KidsBuddy
Educational Application

# KidsBuddy

## Grade 2 Ebook Science

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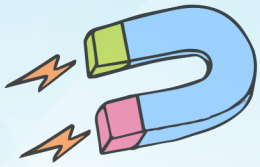


# Chapter 6.....

## Seasons and Adaptation of Plants and Animals.

# KNOWLEDGE CARDS

Chapter- 1

# Life Cycles of Flowering Plants

## 1 FUNCTIONS OF FLOWERS


A flower is a special part of a flowering plant that helps it make babies. It has male and female parts inside, and it's also a good source of food for other living things. Flowers have a sweet liquid called nectar that animals like bees and butterflies love to drink.

Providing nectar to attract pollinators like honeybees. This helps the plant make sure it can make babies. Having brightly colored petals and sweet scents that attract animals and insects for pollination also helps the plant make babies.

Developing into a fruit containing a seed after fertilization. This seed can grow into a new plant. Producing male and female gametes inside their reproductive structures. These gametes come together during pollination to create new plants. People also use flowers for many special occasions, like weddings, funerals, and expressing love. Flowers have brightly colored petals that look beautiful and make us feel happy. They are a special way to show someone that you care about them.

In summary, flowers are important parts of plants that help them make babies. They have male and female parts inside, and they also provide food for animals with their nectar. Flowers have many functions, like attracting pollinators, producing fruit and seeds, and creating new plants. People also use flowers for special occasions because they are beautiful and show that we care about each other.

1.1 **Which elements are rich in a flower?**

- Protein
- Fiber
- Nectar
- Glucosel

1.2 **State True/False?**

Flowers are a good source of food for other living organisms.

- True
- False

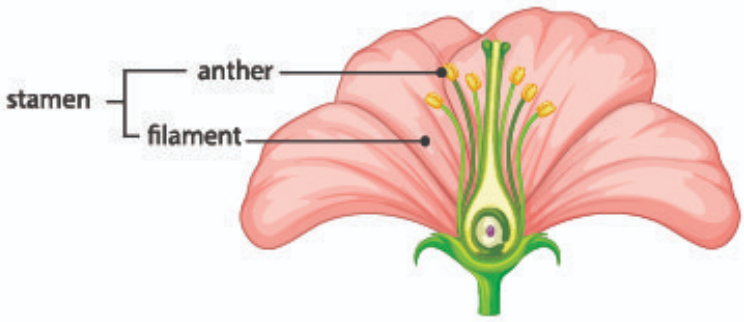
1.3 **State True/False?**

Flowers are a good source of food for other living organisms.

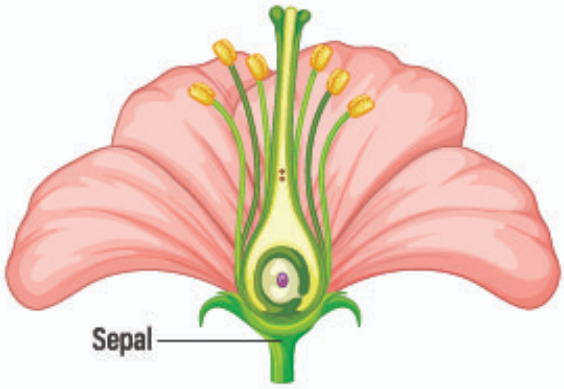
- True
- False

# 2 PARTS OF FLOWER

Stamens




Fiber




A flower is a special part of a plant that helps it make babies. It has both male and female parts inside. Flowers are also important because they give food to other living things. They have a sweet liquid called nectar that insects and birds like to drink.
Sepals: These are the small, leaf-like parts that are at the base of the petals. They protect the flower before it blooms.

Stamens: These are the male parts of the flower. They make a powder called pollen that helps make seeds. Carpels: These are the female parts of the flower. They have the pistil, which is the special part that helps make seeds.

Petals: These are the colourful parts that grow just above the sepals. They are often bright and pretty to look at.

A flower can have just female parts, just male parts, or both. This helps the plant make sure it can make babies even if there aren't other flowers nearby.

In summary, flowers are important parts of plants that help make babies. They have male and female parts inside, and they also provide food for insects and birds with their nectar. Most flowers have four parts — sepals, petals, stamens, and carpels - that all work together to make sure the plant can make babies.

## 2.1 What is a flower?

- Food factory of a plant
- Reproductive part of a plant
- It absorbing nutrients
- None of these

## 2.2 Which elements are rich in a flower?

- Protein
- Fiber
- Glucose
- Nectar

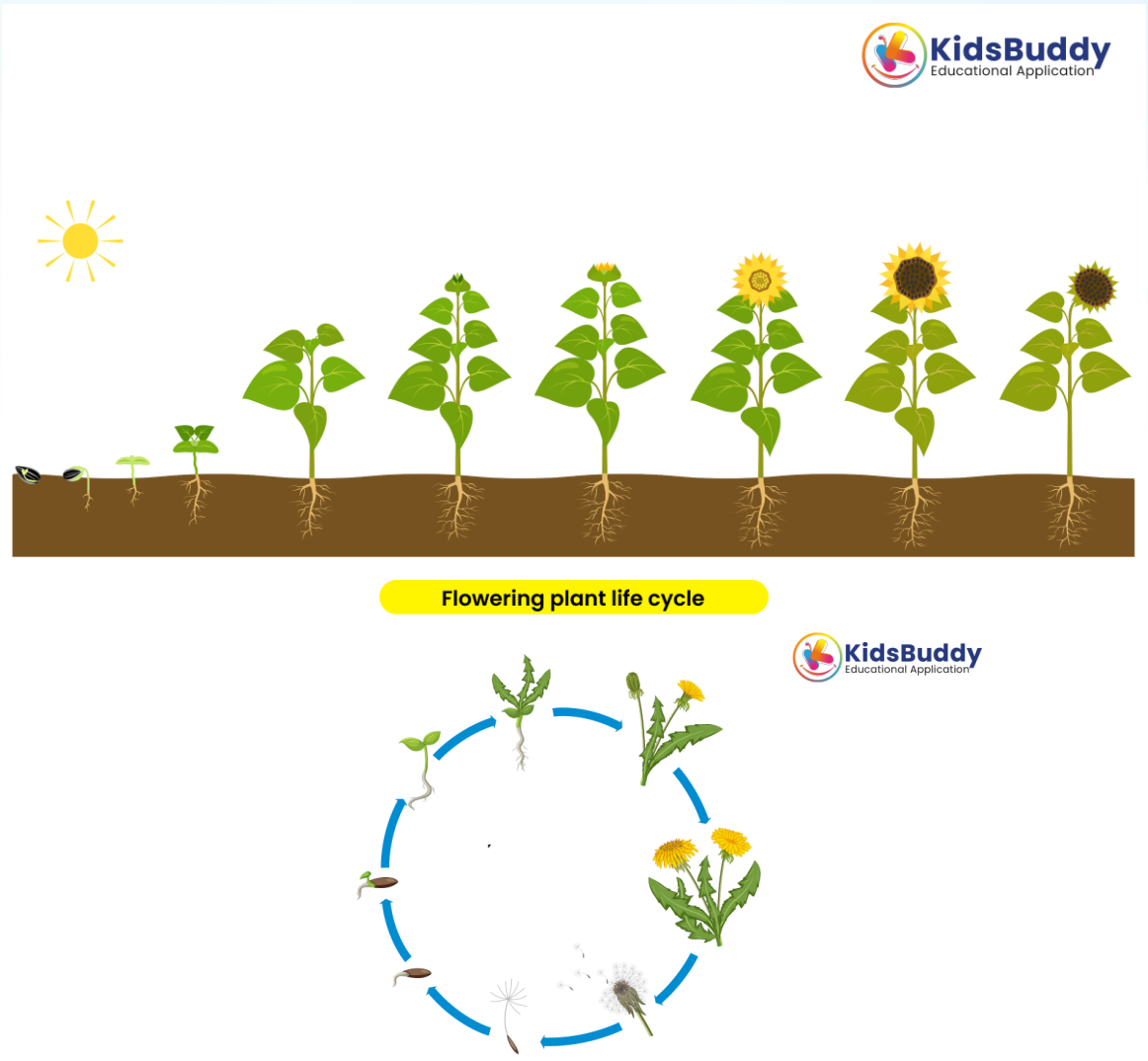
## 2.3 The main parts of the flowers are _____

- Sepals
- Peals
- Stamens
- All of these

## 2.3 What is the specialty of petals?

- Bright color
- Colorless
- Odorless
- All of these

# 3 Flowering plant life cycle




Flowering plants, like all other plants, start their life cycle as a seed. The seed contains all the genetic material necessary for the plant's growth and development. For a seed to germinate, it requires an adequate amount of warmth, sunlight, air, and water. Once the seed has germinated, the plant gradually develops additional leaves and a longer stem or stalk to become a mature plant.

The life cycle of a flowering plant can be divided into several stages, including seed, germination, growth, reproduction, pollination, and seed dispersal. In the growth stage, the plant continues to develop and mature until it is capable of reproducing.

Plants have two methods of reproduction: asexual and sexual reproduction. Asexual reproduction involves the production of new plants from a single parent plant, without the need for fertilization. Sexual reproduction, on the other hand, involves the fusion of male and female gametes, resulting in genetic variation in the offspring.

Flowering plants rely on pollinators, such as bees and butterflies, to transfer pollen between male and female reproductive structures. This allows for sexual reproduction and the production of seeds, which are then dispersed to new locations through various means, such as wind or animals.

Overall, the life cycle of a flowering plant is a complex and fascinating process that relies on a combination of environmental factors, reproduction methods, and pollination to ensure the survival and continuation of the species.

3.1 Each and every flowering plant begins as a _____

- Seed
- Germination
- Growth
- Reproduction

3.2 Which components need for the germination of the seed?

- Sunlight
- Air
- Water
- All of the above

# 4 Seed


Seeds are the reproductive units that plants produce to create new plants. The process through which a plant develops from a seed is called germination, which requires favourable environmental factors such as sunlight, soil, water, and air. Plant seeds that are buried too deeply in the soil will not grow.

In addition to their role in plant reproduction, some seeds are also edible and provide essential nutrients for humans and animals. Seeds can be divided into three categories based on the type of food they provide: grains, pulses, and oilseeds.

Grains, such as rice, wheat, and jowar, are the most widely consumed type of seed, providing a significant portion of the world's caloric intake. Pulses, including peas, grams, and beans, are an excellent source of protein and are widely consumed in vegetarian and vegan diets. Oilseeds, such as sunflower seeds, mustard, groundnut, and sesame, are rich in healthy fats and are used to produce cooking oil and other food products.

In addition to these commonly known seeds, there are many other types of seeds that are also a good source of protein and other essential nutrients. For example, pumpkin seeds, cashews, and almonds are protein-rich seeds that provide a range of health benefits.

In summary, seeds play a vital role in the plant life cycle and provide essential nutrients for humans and animals. By understanding the different types of seeds and their uses, we can make informed choices about the foods we consume and promote sustainable agriculture practices.

4.1 The tiny components that plants create from which new plants grow are known as_____

Seed | Germination

Growth | Reproduction

4.2 _____ is the process through which a plant develops from a seed.

Seed | Germination

Growth | Reproduction

4.3 Identify the seeds from the image.

Rice | Mustard

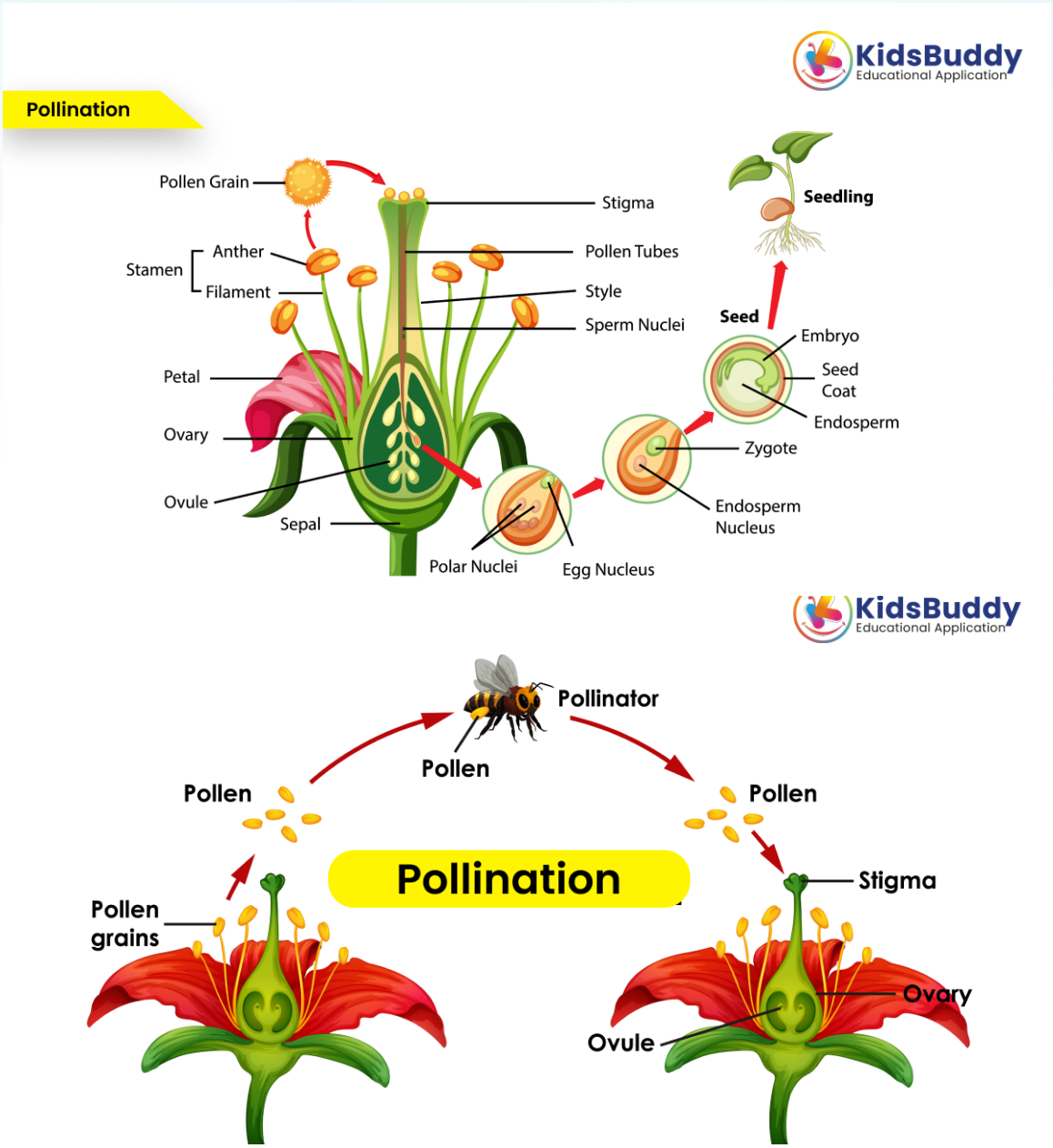
Groundnut

4.4 Identify the seeds from the image.

Rice | Cashew

Badam

# 5 Pollination




Plants have evolved different strategies for reproduction, and in flowering plants, the flower is the reproductive structure responsible for producing seeds. Flowers can contain both male and female reproductive organs, or just one of them. Sexual reproduction in flowering plants involves the transfer of pollen from the male reproductive organ, the

anther, to the female reproductive organ, the stigma, a process called pollination.

Pollination can occur through various agents, such as wind or animals, including insects, birds, and mammals. Some plants have adapted to specific pollinators, such as bees, by developing attractive shapes, colors, and scents to lure them. Insects can collect nectar or pollen from flowers while carrying pollen from one flower to another. Wind-pollinated plants, on the other hand, produce small and light pollen grains that can travel long distances by air currents.

After successful pollination, the fertilized flower ovules develop into seeds, which can disperse in different ways, depending on the plant species. Wind-dispersed seeds can have structures such as wings or tufts that help them fly away from the parent plant, while animals can transport seeds in various ways, such as by ingestion or attachment to their fur or feathers.

In conclusion, flowers are the reproductive structures of flowering plants, and pollination is the process by which pollen from the anther is transferred to the

stigma, enabling fertilization and seed production. Pollination can occur through different agents, and seed dispersal can also happen through various mechanisms. These diverse strategies have allowed plants to colonize and thrive in different environments and habitats.

5.1 The _____ is the reproductive part of the plants.

Stem | Root

Flower | Leaves

5.2 _____ is the process of transferring pollen from the male part of the plant, the anther, to the female part of the plant, the stigma.

Seed | Germination

Pollination | Reproduction

5.3 There are two types of reproduction in flowers. Which are they?

- Sexual reproduction
- Asexual reproduction
- Both of them
- None of these

# Answer key

1.1 Nectar

1.2 True

1.3 True

2.1 Reproductive part of a plant

2.2 Nectar

2.3 All of these

2.4 Bright color

3.1 Seed

3.2 All of the above

4.1 Seed

4.2 Germination

4.3 Groundnut

4.4 Cashew

5.1 Flower

5.2 Pollination

5.3 Both of them

# KIDS CHALLENGES

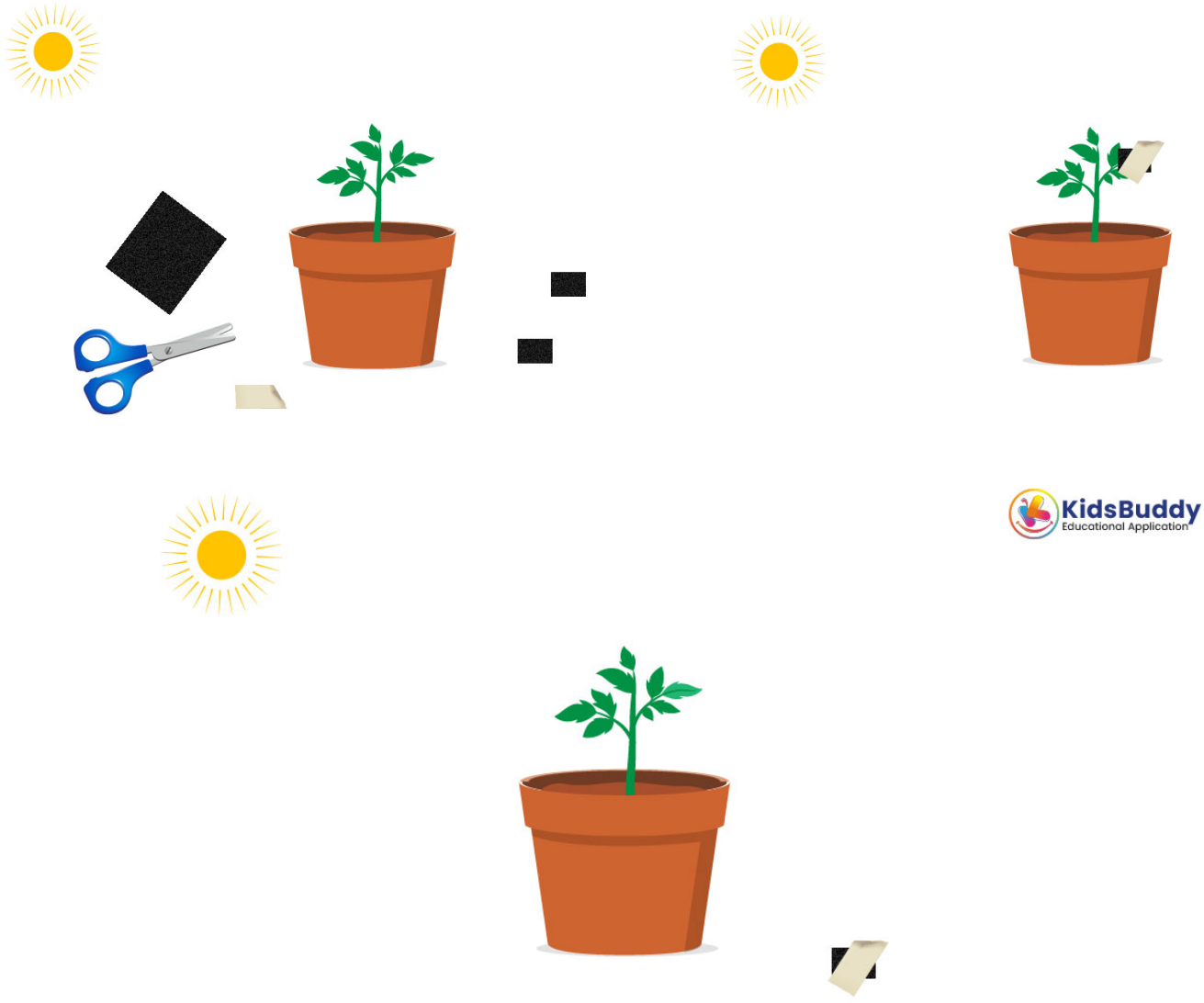
## Chapter- 1

# Life Cycles of Flowering Plants

## 1 Lights out

**Aim:**

The aim of this experiment is to understand the effect of sunlight on plant growth.



**Materials used :**

Indoor plant, Scissors, Tape, Black construction paper.

**Procedure:**

**Step 1** : Cut two pieces of black construction paper, enough to cover one leaf on the plant.
**Step 2** : Cover the leaf using the two pieces of paper and tape them together. It is important that the leaf does not receive any sunlight.
**Step 3** :After 7 days, uncover the leaf and examine it for any changes in color or texture.

**Expected result:**

The leaf that was covered with black paper should be much paler than the other leaves on the plant, indicating that it did not receive enough sunlight to carry out photosynthesis.

**Principle:**

Sunlight and air are essential for plant growth. By covering the leaf with black paper, we are disrupting the biological functions of the leaf and preventing it from carrying out photosynthesis, which is crucial for plant growth.

# 2 Baby bean

**Aim:**

The aim of this experiment is to help students understand the different parts of a seed and their functions.

**Materials used :**

Beans(20), container.

**Procedure:**

Step 1 : Begin by examining a dry bean and identifying its different parts, including the micropyle, hilum, and seed coat.

Step 2: Next, place the beans in a container with some water and leave it in the refrigerator overnight.

Step 3: The following day, take out the beans from the refrigerator and carefully remove one of the seeds to observe its contents. It is important to perform this step under the guidance of a parent or guardian.

**Expected result:**

By carefully removing the outer covering of the seed, you will be able to observe a baby bean inside. This will help you understand the different parts of a seed and their functions.

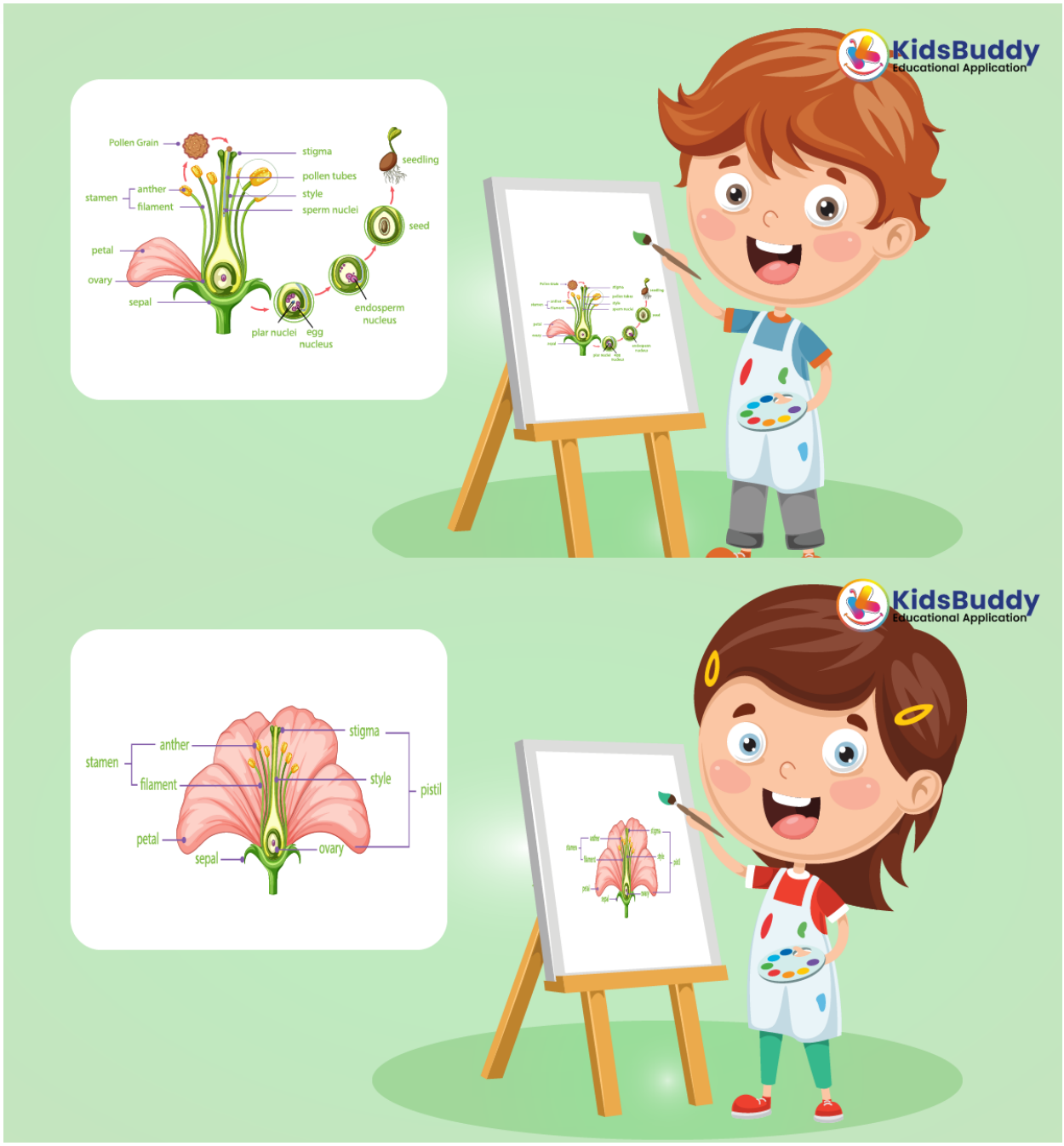
**Principle:**

The different parts of a seed play important roles in the growth and development of a plant. The seed coat serves as a protective covering for the growing embryo, while the bean provides the necessary food for the baby plant to grow. The hilum is where the bean is attached to the pod wall, and the micropyle is a small opening through which pollen grains can enter.

# 3 Drawing and Identifying Parts of a Flower

**Aim:**

To draw and label the different parts of a flower, and understand their functions.



**Materials used :**

Blank sheet of paper, Pencil/pen, Colour pencils/markers

**Procedure:**

**Step 1** : Take a blank sheet of paper and draw a simple flower with a stem.
**Step 2** : Identify the different parts of the flower - the sepals, petals, stamens, and carpels.
**Step 3** :Label each part of the flower on the drawing, using a pencil or pen.
**Step 4** :Colour the petals and any other parts of the flower as desired, using colour pencils or markers.

**Expected result:**

The different parts of a flower and their functions are as follows:

Sepals: The outermost layer of the flower, usually green in colour, that protects the bud before it blooms.

Petals: The colourful, often fragrant part of the flower that attracts pollinators such as bees and butterflies.

Stamens: The male reproductive part of the flower, consisting of the anther (which produces pollen) and the filament (which supports the anther).

Carpels: The female reproductive part of the flower, consisting of the stigma (which receives pollen), the style (which connects the stigma to the ovary), and the ovary (which contains the ovules)

# QUIZ

## Chapter- 1

# Life Cycles of Flowering Plants

1 Which fruit has seed outside of it?

- Banana
- Strawberry
- Mango
- Jackfruit

2 Leaves are green due to presence of green pigment called?

- Melanin
- Hydrophytes
- Chlorophyil
- Hydrogen

3 Which of the following is the beginning of the plant life cycle?

- Seed
- Flower
- Stem

4 What do seeds need to grow?

Water | Plastic | Paper

5 State True/False?

All plants have flowers.

True | False

6 State True/False?

All plants have a life cycle?

True | False

7 State True/False?

Humans and animals such as birds, monkeys, elephants and so on disperse seeds.

True | False

8 ____ can move pollen from one flower to another flower.

Bees | Leaves | Stem

9 Why are flowers important to a plant?

- They give pleasant smell.
- They are brightly colored and look beautiful.
- They help a plant with reproduction.

10 Where do you find a seed in a pine tree?

- Cone
- Flower

11 What helps protect the seeds and spread the seeds?

- A flower
- A shoot
- A fruit

12 What does the seed coat do?

- It uses sunlight to make food for the plant. It makes pollen
- It protects the seed.
- It makes pollen.
- All of these

13 The part of the fruit that holds the young plant is called the _____

Seed | Stem | Leaves

14 State True/False?

Flowers form fruits and seeds come from fruits. That's the way a plant reproduces a new plant.

True | False

15 What is another name for an angiosperm?

Pollen | Seed | Flowering plant | Lifecycle

16 In which stage of the life cycle does the seed burst and grow roots?

Seeds | Germination | Pollination | Growth

17 Which statement about the life cycle of a flowering plant is FALSE?

- All seeds contain embryos.
- The plant becomes mature in the flowering stage.
- Pollination is when a plant makes its own food
- The wind, humans, and animals can spread seeds.

18 What is the outside of a seed called?

- Seed coat
- Seed suit

19 A _____ is the different parts of a living things life as it grows and changes.

- Life cycle
- Parts of body

20 The powder-like material that helps plants reproduce is called _____

- Pollen
- Seed

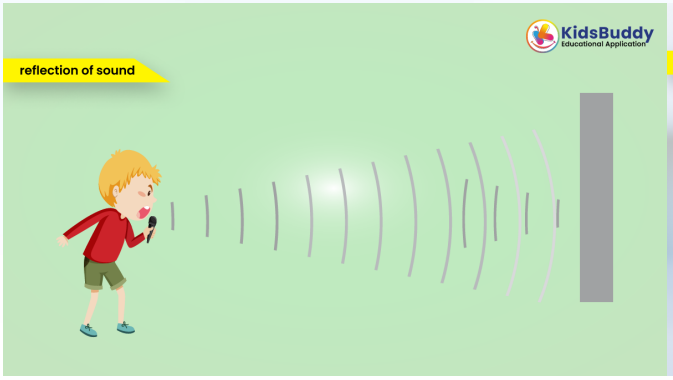
# Answer key

1. Strawberry
2. Chlorophyil
3. Seed
4. Water
5. False
6. True
7. True
8. Bees
9. They help a plant with reproduction.
10. Cone
11. A fruit
12. It protects the seed.
13. Seed
14. True
15. Flowering plant
16. Germination
17. Pollination is when a plant makes its own food
18. Seed coat
19. Life cycle
20. Pollen

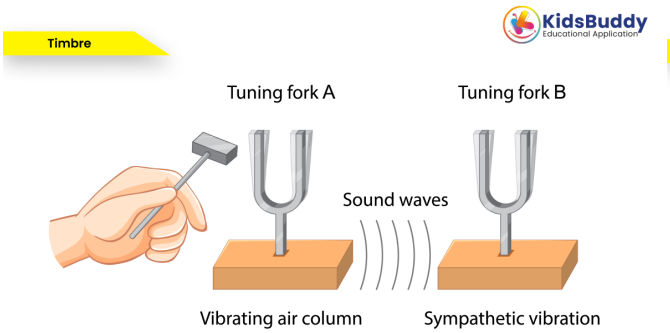
# KNOWLEDGE CARDS

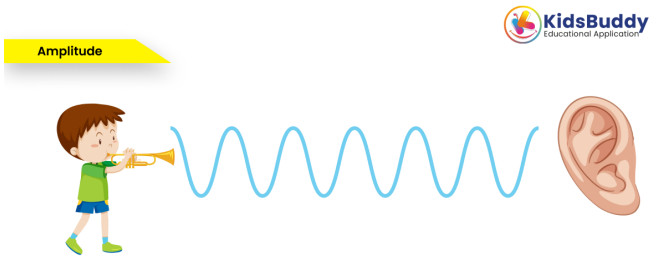
# Chapter- 2
# Sound

## 1 Properties of Sound








Sound is a type of energy that travels through a medium as longitudinal waves, characterized by certain properties. One of these properties is pitch, which refers to the perception of a sound's frequency within the range of human hearing. Higher frequencies result in higher pitches, while lower frequencies produce lower pitches.

Another important property of sound is amplitude, which determines the loudness of a sound wave.

Amplitude corresponds to the amount of energy in a sound wave, and a higher amplitude means a more vigorous vibration. The energy of sound waves can be perceived as louder or softer, depending on their amplitude.

Reflection of sound is another property that is relevant to how sound behaves in different environments. Sound waves can bounce back when they encounter a solid or a surface, and this is known as sound reflection. Similar to light waves, sound waves also obey the laws of reflection.

Finally, timbre is a property of sound that describes the ability to distinguish between sounds that have the same pitch and amplitude. Timbre is influenced by the material or substance that produces the sound, and can be thought of as the "color" or "tone" of a sound. For instance, a guitar and a piano can play the same note at the same volume, but they will sound distinct from each other due to differences in timbre.

1.1 What are the properties of the sound?

- Pitch
- Amplitude
- Timbre
- All of the above

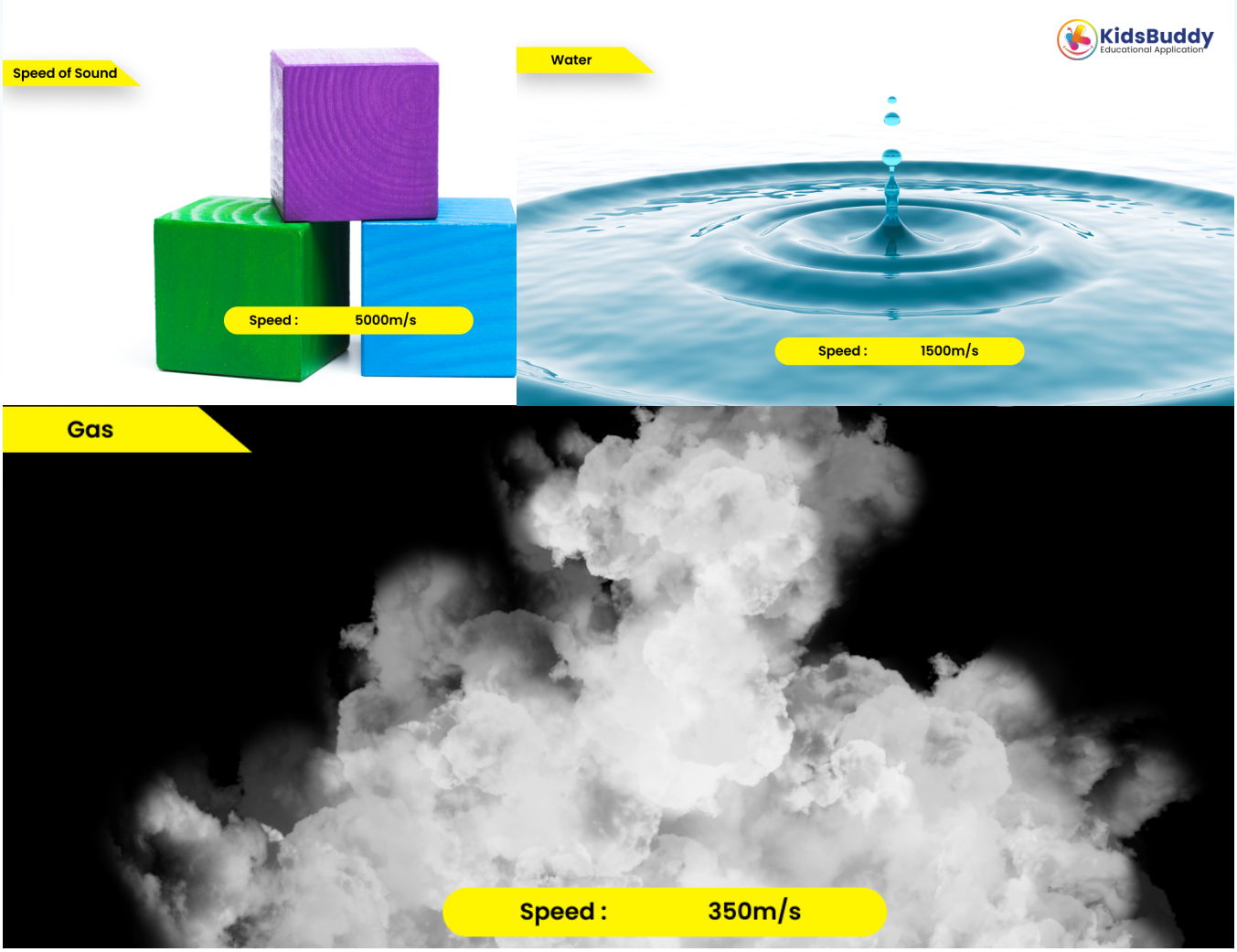
1.2 _____is affected by the material used to produce the sound?

- Pitch
- Amplitude
- Timbre
- Reflection of Sound

1.3 The loudness of a sound wave depends on its_____?

- Pitch
- Amplitude
- Timbre
- Reflection of Sound

# 2 Speed of Sound




Sound is a form of energy that travels through a medium, such as air, water, or solids, much like light travels through the air. When a sound is produced, like clapping your hands, it creates sound waves that travel through the air and are detected by our ears, allowing us to hear the sound.

The speed at which sound travels depends on the medium it's passing through. In dry air at room temperature, sound travels at a speed of approximately 1,125 feet per second (343 meters per second). This means that sound can travel over a mile in just five seconds! In comparison, sound travels faster through denser materials such as water (about 4,900 feet per second or 1496 meters per second) and solids such as metal or rock.

The speed of sound can be influenced by various factors, including temperature, humidity, and air pressure. For example, sound travels faster in warmer air than in cooler air due to the increased molecular motion in warmer air.

Understanding the speed of sound is important for many fields of study and practical applications. For instance, musicians use their knowledge of sound and the speed of sound to design and tune their instruments. Scientists studying natural phenomena like earthquakes also rely on knowledge of sound speed to analyse seismic waves. Additionally, aerospace engineers use this knowledge to design rockets and other spacecraft for efficient and effective travel

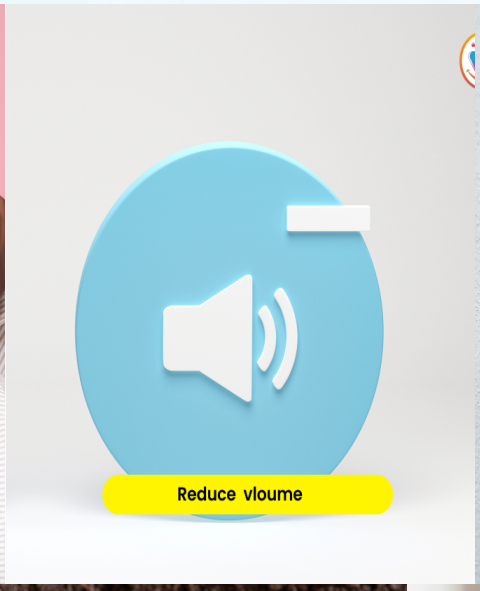
2.1 The speed of the sound affected by?

- Temperature
- Humidity
- air pressure
- All of them

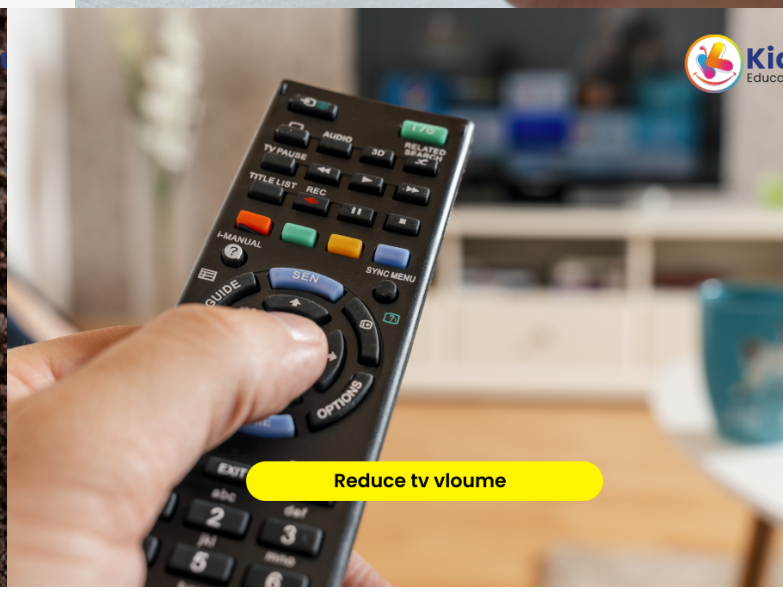
2.2 How many miles does sound can travel?

- 3 miles.
- 8 miles
- 12 miles
- 5 miles

# 3 Sound Pollution




Sound pollution, also known as noise pollution, is a type of pollution caused by excessive and unwanted sound. Just like pollution from cars or factories can harm the environment, sound pollution can harm the environment and living things, including people and animals.

Some examples of sources of sound pollution include loud music, barking dogs, construction work, aeroplanes, and traffic.

Sound pollution can be harmful to people's health, causing problems like headaches, stress, and hearing damage. It can also disturb animals, affecting their behaviour and communication. For example, loud noises can scare animals away from their natural habitats or make it difficult for them to find food or mates.

There are things we can do to reduce sound pollution. For example, we can try to keep our voices down when we're in quiet places, use headphones when listening to music or watching videos, and make sure our cars and other machines are in good working condition to reduce their noise levels.

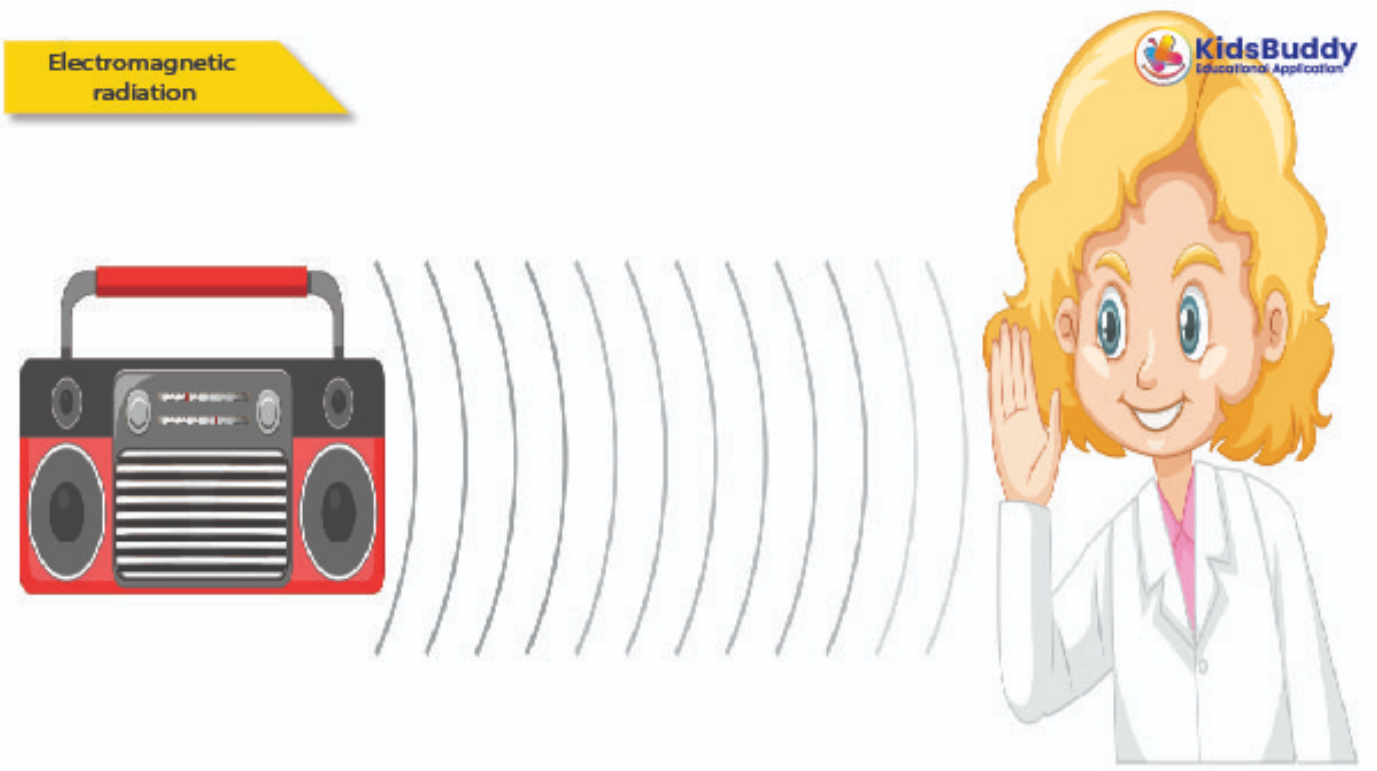
## 3.1 What are the examples for sound pollution?

- Loud music
- Barking dogs
- Construction work
- All of the above

## 3.2 What are the problem caused by noise pollution?

- Headaches
- Stress
- Hearing damage
- All of the above

# 4 SOUND COMES FROM SOURCE




Sound is all around us, and it comes from many different sources. Two types of sources of sound are man-made and natural source of sound. Man-made source of sound is our own voices. When we talk, sing, or even laugh, we create sounds with our mouths. It's like our mouths are little sound machines! Another source of sound is musical instruments. When we play these instruments, they vibrate and make sounds that we can hear. Vehicles and machines also produce sounds. Cars honk trains chug along with their whistles, and even vacuum cleaners and blenders make their own noises. On the other hand, the natural source of sound is the sound we hear in our nature.

Animals are also great sources of sound. Birds chirp and sing in the trees, dogs bark to communicate, and cats purr to show they're happy. Each animal has its own unique way of making sounds. Have you ever heard the wind blowing through the trees, or the raindrops falling on the ground? Even thunder and lightning make big booming sounds during a storm. It's like nature is putting on a symphony just for us to enjoy! Sometimes sound may make pollution and it is known as sound pollution. So, you see, sound comes from so many different sources. Our voices, musical instruments, animals, nature, vehicles, and machines all create sounds that fill our world with joy and excitement. Let's keep our ears open and enjoy the wonderful symphony of sounds around us!

## 4.1 Sound is a form of what?

- Force
- Energy
- Material
- Friction

## 4.2 The sources of sound are_____

- Natural
- Man made
- Both of them

## 4.3 The loud sound makes _____

- Soil pollution
- Water pollution
- Air pollution
- Sound pollution

# Answer key

1.1 All of the above

1.2 Timbre

1.3 Amplitude

2.1 all of them

2.2 5 miles

3.1 all of the above

3.2 all of the above

4.1 Energy

4.2 Both of them

4.3 Sound pollution

# KIDS CHALLENGES

# Chapter- 2
# Sound

## 1 Sonority

**Aim:**

The aim of this experiment is to understand how the shape of different materials affects the sound they produce.

**Materials used :**

Steel cup, Steel dish, Steel bottle, Spoon.

## Procedure:

Step 1: Place each material on a table.
Step 2:Take each material in your hand and hit it slowly with the spoon. Note the sound each material produces.

## Expected result:

The sound produced by each material will be different and will depend greatly on their shape.

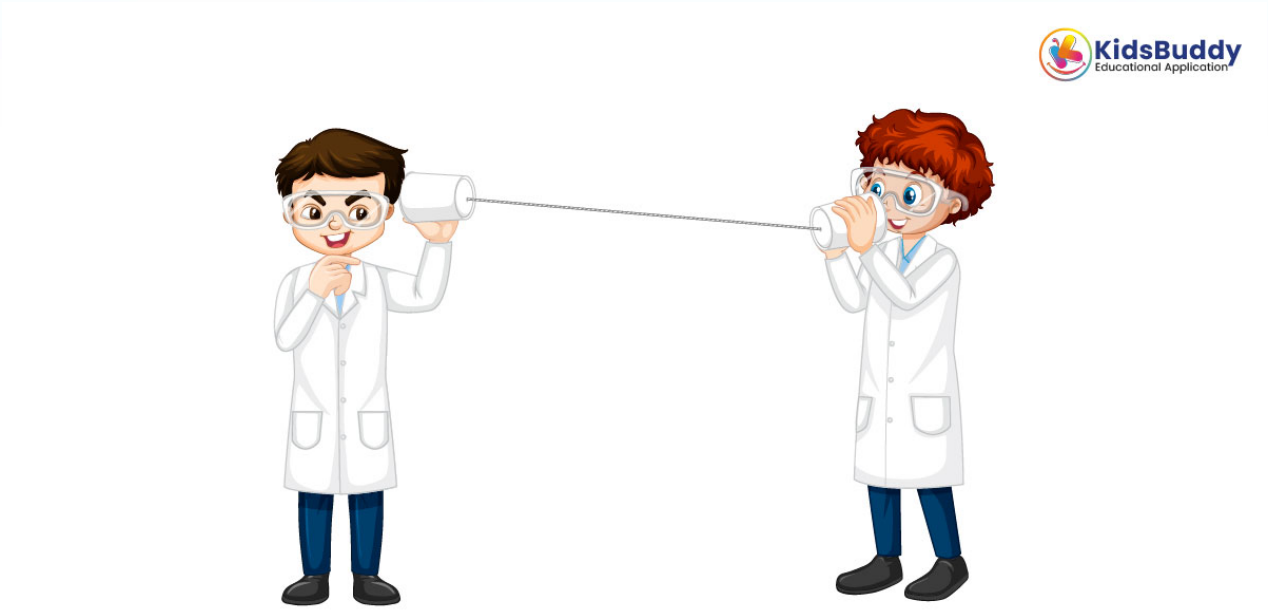
## Principle:

Sound is produced by the vibration of materials. The vibrations are affected by the shape of the material. A larger surface area can produce a deeper and more resonant sound, while a smaller surface area can produce a higher-pitched and more brittle sound.

# 2 String telephone

**Aim:**

The aim of this experiment is to make a string telephone and understand how sound is transmitted through a medium.




**Materials used :**

Two paper cups, scissors, long thread

**Procedure:**

Step 1 : Make a small hole at the bottom of each paper cup and tie one end of the thread to each cup.

Step 2: Find a friend and ask them to hold one end of the thread with their cup..

Step 3 : Pull the thread gently so that it remains tight, but not too tight that it snaps. Speak into the cup on your end of the thread and listen for the sound at the other end..

**Expected result:**

If the thread is tightened correctly, the communication between the two cups should be clear and audible.

**Principle:**

Sound waves can travel through a medium such as air or solid objects. In this experiment, the tightened thread acts as the medium through which sound waves are transmitted.

# 3 Observing Sound Waves

**Aim:**

To observe how sound travels through air and how it affects the surrounding objects.


**Materials used :**

Glass Cling film Rice Musical instrument such as a guitar or a piano

**Procedure:**

Step 1 : Take a glass and cover it with cling film, ensuring it is taut and secure..

Step 2 :Place some grains of rice on top of the cling film.

Step 3 : Play a musical instrument such as a guitar or a piano near the glass, making sure it is close enough to create vibrations.

Step 4 : Observe how the rice on top of the cling film moves due to the sound waves produced by the instrument.

**Expected result:**

This experiment helps children understand how sound travels through air in waves and how it affects the surrounding objects. The sound waves from the musical instrument cause the air molecules to vibrate, which then cause the cling film and rice to vibrate as well. This movement of the rice demonstrates the presence of sound waves and their effect on the surrounding objects.

# 4 Moving Sound Through Water

**Aim:**

To demonstrate how sound travels through different mediums, such as water. Procedure


**Materials used :**

Bowl Water Tuning fork Stick

**Procedure:**

Step 1 : Pour water into a bowl until it is about half full.

Step 2 : Hit a tuning fork with a stick to create a sound.

Step 3 :Lower the tuning fork gently into the water, ensuring that it is fully submerged

Step 4 : Observe the ripples created by the sound waves in the water.

**Expected result:**

This experiment demonstrates that sound waves can travel through different mediums, such as water. When the tuning fork is struck, it creates vibrations which then travel through the air and into the water. These vibrations cause the water molecules to move, creating ripples on the surface of the water.

# QUIZ

# Chapter- 2
# Sound

1 Sound cannot pass through:

- Water
- Steel
- Air
- Vacuum

2 The speed of sound will be highest in:

- Air
- Water
- Iron
- The speed of sound will remain same to all the substances

3 What name is given to the science of sound?

- Acoustics
- Pedology
- Ophthalmology
- Petrology

4 Sound will travel slowest through which of the following forms of matter?

- Air
- Water
- Milk
- Wood

5 Sound travels in _____

- Solid
- Liquid
- Gas
- All of these

6 What happens to the sound an object makes when the speed of vibrations decreases

- its volume will increase
- Its pitch rises
- Its pitch becomes lower

7 State True/False?

You can hear in space.

- True
- False

8 What is one way to change a pitch of a sound?

- Change the length or thinckness of the string
- Add more weight to the instrument
- Both of these

9 Sound travels through everything but can't travel through_____

Vacuum | Iron | Juice | Air

10 Sound is a form of?

Energy | Pitch | Light

11 When this occurs a sound is produced.

A vibration | A thickness | A light

12 State True/False?

The sound you hear from a piano comes from the strings vibrating inside the piano?

True | False

13 **State True/False?**

You can hear a sound through a solid material such as a brick wall or a door.

True | False

14 **Sound waves _____ move through all kinds of matter**

CAN | Cannot

15 **Do objects with a low pitch vibrate fast or slow?**

Iron | Plastic

16 **Which instrument is used to measure the sound produced underwater?**

Waterphone | Bluerecto

Hydrophone | Deprophone

17 **State True/False?**

You cannot see sound waves.

True | False

18 **Does a small instrument have a high pitch or a low pitch?**

Low pitch | High pitch

19 **What is frequency?**

The number of vibrations per second | The loudness or softness of a sound

20 **Why is the school library covered with carpet?**

To help absorb sounds to keep it quiet

Because it looks good

To help absorb sounds so it can stay noisy

# Answer key

1. Vacuum
2. Iron
3. Acoustics
4. Air
5. All of these
6. Its pitch becomes lower
7. False
8. Change the length or thinckness of the string
9. Vacuum
10. Energy
11. A vibration
12. True
13. True
14. Can
15. Slow
16. Hydrophone
17. True
18. High pitch
19. The number of vibrations per second
20. To help absorb sounds to keep it quiet

# KNOWLEDGE CARDS

## Chapter- 3

# States and Properties of Matter

## 1 Solid


A solid is a type of matter that can be found all around us. It is one of the three main types of matter, along with

liquids and gases. In solids, the tiny particles that make up the material are tightly packed together. Solids have some special features that help us identify them. Here are a few:

Solids have a fixed shape and volume. This means that they keep the same shape and take up the same amount of space, no matter where they are or what is happening around them.

The space between the particles in a solid is very small. This means that the particles are very close together and can't move around very much.

Solids are usually quite heavy for their size because they are densely packed with particles.

It is very hard to squish or squash a solid because the particles are already packed so tightly together.

There are two main types of solids: crystalline and amorphous. Crystalline solids have a very specific, ordered structure that looks like repeating patterns. Amorphous solids don't have a set pattern and can look more random.

1.1 One of the basic states of matter is _____

- Waves
- Force
- Electricity
- Solid

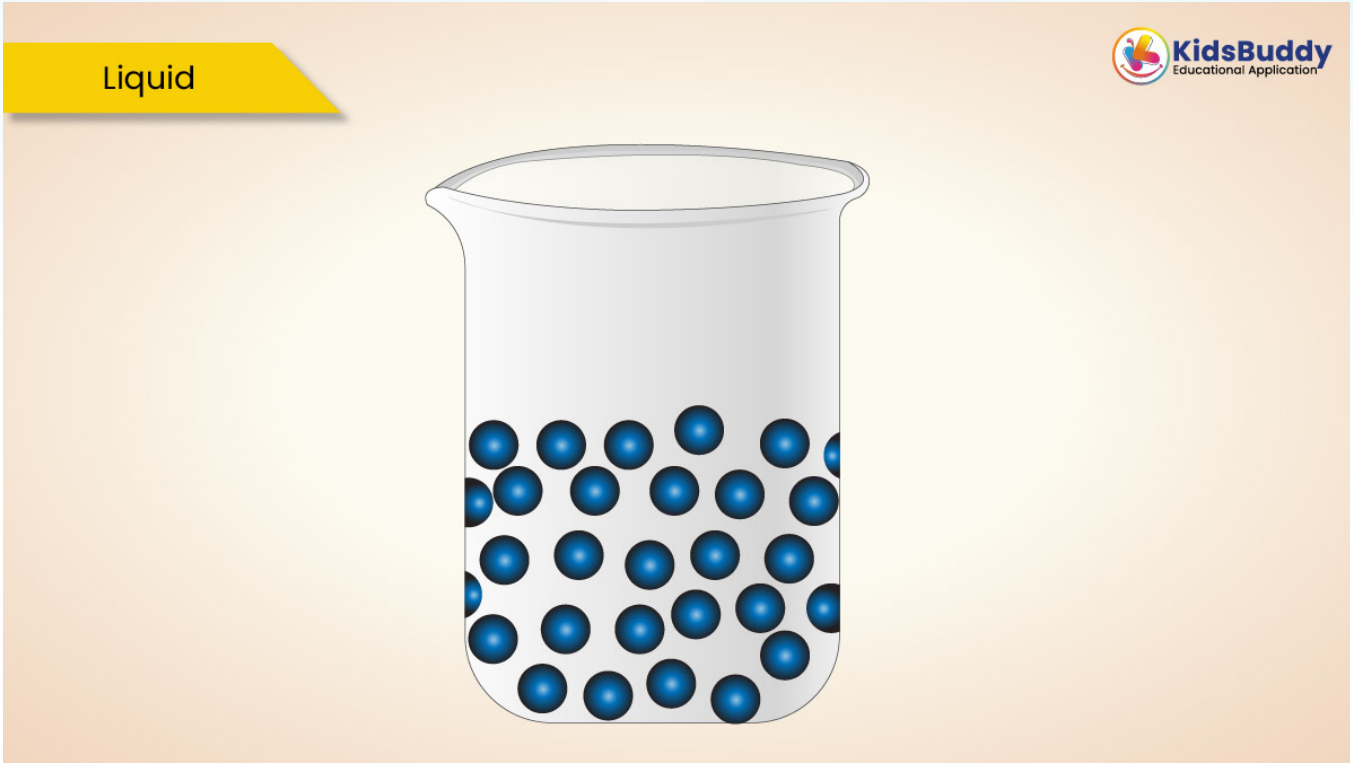
1.2 Important characteristics of soild are-

- Fixed volume
- Fixed shape
- Have density
- All of these

1.3 The two main categories of solids are-

- Crystalline solids
- Amorphous solids
- Both of them

# 2 Liquid




A liquid is something we can pour, like water or juice. It's made up of tiny parts called atoms or molecules that stick together, but not too tightly.

Liquids have some special things about them:

They always take up the same amount of space, but they can change their shape to fit the container they're in.

They weigh less than solids.

We can squeeze them a little bit, but it takes a lot of force to make them smaller.

The parts that make up liquids don't stick together as strongly as the parts of solids.

We can tell liquids apart from other things by noticing that they always have the same amount of space, but can change their shape to fit the container they're in.

2.1 **One of the basic states of matter is _____**

Waves | Liquid

Force | Electricity

2.2 **State True/ False**

In water the atoms are loosely connected by intermolecular bonds

TRUE | FALSE

## 2.3 State True/ False

Most common physical properties of a liquid are its retention of volume and its conformation to the shape of its container.

TRUE

FALSE

# 3 GASES


Gas is a type of matter. It is one of the three main states of matter, along with solids and liquids. Unlike solids and liquids, gas does not have a fixed shape or volume. It can change shape and spread out to fill any space. Air is a common example of a gas. We breathe in air, which is a mixture of different gases like nitrogen,

oxygen, carbon dioxide, and others. Other examples of gases include helium, hydrogen, natural gas, and steam (water vapour)

Gases can be compressed or squeezed into smaller spaces. For example, if we put air in a balloon and squeeze it, the air inside the balloon gets compressed.

Gases can also expand to fill larger spaces. If we release air from a balloon, it spreads out to fill the room.

Gases can move around easily. They have the ability to flow and mix with other gases. This is why we feel the wind when it blows.

Gases have many practical uses in our daily lives. For example, we use natural gas for cooking and heating.

Oxygen gas is essential for us to breathe. It is present in the air and helps us stay alive.

## 3.1 Identify true or false.

Gases are the third form of State of matter.

True | False

## 3.2 Identify true or false.

We use gas in our daily life.

True | False

## 3.3 Identify gas from the options

Oxygen | Table

Juice | Laptop

# Answer key

1.1 Solid

1.2 all of these

1.3 Both of them

2.1 Liquid

2.2 True

2.3 True

3.1 True

3.2 True

3.3 Oxygen

# KIDS CHALLENGES

Chapter- 3

# States and Properties of Matter

## 1 Make some cottage cheese

**Aim:**

The aim of this activity is to make cottage cheese and understand the basic science behind it.


**Materials used :**

Cup of milk 1, tablespoon of vinegar or lemon juice Cooking pot , Spoon, Cheese cloth or fine cloth, Strainer

**Procedure:**

**Step 1** :Pour the milk into a cooking pot and bring it to a boil on medium heat.

**Step 2** :Once the milk is boiling, add the vinegar or lemon juice and stir it well.

**Step 3:** Reduce the heat and continue stirring the milk for about 2-3 minutes until it starts to curdle and separate into solid chunks and liquid.

**Step 4:** Once the milk has separated into solid chunks and liquid, pour it into a strainer lined with cheesecloth or fine cloth.

**Step 5:** Rinse the solid chunks with cold water and then tie the cheesecloth or cloth to hang the cottage cheese and let it dry for a few hours.

**Expected result:**

As you add the vinegar or lemon juice to the boiling milk, you will see the milk start to curdle and separate into solid chunks and liquid. These solid chunks are cottage cheese.

**Principle:**

Cottage cheese is made from milk by adding an acid such as vinegar or lemon juice, which causes the milk to curdle and separate into solid chunks and liquid. The acid lowers the pH level of the milk, causing the protein molecules to separate from the water molecules and form long chains, resulting in the formation of cottage cheese.

# 2 Water purifier

**Aim:**

To understand how natural elements can help in water purification.

**Materials used :**

Two cups, water, charcoal.

**Procedure:**

Step 1 : Take a cup and layer it with sand, stones, and charcoal in the same order.

Step 2: Pour muddy water into the cup slowly and wait for some time.

Step 3: Observe the changes and compare it with the second cup filled with the same amount of muddy water.

**Expected result:**

The muddy water in the first cup will become clearer and cleaner than the muddy water in the second cup.

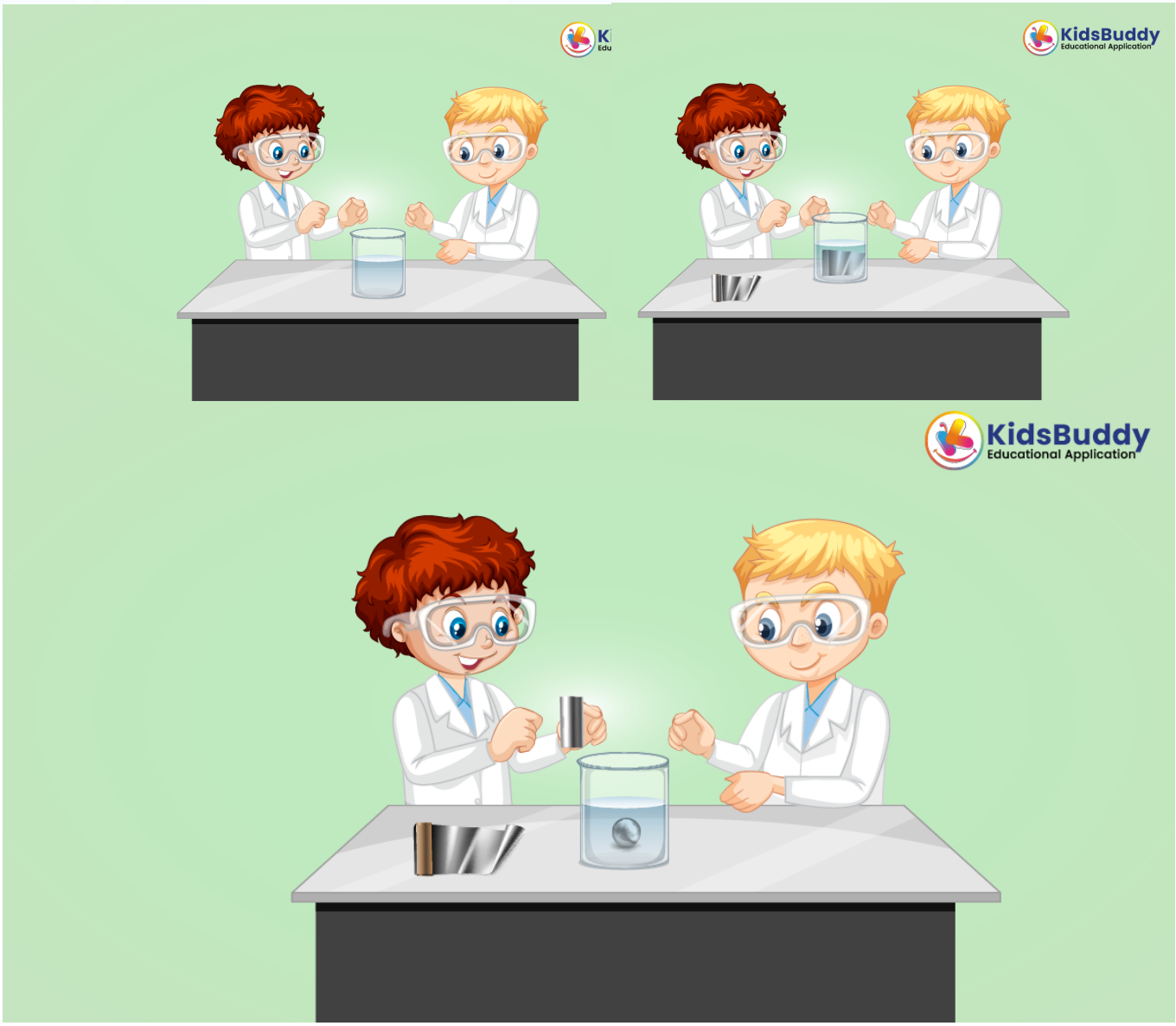
**Principle:**

The sand, stones, and charcoal act as a filter, trapping the dirt and impurities in the tiny pores of the sand and charcoal.

# 3 Exploring Floating and Sinking

**Aim:**

To observe the properties of matter by exploring floating and sinking.




**Materials used :**

Bowl Water Aluminum foil paper

**Procedure:**

Step 1 : Take a bowl and fill it with water.

Step 2 : Take a piece of aluminium foil and put it into the water.

Step 3: Observe how the aluminum foil floats on the surface of the water.

Step 4: Take the same piece of aluminium foil and scrunch it into a ball.

Step 5: Place the aluminium foil ball in the water.

Step 6: Observe how the aluminium foil ball sinks to the bottom of the bowl.

**Expected result:**

This experiment demonstrates the properties of matter and how they affect whether an object floats or sinks. Objects with a lower density than the liquid they are placed in will float, while objects with a higher density will sink. In this experiment, the aluminium foil floats on the water because it is less dense than water, while the scrunched-up aluminium foil ball sinks because it is denser.

# 4 Properties of Solid, Liquid, and Gas

**Aim:**

To understand and differentiate the properties of solid, liquid, and gas.


**Materials used :**

Three bottles containing ice cubes, water, and air, chart paper, pen.

**Procedure:**

Step 1 : Place three bottles on the table, filled with ice cubes, water, and air.

Step 2 : Identify and label each bottle as solid, liquid, or gas.

Step 3: Observe the bottles carefully and note down the properties of each state of matter on the chart paper.

Step 4 : For solid, observe its shape, volume, and rigidity. For liquid, note down its shape, volume, and ability to flow. For gas, observe its shape, volume, and ability to spread out and fill the container.

Step 5: Write down the characteristics of each state of matter, including its physical state, intermolecular forces, compressibility, density, and fluidity.

**Expected result:**

The student will get an awareness about the properties of different types of matter.

# QUIZ

## Chapter- 3

# States and Properties of Matter

1 At what temperature water starts boiling?

- 50 degrees C
- 100 degrees C
- 70 degrees C
- 65 degrees C

2 If you freeze water, what do you get?

- Gas
- Ice
- Water
- Oxygen

3 What do you get when you boil water?

- Steam
- Ice
- Water
- ice cube

4 What is not a common method used to measure a solid?

- Height
- Weight
- Volume
- Length

5 At what temperature does liquid water freeze?

- 0 Degree
- 17 Degree
- 20 Degree
- 25 Degree

6 What is the process that turns a gas into a liquid?

- Condensation
- Evaporation
- Melting
- Steam

7 Anything that takes up space and has mass is called _____

- Matter
- Water
- Vacuum

8 Which technique is used to separate the substances from a mixture?

- Racing Forging
- Chromatography
- Assembling

9 Which of the following is a mixture?

- Distilled water
- Gasoline
- Both A and B
- Neither A nor B

10 What physical property of matter can be observed just by looking at an object?

- Smell
- Size
- Temperature

11 When water become ice its volume:

- Deceases
- Increases
- Remain same

12 The changing of a liquid into a gas is _____

- Condensation
- Vaporization
- Water cycle
- Temperature

13 What are the different forms of water in nature?

- Ice
- Water
- Water vapour
- All of these

14 Water changes its form, when it is _____ or _____

- Heated
- Cooled
- Both of them
- None of these

15 The only metal that is liquid at room temperature is?

- Lead
- Silver
- Gold
- Mercury

16 Which one is not a property of liquid?

- It can flow
- It has mass
- It has a definite shape
- We can see it

17 Particles of matter are _____ .

- Stationary
- Vibrating in one position
- In continuous motion
- Rotating about an axis

18 In what way iodine can be separated from a mixture of potassium chloride and iodine?

- Filtration
- Sedimentation
- Sublimation
- Distillation

# Answer key

1. 100 degrees C
2. Ice
3. Steam
4. Weight
5. 0 Degree
6. Condensation
7. Matter
8. Chromatography
9. Gasoline
10. Size
11. Increases
12. vaporization
13. All of these
14. Both of them
15. Mercury
16. It has a definite shape
17. In continuous motion
18. Sublimation

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