



NETWORKS

Introduction

# ESB Networks' Weather Watch



## About ESB Network's Weather Watch

- Using your Weather Station, you will learn about the connection between weather and renewable energy sources.
- Your Weather Station data can be shared across a network of participating schools throughout Ireland.
- You will learn how to take control of your everyday electricity usage.



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## About ESB Networks



Watch this short video  
here to find out more.





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## Lesson 01

# Weather Forecasting and Electricity Usage





# Learning Intentions

**At the end of this lesson students should be able to**

- Interpret weather maps and understand how weather patterns affect daily life.
- Identify and describe anticyclones (high pressure) and depressions (low pressure) on a weather map.
- Understand the difference between anticyclones and depressions.
- Make connections between weather forecasts and conditions, electricity usage, and sustainability using ESB Networks' 'Is This a Good Time?' initiative as a guide.

# Weather Maps - Synoptic Charts

- The term synoptic relates to summary/synopsis.
- Weather systems can be shown on a weather map using lines and symbols. Isobars are important, they show connecting places of equal atmospheric (air) pressure.



# Weather Maps - Synoptic Charts

- 'H' is used to show areas of high atmospheric pressure.
- 'L' is used to show areas of low atmospheric pressure.
- The number indicates the pressure in millibars.
- Anything **greater than 1013mb** is considered **high pressure**.
- Anything **below 1013mb** is considered **low pressure**.

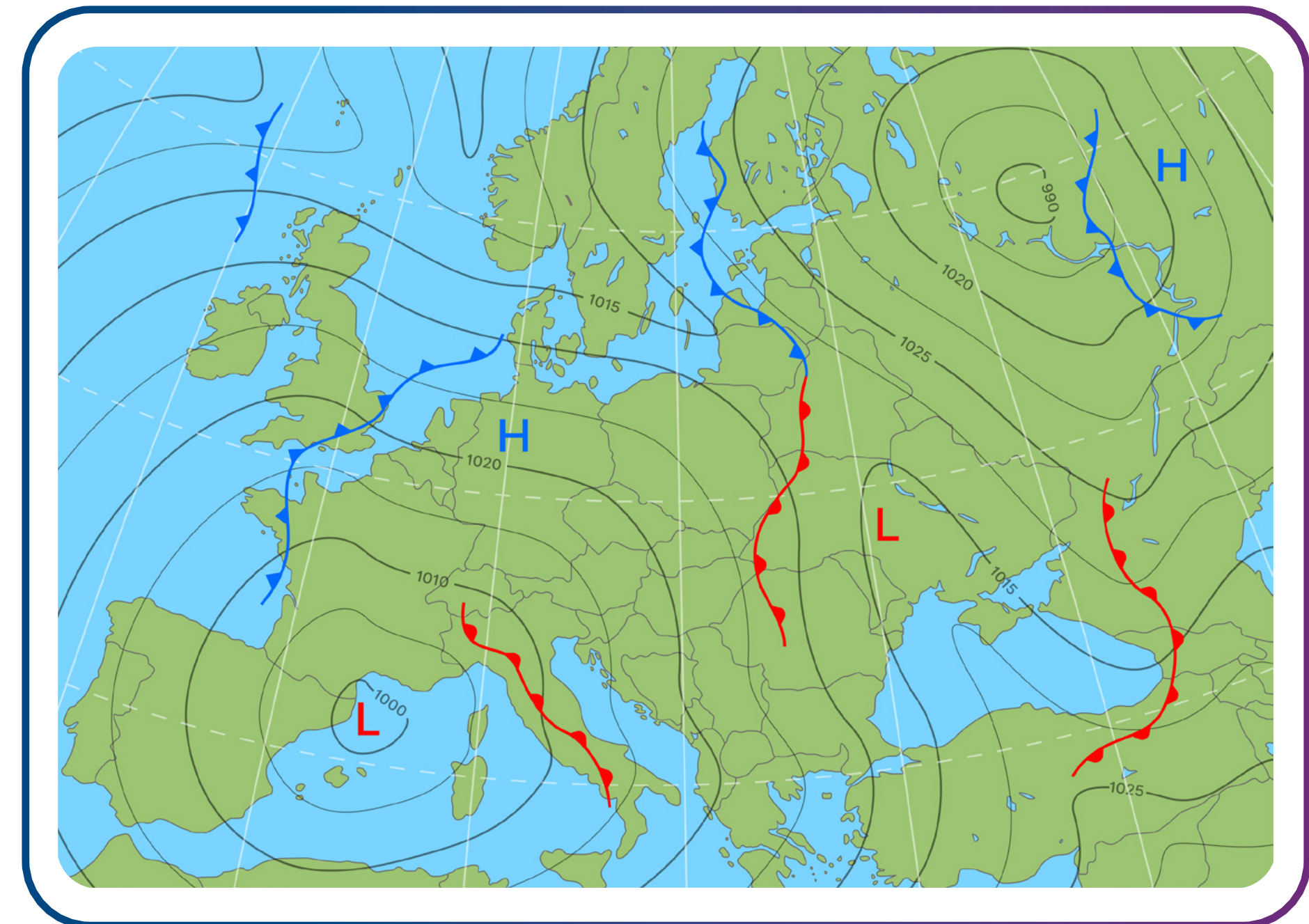
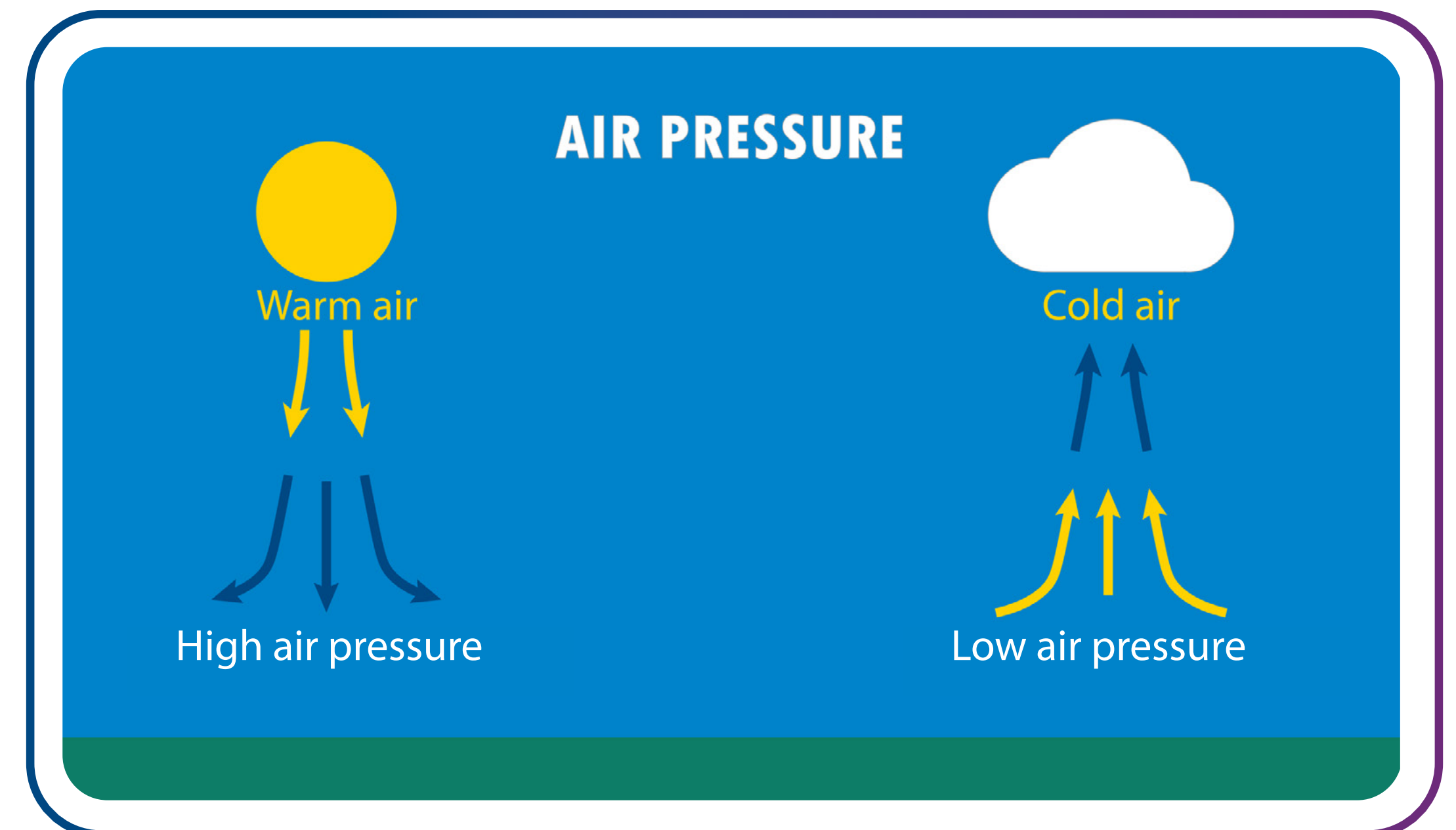
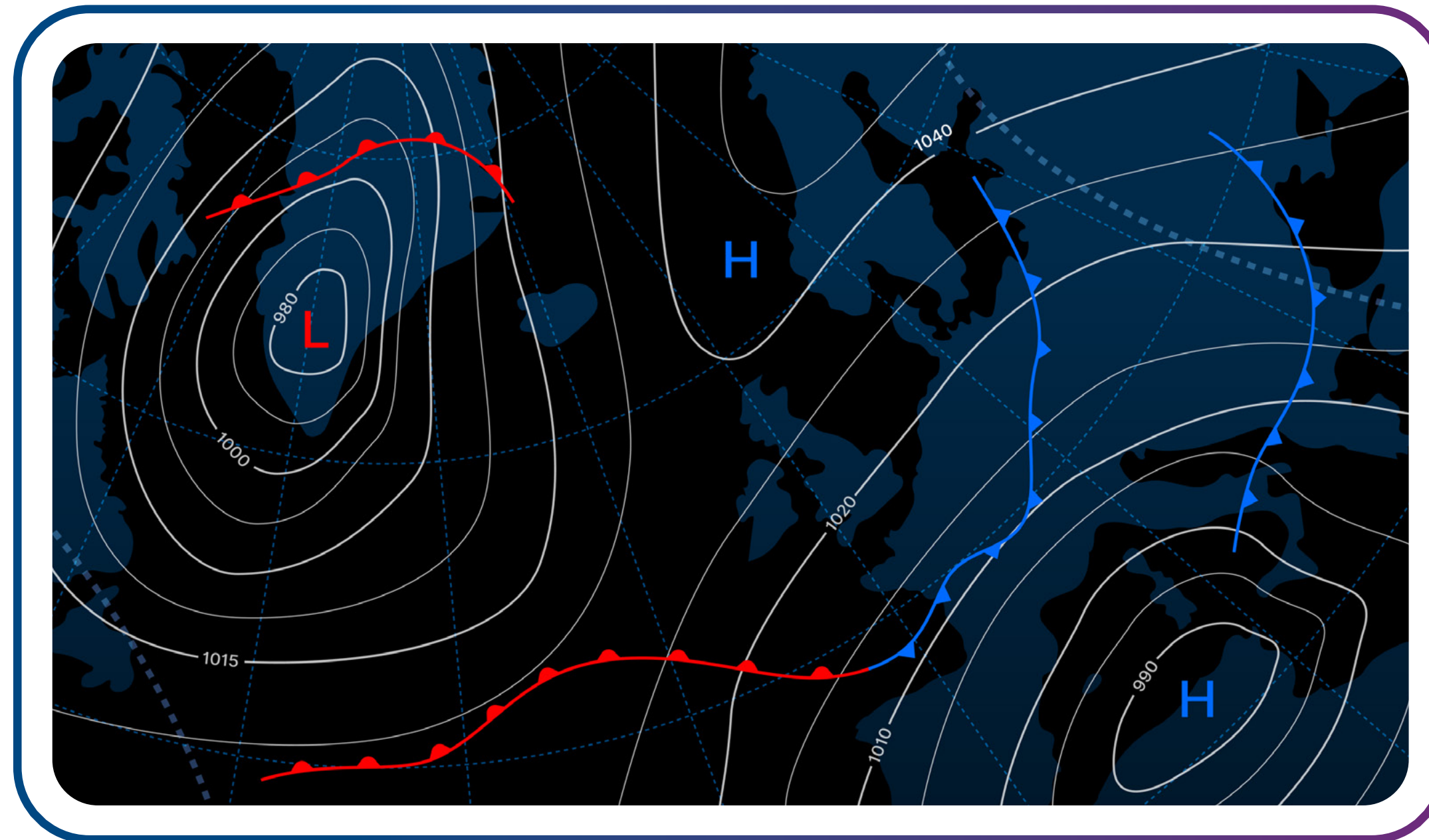


Chart shows forecast pressure and precipitation



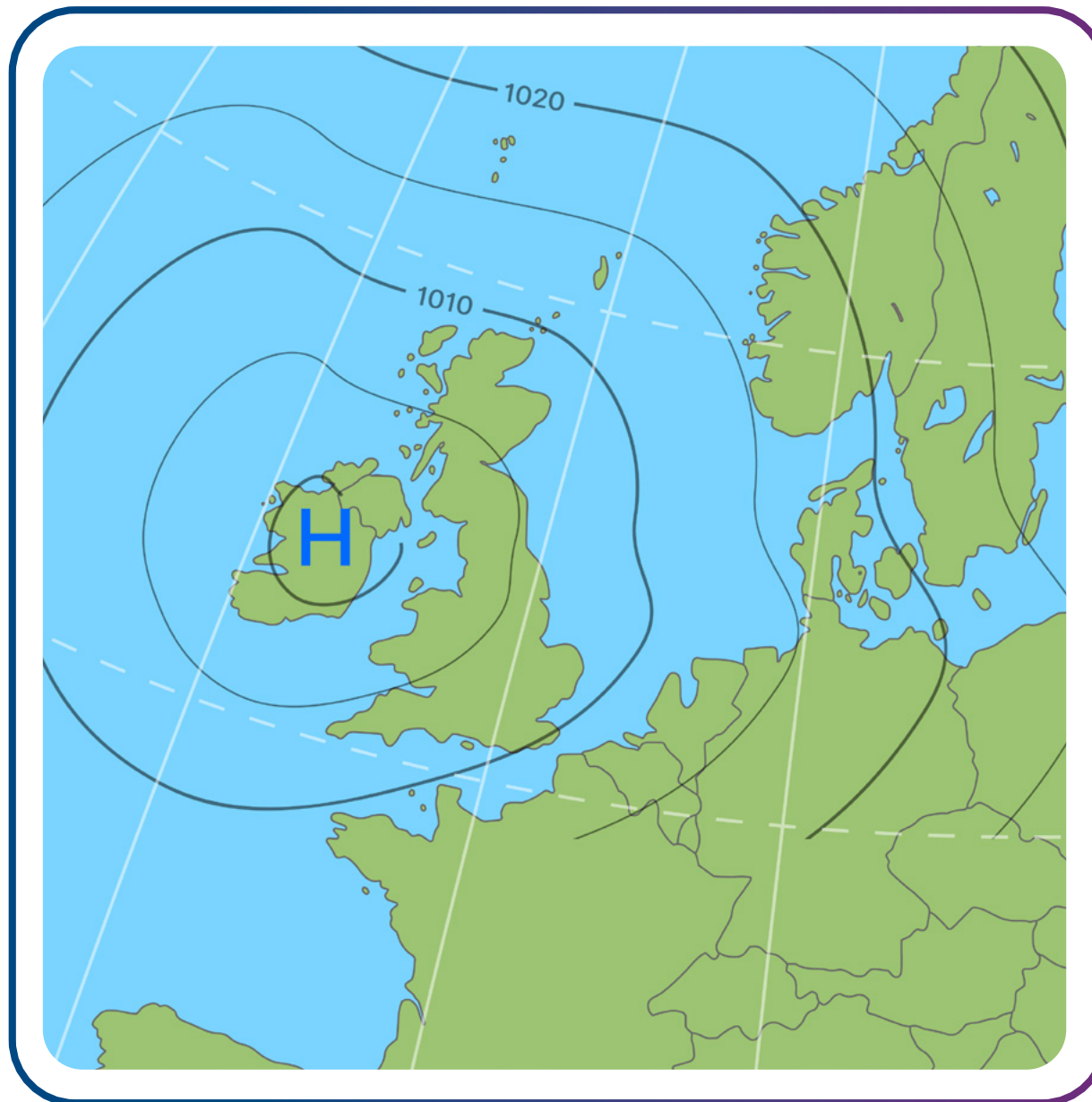
## Two Main Weather Systems



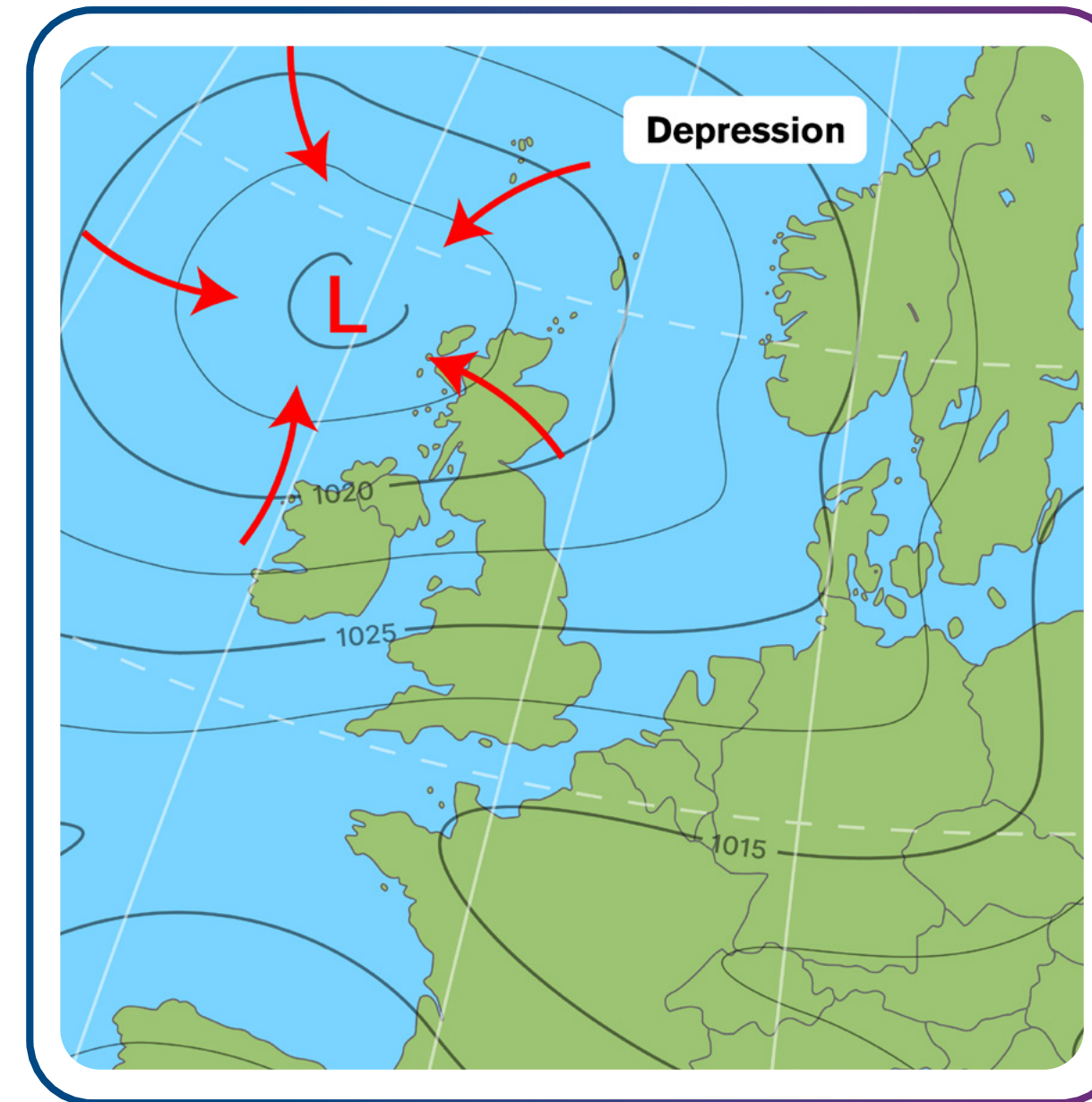
There are two main weather systems on Earth.



# Two Main Weather Systems



**Anticyclones**



**Depressions**

# Anticyclones

- An anticyclone is an area of high-pressure air mass. It's also called a “high” and involves air sinking down.
- The highest pressure is at the center of the anticyclone. As air falls, it gets warmer.
- The warmer air absorbs moisture, so clouds don't form.



# Anticyclones

- Air moves clockwise from the centre to areas of lower pressure, creating light winds.
- Winds in anticyclone travel clockwise (in the northern hemisphere) and are gentle. On weather maps, it is shown as H and the millibars increase towards the centre.



Met Éireann, 2025.

Met Éireann. (n.d.). Provisional report on new atmospheric pressure records for land and sea. Retrieved January 29, 2025, from <https://www.met.ie/provisional-report-on-new-atmospheric-pressure-records-for-land-and-sea>

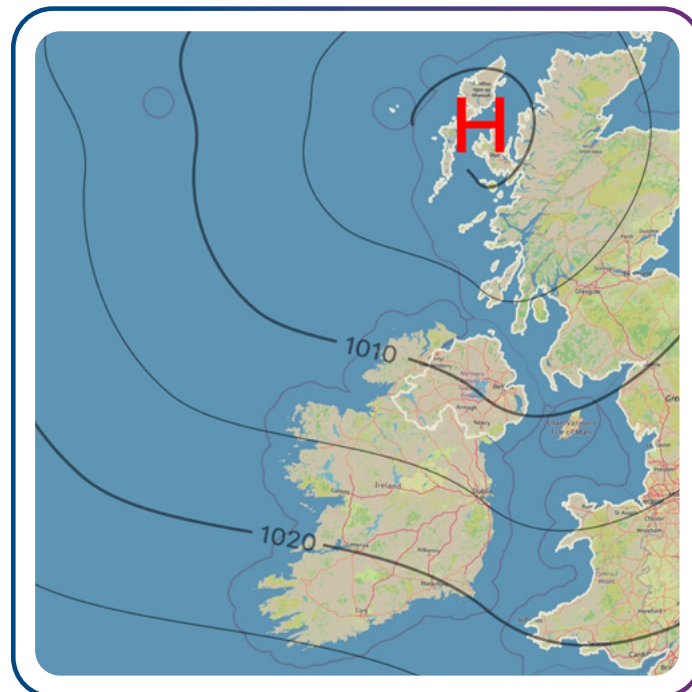
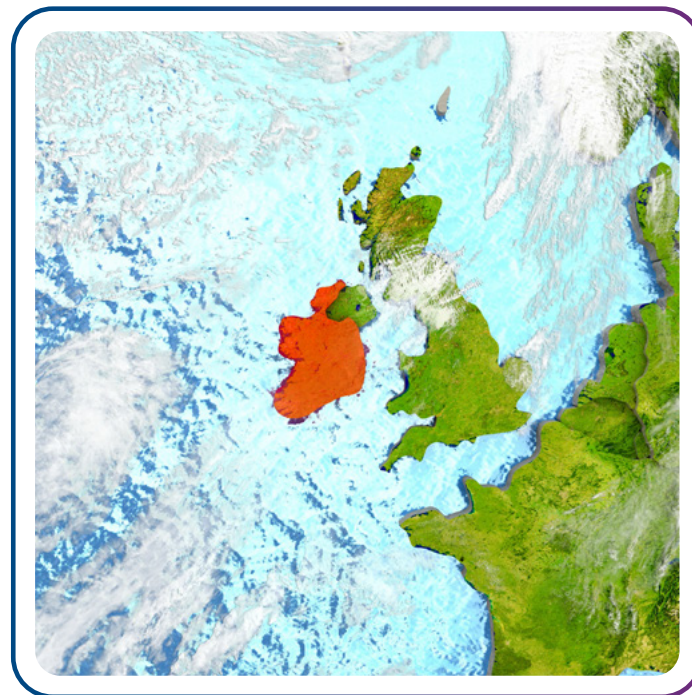
# High Pressure and the Weather

Anticyclones bring dry, settled weather with clear skies.

- **Cloud cover:** little or no cloud cover, as the sinking air warms up, preventing condensation.
- **Wind:** light wind, as air descends it is less affected by the rotation of the Earth.
- **Precipitation:** little or no precipitation, weather is mainly dry.



# High Pressure and the Weather

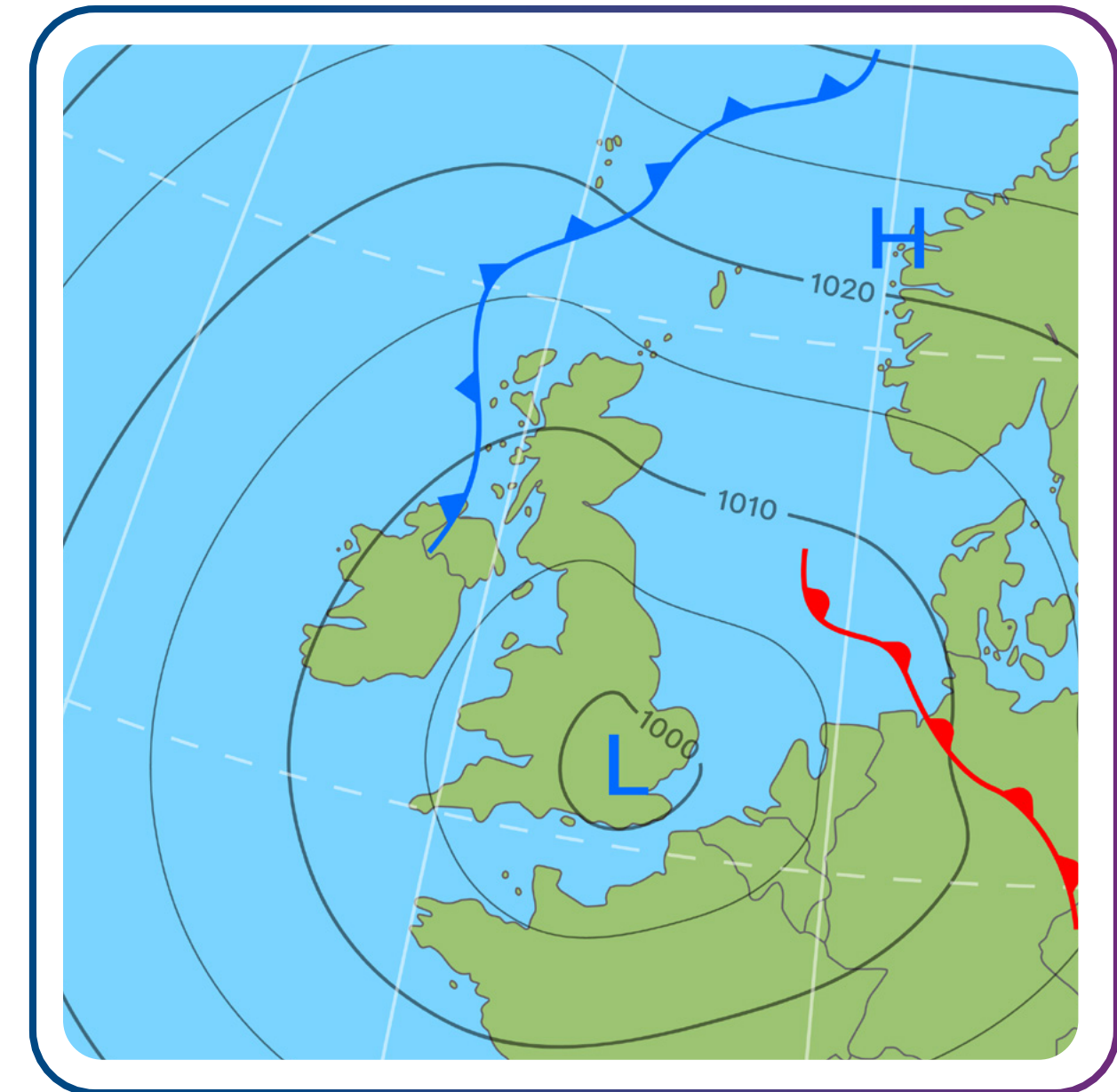


- In winter, clear skies cause cold and frosty nights. The air absorbs moisture, leading to dry weather.
- In summer, anticyclones bring hot and sunny weather.



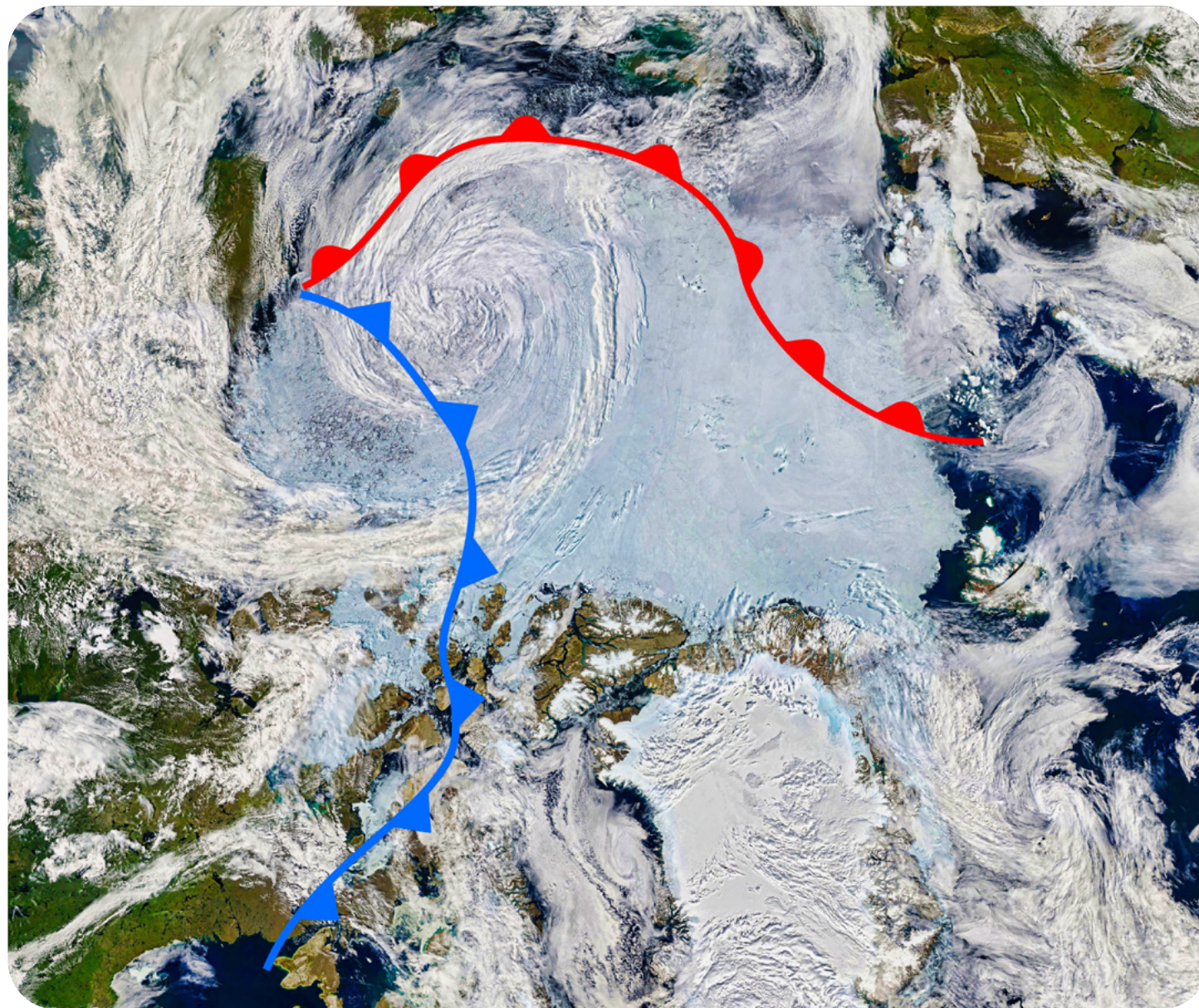
# Depressions

- A depression (also known as a low-pressure system) is an area of low atmospheric pressure where air rises, cools and condenses.
- The lowest air pressure is at the centre of the depression. As warm air rises and cools, clouds form leading to rain or showers.
- Winds blow in a counterclockwise direction (in the northern hemisphere). On weather maps, it is shown as L and the millibars decrease towards the centre.





# Depressions

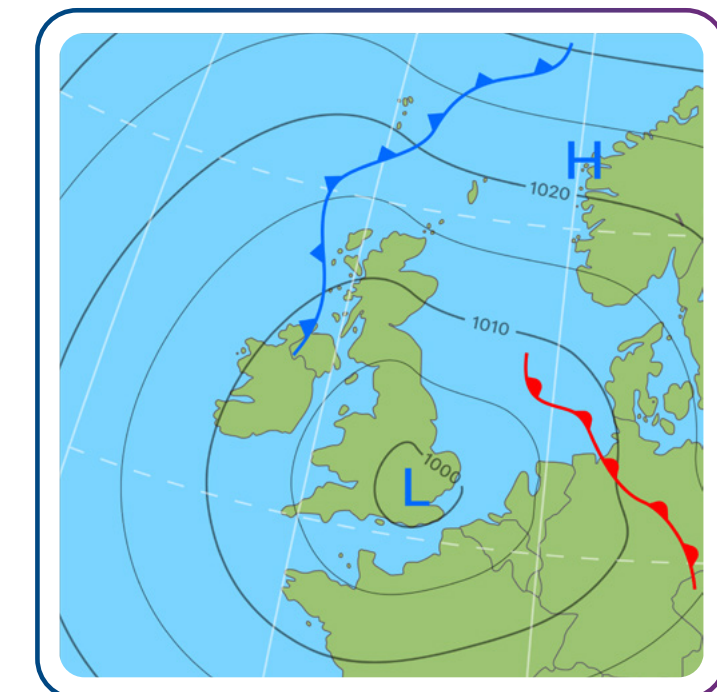
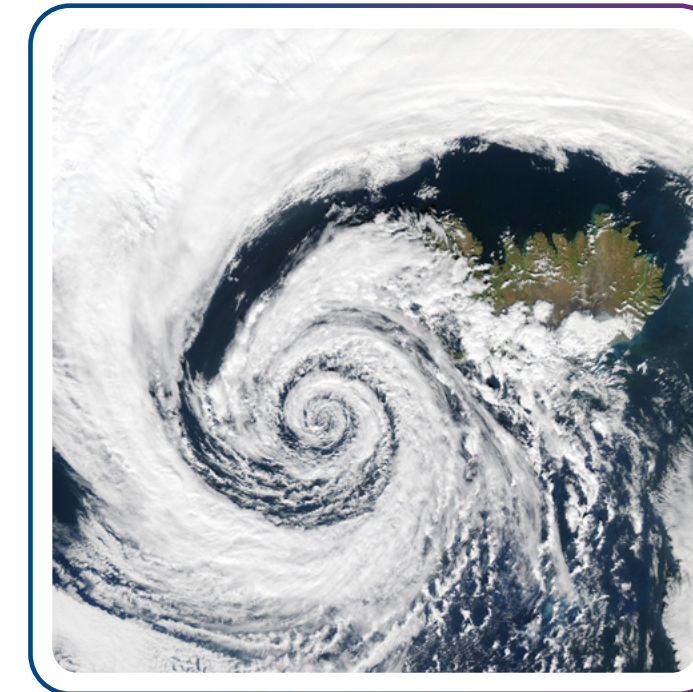


- They bring frontal rainfall. A cold front is shown on a weather map using a blue line and triangles facing the direction in which the cold air is moving.
- A warm front is shown on a weather map using a red line and semicircles facing the direction in which the warm air is moving.



# Low Pressure and the Weather

- During a depression, the weather is typically windy, with cloudy skies and varying types of precipitation like rain, drizzle, or snow depending on air temperature.





# Low Pressure and the Weather

- **Cloud:** thick cloud cover forms as warm air rises and cools.
- **Winds:** generally quite strong winds that blow in a counterclockwise direction (in the northern hemisphere). The strength of the wind increases as the air pressure drops. The closer the isobars (lines of equal pressure) are on a weather map, the stronger the winds.
- **Precipitation:** high levels of precipitation of any type: rain, hail, sleet or snow.

## ESB Networks' "Is This a Good Time?" Initiative



Watch this short video  
here to find out more.





## Beat the Peak

**Anticyclones bring dry, settled weather with clear skies.**

The peak hours of demand for electricity are **between 5-7pm**. To beat the peak, we should all try to use domestic appliances outside these hours or at times when renewable energy is being generated, like on a windy day when wind power can be harnessed by wind turbines. This is a renewable form of energy.

# Domestic Appliances

**Some domestic appliances consume more electricity than others.**

Can you guess what domestic appliances are heavy consumers of electricity?



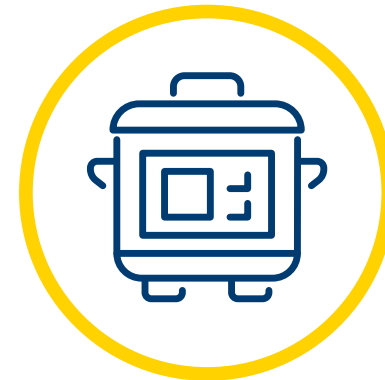
Air Fryer



Oven



TV



Slow Cooker



Washing Machine (60°)



Kettle



Dishwasher



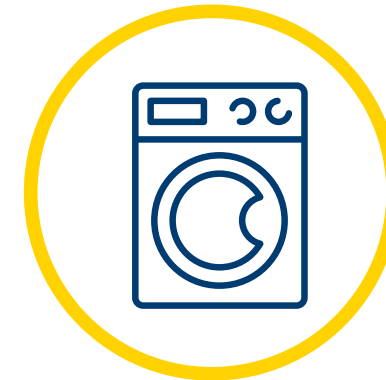
Microwave



Electric Heater



Games Console



Tumble Dryer



Iron



# Domestic Appliances

Which appliance's electricity consumption surprised you?



Microwave



Games Console



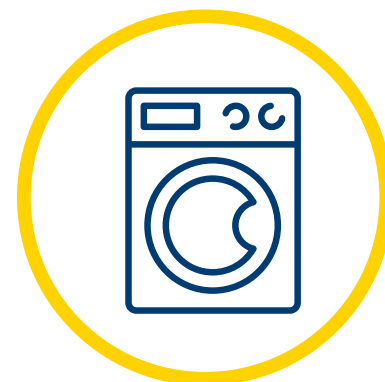
Air Fryer



Dishwasher



Washing Machine  
(60°)



Tumble Dryer

High Electricity Use

Low Electricity Use



TV



Kettle



Slow Cooker



Iron



Oven



Electric Heater



# What's the weather like now?

## Is it a good time to use electrical appliances?

- Check your Weather Station data – is it windy out now?
- If it's windy, it's a good time to use appliances as wind generates renewable energy and Ireland will be relying on that more and more.



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# Class Activity

Look at weather maps at the link below.  
Work in pairs or small groups to identify  
anticyclones and depressions and predict  
their impact on daily activities.

[Click the link here](#)



# 1 Take Home Activity - Electricity Tracker Challenge

## a Observe

- With your guardian, discuss and observe how electricity is used in your home throughout the day.

## b Forecast

- Use a weather forecast (e.g., from met.ie) to predict the best time to use electricity-intensive appliances based on weather conditions like wind or sunlight.

## c Results

- Complete a table with your observations.

Appliance	When We Used It	Predicted Optimal Time (based on weather)	Reason for this Prediction
Example: Washing Machine	Morning (8 am)	Afternoon (2 pm, sunny)	More renewable energy available in the afternoon.



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# Well Done!

You have completed Lesson 1.

