ANSWERS

MEASURING CHANGE

Q1.

a. Dendrochronology

b. The tree is 22 years old. It got its scar from a forest fire.

Q2.

a. So we can know about changes in atmospheric GHG levels.

b. Its remote location means the air is undisturbed.

c. To figure out patterns and predict future changes.

EXTREME WEATHER

Q1.

HURRICANE = western North Atlantic, central and eastern North Pacific, Caribbean Sea and Gulf of Mexico

TYPHOON = western North Pacific

CYCLONE = Bay of Bengal and Arabian Sea, western South Pacific and the southeast Indian Ocean, southwest Indian Ocean

Q2.

A heat wave is declared when the daily **MAXIMUM** temperature is greater than the average maximum temperature by 5°C (9°F) for **5** days or longer.

Long periods of **HOT** weather can cause health problems such as heatstroke and even **DEATH**.

A **COLD** snap – or **COLD** wave – is a sudden and rapid drop in temperature within a **24**-hour period. The **MINIMUM** temperature depends on the **REGION** and time of year.

Those particularly at risk of excessive heat and cold are **YOUNG CHILDREN**, older people, the chronically ill, people working outside and the **HOMELESS**.

ANSWERS

EFFECTS ON HUMANS

Q1.

Changing weather patterns result in less rainfall → Topsoil dries out and gets blown away, taking vital nutrients with it → Plants dry out and die → Plant-eating livestock (e.g. cattle) starve to death → Decrease in agricultural production, both plant- and animal-based

Q3.

Mosquito

EFFECTS ON BIODIVERSITY

Q1.

BOWHEAD WHALE
Your food supply is growing.
Your waters are warming.
You are discovering some long-lost relatives, separated from you by Arctic sea ice for centuries.
Your summer hunting season lasts a few weeks longer now than it used to (for example, back in 1980).
The sea ice is thinner, meaning there is more phytoplankton to feed on.

POLAR BEAR
Your hunting area is shrinking.
You struggle to find place to make a den and raise your offspring.
You cannot tread water forever – but you can find less and less ice to rest on.
You struggle to find a mate.
The sea ice is thinner, meaning there is more phytoplankton to feed on.

ANSWERS

Q2.

Corals are actually small animals that glue their skeletons to rocks. **TRUE**

Coral reefs are sensitive to temperature, but not to light. **FALSE**

Coral reefs do not like polluted waters. **TRUE**

Coral reefs get their colourful appearance from the algae that live on the corals. **TRUE**

When corals are under too much stress, coral bleaching occurs. **TRUE**

Coral bleaching turns the corals yellow. **FALSE**

Coral bleaching usually causes the corals to die of stress. **FALSE**

Coral bleaching can be linked to climate change as a result of warmer oceans. **TRUE**

OCEANS ON THE FRONTLINE

Q1.

Solid ice, in the form of glaciers and ice sheets, has been melting at a faster rate and the runoff ends up in the ocean.

The oceans are heating, meaning they take up more space.

Q2.

Carbon dioxide (CO_2).

Q3.

Since the ~~**AGRICULTURAL**~~ / **INDUSTRIAL** evolution, the ocean has become much more acidic. Over the last **200** / ~~**400**~~ years, it has absorbed 500 billion tons of CO_2 from the atmosphere. It's hard to imagine an amount that size. A lot of this CO_2 has been produced by human activities such as the ~~**MINING**~~ / **BURNING** of fossil fuels like coal, gasoline, and jet fuel.

CO_2 is a powerful greenhouse gas. That means it acts as a **GLASS** / ~~**WOODEN**~~ roof on the atmosphere, letting sunlight in, but trapping **HEAT** / ~~**POLLUTION**~~ so it can't escape.

The oceans absorb about a ~~**THIRD**~~ / **QUARTER** of the CO_2 humans produce every year, causing greater amounts of the gas to be stored in our seas. This regulates the global **CLIMATE** / ~~**WEATHER**~~ and means that our glaciers and sea ice have not melted as fast. If not for this great feature of the ocean, temperatures would have risen **MORE** / ~~**LESS**~~ than they already have.

ANSWERS

Q4.

IMPACTS OF CLIMATE CHANGE ON OUR OCEANS		
Acidification – some crustaceans cannot develop their shells	Coral bleaching	Mass migration of marine species in search of the right conditions for feeding and spawning
Melting sea ice: sea levels rise algal growth slows, impacting the food chain habitat loss for humans and animals	Alters currents, affecting global weather patterns	...