



**MINISTRY OF EDUCATION
PRIMARY ENGAGEMENT PROGRAMME
GRADE FOUR WORKSHEET
SUBJECT: SCIENCE
WEEK 5: LESSON 1
TOPIC: MATERIALS-MIXTURES**

Name: _____ **Date:** _____

FACTS/ TIPS:

Mixture—a mixture is formed by combining two or more substances together.

Mixtures can be made with liquids, solids, and gases.

Examples:

1. Solid + solid e.g. butter + cheese
2. Solid + liquid e.g. salt + water
3. Liquid + liquid e.g. fruit juice + water
4. Gas and gas e.g. oxygen + water vapor + carbon dioxide + nitrogen

Points to remember:

Solute -a substance that dissolves in a liquid e.g. sugar.

Solvent -any liquid which dissolves a solute e.g. water.

Solution— a mixture of a solute and solvent where particles of the solute completely dissolve in the solvent.

Example:



+



=



sugar (solute)
(solution)

water (solvent)

sugar water

Suspension- in this mixture the solids do not dissolve fully in water. These solids either float or settle in the water.

Example:



+



=



Chalk
(suspension)

water

chalk and water

ON YOUR OWN

Experiment

Items needed:

chalk dust, sugar, milo, flour, sand, soil, salt, milk powder
water

8 transparent sanitary cups.

spoon

Procedure

- I. Place the chalk dust, sugar, milo, flour, sand, soil, salt and milk powder in separate cups.
- II. Pour water into each cup.
- III. Using a spoon, stir the mixture.
- IV. Leave for 10 mins
- V. Record your observations.

HOMEWORK

1. Define the term "mixture"

_____.

2. Give one example of a solid + solid mixture.

_____.

3. State the difference between a solute and a solvent.

_____.

4. List four solutes.

I. _____

II. _____

III. _____

IV. _____

5. State the difference between a solution and a suspension.

_____.

6. Give three examples of mixtures that form a solution.

I. _____ + _____ = _____

II. _____ + _____ = _____

III. _____ + _____ = _____

7. Give three examples of mixtures that form a suspension.

I. _____ + _____ = _____

II. _____ + _____ = _____

III. _____ + _____ = _____



**MINISTRY OF EDUCATION
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SUBJECT: SCIENCE
WEEK 5: LESSON 2
TOPIC: MATERIALS-MIXTURES**

Name: _____

Date: _____

FACTS / TIPS:

Soluble substances –are substances that can be dissolved in a liquid. Soluble substances form a solution e.g. sugar, salt, coffee, ovaltine, milo, milk powder etc.

Insoluble substances – are substances that cannot be dissolved in a liquid. Insoluble substances form a suspension e.g. chalk dust, sand, oil, cement, flour etc.

Difference between a solution and a suspension

In a solution the particles dissolve whereas in a suspension, the particles either float or settle in the liquid.

Difference between melting and dissolving

Heat is needed for melting to occur while a solvent is needed for a solute to dissolve.

e.g. ice + heat = water.

sugar (solute) + water (solvent) = sugar water

ON YOUR OWN

1. List three substances that melt

I. _____

II. _____

III. _____

2. List three substances that dissolve

I. _____

II. _____

III. _____

3. State the difference between melting and dissolving.

4. Two insoluble substances are _____ and

_____.

5. Soluble substances form _____.



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SUBJECT: SCIENCE
LESSON REVIEW WEEK 5
TOPIC: MATERIALS-MIXTURES**

Name: _____ Date: _____

Read the questions carefully then insert the correct answers.

1. Define the term "mixture"

_____.

Match These

2 solid + solid

water vapour + oxygen + carbon dioxide + nitrogen

3 solid + liquid

almond nuts + walnuts

4 liquid + liquid

sugar + water

5 gas + gas

fruit juice + water

6. Sarah made a mixture of sand and water. This mixture will most likely form a _____.

Complete the statement below.

7. _____ + solvent = _____

2. State the difference between a soluble substance and an insoluble substance.

_____.

3. Melting occurs when _____ is applied while a _____ is needed for a solute to dissolve.

3. Two examples of solutes are _____ and _____.



MINISTRY OF EDUCATION
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GRADE FOUR WORKSHEET
SUBJECT: SCIENCE
WEEK 6: LESSON 1
TOPIC: MATERIALS-MIXTURES

Name: _____ Date: _____

FACT / TIP:

Separating Mixtures

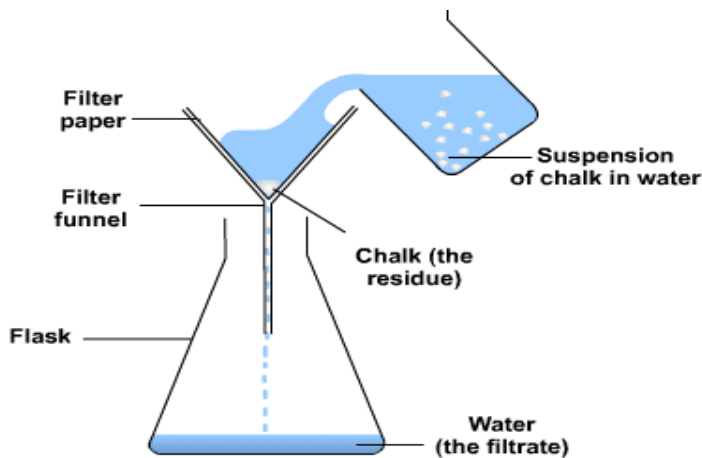
Some mixtures can be separated. Some methods of separation are:

- Evaporation -Filtration Hand picking -Sieving

Experiments showing some Methods of Separating Mixtures



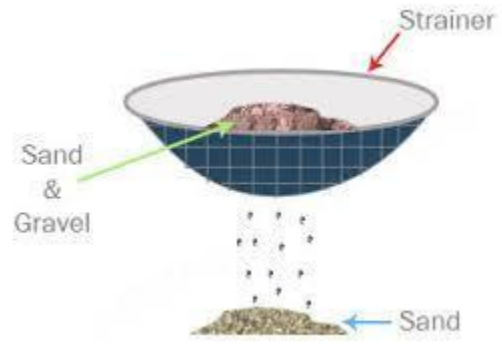
Evaporation



Filtration



Hand picking



Sieving

ON YOUR OWN

1. List two methods of separating mixtures.

2. List two mixtures you think can be separated by each method mentioned above.

3. What tool is best used to separate a mixture of sand and gravel?

HOMEWORK

Draw diagrams to show any two methods of separation.



**MINISTRY OF EDUCATION
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GRADE FOUR WORKSHEET
SUBJECT: SCIENCE
WEEK 6: LESSON 2
TOPIC: MATERIALS-MIXTURES**

Name: _____

Date: _____

FACTS / TIPS:

Methods of Separating Mixtures

1. **Evaporation** – this method is used to separate solutions by using heat. The solution is placed in a basin and heat is applied by a Bunsen burner. The water evaporates leaving solid crystals behind.

Examples of mixtures that can be separated by evaporation:

- Salt solution
- Sugar solution

2. **Filtration** – suspensions are separated using this method. When a mixture of sand and water is filtered: the sand remains on the filter paper while the water passes through the filter paper.

Examples of mixtures that can be separated by filtration:

- Chalk dust and water mixture
- Sand and water mixture

3. **Hand picking** – this method is only useful if the particles are large enough to be seen clearly.

Examples of mixtures that can be separated by hand picking:

- Red beans and blackeye

- Grapes and cherries
- Peanut, almonds and walnuts.

4. **Sieving/ Sifting** – this method is used to separate dry mixtures which contain different sizes. The mixture is sifted causing the smaller particles to pass through the sieve and the larger particles remain in the sieve.

Examples of mixtures that can be separated by sieving:

- Sand and gravel
- Rice and flour

ON YOUR OWN

Experiment - With the help of an adult

Items needed:

- salt solution
- sand and water mixture
- grapes and cherries mixture (if you don't have any of these fruits, use fruits that you have)
- rice and flour
- filter paper
- matches (**only used with adult supervision**)
- candle
- tin
- spoon
- transparent sanitary cups
- sieve

Procedure:

Evaporation

- I. Place the candle in the tin, using the matches, light the candle. Dip some salt solution into the spoon and place the spoon over the lit candle until all the water evaporates and the salt crystals can be seen.

Filtration

- II. Place the filter on top of a transparent jar, pour the sand and water mixture into the jar.

Hand picking

- III. Using the grapes and cherries mixture, separate the grapes from the cherries by using your hand.

Sieving

- IV. Using a sieve, separate the rice and flour mixture.
- V. Record your observations.

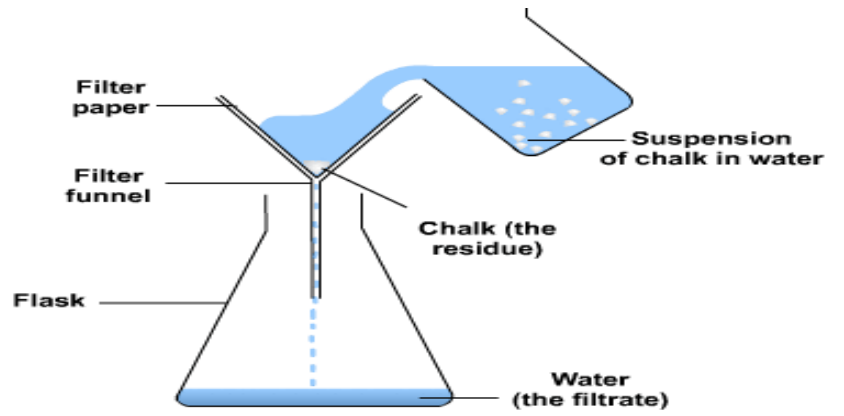


**MINISTRY OF EDUCATION
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SUBJECT: SCIENCE
LESSON REVIEW WEEK 6
TOPIC: MATERIALS-MIXTURES**

Name: _____ **Date:** _____

Read the questions carefully then write the correct answers.

1. Two methods of separating mixtures are
_____ and _____.
2. The method of separation which requires the use of heat is called _____.
3. Mary wants to separate a mixture of blackeye beans and cherries. Which method of separation should she use?
_____.
4. The method of separation which requires the use of a filter paper is called _____.
5. Sean wants to separate a mixture of sand and gravel. Which method of separation should he use? _____.
6. Describe what would happen when Sean separates the mixture of sand and gravel using the method of separation you recommended above.



7. The method of separation shown in the picture above is called

_____.



**MINISTRY OF EDUCATION
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GRADE FOUR WORKSHEET
SUBJECT: SCIENCE
WEEK 7: LESSON 1
TOPIC: MATERIALS-NON-REVERSIBLE CHANGES ON MATERIALS**

Name: _____ Date: _____

FACTS / TIPS:

Materials go through two types of changes. These are:

- **Reversible Change** - a change is made physically and can be undone or reversed. This means they are temporary changes, and the materials can get back to its original state.

Examples of Reversible Changes:

- ✓ When we freeze water it turns to ice, if we add heat to the ice, it melts and changes back into water.
 - ✓ When we heat butter it melts, if we leave it to cool it turns back into butter.
-
- **Non-Reversible Change** – this is where the change is made chemically and cannot be reversed into its original state. This means they are permanent changes and cannot be undone. In a non-reversible change, new materials are always formed. Sometimes these new materials are useful to us.

Examples of Non- Reversible Changes

- ✓ When we burn a piece of wood, it turns into ash, smoke, and coal. We cannot change the ash, smoke, and coal into wood again.
- ✓ When we bake cake batter it turns into cake. We cannot change the cake into batter again.
- ✓ Cloth changes its colour when bleach is thrown on it. This cannot be reversed.

ON YOUR OWN

1. List four materials that go through a reversible change.

I. _____

II. _____

III. _____

IV. _____

2. List four materials that go through a non-reversible change.

I. _____

II. _____

III. _____

IV. _____

HOMEWORK

Experiment- With the help of an adult

Items needed:

butter

cube of Ice

pieces of wax (from a candle)

candle

matches (**only used with adult supervision**)

tin

spoon.

Procedure

With the help of an adult:

I. Place the lit candle into the tin.

II. Add some butter into a spoon, place the spoon over the lit candle and wait for the butter to melt. When the butter melts place it to cool.

- III. Add the pieces of wax into a spoon, place the spoon over the lit candle and wait for the wax to melt. When the wax melts place it to cool.
- IV. Place the cube of ice into a spoon, place the spoon over the lit candle.
- V. Record your observations.



**MINISTRY OF EDUCATION
PRIMARY ENGAGEMENT PROGRAMME
GRADE FOUR WORKSHEET
SUBJECT: SCIENCE
WEEK 7: LESSON 2
TOPIC: MATERIALS- NON-REVERSIBLE CHANGES ON MATERIALS**

Name: _____ Date: _____

FACTS / TIPS:

Forms of Non-Reversible Changes

I. Heating

Heating can cause a non-reversible change. If you boil an egg the cooked egg cannot be changed into a raw egg again.

Some materials that can be changed by heating are:

- dough
- egg
- cake mixtures

II. Burning

Burning is another example of an irreversible change. When you burn wood, you get ash and smoke. You cannot change the ash and smoke back to wood again.

Some materials that can be changed by burning are:

- wood
- mosquito coil
- paper
- cloth

III. Rusting

Rusting is a non-reversible change. The iron combines with oxygen to form a new compound called rust. Once rust is formed it cannot be converted back into iron.

Some materials that can be changed by rusting are:

- Iron
- Steel

ON YOUR OWN

Experiment -With the help of an adult

Items needed

egg

mosquito coil

saucer

dark coloured cloth

piece of steel rod

bucket of water.

bleach

matches (**only used with adult supervision**)

frying pan

stove

Procedure

With the help of an adult:

- I. Place the frying pan onto the stove, light the stove and wait for the frying pan to heat. Add two teaspoons of oil into the pan. While the oil is heating, crack the shell and place the egg into a

bowl. Add salt and seasoning, whisk mixture with a fork and pour into the frying pan. Leave to cook. Flip onto the other side until golden brown.

- II. Place the mosquito coil onto a saucer, use the match to light the coil and leave it to burn.
- III. Pour bleach on the cloth and leave to dry.
- IV. Place the piece of steel rod into a bucket of water and leave for two days.
- V. Record your observations.



**MINISTRY OF EDUCATION
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SUBJECT: SCIENCE
LESSON REVIEW WEEK 7
TOPIC: MATERIALS- NON-REVERSIBLE CHANGES ON MATERIALS**

Name: _____ **Date:** _____

Read the questions carefully then write the correct answers.

1. Define the term "reversible change".

2. Reversible changes are also known as

_____.

3. Two examples of a reversible change are

_____ and _____.

4. Define the term "non-reversible change"

5. Non-reversible changes are also known as

_____.

6. Two examples of non-reversible changes are

_____ and _____.

7. One example of a material that can have a permanent change

by burning is _____.

8. Tom was helping his mother to cook. His mother instructed him

to place two spoons of butter in a heated pot. After a few

seconds, Tom noticed the butter starting to change. Explain in

your own words what happened to the butter.

9. For ice to change back into water we add

_____.

10. In a non-reversible change

_____ are always formed.



**MINISTRY OF EDUCATION
PRIMARY ENGAGEMENT PROGRAMME
GRADE FOUR WORKSHEET
SUBJECT: SCIENCE
WEEK 8: LESSON 1
TOPIC: MATERIALS-PROPERTIES OF AIR**

Name: _____

Date: _____

FACTS/ TIPS:

Earth's atmosphere is composed of air.

DEFINITION: Air is a mixture of gases.

Air is made up of:

- Oxygen
- Nitrogen
- Carbon dioxide
- Water vapour and other gases.

These substances are what give the air mass.

All living things need air to live. Humans and animals depend on oxygen while plants depend on carbon dioxide to survive.

ON YOUR OWN

1. Earth's atmosphere is composed of _____.
2. Define the term 'air' _____.
3. Two gases found in the atmosphere are _____ and _____.
4. Humans and animals depend on _____ to survive.
5. The gases found in the atmosphere give air _____.

HOMEWORK

Do some research, then answer questions 1 & 2.

1. Define the term "matter" _____.
2. The three states of matter are _____, _____ and _____.
3. Give one example of each state of matter.



**MINISTRY OF EDUCATION
PRIMARY ENGAGEMENT PROGRAMME
GRADE FOUR WORKSHEET
SUBJECT: SCIENCE
WEEK 8: LESSON 2
TOPIC: MATERIALS-PROPERTIES OF AIR**

Name: _____

Date: _____

FACTS / TIPS:

Properties of Air.

- Air is colourless and cannot be seen, but we can feel it.
- Hot air rises while cold air sinks.
- Moving air carries heat around the Earth.
- Air exerts pressure and has weight.
- Air can be compressed.
- Air occupies space and can also cause some objects to move.

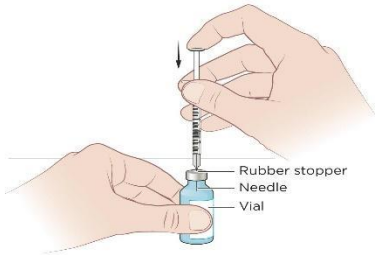
The atmosphere that surrounds earth has weight and pushes down on anything below it. The weight of air above a given area on the earth's surface is called atmospheric pressure, as the weight of the air decreases, so does the air pressure.

Air can be useful and harmful.

- Air under pressure is useful e.g. in tyres, medicine stoppers etc.
-



Air is pumped into a bicycle tyre using a hand pump.



The **medicine** vial is placed on a flat surface and the needle is inserted straight through the rubber **stopper**. The plunger of the syringe is pushed down and air is injected into the vial. The **air** injected into the vial will allow the **medicine** to be withdrawn more easily.

- Air with force can be harmful e.g. hurricane, tornado or storms can cause destruction to lives, places and properties. Air can also cause erosion (wind erosion).



TORNADO



HURRICANE



STORMS



SOIL EROSION CAUSED BY WIND

ON YOUR OWN

Experiment

Items needed:

3 balloons
pieces of paper
glass
bowl of water
cotton balls
stick
string

A. Air can move objects.

Procedure

- I. Fill the balloon with air, hold the mouth of the balloon tightly so the air does not escape.
- II. Place the pieces of paper on a table.
- III. Place the mouth of the balloon towards the pieces of paper and slowly release the air. You'll find that the air from the balloon is capable of moving the pieces of paper.
- IV. Record your observation.

B. Air occupies space

Procedure

- I. Press a piece of cotton wool at the bottom of the glass.
- II. Put the glass upside down in the bowl of water. Take the glass out, you will find that the cotton wool is dry.
- III. Place the glass into the water again and tilt it slightly, you'll notice air bubbles can be seen leaving the glass and water now enters it.
- IV. Record your observation.

C. Air has weight

Procedure

- I. Fill two balloons with equal amounts of air.
- II. Tie the string in the middle of the stick and suspend it in the air.
- III. Tie each balloon to each end of the stick respectively.
- IV. Remove the air from one of the balloons. You'll find that the end of the stick with the balloon filled with air goes down, proving that air has weight.
- V. Record your observation.

HOMEWORK

1. List 3 properties of air.



**MINISTRY OF EDUCATION
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GRADE FOUR WORKSHEET
SUBJECT: SCIENCE
LESSON REVIEW WEEK 8**

Name: _____ **Date:** _____

Read the questions carefully then write the correct answers.

1. Define the term "air".

2. List two components of air.

I. _____

II. _____

3. The weight of air above a given area on the Earth's surface is called _____.

4. All living things need _____ to survive.

5. Two properties of air are:

I. _____

II. _____

6. One way air can be useful is

_____.

7. Two ways air can be harmful are

I. _____

II. _____

8. Hot air rises as cold air _____.

9. Puja conducted an experiment with her mom. They filled two balloons with air and tied it to each end of a stick which was suspended in the air. Puja popped one of the balloons and noticed that the balloon filled with air goes down. This experiment proves that air has _____.

10. The gas found in the air that plants depend on to survive is called _____.