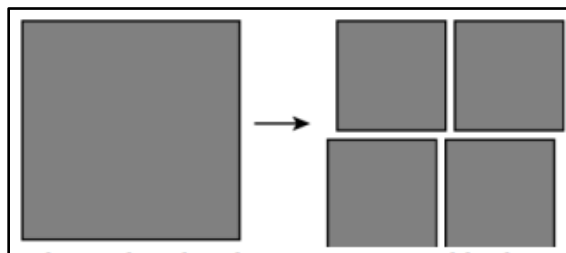




CLASS: VI	DEPARTMENT: SCIENCE	DATE: 12/10/2023
WORKSHEET NO: 9 WITH ANSWERS	TOPIC: CHANGES AROUND US	NOTE: A4 FILE FORMAT
NAME OF THE STUDENT:	CLASS & SEC:	ROLL NO.

I. OBJECTIVE-TYPE QUESTIONS:

- A girl is making chapati. She did the following steps:
Step 1: She added water, salt and flour to make a dough.
Step 2: She used a rolling pin to shape the dough.
Which of these options correctly explains the changes?
a) Both the steps represent a reversible change
b) Both the steps represent an irreversible change
c) Step 1 is a reversible change and step 2 is an irreversible change
d) Step 2 is a reversible change and step 1 is an irreversible change
- Which factor is responsible for the expansion and contraction of a metallic rod?
a) Change in shape
b) Change in weight
c) Change in type of material
d) Change in temperature of rod
- A student cuts a square piece of paper into 4 small square pieces as shown.



What makes this change an irreversible change?

- Addition of heat
- Change in shape
- Reduction of size**
- Difference in colour

4. A student learns that the bending of metallic wire is a reversible change. Why is it considered as a reversible change?

a) Because it can be changed back into its previous shape

b) Because the change caused to the metallic wire is permanent

c) Because the change in shape is always considered as a reversible change

d) Because metallic wire changes its shape more easily than other materials

5. Which of the following is an example of physical change?

a) A bud turning into a flower

b) Boiling of water

c) Ripening of a tomato

d) Rusting of iron

6. While lighting a candle, Paheli observed the following changes -

i) Wax was melting

ii) Candle was burning

iii) The size of the candle was reducing

iv) Melted wax was getting solidified.

Identify the changes that can be reversed:

a) (i) and (ii)

b) (ii) and (iii)

c) (iii) and (iv)

d) (i) and (iv)

For question numbers 7-10, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii) and (iv) as given below -

i) Both A and R are true and R is the correct explanation of the assertion.

ii) Both A and R are true but R is not the correct explanation of the assertion.

iii) A is true but R is false.

iv) A is false but R is true

7. **Assertion (A):** The burning of paper is a physical change.

Reason (R): The products formed on the burning of paper cannot be converted back to paper.

(iv) A is false but R is true

8. **Assertion (A):** Temporary changes can be reversed, but permanent changes cannot be reversed.

Reason (R): An irreversible change may also result in the formation of a new substance.

(ii) Both A and R are true but R is not the correct explanation of the assertion.

9. **Assertion (A):** The change of water from liquid to steam on heating is a reversible change.

Reason (R): The conversion of liquid into steam is called evaporation.

(ii) Both A and R are true but R is not the correct explanation of the assertion.

10. **Assertion (A):** A small gap is left between the rails of a railway track.

Reason (R): Cooling of substances results in expansion.

(iii) A is true but R is false.

II. VERY SHORT ANSWER TYPE QUESTIONS (2M):

1. What is a change? **[Hint: A change refers to a noticeable difference in shape, size, colour, state, internal structure or any other property of a substance or an object.]**

2. State any two changes caused due to heating.

[Hint: Expansion and change in state of matter.]

3. The shape of a paper sheet changes when you make a folded aeroplane from it. Can you reverse this change?

[Hint: Yes, this change can be reversed by unfolding the paper aeroplane.]

4. What are fast and slow changes?

[Hint: Fast changes take place over a short duration of time. E.g. Melting of ice.

Slow changes take a longer duration of time to complete. E.g. Rusting of iron.]

5. Expansion and contraction are considered as reversible changes. Give reasons.

[When the cause of heating or cooling is removed, the substances return to their original state. Thus, expansion and contraction are reversible changes.]

6. How does a blacksmith change a piece of iron into different tools?

[Hint: The piece of iron is heated till it becomes red hot. It then becomes soft and is beaten into a desired shape.]

7. What changes occur while burning an incense stick?

[Hint: The incense stick burns to produce ash and some gases, which cannot be reversed.]

8. What do you mean by expansion? **[Hint: Solids, liquids and gases occupy more space when they are heated. This is called expansion.]**

9. We dissolve salt in water. How can we reverse this change?

[Hint: We can reverse this change by evaporation of water by which salt can be obtained. Water vapour is then condensed to get liquid water.]

10. Construction workers heat a black material called tar for repairing a road. State whether the change which has occurred in tar being heated is reversible or irreversible.

[Hint: The melting of tar is a reversible process. When tar is heated, it is converted into a thick, dark liquid which again solidifies on cooling.]

III. SHORT ANSWER TYPE QUESTIONS (3M):

1. Differentiate reversible and irreversible changes with examples.

[Hint: Changes that can be reversed to get the original substances are called reversible changes. Example: Melting of ice into water.

Changes that cannot be reversed to get back the original substances are called irreversible changes. Example: setting of milk into curd.]

2. State whether burning a piece of paper is a reversible or an irreversible change.

Give reasons. [Hint: Burning a piece of paper is an irreversible change. When we burn a piece of paper, it changes into ash and smoke. We cannot combine the ash and smoke to form the original piece of paper. So, the burning of a piece of paper is an irreversible change.]

3. Distinguish between physical and chemical changes. Give suitable examples.

[Hint: Any change in the physical properties such as texture, colour, temperature, shape and change of state of a substance is referred to as a physical change. Eg. Melting of ice.

A chemical change occurs when the composition of the substance is changed and a new substance is formed. Eg. Rusting of iron.]

4. How does curd set? Is this change reversible? [Hint: A small quantity of curd is added to warm milk. The milk is stirred and set aside undisturbed for a few hours at a warm place. In a few hours, the milk changes into curd. Curd formed from milk cannot be changed into milk again. So, this is an irreversible change.]

5. Give an example in which both reversible and irreversible changes occur.

[Hint: Burning of a candle is an example of having both reversible and irreversible changes. When a candle burns, wax melts. Melting alone is a reversible change because on cooling solid wax is formed again. Burning wax produces carbon dioxide and water vapour which passes into the atmosphere and we cannot get back the candle from the products formed. So, this change is irreversible.]

6. How is a metal rim fixed on the wooden wheel of a cart? How are changes made in that metal?

[Hint: The metal rim is made slightly smaller than the wooden wheel. On heating, the rim expands and fits onto the wheel. Cold water is then poured over the rim, which contracts and fits tightly onto the wheel.]

7. How is the iron blade fixed into the wooden handles of agricultural tools?

[Hint: The iron blade of tools has a ring in which the wooden handle is fixed. Normally the ring is slightly smaller in size than the wooden handle. To fix the handle, the ring is heated and it expands. Now the handle easily fits into the ring. When the ring cools down it contracts and fits tightly into the handle.]

8. The change of state is reversible. Give reason.

[Hint: When ice changes into water, then there is a change from a solid state to a liquid state. When water changes into steam, there is a change from liquid state to gaseous state. In all three states, the water does not change into a new substance. It makes a different form of state. Forms of water can be reversed easily. So, in general, we can say that change of state is a reversible change.]

9. Give some examples of expansion in solid, liquid, and gas.

[Hint: i) Expansion in solids: Expansion of railway track in hot weather and expansion of metal bottle cap on heating.

ii) Expansion in liquids: Expansion of water on heating and expansion of mercury in a thermometer.

iii) Expansion in gas: Expansion of air in balloon on heating and bursting of cycle tube in hot weather.]

10. Give reasons for the following:

a) Metallic electric wires sag during summers. [Hint: Due to the heat in summer, the metal wires expand and increase their length.]

b) Stretching a rubber band is an example of reversible change.

[Hint: Stretching a rubber band is a reversible change because once we leave the stretched band, it gets back to its original position.]

c) There are gaps between adjacent sections of rails on the railway track?

[Hint: The gaps provide space for expansion.]

IV. LONG ANSWER TYPE QUESTIONS (5M):

1. A potter shapes pots out of clay. He then bakes the pots in an oven. Do these two acts lead to the same kind of changes or different? Identify the changes and explain the process.

[Hint: A potter shapes pots out of clay. It is a reversible change. This is a physical change which can be easily reversed. During this change, only the shape of the substance changes, without any change in the texture of the clay.]

The potter then bakes the pots in an oven which makes the clay become hard and brittle. There is a change in the internal structure of clay which makes soft clay hard and brittle. This is an irreversible chemical change.]

2. What are the effects of heating and cooling on some materials?

[Hint: Effects of Heating: i) Heating causes expansion (increase in size). When a metal cap is fixed tightly on a jar, pouring warm water causes the lid to expand and helps in easy removal of the lid.

ii) A change in state. Melting of ice to water.

Effects of cooling: i) Cooling causes contraction (shrink in size). In a clinical thermometer, the mercury level rises up indicating a rise in temperature, and on cooling it contracts and starts to fall back.

ii) A change in state. Eg. Steam condenses to water on cooling.]

3. Give an example of each for the following changes.
- A change which occurs on heating and can be reversed.
 - A change which occurs on heating but cannot be reversed.
 - A change which occurs on cooling and can be reversed.
 - A change which occurs on mixing two substances and can be reversed.
 - A change which occurs on mixing two substances but cannot be reversed.

[Hint: a. Heating of iron rod.

b. Baking of chapati.

c. Freezing of water

d. Dissolving salt in water.

e. Mixing of cement and water.]

V. SOURCE-BASED/ CASE STUDY-BASED QUESTIONS:

1. Amruta had bought a new bottle of pickle from the market. She tried to open the metal cap to taste it but could not do so. She then took a bowl of hot water and immersed the upper end of the bottle in it for five minutes. She could easily open the bottle now. Can you give the reason for this?

[Hint: She can easily open the bottle because of the expansion of the metal cap (increase in size) due to heating. When a metal object is heated, it increases in size and when the hot object is cooled, it decreases in size and comes back to the original size.]

2. Read the passage and answer the questions that follow:

When we heat water in a pan, it begins to boil after some time. If we continue to heat further, the quantity of water in the pan begins to decrease. The water changes into its vapour. This water vapour can be changed to liquid water when it is cooled. When water freezes, it changes to ice. Ice melts when it is heated. It changes into liquid water again.

i. The process by which the melting of ice is reversed:

- a. evaporation **b. freezing** c. boiling d. condensation

ii. Which is a way to make a change happen?

- a. Heating a substance b. Cooling a substance
c. Mixing a substance with another substance **d. All of these**

iii. When chocolate melts, it is:

- a. A reversible change b. An irreversible change
c. A physical change **d. Both a and c.**

iv. If you could capture all the steam that is made when water in a kettle boils, you could turn it back to water by:

- a. cooling** b. freezing c. boiling d. melting

PREPARED BY Mr. VIKRANT PURANDARE	CHECKED BY HOD SCIENCE
--------------------------------------	---------------------------