GCSE Geography Revision Folder – Weather

Name*…………………………………………………*

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| **Factors Affecting Climate** | | |
| * ***Weather*** = the current state of the atmosphere e.g. it is cloudy and cold * ***Climate*** = The average pattern of weather. Usually over 30 years | | |
| The main climate zones of the world (polar, temperate, arid, humid)    *Polar* – very cold and little precipitation. Ost precipitation falls as snow  *Temperature* – no real extremes  *Arid* – hot and dry  *Humid* – hot and wet | | |
| |  |  |  | | --- | --- | --- | | Precipitation – mm’s | Sunshine – hours | Cloud cover - oktas | | Pressure – millibars | Wind speed – km/hour | Humidity - % |   How weather is measured | | |
| C:\Users\acorcoran\AppData\Local\Microsoft\Windows\INetCache\Content.MSO\7D43174.tmpThe Urban Heat island  Urban areas are usually a **few degrees warmer** as concrete absorbs more heat than rural areas and air pollution generates heat too. | | |
| * ***Latitude -*** The closer you are to the equator, the warmer it will be because the suns rays are more concentrated * ***Altitude -*** The higher up you go the colder it gets because the air is less dense * ***Distance from sea -*** Places close to the sea will be cooler in summer and warmer in winter because the sea takes longer than land to heat up and cool down. * ***Prevailing wind direction*** * Wind blowing over land will be warmer in summer and colder in winter and always dry * Wind blowing over the ocean will be cooler in summer and warmer in winter and usually wet | | |
| **High and Low Pressure**  **Easy way to remember:**  **HIGH = Heavy**  **LOW = Light** | | |
|  | | |
| |  |  |  | | --- | --- | --- | | * **Isobars:**  spaced apart * **Wind direction:** clockwise * **Weather:** settled, clear skies, light winds | Summer:   * Clear skies * Light winds * Warm and dry | **Winter:**   * Clear skies * Light winds * Cold and frosty |   **Anticyclones: High Pressure** | | |
| **Types of rain: FRONTAL,CONVECTIONAL, RELIEF** | | |
| ***Relief rain***  Precipitation occurs  Image result for mountain cartoon  As it rises it cools and condenses    Rain shadow on opposite side as air descends and warms and moisture evaporates away    Warm moist air forced to rise over high land  ***How does convectional rain form?***  Sun heats ground → air rises, cools and condenses → precipitation occurs  ***How does frontal rain (depressions) form?***  A wedge of warm air pushes into cold air. This causes warm moist air to be cooled and condensed into rain. The first front is called the warm front as it has warm air behind it. The second front is called the cold front because it has cold air behind it. There are usually 2 bands of rain with a depression and rainfall is heaviest along the second band. In the UK they move from west to east. | | |
| Synoptic Scale Chart ***Depressions on weather maps***   * Isobars close together and wiggly * Anticlockwise winds * Includes fronts (bands of rain) * Wet and windy weather | | |
| ***High pressure hazard:*** drought ***Low pressure hazard:*** storms | | |
| **Global Atmospheric Circulation**    Air rising = low pressure - **RAIN**  Air sinking = high pressure – **CLEAR SKIES**  rain cloud Icon 395363rain cloud Icon 395363rain cloud Icon 395363rain cloud Icon 395363  sun Icon 3923749sun Icon 3923749sun Icon 3923749sun Icon 3923749sun Icon 3923749sun Icon 3923749  rain cloud Icon 395363rain cloud Icon 395363rain cloud Icon 395363rain cloud Icon 395363rain cloud Icon 395363rain cloud Icon 395363  Air rising = low pressure - **RAIN**  sun Icon 3923749sun Icon 3923749sun Icon 3923749sun Icon 3923749sun Icon 3923749sun Icon 3923749  Air sinking = high pressure – **CLEAR SKIES**  rain cloud Icon 395363rain cloud Icon 395363rain cloud Icon 395363rain cloud Icon 395363  Air rising = low pressure - **RAIN** | | |
| **Semi Arid Climate:** area with consistently high temperatures and a short wet season. Found in areas between deserts and rainforests  ***CAUSES***  south_america_20degrees-thumb-600x255Global Atmospheric Circulation: Rain Shadows:  **High pressure** because between Ferrell and Hadley cell where air sinks, so air warms and moisture evaporates away = no cloud  **Little rain** because on opposite side of high land where air is sinking, warming and evaporating moisture away | | |
| **Equatorial Climate (**Found between the tropics (33° north and south of the equator)  ***Image result for climate graph equatorial***   * Hot and wet all year. * between 2 hadley cells = low pressure * Low range of temperature (3ºc) * Temperatures around 28ºc all year * No seasons * High rainfall all year (around 2000mm+)  1. **Why do equatorial climates experience convectional rainfall on a daily basis?**  * High temperatures leads to rapid evaporation = air rises, cools and condenses= rain  1. **Why do equatorial regions not have seasons?**  * Sun is always concentrated at the same angle all year round | | |
| **Climate of the UK -** Temperate meaning no real extremes   * The temperature has a large range. In   summer it reaches 19°c (July) and in  winter (January) it goes down to 4°c.   * The rainfall is fairly consistent all year * Seasonal weather | | |
| Why does the UK have seasons?  Because of the **tilt of the earth**  In *SUMMER* we are tilted 23º towards the sun so the rays are more concentrated = warmer  In *WINTER* we are tilted 23º away from the sun so the rays are more spread out = colder  Image result for uk seasons axis | | |
| Which air masses affect the UK and what weather do they bring?  Image result for outline map uk  **POLAR CONTINENTAL:**  Cold and dry  **POLAR MARITIME:**  Cold and wet  **TROPICAL CONTINENTAL**  Warm and dry  **NORTH ATLANTIC DRIFT:**  OCEAN CURRENT THAT BRINGS A LOT OF UK WEATHER  **TROPICAL MARITIME:**  Warm and wet | | |
| Why is the south of the UK warmer than the north?   * LATITIUDE: the south has more concentrated suns rays   Why are highland areas such as the Penines cooler?   * ALTITUDE: they are higher up so the air is less dense and cant retain heat   Why are western parts of the UK wetter?   * NORTH ATLANTIC DRIFT: brings most of our weather across the Atlantic Ocean   Why are coastal areas cooler in summer and warmer in winter?   * DISTANCE FROM SEA: sea takes longer than land to heat up in summer so gives off a cool breeze. In winter it takes longer than land to cool down so gives off a warm breeze | | |
| Why does the UK get a lot of rain all year?  The UK lies between the Ferrell and polar cell. Here air meets and **rises**. As it rises it cools and condenses, creating clouds and rain | | |
| ***Tropical Storms – LOW PRESSURE WEATHER HAZARD***  They form between the tropics of cancer and Capricorn, where the ocean is its warmest | | |
| The formation of a tropical storm  Causes rapid evaporation  As air rises, it cools and condenses creating clouds  Warm oceans over **27°c**  Spin of the earth (**Coriolis**) causes the storm to rotate. High pressure in the centre where air descends = calm weather  Air rushes in at ground surface to replace rapid rising air =- strong winds | | |
| ***Social, economic and environmental effects of tropical storms***   |  |  |  | | --- | --- | --- | | Houses flooded (S/Ec) | Crops ruined (Ec) | Roads blocked (S) | | Prices of food rises (Ec) | Habitats destroyed (Env) | Communication lines blown down (S) | | | |
| **Low pressure weather event in an LIC**  **Cyclone Idai- Mozambique, Zimbabwe, Malawi March 14-15 2019**  180 km/hr winds, torrential rainfall 600mm, powerful storm surges of 4m, 1300 died, 90% of city of Beira destroyed, 40,000 cases of cholera in Beira (city in Mozambique) | | |
| ***What were the effects of Cyclone Idai on different groups of people?*** | Group | Effect |
| CHILDREN | Schools destroyed so no education for months |
| FARMERS | 70,000 ha crops destroyed by floods, so no income |
| GOVERNMENT | Had to pay for emergency aid and ask for aid from abroad |
| Responses to Cyclone Idai  Short term Responses: Long term Responses:   1. Emergency Aid: Food/water/shelter kits/medicines 1. Schools rebuilt 2. Helicopters used to rescue people cut off by floods 2. Seeds & agricultural advice provided for   local farmers | | |
| ***Drought in Europe 2018***  **Causes:**   1. Anticyclone – high pressure: air descending, moisture evaporating = dry weather 2. Weakened jet stream – drew up warm air from Africa 3. Climate change – making summers hotter and drier   **General effects**  Wildfires crop failures elderly mortality increased  Algae blooms nuclear reactors closed (water too warm) | | |
| |  |  |  |  | | --- | --- | --- | --- | | **Austria** | certain experienced up to 85% less rainfall than the 10 year average. Insurance companies estimate damage as high as 210 million euro. | **Austria** | Government started to put in plans for water running out | | **Denmark** | Had the driest May in a decade and 3rd driest June in a decade. Increase of 250 deaths in elderly from cardiac arrest caused by heat. BBQs banned. 845 wildfires | **Denmark** | Cost of electricity increased due to reliance on hydro electricity and low river levels | | **Finland** | Experienced record breaking temperatures of 33˚c | **Finland** | Banned swimming on 50 beaches due to an outbreak of cyanobacteria found in warmer waters | | **Germany** | Fish stocks decreased due to lack of oxygen in low rivers. Harvest of rapeseed down by 30% | **Germany** | Increase in admissions to hospital due to heatstroke and dehydration. Blood donations fell by 40% | | **Greece** | Wildfires in July killed 100 people and damaged over 1000 buildings | | | |
| ***What were the responses to the drought?***   * BBQs and high fire risk activities banned * Compensation from farmers * Increase cost of electricity * Hosepipe and water leisure uses banned * Emergency adverts put out on tv/ radio about how to keep safe * Speed restrictions for trains (due to buckling rails)   Working hours changed for those outside (e.g. refuse collectors) to start much earlier | | |