

Creating Futures

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Lesson 4

Who causes climate change?



Outline

Children explore who contributes to climate change by:

- looking at actions related to climate change using a climate change bingo sheet;
- creating clouds that list activities causing greenhouse gas emissions;
- dividing themselves and their chairs to represent the world's population and wealth and looking at which continents are most responsible for climate change.



Key Question: Who causes climate change?



Key points of learning relating to climate change

- Activities like **generating electricity and running factories, transport and farms** cause carbon dioxide, methane and other gases to be emitted.
- The people in **Europe and North America are responsible** for more of these emissions than the people in Africa, Asia and South America.
- Within continents **some countries emit more** greenhouse gases than others.
- The world's **poorest people are the least responsible** for climate change.
- The majority of the world's people live in **rapidly developing countries**; this may have an impact on future greenhouse gas emissions.



Curriculum integration

	Strand	Strand Unit
SPHE	Developing citizenship	Myself and the wider world
Maths	Number	Decimals and percentages
Science	Environmental awareness and care	Science and the environment Environmental awareness
Geography	Natural environments	Weather, climate and atmosphere
	Environmental awareness and care	Environmental awareness Caring for the environment



Resources

- Behind Climate Change Brainstorm, *one per group of three or four*.
- Climate Change Bingo Sheet, *one per pupil*.
- Greenhouse Gas Cloud, *one per pupil*.
- Continent Labels, *one set per class*.
- For a class of 30:
 - 2 x America cloud (A3) (stick together the PDFs provided);
 - 5 x African cloud as provided.
- For a class of more or less than 30, Your Class Divided: Tables for Activity 3, *teacher copy*.



LESSON PLAN

1. Children brainstorm who is responsible for climate change

Working in small groups, children complete the **Behind Climate Change Brainstorm** sheet. The groups share their ideas as a class.

2. Children explore personal actions that relate to climate change

Using the **Climate Change Bingo** sheets, children find others in their class who have done the actions described in each bingo square and write that child's name in the relevant square.

Once they have completed the squares, each with a different name, they shout 'bingo'.

The class discusses how each of the actions is connected to climate change.

Using the **Greenhouse Gas Cloud**, children write or draw things on the cloud that give off greenhouse gases and contribute to climate change.



Before starting Activities 3 and 4

These activities require a cleared space large enough to accommodate an unbroken circle of all students in the class. A school hall would be perfect for this activity. If in the classroom, all desks should be cleared to the sides. Whether in the school hall or classroom, each student must have access to a chair for part two of this activity so make sure to have them readily available.

3. Children explore global inequality

Children form a standing circle. The **Continent Labels** are placed at different locations around the room (either on the floor or on the wall).

The class are told that they represent the 7 billion people of the world.

You could use gender as an example to explain the concept. Children discuss what proportion of the world is male compared to female and divide themselves accordingly. The 7 billion people in the world can be roughly divided into 3.5 billion females and 3.5 billion males. Half the class should stand on one side of the room and half the class on the other (regardless of actual gender). Following this example, the children should reform their large circle.

Children are asked to consider the population of each of the continents labelled around the room and divide themselves up accordingly based on what they think to be true.

Using the table below, the class is informed of the true populations of each of the continents and children reposition themselves as needed. Each child now represents a member of the population in a particular continent. Each child will continue to represent this continent for the remainder of the lesson. The class discusses their responses to the true population breakdown.

Each child now retrieves a chair and sits around their assigned continent label as a small group. Children are told that all of their chairs combined represent the wealth of the world. In their groups, children discuss how they think the chairs (wealth) are divided amongst all the people of the world in each continent. Each group feeds back their thoughts to the rest of the class. The class decide together if some chairs should be moved to a different continent. The chairs are moved as the class thinks is appropriate. Remember, the child does not move with the chair but stays with their continent.



LESSON PLAN (continued)

Using the table below, the class is informed of the true distribution of wealth. The teacher moves the chairs to different continents as needed. The children are told to sit on a chair without leaving their continent group.

Some children in some continents will be left without a seat, while in other continents there will be a surplus of chairs which they can rest their feet on.

The class discusses how this feels and what is demonstrated, including ideas connected to conflict, migration, justice, inequality and waste.

Table showing relative population and wealth (based on GDP) and average CO₂ emissions per person by continent.

For a class of 30 children

Continent	Number of children	Number of chairs	Size of CO ₂ cloud per pupil
All continents	Population of the world represented by 30 children	Wealth of the world presented by 30 chairs	N/A
Asia	18	8	A5
Africa	5	1	1/9 of a page
South America	2	2	A5
North America	2	9	A3
Europe	3	10	A4

For classes of different sizes and for percentages see **Your Class Divided: Tables for Activity 3 Sheet.**



LESSON PLAN (continued)

4. Children explore global inequality as it relates to climate change

Children remain in their continents with their assigned number of chairs for this activity.

Children discuss in their groups if each person in the world, within and between continents, emits the same amount of carbon. Children discuss which continents in the world emit more carbon and which emit less.

The **Greenhouse Gas Clouds** represent the average carbon emitted by each person in the world in a year. The teacher gives each member of Europe an **A4 size cloud** and explains that it represents the average carbon emission by each person in Europe.

Children in North America are each given an **A3 cloud**. On average each person in North America emits nearly twice that of each person in Europe.

Children in both Asia and South America are handed an **A4 cloud**. The teacher asks each of the members of these continents to fold their clouds in half. On average, people in Asia and South America emit half the amount of carbon as people in Europe.

Each child in Africa is given an **African cloud**. On average each person in Africa emits under a ninth of that compared to each person in Europe.

The class discusses these emissions with reference to the population of their continent and the wealth of their continent.

Remember: the clouds are just approximate averages for emissions per person per continent!
Children will be exploring solutions in the next session.

Class Discussion Questions

Who in the world is most responsible for climate change?

Does everyone in the same continent emit the same amount of greenhouse gases?

Is this situation fair?

What will happen if people around the world live more like those in Europe and America?

How do they feel reflecting on this activity?

5. Children review their climate change learning wall

Can any of these questions be answered now?

Can new knowledge about climate change be added to the wall?

Can any new questions be added to the wall?

Behind Climate Change: Brainstorm Sheet

Who is responsible for climate change? Why?

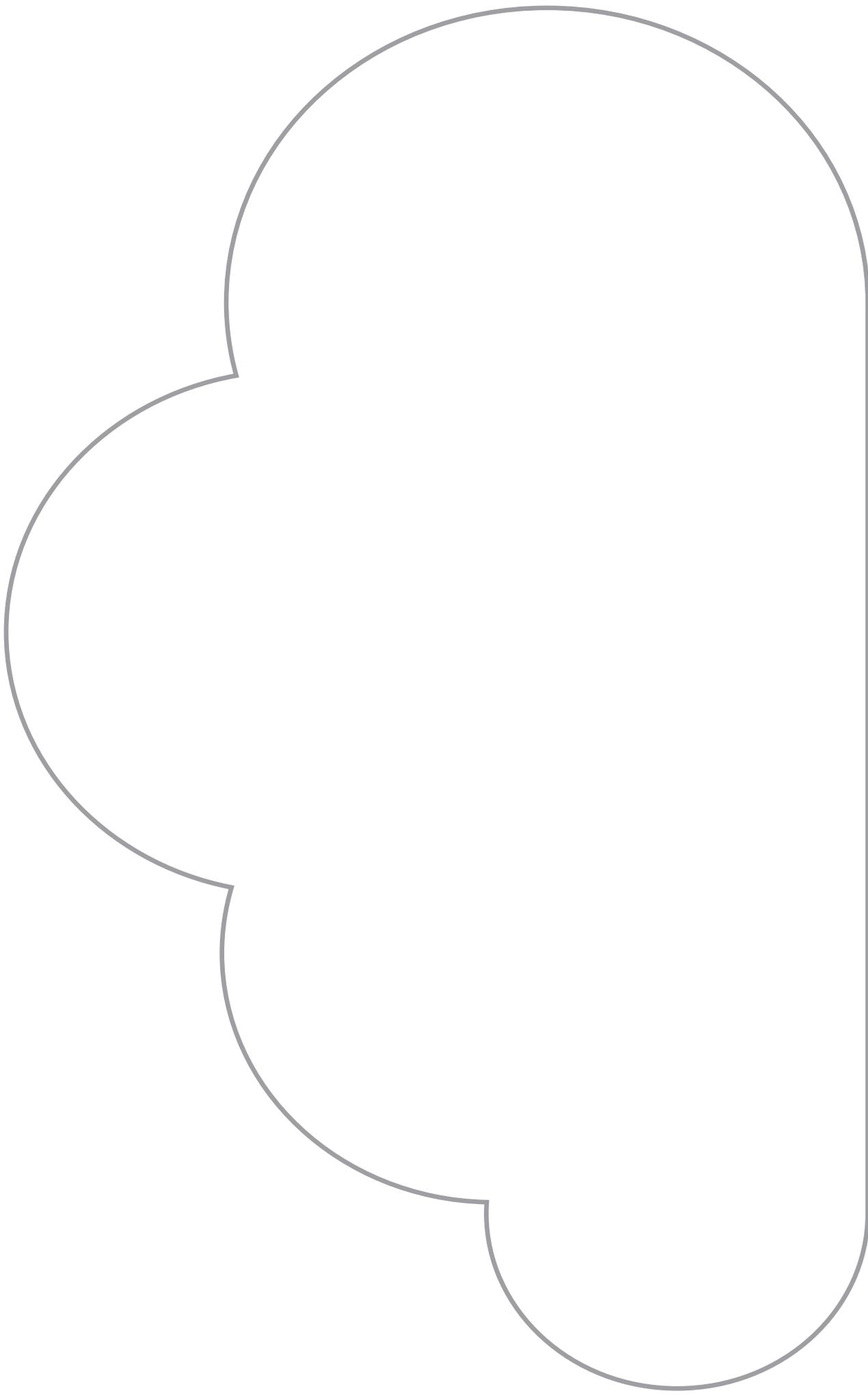


Climate Change Bingo

Find someone in your class who...

 <hr/> <p>Drove to school this morning</p>	 <hr/> <p>Had meat for dinner last night</p>	 <hr/> <p>Walks or cycles to school</p>
 <hr/> <p>Went on holiday in a plane</p>	 <hr/> <p>Has the heating on in their house</p>	 <hr/> <p>Has some second-hand clothes</p>
 <hr/> <p>Ate tropical fruit, like bananas or pineapple, last night</p>	 <hr/> <p>Cares about the environment</p>	 <hr/> <p>Has told someone else to do something for the environment</p>
 <hr/> <p>Bought a new item of clothing in the last week</p>	 <hr/> <p>Had a hot shower or bath last night</p>	 <hr/> <p>Has a dishwasher in their house</p>
 <hr/> <p>Recycles</p>	 <hr/> <p>Has ever seen a power station</p>	 <hr/> <p>Has electric lights in their home</p>

Greenhouse Gas Cloud



Continent Labels

Asia

Continent Labels

Africa

Continent Labels

South
America

Continent Labels

North
America

Continent Labels

Europe

Your Class Divided: Tables for Activity 3

For a group of 100 (percentages)

Continent	Number of children	Number of chairs	Size of CO2 cloud per pupil with (number of clouds needed)
All continents	100	100	N/A
Asia	60	26	A5 (x 60)
Africa	16	4	1/9 of a page (x 16)
South America	6	6	A5 (x 6)
North America	8	29	A3 (x 8)
Europe	10	35	A4 (x 10)

For a group of 25 children and 25 chairs

Continent	Number of children	Number of chairs	Size of CO2 cloud per pupil with (number of clouds needed)
All continents	25	25	N/A
Asia	15	7	A5 (x 15)
Africa	4	1	1/9 of a page (x 4)
South America	1	1	A5 (x 1)
North America	2	7	A3 (x 2)
Europe	3	9	A4 (x 3)

For a group of 20 children and 20 chairs

Continent	Number of children	Number of chairs	Size of CO2 cloud per pupil with (number of clouds needed)
All continents	20	20	N/A
Asia	12	5	A5 (x 12)
Africa	3	1	1/9 of a page (x 3)
South America	1	1	A5 (x 1)
North America	2	6	A3 (x 2)
Europe	2	7	A4

Your Class Divided: Tables for Activity 3

For a group of 15 children and 15 chairs

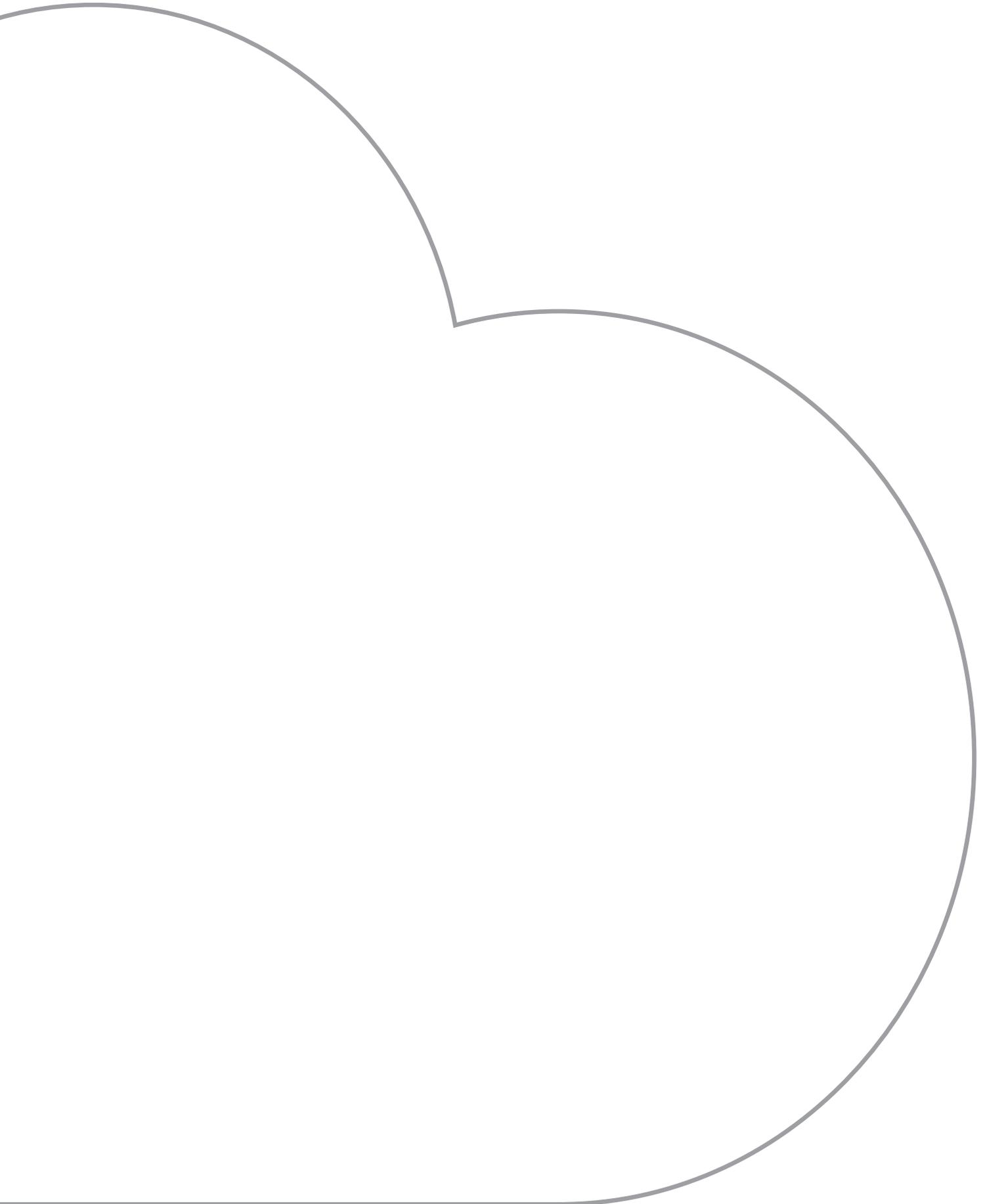
Continent	Number of children	Number of chairs	Size of CO2 cloud per pupil with (number of clouds needed)
All continents	15	15	N/A
Asia	9	4	A5 (x 18)
Africa	2	1	1/9 of a page (x5)
South America	1	1	A5 (x 2)
North America	1	4	A3 (x 2)
Europe	1	5	A4 (x 3)

Statistics taken from UN World Population Prospects 2012 and International Monetary Fund Data Mapper 2013

American A3 Cloud (part A)



American A3 Cloud (part B)



African Cloud



Cut out each cloud

