

3th GRADE MINIMUM CONTENTS

UDI 3: MATERIALS & MACHINES (9)

► MATERIALS

What are materials?

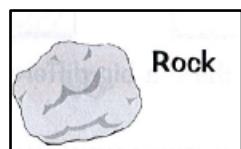
Materials are the substances that we use to make something. We use material for building, making tools, making clothes, etc. All materials have properties. These properties make materials useful to us.

Natural materials come from the ground (minerals) or living things (plants and animals), we find natural materials in nature.



- Some materials that come from animals are leather, wool and silk.
- Some materials that come from plants are wood, cotton and linen. We use them to make fabrics.
- Some materials that come from minerals and rocks are: iron and marble. They are used in construction.

Wood



Rock

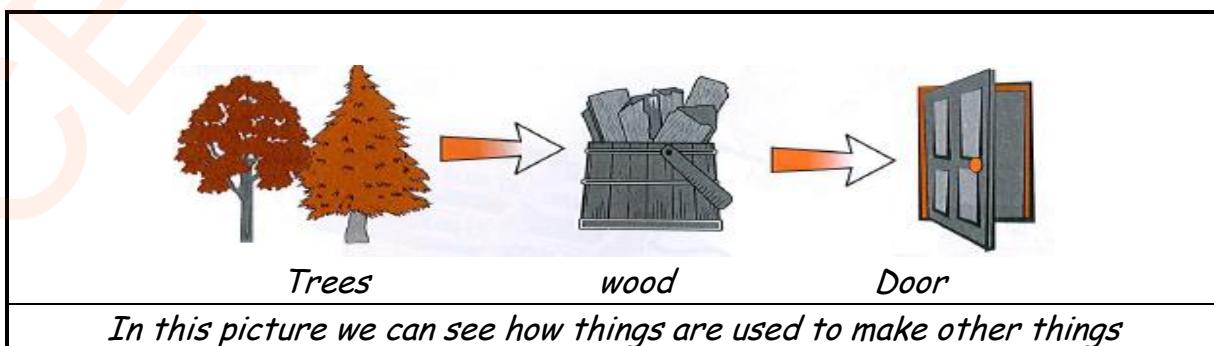
Man-made materials are not found in nature. They are made in factories by people. For example, paper is made from wood, glass is made from sand, plastic is made from petroleum, and metals made from minerals. Nowadays, there are many new man-made materials, such as fiberglass, silicon, polyester or nylon.



Polyester Jacket



Plastic comb



The properties of materials

All materials have special properties. These properties make them useful for a specific purpose.

- **Strong and resistant:** It can support a lot of weight and force, for example, iron and concrete.
- **Weak:** Lacking strength or power.
- **Flexible:** It does not break if you bend it, for example, leather.
- **Stiff:** Not easily bent. Rigid; inflexible.
- **Elastic:** You can stretch it and change its shape, but it returns to its original shape, for example, rubber.
- **Transparent:** Light can pass through it and you can see through it, for example, glass.

<i>Steel</i>	<i>Leather</i>	<i>Rubber</i>	<i>Glass</i>

- **Light:** It does not weigh much. For example aluminium is used to make parts of aeroplanes and bicycles.
- **Fragile:** It breaks easily, for example, pottery and glass.
- **Heat-resistant:** it withstands high temperatures without changing, for example, steel.
- **Waterproof:** It doesn't let water pass through, for example, plastic.

<i>Foil</i>	<i>Pottery</i>	<i>Steel</i>	<i>PVC raincoat</i>

- **Smooth:** Without bends or irregularities. Flat.

- **Rough:** With bends or irregularities. Not flat. Not smooth.

►MACHINES

Machines **help** us to save time and energy. They allow you to work better, faster and easier. Machines have many **uses**, some of them are: **exerting force** (hammers), **carrying heavy objects** (wheelbarrows), **communicating** (telephones), and **travelling** (aeroplanes).

Machines need **energy in order to function**. This energy comes from different sources: **people** (for bicycles), **electricity** (for computers), **combustible fuels** (for cars), and **wind** (for windmills).

Machines **can be** very simple, for example, scissors. They can also be very complicated, for example, aeroplanes.

Machines with no or few moving parts are called **simple machines**. Some examples of simple machines are the **wheel**, the **pulley**, the **lever** and the **inclined plane**.

Wheel	Pulley	Lever	Inclined plane

Complex machines are made up of two or more simple machines working together. They can also have these parts:

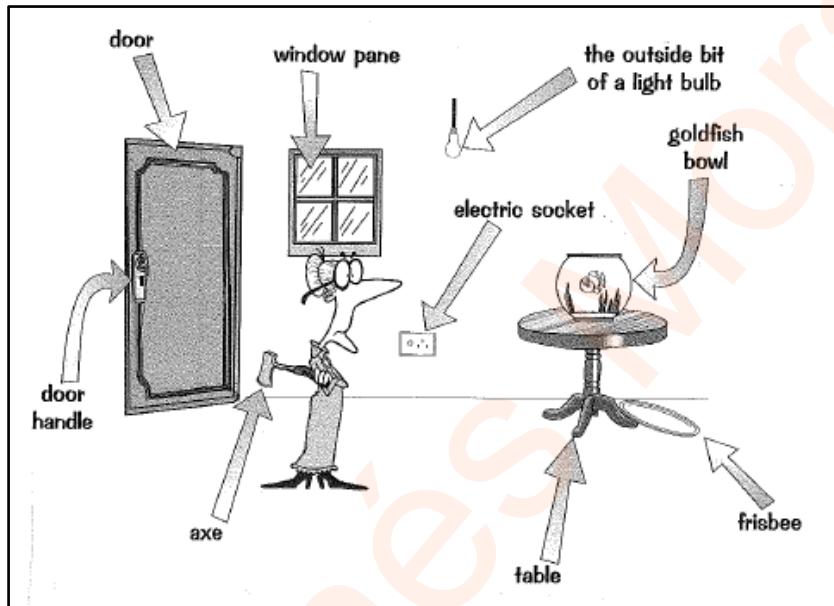
- **Motors:** They produce movement. Cars and buses use motors.
- **Gears:** Gears are wheels with teeth. Clocks and bicycles use gears.
- **Electric circuits:** They have switches and wires. They are used in lights.
- **Electronic components:** They are very small parts, for example, microchips. Computers and mobile phones have electronic components

Car (motor)	Bicycle (gear)	Electric circuits	Electronic components

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ACTIVITIES

1.- In this picture, the arrows point to the things made of wood, metal, glass or plastic. Fill in the table to show what things from the picture are made out of each material.



GLASS	WOOD	PLASTIC	METAL
1. The outside bit of a light bulb. 2. 3.	1. 2.	1. 2.	1. 2.

2.- Choose one of the following words to complete the sentences.

strong	-	hard	-	flexible	-	fragile	-	elastic
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- Paper is a _____ material because it can be bent.
- Glass is a _____ material because it is difficult to scratch.
- Rubber is an _____ material because it can be squashed.
- Concrete is a _____ material because it can support heavy weights.
- Pottery is a _____ material because it can break easily.

3.-Find the names of 10 materials in the wordsearch and classify them.

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

Natural materials	Man-made materials
<u>Vegetable origin:</u>	
<u>Animal origin:</u>	
<u>Mineral origin:</u>	

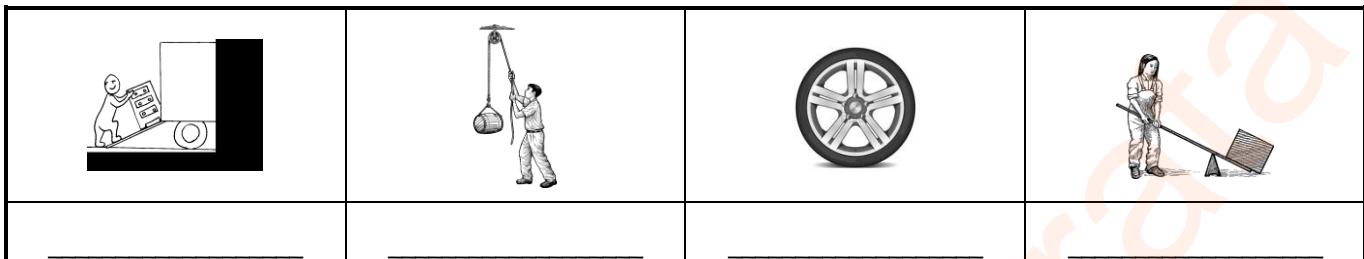
4.-Choose one of the following words to complete the sentences.

time-combustible fuel - energy - move from one place to another.

- Machines are objects that help save _____.
- Planes and cars help us _____.
- All machines need _____ to function.
- Motors can work with energy from petrol, which is a _____.

5.-Choose one of the following words to label the simple machines.

lever - inclined plane - wheel- pulley.



6.-What type of energy do these machines use? Write the name of these objects, and classify them.

Human energy	Petrol	electricity
-	-	-
-	-	-

Iron - plane - bicycle - scissors - washing machine - tractor

_____	_____	_____	_____	_____	_____

7.-Complete my bilingual dictionary.

MATERIALS & MACHINES		
- Leather: _____	- Concrete: _____	- Exerting force: _____
- Wool: _____	- Lacking of: _____	- Windmills: _____
- Silk: _____	- Bend: _____	- Sources: _____
- fabric: _____	- Stretch: _____	- Combustible fuels: _____
- Cotton: _____	- Withstand: _____	- Wheel: _____
- Linen: _____	- Steel: _____	- Pulley: _____
- Iron: _____	- Waterproof: _____	- Inclined plane: _____
- Marble: _____	- Smooth: _____	- Gear: _____
- fiberglass: _____	- Rough: _____	- Wire: _____
- Sand: _____	- Flat: _____	
- Pass through: _____	- Allow: _____	
- Heat-resistant: _____	- Switch: _____	