‘leadership action cards’. Importantly, they are asked which of the actions they have themselves taken, thus picking up the notion of horizontal leadership. The class goes on to explore Irish suffragettes as leaders before different groups examine the careers and impacts of one of six world leaders who have promoted environmental and human rights concerns. Groups introduce their appointed leader to the class through either role-play or poster presentation. A line exercise seeks to firm up thinking on leadership in which students position themselves anywhere on a line between ‘Agree’ and ‘Disagree’ as they respond to statements about the nature of leadership. Happily the horizontal leadership strand is continued with the statement ‘I have the power to be a leader on climate change everyday’.

Lesson 10 is concerned with assessing climate change learning with children each writing a letter urging action on climate change guided by a ‘Pen for Planet’ sheet. The letter writing is followed by class analysis of the persuasiveness of individual letters. The lesson plan, almost as an afterthought, says that ‘As a class they could write a letter to a local or national newspaper discussing their activities and thoughts on climate change’. It is a pity that letter writing to real people, local through national, is not made more central to the exercise. Other means of being a climate change activist – for instance, through petitioning, street theatre, mounting advocacy exhibitions and displays - could also have been given space for consideration.

A leitmotif of the resource is the use from the start of a ‘Climate Change Learning Wall’, a pin board in which the children use Question Drops and Knowledge Leaves to record, respectively, questions they have about climate change and knowledge they have gained about climate change. This is both a terrific learning device and a terrific tool for formative student assessment, the Wall being returned to for review and for writing new Drops and Leaves during each lesson.

This is an admirable learning resource. It is beautifully presented, rich in ideas and pedagogical approaches, and exceedingly well structured. It picks up themes that are overlooked in many climate change learning programmes – such as climate justice, the intrinsic valuing of nature, affective responses to climate change – and rebalances the curricular weighting away from a primarily scientific orientation. It opens the door to student climate change action and leadership but leaves the door only slightly ajar.

In any further development of the resource, other themes might be considered. There could be more, at a suitably age appropriate level, on the culpability of the global economic growth model for fomenting climate change. There could be much more on how rampant consumerism is heating up the planet. The learning focus and learning approaches never take the class out of school to look for signs of climate change in the local environment (for example, recording the summer return dates of birds, the first flowering of plants). A school could, over the years, keep records for each succeeding class to compare and contrast with their own findings. The pack does not offer activities tapping the perspectives of those in the community most affected by climate change. Links between climate change and the increasing incidence and severity of natural disasters are not picked up. Also, there is at present no exploration of climate change denial as a significant inhibitor of behavioural change. Fifth and sixth year pupils could mount a survey of the local community to see whether people understand the distinction between weather and climate, whether they accept or dismiss climate change and, if they are accepting, whether that motivates them in any way and to what degree to change their behaviours and lifestyles.

I will end with a word on terminology that is not directed at *Creating Futures* in particular, but is triggered by consideration of the stark urgency attached to climate change education and awareness-raising. The words we use to convey what is happening to the global climate are instructive. Even those of us demanding that we change our ways to avoid future climate catastrophe use a bland lexicon smacking of avoidance. We

have become habituated to writing and speaking about ‘climate change’ rather than drawing on more starkly accurate descriptors such as ‘climate breakdown’, ‘climate devastation’ or ‘climate derangement’. We all too easily embrace the softening that use of the word ‘change’ brings. We continue to refer to ‘global warming’ rather than ‘global heating’ so colluding in the palliative use of euphemism when we know full well that our future is one that is likely going to be literally and metaphorically too hot to handle. ‘Warming’ leaves us feeling cosy - for now.

Creating Futures is an outstanding and hugely creative learning resource, brimming with excellent content and brilliantly conceived learning activities. I would welcome a second resource, perhaps for succeeding grade levels, in a similar vein that picks up some of the issues raised and suggestions made in the last two paragraphs. It would be a huge service to the field.

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