Extreme weather

Memory Organiser

1. Weather and Climate

Weather – day to day changes in the atmosphere e.g rain, snow
Climate – long term weather patterns e.g hot and humid

Climates vary globally. Different climates can be found across the world from hot and wet climates at the equator to cold and dry climates found at the poles.

2. The water cycle

Water on Earth is constantly moving. It is recycled over and over again. This recycling process is called the water cycle.

1. Evaporation
The sun heats up water on land, in rivers, lakes and seas and turns it into water vapour. The water vapour rises into the air.
2. Condensation
Water vapour in the air cools down and changes back into tiny drops of liquid water, forming clouds
3. Precipitation
The clouds get heavy and water falls back to the ground in the form of rain or snow.
4. Collection/ return to sea
Rain water runs over/through the ground and collects in lakes or rivers, which take it back to the sea. The cycle starts all over again.

4. Drought

A drought is a period when an **area lacks water**, which can last months or even years. Generally, this is **because of a reduction in the amount of rainfall**.

Impacts:

- Lack of clean water **(social)**
- Livestock die and crops fail **(economic)**
- Families are forced to migrate/move **(social)**
- Soil becomes baked, reducing habitats **(environmental)**

Management – Ethiopian Renaissance Dam

Ethiopia is building one of the largest dams in the world on the River Nile to help increase the country's development and water security. However it has both successes and failures.

Successes	Failures
• Hold a large amount of water in reservoir to help cope with droughts • Provide hydroelectric	• Displace 20,000 people to create reservoir • Cause conflict with Sudan and Egypt due to restricting the flow of the water

5. Hurricanes

Formation – ingredients

- High sea surface temperature-26° Celsius.
- Warm air rising
- Thunderstorm cluster (big gathering of clouds).
- Light winds high in the atmosphere (wind shear).
- The rotation of the earth

Impacts

Impact comparison	
Typhoon Haiyan, Philippines	Cyclone Yasi, Australia
10,000 deaths Over 26,000 injured 4 million made homeless	1 death No serious injuries 3,000 temporarily homeless

6. Why are some places more vulnerable to impacts than others?

- Philippines is low-lying. 3ft whereas Australia is 25ft above sea level which results in more flooding from storm surges in the Philippines.
- Australia has an average GDP per capita of $67,000 whereas Philippines has one of $2,700 therefore Australia are able to invest (spend money) on ways to prevent damage.
- Australia has early evacuation services sent to worst affected areas
- Philippines has a population density of 115,124 per square mile whereas Australia has 2,520 people per square mile.

7. Typhoon Haiyan preparation and responses

Preparation (before)

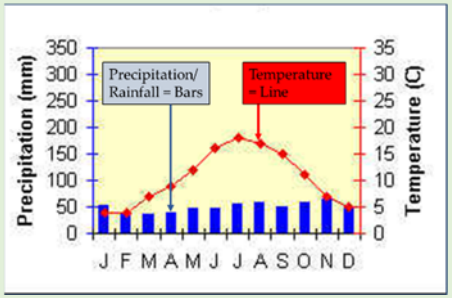
- Early typhoon warning
- Evacuation of thousands of people

Responses

- International aid from other countries and charities
- Evacuation centres to shelter those made homeless
- Clean water, sanitation and medicine supplies
- World food programme sent emergency food supplies
- Military deployment

3. Climate graphs

- Climate graphs show two pieces of information, it displays a location's average temperature and precipitation (rainfall).
- The temperature is shown as a line and rainfall is displayed as bars with the months of the year along the bottom.



8. Tornado

Formation:

- High heat from the sun causes **warm air to rise quickly**, this **meets cold air**, causes large **storm clouds** to form.
- The warm air continues to rise, making the storm bigger, and alongside descending cold air causes the **air to travel in different directions** and rotate – which is called **wind shear.**
- **Rotating winds causes a funnel** to form at the base of the clouds, this **spins down and touches** the ground, **forming a tornado.**

9. Why are tornadoes common in tornado alley?

Warm moist air travels from the equator, alongside hot, dry air from the Gulf of Mexico, this meets cold dry air travelling south from Canada/Arctic. Where these air masses meet, create perfect tornado conditions over tornado alley.

Fujita Scale of Tornado Intensity

SCALE	WIND SPEED	POSSIBLE DAMAGE	Enhanced, Operational Fujita Scale
F0	40-72 mph	Light damage: Branches broken off trees; minor roof damage	EF0 65-85 mph
F1	73-112 mph	Moderate damage: Trees snapped; mobile home pushed off foundations; roofs damaged	EF1 86-110 mph
F2	113-157 mph	Considerable damage: Mobile homes demolished; trees uprooted; strong built homes unroofed	EF2 111-135 mph
F3	158-206 mph	Severe damage: Trains overturned; cars lifted off the ground; strong built homes have outside walls blown away	EF3 136-165 mph
F4	207-260 mph	Devastating damage: Houses leveled leaving piles of debris; cars thrown 300 yards or more in the air	EF4 166-200 mph
F5	261-318 mph	Incredible damage: Strongly built homes completely blown away; automobile-sized missiles generated	EF5 over 200 mph

Tornadoes are measured of the Fujita Scale of Intensity. Tornadoes ranges from F0 – F5 which is based on wind speed and the scale of damage. F5 involves 261-381mph wind speeds and includes strongly built homes being blown away.