

4th GRADE MINIMUM CONTENTS- SOCIAL SCIENCE UNIT 1: THE WEATHER

► THE ATMOSPHERE

The atmosphere is the layer of gases that surrounds the Earth.

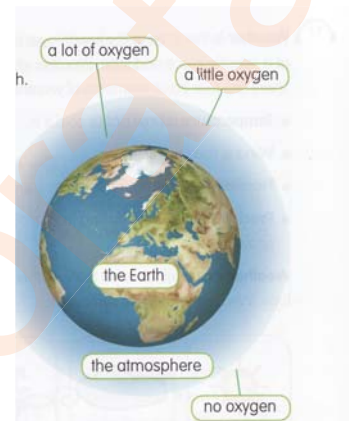
It acts as a filter that stops the Sun's rays from directly reaching the Earth.

The atmosphere protect us because:

- It regulates the surface temperature of the Earth.
- It filters radiation from the Sun and blocks ultraviolet rays, which harm living things.

The atmosphere has different layers:

- **Exosphere.** The transition zone between the Earth's atmosphere and space. You can find artificial satellites here.
- **Thermosphere.** There is very little air and it can be very hot. Many meteorites disintegrate here.
- **Mesosphere.** There is very little air in this layer. We can see shooting stars, and there is sometimes turbulence here.
- **Stratosphere.** It contains the ozone layer, which absorb most of the Sun's harmful rays.
- **Troposphere.** Water vapour and most of the oxygen we breathe is in this layer. We can find clouds, rain and win here.



Air pollution

Many human activities release harmful gases into the atmosphere, causing **air pollution**. For example, cars release carbon dioxide. Too much carbon dioxide in the air causes air pollution. Plants help clean the air because they absorb carbon dioxide and release oxygen.

We can do many things to prevent air pollution:

- Walk, ride a bike or use public transport.

-Plant new trees to absorb more carbon dioxide and release more oxygen.

► WEATHER

Weather is the state of the atmosphere of a specific place and time.
Weather changes all the time.

The main factors that determine the weather are:

- **Air temperature** is how hot or cold it is. When temperatures are low, the weather is cold. When temperatures are high, the weather is hot.
- **Wind** is moving air. There are different types of wind:
 - A **breeze** is a very light wind.
 - A **gale** is a very strong wind.
 - A **hurricane** is an extremely strong wind with rain
- **Humidity** is the amount of water vapour in the air.
- **Atmospheric pressure**. The air in the atmosphere weighs very little, but it still has weight. Everything on Earth has the weight of the air on top of it.
- **Precipitation** is water falling from clouds. It can be **rain, snow** or **hail**.

► CLOUDS AND PRECIPITATION

Clouds form in the upper part of the troposphere and consist of tiny drops of water.

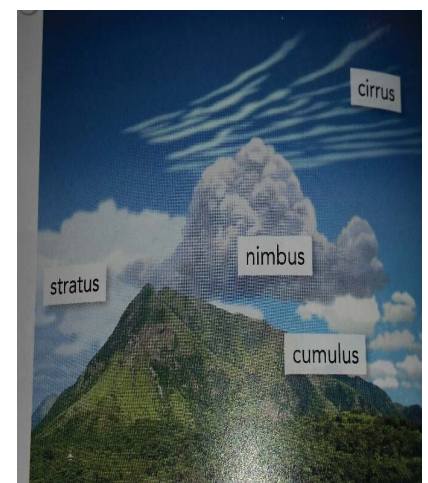
There are different types of clouds depending on their altitude, shape and colour.

. Thin, white clouds (e.g. **cumulus**) do not usually indicate rain.

. Large, grey clouds (e.g. **nimbus**) can produce a lot of precipitation.

- How are clouds and precipitation formed?

The heat of the Sun evaporates the water on the Earth's surface. This forms water vapour.



As it rises, water vapour gets colder and forms little drops of water that join together to form clouds. This is **condensation**.

When the drops of water in clouds get bigger and heavier, they fall to Earth as **precipitation**.

-Types of precipitation

Precipitation can fall as a **rain**, **snow** or **hail**.

- **Rain** is precipitation in the form of liquid water.
We classify rain according to the size of the drops.
 - **Drizzle** consists of small drops, very close together.
 - **Rain** has bigger drops that are not close together.
 - **A downpour** is very intense rain that falls for a short time.
- **Snow** consists of hexagonal ice crystals, which join together to form snowflakes.
- **Hail** is precipitation in a solid state. The balls of ice vary in size and can be as big as a walnut.

► RECORDING WEATHER

A **meteorologist** is a scientist who studies the Earth's atmosphere.

Meteorologists use **instruments** to measure and record the weather.

They use this information to predict what the weather will be like.

- A **thermometer** is an instrument that measures the temperature of the air. It's a glass tube containing a liquid, which rises and falls according to the temperature.



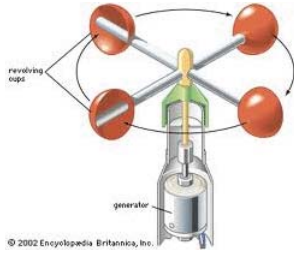
vapour.

- A **hygrometer** is an instrument that measures humidity in the air. The needle on the dial tells us what percentage of the air is water



- An **anemometer** is an instrument that measures the speed of wind.

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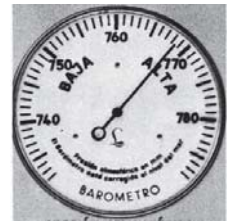
- A **weather vane** is an instrument that indicates the direction of wind.



A **rain gauge** is an instrument that measures precipitation. It is a tube for collecting rain, snow or hail. A scale at the side indicates how much rain or snow has fallen



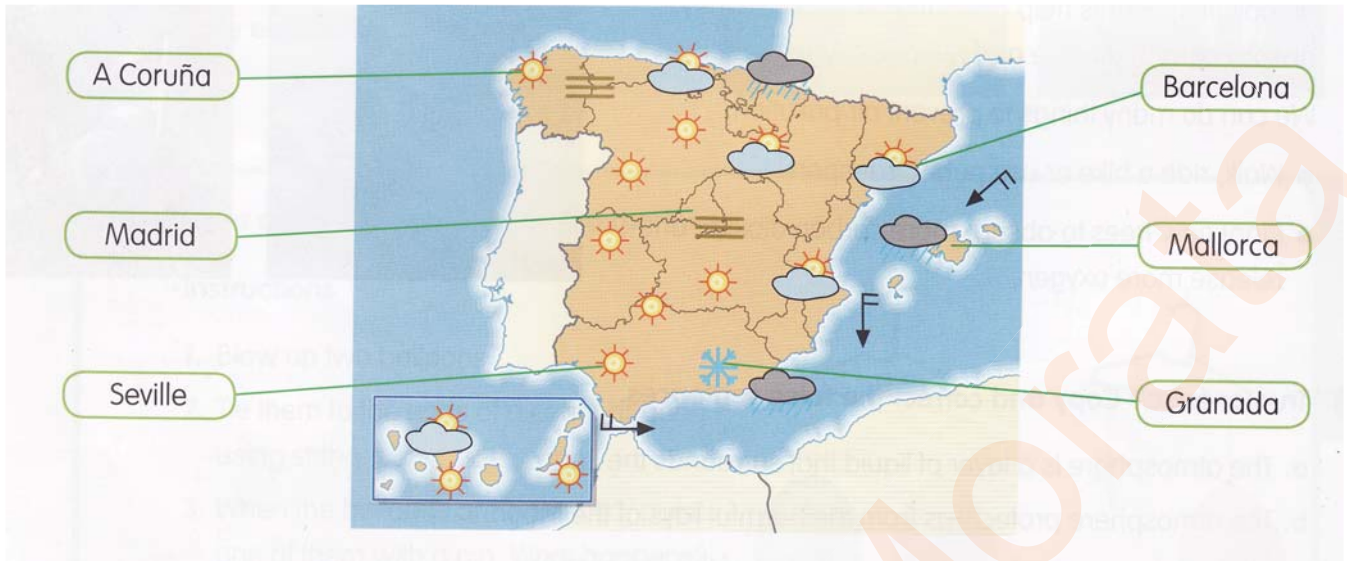
A **barometer** is an instrument that measures atmospheric pressure, which is very important in weather forecasting.



► WEATHER MAPS

Weather maps tell us what the weather is going to be like in a specific area at a specific time. Weather maps use symbols.





► CLIMATE

Climate is the average temperature and precipitation in a specific area over many years.

The climate influences how we live. People live differently if it is hot or cold, wet or dry.

The climate influences the type of houses that are built, the clothes that people wear, the food people eat, the plants that grow and the crops farmers plant.

-What factors affect the climate

- **Latitude.** The distance from the Equator. The zones near the poles have lower temperatures and less precipitation. The zones near the Equator are hotter and have more precipitation.
- **Altitude and land relief.** The height and shape of the land. High, mountainous areas often have lower temperatures and more rain than low, flat areas.

Moreover, mountains affect the temperature and precipitation of inland areas, because they protect them from the influence of the sea.

- **Distance from the sea.** Areas near the sea are cooler in summer and warmer in winter. There is also more humidity and precipitation near the sea.

► SEVERE WEATHER

Severe weather is weather, which causes damage or puts people 's lives in danger.

Some examples of severe weather are:

Hurricanes: extremely strong winds with rain.

Thunderstorms: electrical storms.

Strong winds

Droughts: a long period of abnormally low rainfall.

Floods: great flowing of water.

Tornadoes are one of the most powerful and destructive weather phenomena on land. A tornado is a violent storm with a swirling column of wind .It looks like a dark, funnel-shaped cloud. A tornado can destroy buildings and uproot trees.

UNIT 1: THE WEATHER

ACTIVITIES

1.-What is the atmosphere? Read and write.

Rays - Sun - filter - layers - ozone layer - exosphere - gases -Earth-
rain

The atmosphere is made up of layers of that surround the It acts as a that stops the Sun's from directly reaching the Earth. It has five In the you can find artificial satellites; the stratosphere contains the

..... and the troposphere we can find clouds, and wind.

2.- Read and write true or false .Then, correct the false sentences.

- The Earth's atmosphere is made up of gases.
- Rain is precipitation but snow and hail are not.
- The weather is different in every season.
- Thin white clouds tell us it will probably rain
- Weather satellites are located outside of the Earth's atmosphere
- Atmospheric pressure is not the same at the top of a mountain as it is at the bottom

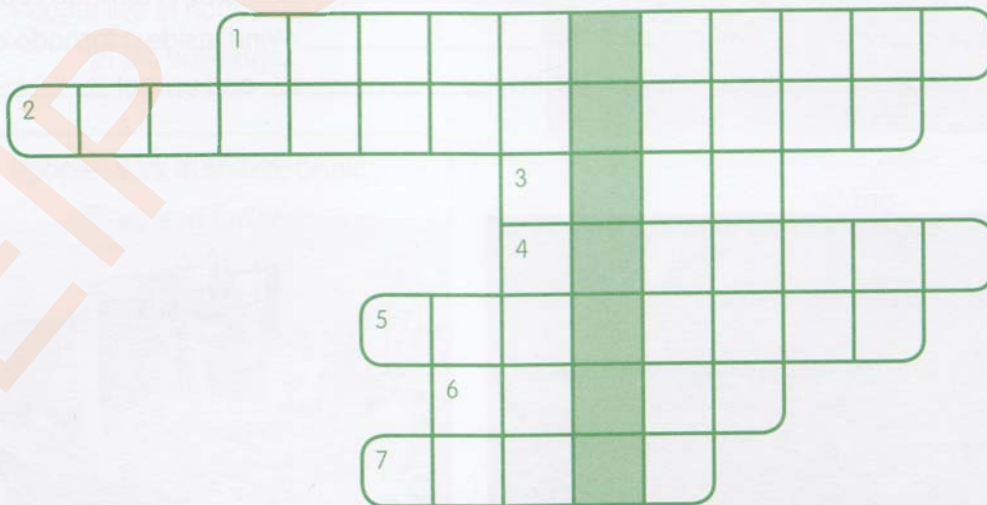
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3.- Complete the puzzle. Then, draw and write the secret word.

- | | |
|--|--|
| 1. ... is how hot or cold it is. | 4. ❄️ is the symbol for |
| 2. ... is water falling from clouds in the form of rain, snow or hail. | 5. ... is the amount of water vapour in the air. |
| 3. ... is moving air. | 6. ☀️ is the symbol for |
| | 7. ☂️ is the symbol for |



is the weather symbol for _____.

4.- Complete the definitions for these types of wind. Use these words.

Light - strong - extremely strong - cold - mild - cold

A gale is a wind. The temperature is.....

A hurricane is an wind. The temperature is

A breeze is a wind. The temperature is

5.- Listen and label the weather symbols.



6.- Draw these types of clouds.

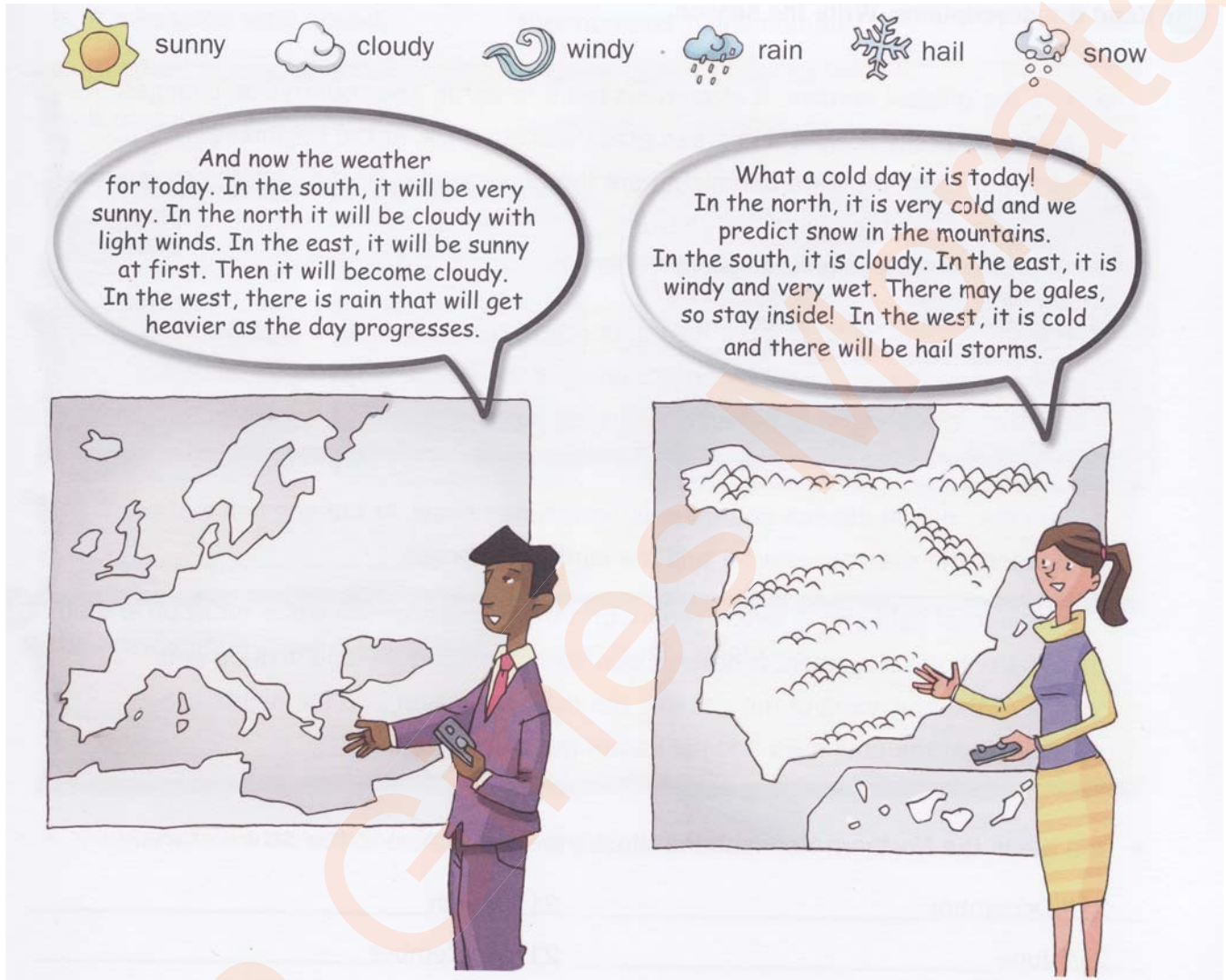
stratus	nimbus	cumulus	cirrus

7.- Help the weather presenters on TV. Read the text and draw the symbols.

☀️ sunny ☁️ cloudy 🌀 windy ☔ rain ❄️ hail ❄️ snow

And now the weather for today. In the south, it will be very sunny. In the north it will be cloudy with light winds. In the east, it will be sunny at first. Then it will become cloudy. In the west, there is rain that will get heavier as the day progresses.

What a cold day it is today! In the north, it is very cold and we predict snow in the mountains. In the south, it is cloudy. In the east, it is windy and very wet. There may be gales, so stay inside! In the west, it is cold and there will be hail storms.



8.- Correct these sentences.

- Climate is the general weather conditions of a place over two days.

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- Two factors affect the climate. These are latitude and distance from the sea.

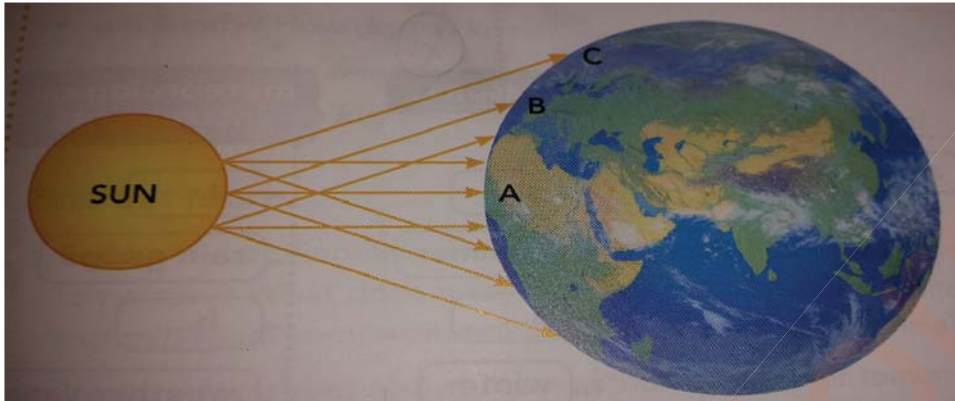
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- The zones near the Equator are hotter and have less precipitation.

.....

9.- Look at the picture and answer the question.



- At which of the three points indicated (A, B or C) will the temperature be hottest?..... Why?.....
.....

10.- Match the symbols with the words and the pictures.

thunderstorm	snow	sunny	hail	wind	rain

- 1,
- 2,
- 3,
- 4,
- 5,
- 6,

11.- Complete your bilingual dictionary.

THE WEATHER		
-Layer: _____	- Hurricane: _____	- Temperature: _____
- Precipitation: _____	- Cold: _____	_____
_____	- Hail: _____	-Flood: _____
- Wind: _____	- Drizzle: _____	- Weather map: _____
-Humidity: _____	- Atmospheric pressure: _____	_____
- Drought: _____	_____	- Climate: _____
- Atmosphere: _____	- Cloud: _____	-Breeze: _____