



WORLD'S FIRST AND FOREMOST CLIMATE CHANGE MUSEUM  
**全球第一所氣候變化博物館**



賽馬會氣候變化博物館  
JOCKEY CLUB MUSEUM OF CLIMATE CHANGE

**Best for science and nature lovers**

*Tatler's Ultimate Guide To Hong Kong Museums, Tatler Hong Kong  
June 2020*

**A nominee for the Climate Smart Award**

*Leading Culture Destinations and SUNx  
March 2020*

**An insightful, educational, influential, informative,  
interactive and important museum**

*International Journal of Marketing Studies  
May 2019*

**A unique museum has been created**

*Consulate General of France in Hong Kong & Macau  
December 2016*

**The world's only museum specifically devoted to an issue that  
many people...view as the most pressing one facing humankind**

*The New York Times  
May 2015*

**A museum dedicated to climate change—the first of its kind  
in Hong Kong and possibly anywhere in the world**

*Society of Woman Geographers  
May 2014*



JOCKEY CLUB MUSEUM OF CLIMATE CHANGE  
賽馬會氣候變化博物館

Work Sheet  
for  
Primary School

Name: \_\_\_\_\_

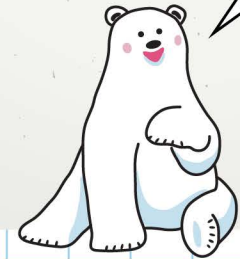
Class : \_\_\_\_\_



## Work Sheet 1: Polar Research

- 📍 Xuelong's cabin
- 📍 'Arctic Expedition' video

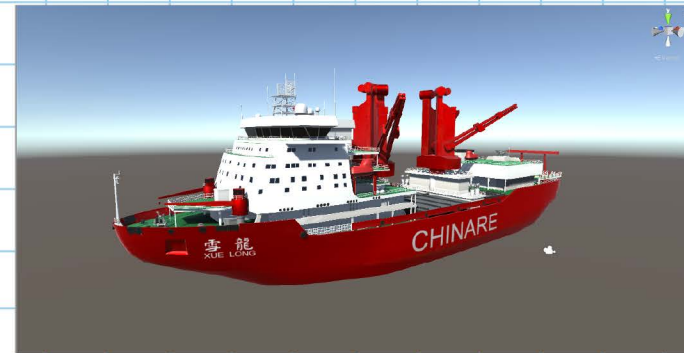
How do scientists evaluate ongoing global climate change through research and observation in the polar regions?



### Question 1.1

*Xuelong* is China's largest \_\_\_\_\_.

- A. submarine
- B. icebreaking polar research vessel
- C. rescue boat
- D. cruise ship



### Question 1.2

Draw a line to match each research technique to its objective.

Research:



ice core drilling



trawling



releasing weather balloons



sea floor drilling with gravity corer

Objectives:

to collect deep sea muds and sediments for greenhouse gas contents analysis and to evaluate ongoing climate change in the region

to collect air and atmospheric information for local gas composition analysis

to collect live samples of marine organisms and estimate changes in species quantity

to review gas data from different ages extracted from snow samples and to analyse changing greenhouse gas content in the polar regions

## Work Sheet 2: Polar Ecosystem

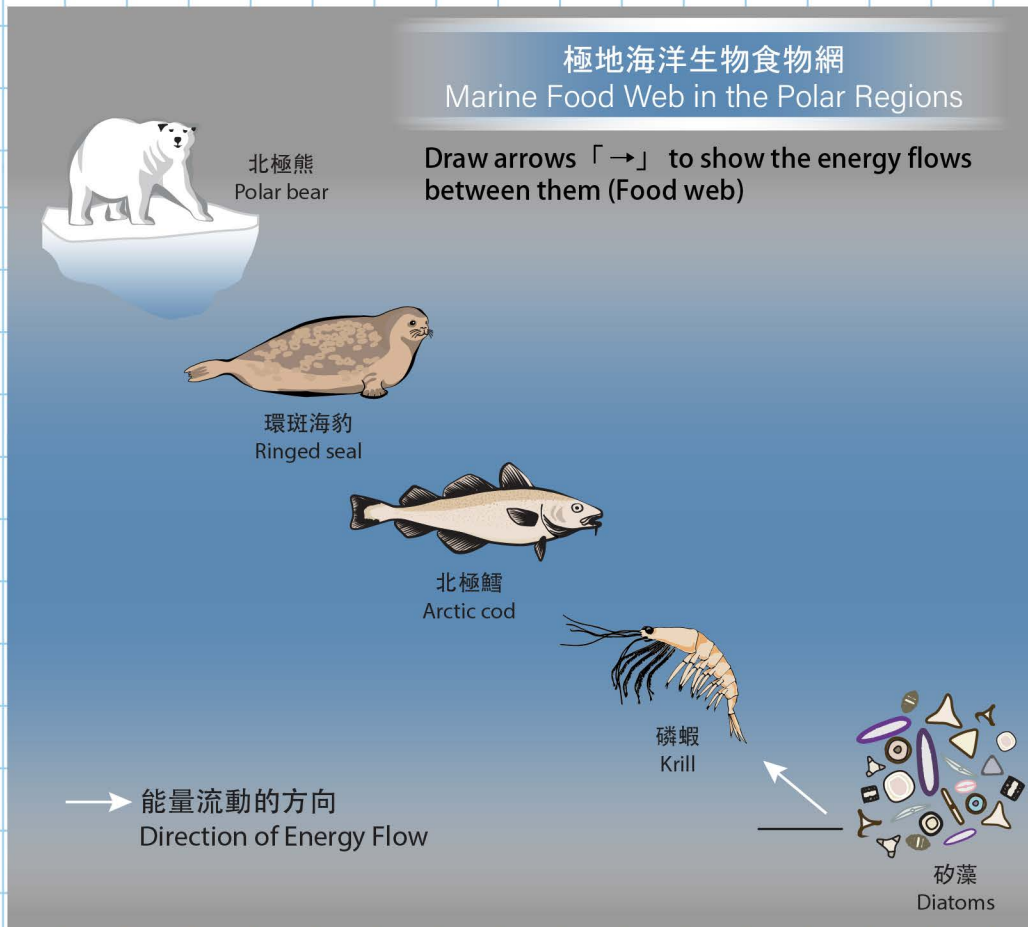
- 📍 Marine species, Land species and Vegetation panels in Xuelong's cabin, Polar Gallery
- 📍 Polar Bear model, Polar Gallery

Climate has a major environmental influence on ecosystems. Climate change can affect ecosystems in various ways.



### Question 2.1

Polar regions are natural habitats for many animals and plants. Study the relationship between animals and plants in the sea ice ecosystem, and complete the food web below:



Poor Polar Bear

### Question 2.2

During the Arctic Research Voyage, a polar bear gets lost and enters the Research Station...

The polar bear asks, 'How does climate change threaten me?'



## Work Sheet 3: Evidence on Climate Change

### Remote Sensing and Environmental Monitoring Entrance

'Parts per million (ppm)' is a unit of concentration. 300 ppm of CO<sub>2</sub> means that 300 in every 1 million air particles are carbon dioxide particles.



We are now at the 'Satellite Remote Sensing Station.' Here we can explore the impacts of global warming both generally around the world and in Hong Kong in particular.

#### Question 3.1a

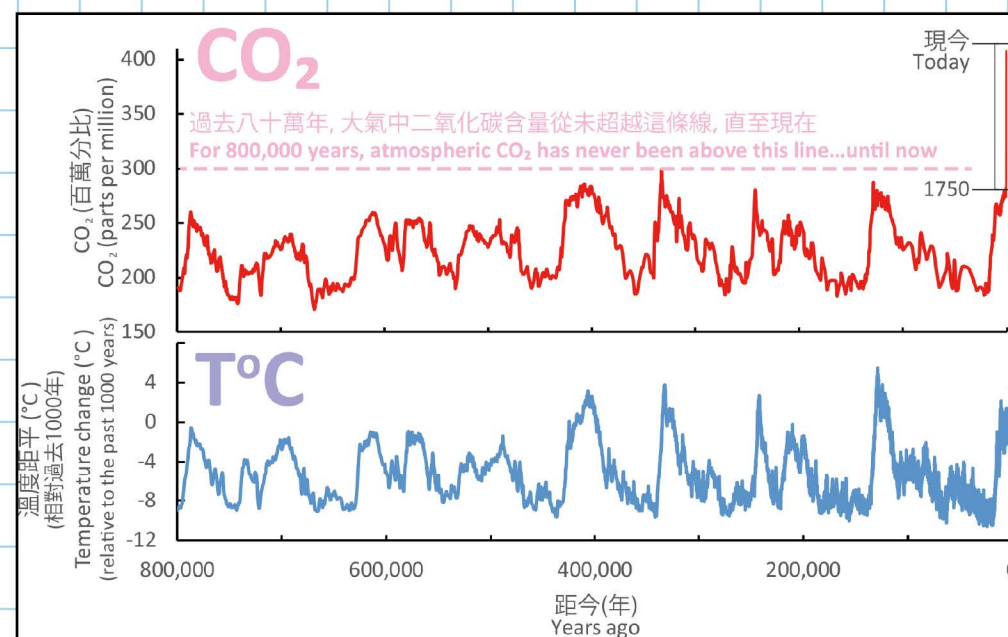
Scientists can often obtain important climatic data from ice cores. For example: During the past 800,000 years, atmospheric carbon dioxide (CO<sub>2</sub>) content has not exceeded \_\_\_ parts per million (ppm).

- A. 1
- B. 10
- C. 30
- D. 300

#### Question 3.1b

Currently, atmospheric carbon dioxide (CO<sub>2</sub>) content is higher than it has ever been during the past 800,000 years, and has now reached \_\_\_ parts per million (ppm).

- A. 1
- B. 300
- C. 400
- D. 4,000



## Work Sheet 3: Evidence on Climate Change

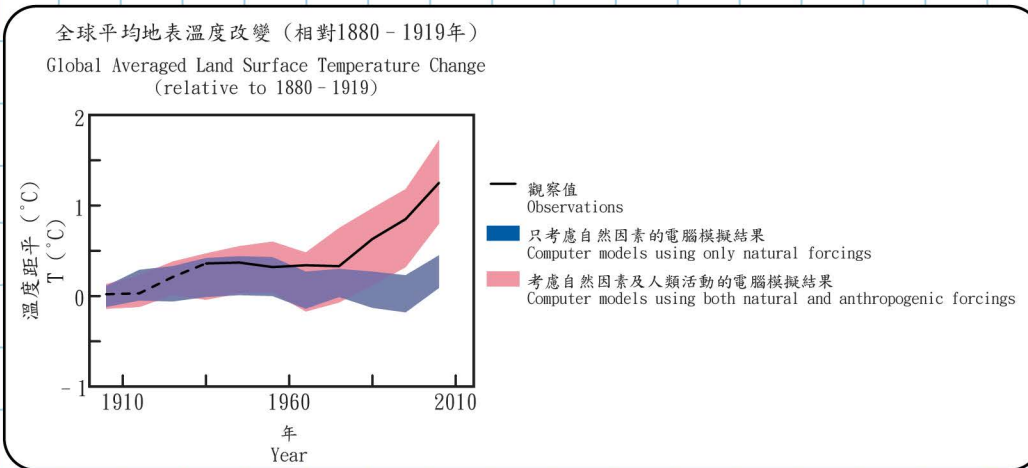
Most scientists agree that humans are responsible for climate change.



### Remote Sensing and Environmental Monitoring Entrance

#### Question 3.2 (Please cross out as appropriate)

Scientists have also been using computer simulations to model the changes in the global average surface temperature. Their models show that the recorded temperature increase in recent decades can only be effectively explained when human activities are / are not considered.



#### Question 3.3

Scientists use remote sensing and environmental monitoring technologies to collect surface data on climate-related parameters over a specific time range. Let's help our scientists to analyse the data collected from changes in sea ice coverage, sea levels, carbon dioxide concentrations and global temperatures. Study the changes in the past decades and summarize the analytical results in the following table: (select the correct answer from the table)

My observations are...	Sea ice coverage	Sea levels	Carbon dioxide concentrations	Global temperatures
Overall change:	<input type="checkbox"/> expanding <input type="checkbox"/> shrinking	<input type="checkbox"/> rising <input type="checkbox"/> falling	<input type="checkbox"/> increasing <input type="checkbox"/> decreasing	<input type="checkbox"/> rising <input type="checkbox"/> falling



## Work Sheet 4: Impacts of Climate Change

- 📍 Round table projection, Polar Gallery
- 📍 Artic Coal, Polar Gallery
- 📍 Climate Change and Human Health,  
Remote Sensing and Environmental Monitoring

Even if human activities lead  
to global warming,  
how does this relate to us?



### Question 4.1

What is the relationship between human activities and the greenhouse effect? (Please cross out as appropriate)

The natural greenhouse effect keeps the surface temperature warm / cool over the years. However, human activities produce large amount of wastes / sewage / greenhouse gases, which have enhanced the 'greenhouse effect', leading to an increase / decrease / irregular change in global temperatures.

### Question 4.2

PB is watching the afternoon news. The spokesman for a major energy company says, 'Our company is opening new oil fields and coal mines all over the world, providing high quality fuels for Hong Kong's power plants. As our business develops, we are planning to expand our business into the Arctic within two years. The Arctic is rich in coal resources, and we expect our company to make substantial additional profits from exploiting these resources...'

Do you support the development philosophy of the energy company? Briefly explain your opinion:

I support / do not support the development direction of the energy company because

### Question 4.3

Climate change is not only devastating our living environment, but also poses an increasing threat to our health. Write down one abnormal consequence of climate change and its possible threats to human health:

# Hints: Study the relationship between climate change and human health in the interactive media in the 'Remote Sensing and Environmental Monitoring' section.



## Work Sheet 5: Control and Mitigation on Climate Change: On Research Perspectives

### Research and Innovation at CUHK



How can research and innovation help to mitigate the effects of climate change?

The 'Research and Innovation at CUHK' section describes how scholars at CUHK are pursuing innovative research to confront the challenges of climate change.

#### **'Applying Urban Climatic Information in Urban Planning for a High-density City'**

##### Question 5.1

Imagine that you are an architect who is planning a housing project. Taking into account the two urban climate models you see here, what factors do you think can assist the city's sustainable development?

# Hints: Think about building density, construction materials, urban greening and public facilities.

I think:

#### **'Renewable Energy'**



##### Question 5.2

This section introduces a number of studies on renewable energy by different researchers. Write down the name of one of these studies.



## Work Sheet 6:

Control and Mitigation  
on Climate Change:  
On Low Carbon Lifestyle

 The Hong Kong Jockey Club Green Gallery  
 Action Pledge Studio

What can individuals  
do to alleviate  
climate change?



Many community organizations are now conducting environmental protection work to support the research being done by scientists. In The Hong Kong Jockey Club Green Gallery, let's explore how communities can work together to combat the threat of climate change.

### Hong Kong Green Action

#### Question 6.1

List three methods we could adopt to reduce waste in daily life.

1.

2.

3.

### Hong Chi Jockey Club Glass Bottle Recycling Project

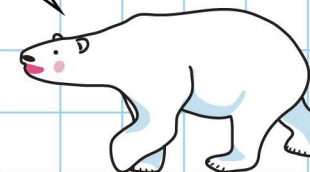
#### Question 6.2

Mr Chan has recently been elected as a Councillor for the North Pole District. During the election period and after the celebration party, the following materials are left over:

- ◆ piles of soft drink bottles
- ◆ publicity banners
- ◆ posters and leaflets
- ◆ election T-shirts

Choose one of these waste products, and suggest how Mr Chan can upcycle them to serve a useful new purpose.

Recycling is the separation of a waste product into its constituent raw materials, which are then reused to produce other useful materials. Upcycling involves finding a new use for a waste product without recycling it.



### Action Pledge Studio

#### Question 6.3

As you walked through this Climate Change Voyage, did you find anything to inspire you? After you finish the voyage, take a photo in the Action Pledge Studio and make a carbon reduction promise. You can obtain the photo through email, share it on social media and call on people to save the Earth together! My promise is:

At home, I am willing to:

At school, I will:

I will encourage others to: