Department of Sciences

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WORKSHEET: **THE EARTH'S ATMOSPHERE**

NAME:	**CLASS:**	**DATE:**

1. Match in the column C the words (column A) with their definitions (column B).

COLUMN A	COLUMN B	COLUMN C
1. The symbol of this colourless and odourless gas is N_2	a. The mesosphere.	
2. This gas is necessary for photosynthesis.	b. The atmosphere.	
3. The first living beings produced this by photosynthesis.	c. The troposphere.	
4. It is divided into four layers.	d. Nitrogen.	
5. This is the highest and the thickest layer of (4).	e. Oxygen.	
6. This layer of (4) contains clouds of dust.	f. The ionosphere.	
7. The ozone layer is found here.	g. Carbon dioxide.	
8. It contains 80 % of the total mass of the atmosphere.	h. The stratosphere.	

2. Find eight words connected to weather.

Q	H	G	I	N	H	M	F
P	R	E	S	S	U	R	E
A	F	K	O	B	M	A	F
D	S	F	B	V	I	I	S
S	D	C	A	C	D	N	D
G	F	L	R	W	I	N	D
S	N	O	W	X	T	J	G
G	G	U	K	Z	Y	Y	T
I	J	D	D	H	A	I	L

3. Complete each definition with a word from activity 2. Use the plural where necessary.

1:	are formed when rising air cools.
2:	is the concentration of water vapour ¡n the atmosphere.
3:	are the currents that move air masses around in the atmosphere.
4:	can be low or high, moving towards a land mass or towards the sea.
5:	is precipitation which falls to the ground in the form of water drops.
6:	is precipitation which falls in the form of little balls of ice.
7:	is precipitation made of soft white flakes.
8:	connect points with the same atmospheric pressure on weather maps.

Remember!
- **Prefixes and suffixes are syllables or groups of syllables which change the meaning of words. Prefixes go before the word, and suffixes go after the word.**
- **Combining forms can be used at the beginning, in the middle or at the end of a word.**

4. Match each prefix, suffix or combining form with its English meaning.

1.	iso-	a.	that produces or causes
2.	alt(o)-	b.	a device or instrument used for measuring
3.	-gen	c.	heat, of heat
4.	-meter	d.	weight
5.	meso-	e.	in the middle, between
6.	-aer(o)-	f.	equal, similar
7.	-therm(o)-	g.	high

8. -bar(o)- h. air, of air

5. Find a word from Unit "Atmosphere" with each form.

1.	3.	5.	7.
2.	4.	6.	8.

6. Complete the sentences with words from activities 4 and 5.

a. Atmospheric pressure is measured with a _____.
a. Some gases used in _____ are pollutants.
b. _____ is the height above sea level.
c. Temperature is measured with a _____ .
d. _____is the gas that combines with oxygen to produce water.
e. The _____ measures the amount of rainfall per square metre.
f. The _____ is located between the stratosphere and the ionosphere.
g. Atmospheric pressure, which is shown ¡n _____ , changes with differences in altitude.

7. Reorder the letters and write the names of the four *-spheres* that make up the atmosphere.

1. onio- _____ 3. tortas- _____
2. semo- _____ 4. porto- _____

8. Label the four spheres in the illustration.

THE ATMOSPHERE

9. Read the sentences and write the *-sphere.*

a. This contains clouds of dust and ice.	
b. This contains 80% of the total mass of the atmosphere.	
c. The ozone layer is found here.	
d. It isabout40 km thick.	
e. Comets appear in this *sphere.*	
f. Passenger aircraft fly in this zone at an altitude of 10 - 12,000 metres.	
g. From ground level to its highest point, this is about 10 km thick.	
h. This is where meteorological phenomena occur	

10. **True or False? Write T or F. Then correct the false sentences.**

a. Temperatures are higher at the Equator because solar energy is more spread out. ☐
b. In summer, the sea releases heat, keeping coastal areas warmer. ☐
c. Cold ocean currents can make areas cooler. ☐
d. Snow occurs when water vapour in the air freezes. ☐
e. Cumulus clouds form above 6,000 m. ☐
f. Cirrus clouds normally mean good weather. ☐
g. When clouds are low and horizontal, usually no rain falls. ☐

11. Complete the chart with information about atmospheric pollution.

Human activities	**Pollutant**	**Consequences**
Burning fossil fuels		
Burning gasoline		acid rain
	CFC gases	
	soot	Cities are dirtier. Buildings are damaged. Can cause lung disease.

12. **Circle the correct answer.**

a) The present atmosphere is made up of [(a) 1 % (b)21% (c) 78 %] nitrogen.
b) The ozone layer protects life from (a) harmful UV rays (b) X rays (c) the greenhouse effect.
c) Cirrus clouds normally announce (a) fair weather (b) stormy weather (c) precipitations.
d) Cumulus clouds form at about (a) 1,000 m. (b) 5,000 m. (c) 10,000 m.
e) Air pressure is measured in (a) isobars (b) millibars (c) barometers.
f) To make weather predictions, meteorologists collect (a) four variables (b) six variables (c) eight variables.
g) To measure wind speed, you use (a) a hygrometer (b) a pluviometer (c) an anemometer.
h) CFCs are used in aerosols, air-conditioning and (a) refrigerators (b) microwave ovens (c) television sets.
i) CFCs eliminate _____ from the atmosphere. (a) carbon dioxide (b) ozone (c) oxygen.
j) Acid rain is caused by (a) CFCs (b) carbón dioxide (c) sulphur and nitrate dioxides.

13. Read the text and answer the questions.

The greenhouse effect

The greenhouse effect is a natural phenomenon which is essential for keeping the temperatures on Earth suitable for life. The atmosphere absorbs a lot of solar radiation. $C0_2$ in the atmosphere acts like the glass walls of a greenhouse, trapping heat and

preventing it from returning into space. In this way, the Earth does not lose too much heat.

However, the amount of $C0_2$ has increased over the last 200 years because more fossil fuels are burned as the population of humans and domestic animals has increased.

Some $C0_2$ is dissolved in the oceans and absorbed by plants. Unfortunately, we are destroying forests, the Earth's 'green lungs', and not doing much to reduce our consumption of coal, gas and oil. So more $C0_2$ is produced, more heat is trapped in the atmosphere, and the average temperature of the Earth is rising.

1. What is the greenhouse effect? .....

.....

.....

2. What are the positive and negative aspects of the greenhouse effect? .....

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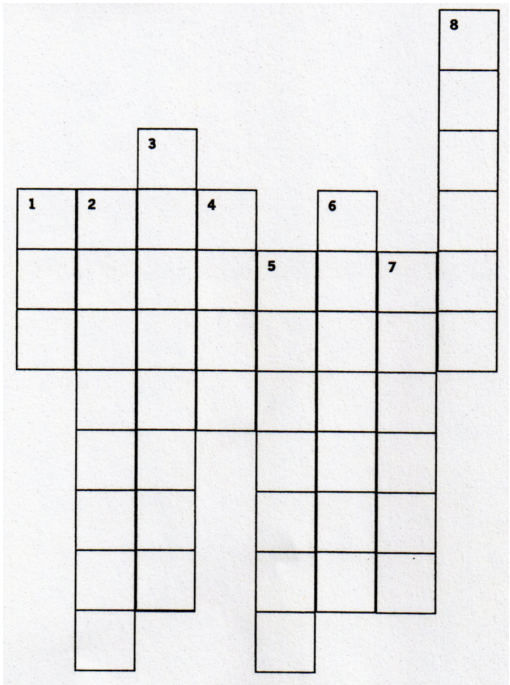
...oooOooo...

WORKSHEET: **THE EARTH'S HYDROSPHERE**

NAME:	**CLASS:**	**DATE:**



14. Complete the text about water to find the crossword answers. Find the hidden property of water in the crossword.

Water in solid form is called (1): _____.

When water freezes it (6): _____, unlike other substances.

It is made up of one (2): _____ of hydrogen and two of (7): _____.

Water molecules are attracted to other molecules. This is called (3): _____

Water moderates the Earth's climate by absorbing (4):_____. It dissolves rock components because it is a powerful (5): _____. Our planet looks blue from space because of all the water in the (8): _____.

The hidden property of water is _____ _____.

15. Complete the sentences with compound **nouns from the box.**

sea level	*rock erosion*	*water courses*	*water molecules*	*sea water*	*river valleys*

a) _____ are attracted to each other and to other substances.
b) _____ contains dissolved gases and salts.
c) Tides are the periodic rise and fall of the _____.
d) One of the results of wave action is _____.

e) Streams and torrents are _____ fed by rain.

f) _____ are also created by the action of water as it erodes rocky banks.

16. Match the questions **and answers.**

1. Where do glaciers origínate?	a) Water located beneath the surface
2. Whatarewetlands?	b) of the ground
3. How much of the water on Earth ¡s fresh water?	c) Áreas of marshlands and swamps.
4. What happenswhen water freezes?	d) Mineral salt deposits.
5. What does water leave when it evaporates?	e) On the surface of water.
6. What does the temperature of sea water vary with?	f) It dilates.
7. Where do waves occur?	g) Like rivers through the sea.
8. What do ocean currents move like?	h) On mountain tops.
9. What ¡s groundwater?	i) In lakes.
10. Where is most surface fresh water located?	j) 3%.
	k) Depth

17. Put the words in order and write correct sentences.

1. Earth both and salt fresh water be found can on.

Both _____

2. Water covers of the but only is planet 68,7 % fresh water 3% Water

Water _____

3. the atmosphere and in living things water 0.9 % of fresh is 0,9%.

0,9 % _____

4. 2 % surface water is human fresh consumption for fit of 2%.

2 % _____

5. beneath groundwater Earth is fresh water located the surface of the Groundwater.

Groundwater _____

18. Write these words associated with the processes of the water cycle in the correct columns.

rain clouds hail groundwater water vapour from the hydrosphere to the atmosphere from the leaves and stems of plants rivers and streams porous ground snow dew

The water cycle

Evaporation	**Evapotranspiration**	**Condensation**	**Precipitaron**	**Surface runoff**	**Infiltration**
			rain		

19. Read the descriptions **and** identify **the stages of the water cycle. Then put them in order.**

Identification of stages here	**Sentence**	**Order**
	The leaves and stems of plants release water into the atmosphere.	
	A lot of water also filters into the ground, especially in places where the ground is porous.	
	Water passes from the hydrosphere to the atmosphere as it changes to a gas.	
	The water held in the clouds falls to the ground in the form of rain, snow or hail.	
	Clouds and dew are formed when water vapour changes to liquid.	
	Water on the surface of the Earth moves across the land and into rivers and streams.	

20. Answer the questions in pairs.

a) List different forms in which water can be found: .....

.....

.....

b) List four ways of saving water: .....

.....

.....

21. Read and classify the sentences. Write the number in boxes as in the example ("(a)" in "properties of water").

Fresh water	Salt water	Properties of water	Uses of water
		(a)	

a) It is a powerful solvent which can dissolve many components of rock
b) It is used in many industrial processes.
c) About 0.9% of it is found in the atmosphere and in living things.
d) It is used for human and animal consumption.
e) It contains dissolved salts, mainly in the form of chlorides and sulphates.
f) At room temperature, it flows because its rnolecules move freely.
g) Groundwater accounts for 30.9 % of it.
h) Oil refineries consume enormous amounts of it.
i) It is poisonous if you drink too much, and can kill you within days.
j) It can also exist as a solid and a gas.
k) Only 0.3 % of it is found on the surface of the Earth.
l) The largest body of it is the Pacific Ocean.

22. Draw a picture to illustrate one of the above sentences.

23. Read the following text and complete each sentence with the correct information

Tides

A tide is the regular rise and fall of the sea caused by the gravitational attraction of the Moon and the Sun. Tides go through the following stages: the water rises for several hours, reaches its highest level and stops at high tide. It then does the opposite, falling for several hours and finally stopping at low tide. Then the process starts all over again.

Around new and full moon, when the Sun, Moon and Earth form a line (a condition known as syzygy), the tidal pull due to the Sun reinforces the tidal pull of the Moon. As a result, high tides are higher than average and low tides are lower than average. This is called the spring tide, or just 'springs'. The name is not derived from the season of spring, but from the verb meaning 'to jump'.

When the Moon is in the first quarter or third quarter, the Sun and Moon are separated by 90° (as seen from the Earth), and the Sun's pull partially cancels out the pull of the Moon. As a result, the range of high tide and low tide is less extreme. This is called the neap tide, or 'neaps'. There is an interval of about seven days between springs and neaps.

a) Tides are caused by ……
……

b) First, the water rises for several hours and stops at ……
……

c) When it reaches high tide, it starts to ……., finally stopping at ……

d) During spring tides, the gravitational attraction of the Sun ……
……

e) During neap tides, the gravitational attraction of the Sun ……
……

24. Write a definition for the word *"syzygy":* ……

……

25. Explain the terms 'spring tide' and 'neap tide': ……

……

……

26. Circle the correct answer.

a) The largest amount of water on Earth is found (a) in the ground (b) at the Poles (c) in the oceans.
b) Only (a) 11 % (b) 2 % (c) 0-9 % of surface fresh water is found in rivers.
c) In swamps, the ground is (a) frozen all year long (b) inundated all year (c) inundated during the summer months.
d) Water (a) absorbs heat in summer and emits heat in winter (b) absorbs heat all year round (c) absorbs heat in winter and emits heat in summer.
e) When water freezes (a) its mass increases (b) its weight increases (c) its volume increases.
f) Ocean currents are produced by wind, differences in temperature and (a) erosion (b) differences in salinity (c) the gravitational attraction of the Moon.
g) During evaporation, water passes from (a) the atmosphere to the hydrosphere (b) the hydrosphere to the atmosphere (c) the surface of the Earth to under the ground.
h) When water condenses it forms clouds and (a) dew (b) rain (c) hail.

i) Sewage originates mainly in (a) towns and cities (b) the countryside (c) industrial areas.

j) In an experiment, when the variables for the participating elements are the same, we say that they are (a) dependent (b) independent (c) controlled.

27. Read the text and answer the questions.

A precious resource

Water is a finite resource which cannot be created or synthesized. Your body loses 1.5 to 2 litres of water through sweat, urine and respiration. You need to drink at least an equivalent amount of fluids to replace it for the correct maintenance of the body's systems.

If there are six thousand million people on Earth, twelve million cubic metres of fresh water are needed every day just to provide enough drinking water for everyone! So, we should all try to reduce water consumption by adopting simple everyday habits. For example, take showers instead of baths, turn off the tap when brushing your teeth, fill dishwashers and washing machines before using them. You can install water-saving devices in the shower head and lavatory cistern. If water in your town was suddenly rationed, you would be amazed at how many things you can do with a small amounts of it!

a) Why do we need to drink water? ……

……

……

b) How much water is needed on Earth each day? ……

……

……

a) Write three ways of saving domestic water ……

……

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Important. *Source of all of these exercises: Teacher's Resource Pack. Essential Natural Science, 1. Santillana-Richmond (2008).*