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SKILL DEVELOPMENT USING GRAPHIC NEWS

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The following set of activities are based on a selection of infographics that can be linked to Geography topics from Stages 4 to 6.

An editable Word Version of the activities can be adapted to suit your students are provided in Appendix 1. Suggested and /or sample answers are provided in Appendix 2.

Some questions require students to show knowledge and /or conceptual understanding before analysing or interpreting the infographics.

A. Ticking timebomb of global trash

1. What do you know?
    i. Define *'waste'*
    ii. Explain how waste is generated.
2. What was the total global waste generated by humans in 2016?
3. State
    i. The percentage of the world's total solid waste that was plastic in 2016.
    ii. The total predicted waste stream by 2050
4. Contribution to global waste
    i. Identify the continent estimated to produce the most waste per person in 2016
    ii. Rank the continents by their per capita contribution to the global waste problem.
    iii. Suggest two reasons for these rankings.
5. Create a pie graph to illustrate the composition of global waste. (Hint: 1% = 3.6 degrees)
6. What was one immediate result of China banning waste imports in 2018?
7. Suggest a reason why Africa could become a dumping ground for future waste.
8. Importing and exporting waste
    i. Explain the importance of the pink area on the map.
    ii. What do the countries banning waste imports have in common?
    iii. What are the implications for countries who export their waste to this region?
9. Undertake a geographical inquiry.
    i. Create an Inquiry Question on waste to investigate.
    ii. Predict the outcome of your investigation (What do you expect the answer to be?)
    iii. Undertake research. Use primary data and secondary sources.
    iv. Draw conclusions from your inquiry.
    v. Communicate your findings in a cartoon or diagram.
10. State one link between the theme of this infographic and the photograph.
11. State one link between the theme of this infographic and the photograph on the front cover of this Geography Bulletin.

12. Discussion: *Is it possible for the world stop producing plastic?*
    Put arguments for the 'yes' and 'no' cases in a table.

B. Earth's wilderness vanishing

1. Work in pairs to discuss the meaning of the term *wilderness.* Think about the qualities of wilderness areas. Contribute to a class discussion to reach an agreed definition (consensus).
2. Why does the world need areas of wilderness? (What are the values of wilderness areas?)
3. Study the world map.
    i. Use a world map to locate Russia, Canada, USA, Australia, Brazil and France on the infographic.
    ii. Describe the global distribution of 'land' wilderness areas.
    iii. Suggest reasons for the distribution of 'land' wilderness.
    iv. Kiribati, New Zealand and the UK only have areas of 'ocean' wilderness. What features do these countries have in common that would explain this situation?
4. Calculate the millions of square km of combined land and sea wilderness in Russia and Canada.
5. What are the *high seas*? Why do you think these areas are not included in the calculations of ocean wilderness for this infographic?
6. The infographic refers to the need for *"urgent international action'* to protect wild places. What might that action look like?
7. Discussion: *People and the planet need wilderness areas, even if we never get to visit them.*
8. Write a personal statement on your attitude to *'wilderness'*

C. Greenhouse gas emissions

1. What do you know about greenhouse gases?
    i. List the greenhouse gasses referred to in this article.
    ii. Tick the ones you are familiar with.
    iii. Research the ones you are not familiar with.
    iv. Why is it important to know the sources of each of the greenhouse gases?
2. Identifying trends
    i. What is a trend and how do we identify a general or overall trend on a graph?
    ii. Describe the general trend in total emissions of greenhouse gases from human sources from 1990 to 2020.
    iii. Calculate the change in total emissions between 19990 and 2018.
    iv. Which greenhouse gas experienced the greatest increase over that time?
3. Reducing emissions
    i. Suggest ONE strategy that could be implemented in each sector to reduce emissions?
    ii. Research ONE place that has implemented a strategy to address emissions in one of these sectors.
    iii. Share research findings with the class and map the locations.
    iv. Annotate the map with a brief summary of each strategy.
    v. Title your map: *Action to reduce emissions at a global scale.*
4. Discussion: *What is the link between CO2 levels and global warming?*

D. Soaring cost of climate related disasters

1. What do you understand by the term *'climate-related disaster'*?
2. List examples of 'climate-related disasters' you are familiar with. Beside each give an example of one place that has experienced this type of disaster.
3. State the minimum number of climate-related disasters that occurred globally each year since 1998.
4. Name the other category of disaster shown in this infographic.
5. Suggest a reason for differences in the number of each category of disaster (line graph)
6. Explain your understanding of the term *'economic losses'.*
7. Which three disasters caused the greatest economic losses between 1998 and 2017?
8. Global patterns
    i. Name the three countries that experienced the greatest economic losses between 1998 and 2017.
    ii. State the type of disaster that contributed to the economic losses of each of these countries.

iii. Suggest reasons for differences in the disasters causing economic losses in the three countries?

9. Investigate the economic losses associated with the Australian Summer Bushfires of 2019–2020.

10. Class discussion:

Is there a relationship between climate change and climate-related disasters?

E. Artic on the front line of climate change.

1. What do you know about the Arctic?
   i. Where is it?
   ii. What is it like?
   iii. How is the Arctic different to Antarctica?
   iv. How is it changing
2. What does the area in black on the globe represent?
3. Name four countries that have territory in the Arctic.
4. Describe the overall trend in sea ice extent between 1980 and 2019.
5. Calculate the difference in sea ice extent between 1980 and 2019.
6. Why was 2019 a year of concern for the Arctic?
7. Why is the Greenland ice sheet significant (important)?
8. Define *permafrost* in your own words.
9. How does climate change affect permafrost?
10. What happen when permafrost thaws?
11. Debate: Divide into teams for and against to debate this statement.
    A thawing Arctic can be a good thing for Arctic countries.

F. Create a Graphic News story

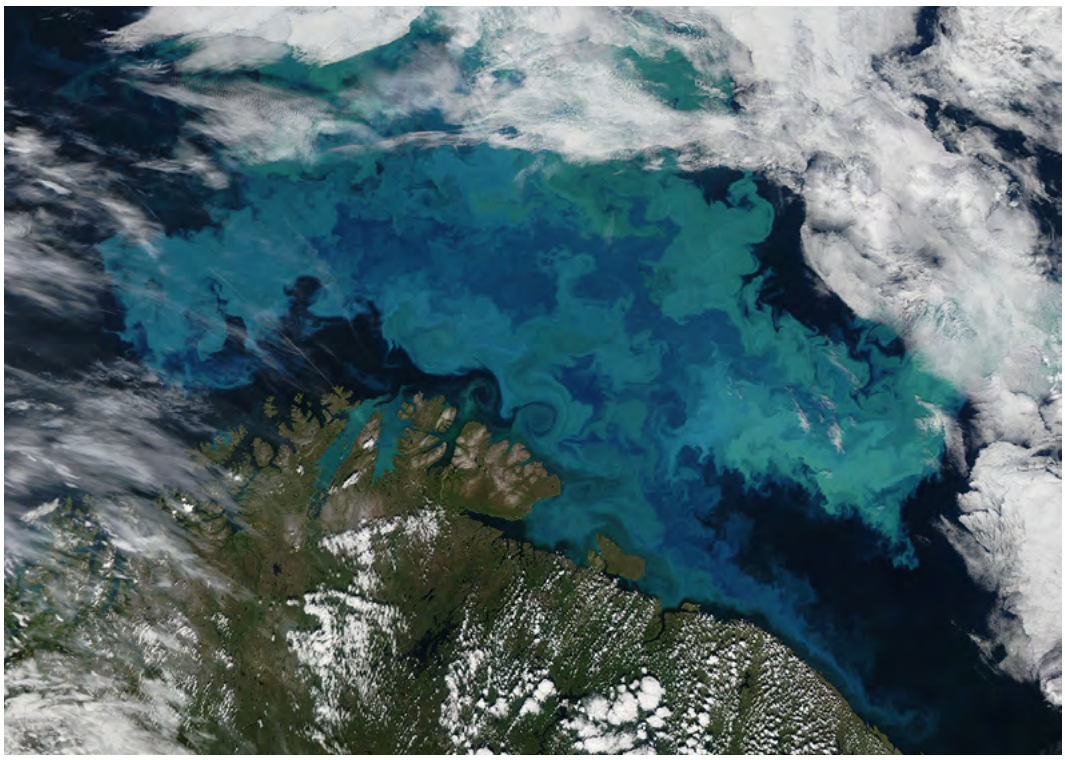
Many GRAPHIC NEWS infographics are about negative change.

1. Choose a positive news story to investigate. (See 100 Good News Stories Edition 4, 2019)
2. Create your own infographic.

   Your infographic should contain:
   - A map
   - A graph or table
   - A photograph
   - Some text.

G. Analysing an image

1. Draw a photo sketch of the photo.
2. Search for a map of the Barents Sea and add labels to your sketch
3. Describe the location of the sea.
4. Investigate the causes of phytoplankton blooms to determine of the environmental change here is a result of natural or human processes.

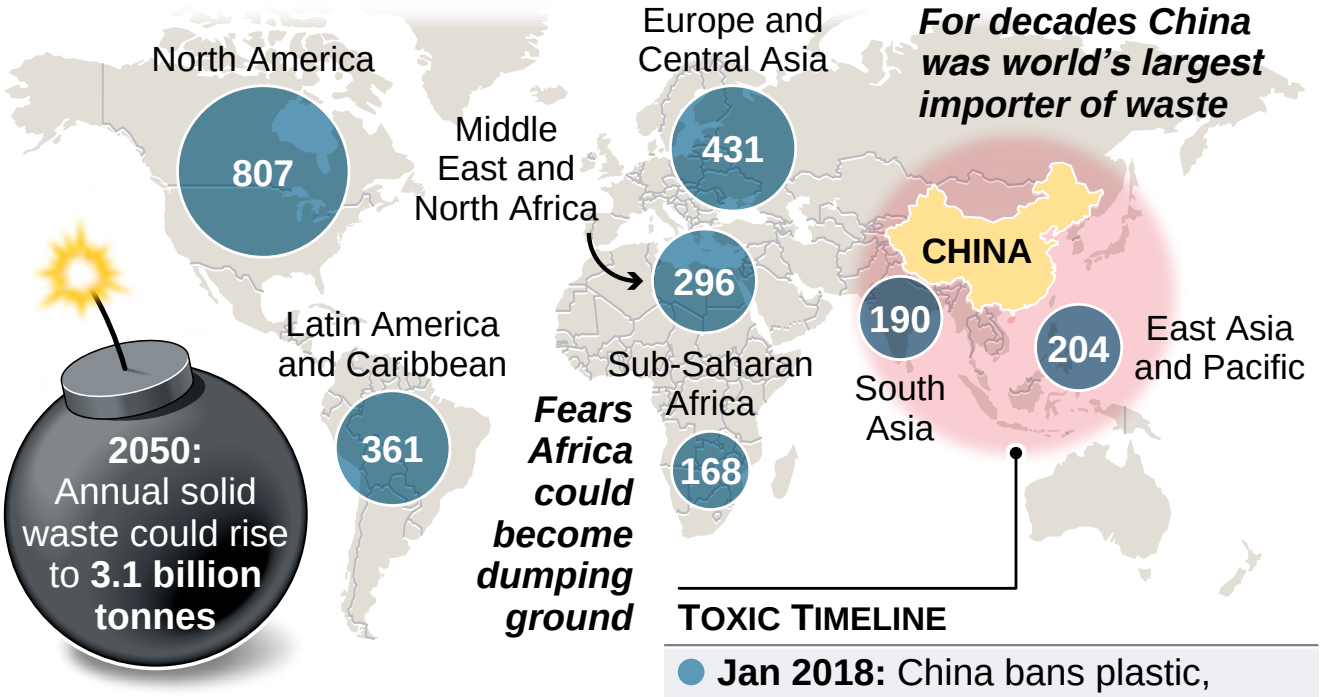


NASA image of a phytoplankton bloom in the Barents Sea. Source: https://commons.wikimedia.org/wiki/File:Barents_Sea_(6046694847).jpg

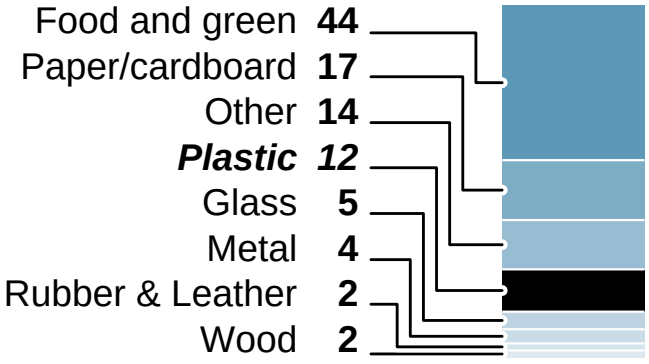
Ticking time bomb of global trash

Humans generated 1.8 billion tonnes of solid waste in 2016, including 220 million tonnes of plastic, according to the World Bank

SOLID WASTE CREATION, PER PERSON, PER YEAR *(2016 estimate, kg)*



GLOBAL WASTE COMPOSITION *(%)*



Each year, 4m-12m tonnes of plastic enters our oceans

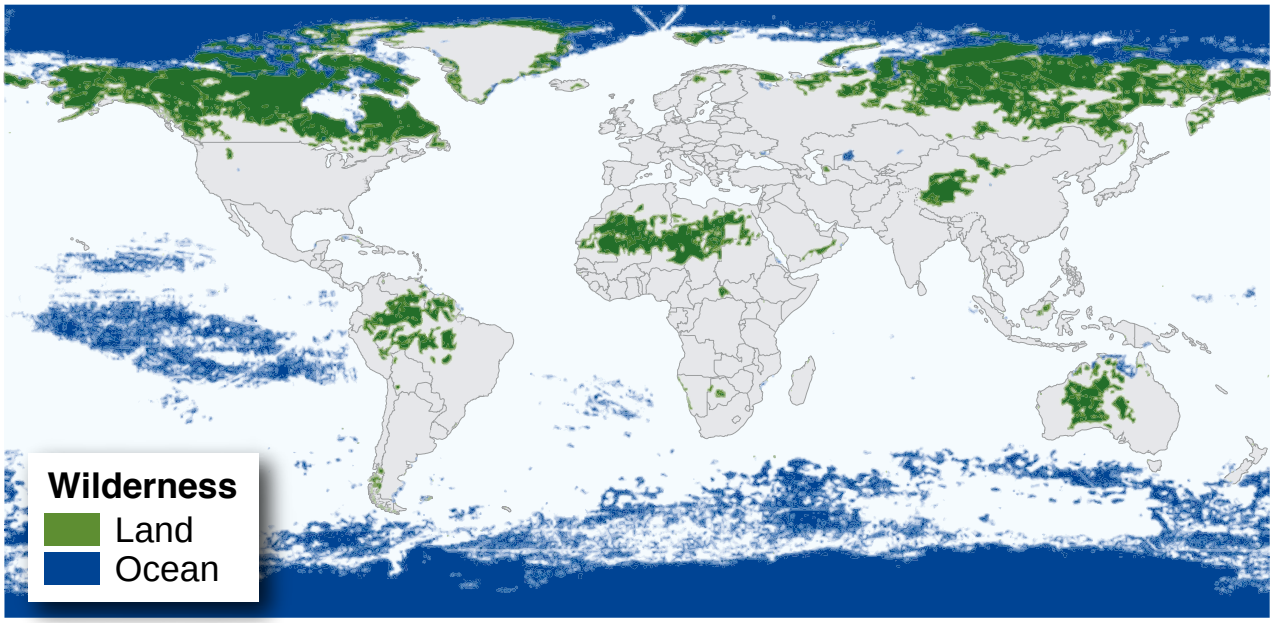
TOXIC TIMELINE

- **Jan 2018:** China bans plastic, paper and electronic waste imports. Until then, it had been taking in up to **56%** of world's unwanted plastic. ***Trash imports in Southeast Asia rise significantly***
- **Jul:** Vietnam cracks down on illegal imports of waste paper, plastic and metal
- **Oct:** Thailand stops issuing import licences for plastic waste
- Malaysia bans plastic scrap imports
- **Mar 2019:** India prohibits import of plastic waste
- **Jun:** Philippines returns 69 containers of garbage to Canada
- Indonesia tightens waste-import rules after finding falsely-labelled containers of toxic waste from U.S.

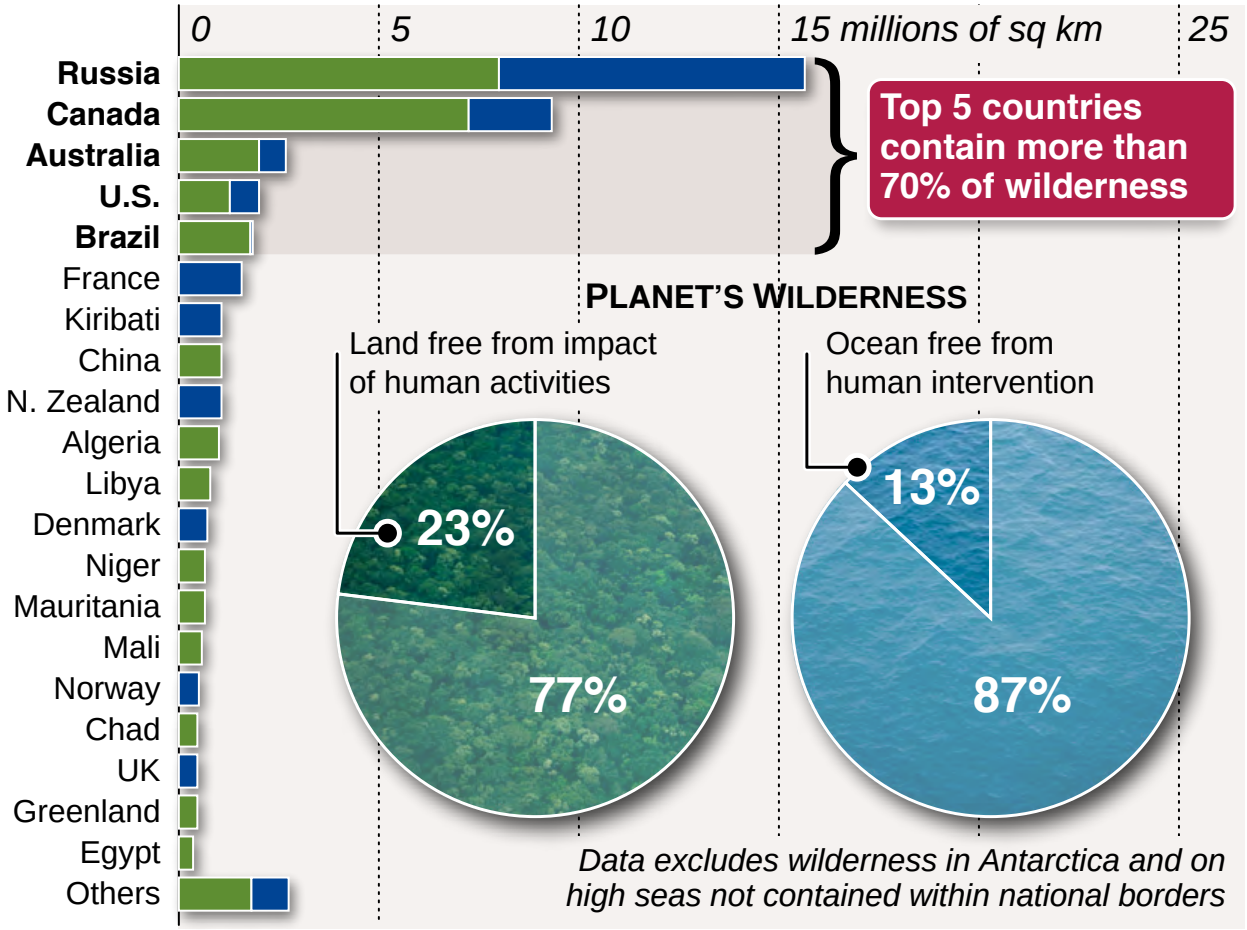
Sources: Bloomberg, World Bank Group, Deutsche Welle Picture: Getty Images © GRAPHIC NEWS

Earth's wilderness vanishing

Scientists say more than 77% of land and 87% of the ocean has been modified by human industry and warn that urgent international action is needed to protect the planet's few remaining wild places



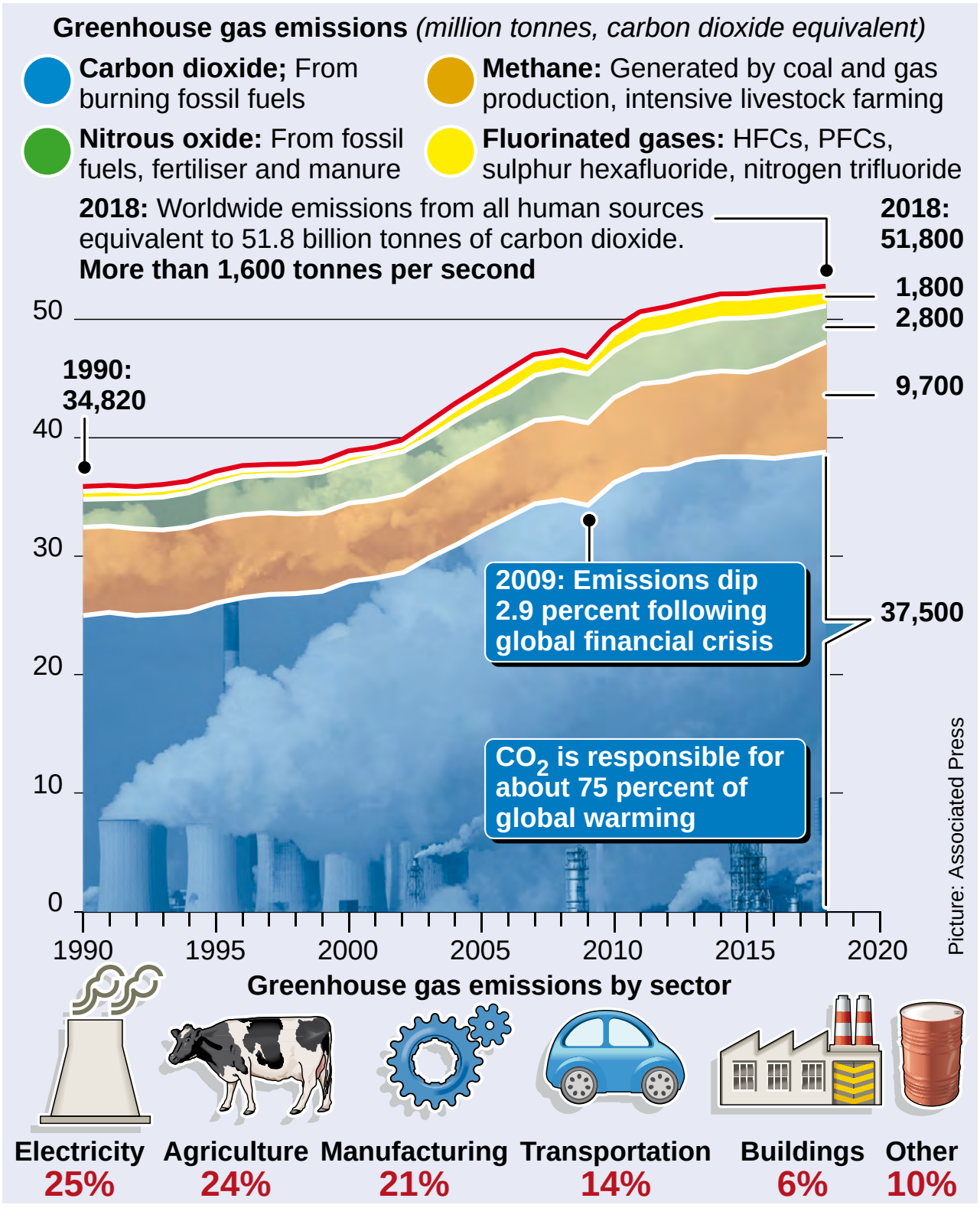
Twenty countries contain 94% of Earth's wilderness



Sources: Nature, University of Queensland, Wildlife Conservation Society

Greenhouse gas emissions

Carbon dioxide (CO_2) is the main greenhouse gas heating the planet. Six other gases are much more powerful, but less abundant. In 2018, greenhouse gas emissions reached 51.8 billion tonnes

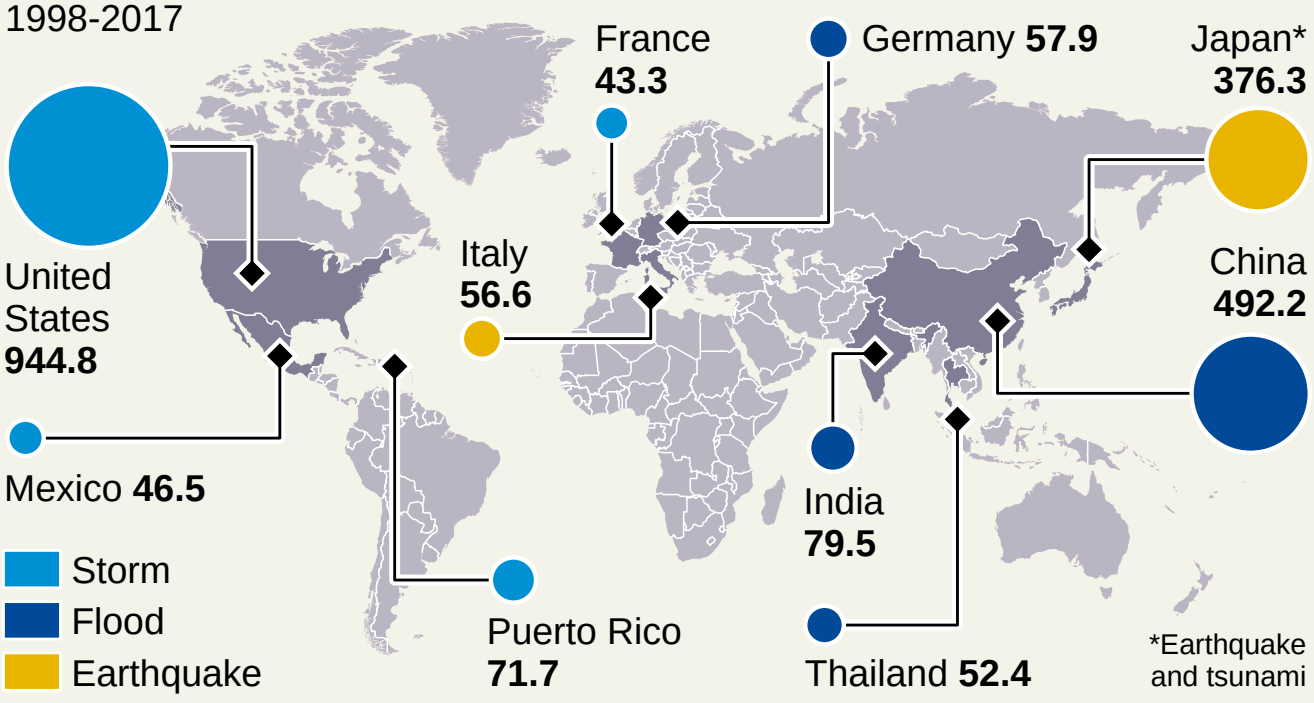


Sources: Netherlands Environmental Assessment Agency, GatesNotes

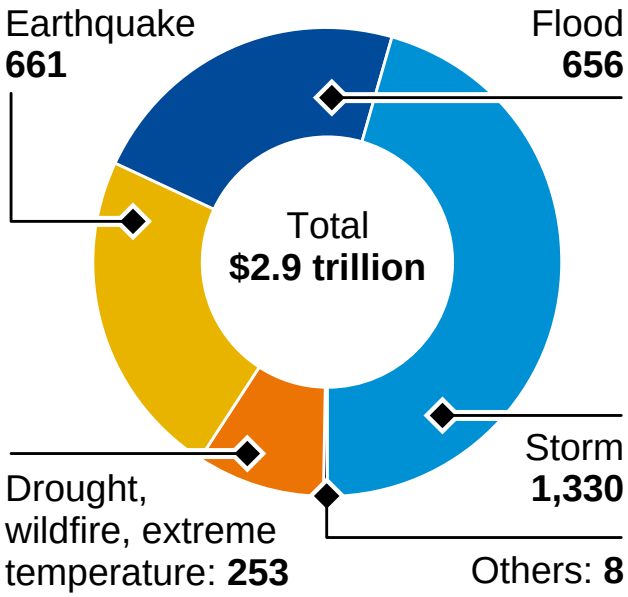
Soaring cost of climate-related disasters

Economic losses from climate-related disasters totalled $2.25 trillion over the past two decades, an increase of more than 150 percent compared to the previous 20-year period, according to the UN

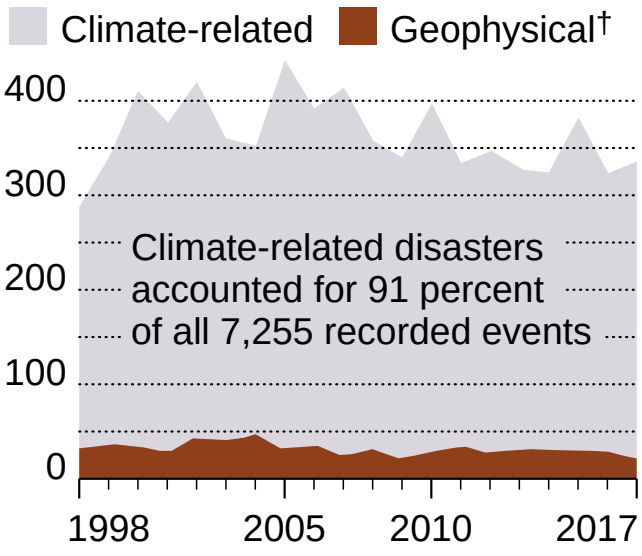
Top 10 countries / territories in terms of total losses ($ billions)
1998-2017



Economic losses by disaster type ($ billions) 1998-2017



Number of disasters by category
1998-2017

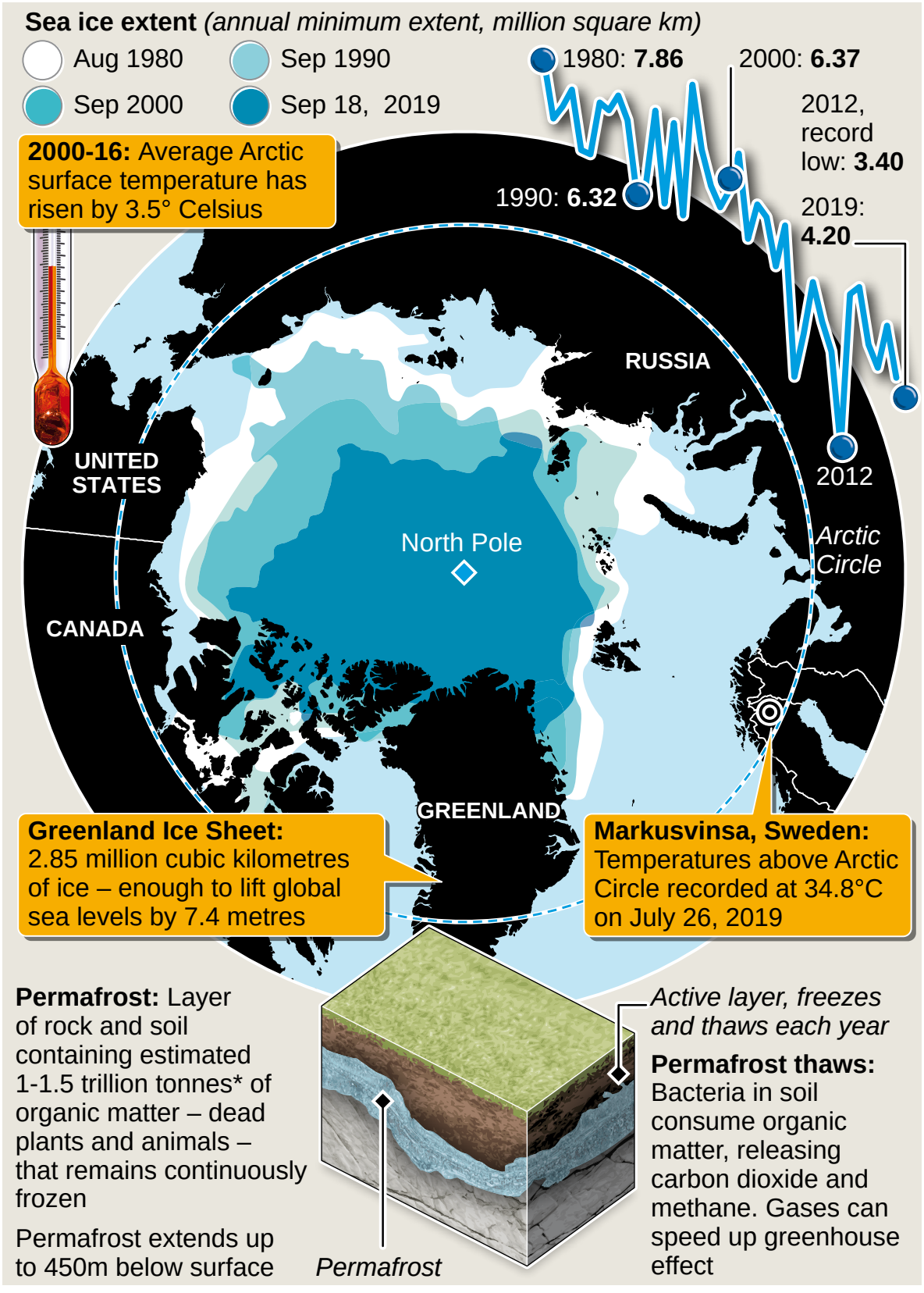


†Mainly earthquakes and tsunamis

Sources: Associated Press, UN Office for Disaster Risk Reduction (UNISDR) © GRAPHIC NEWS

Arctic on front line of climate change

The Arctic is warming twice as fast as the rest of the planet, driven by melting sea ice and thawing of carbon-rich Arctic permafrost, according to the National Oceanic and Atmospheric Administration



Sources: NOAA, NSIDC, NASA, Spiegel *1 trillion = 1,000 billion © GRAPHIC NEWS