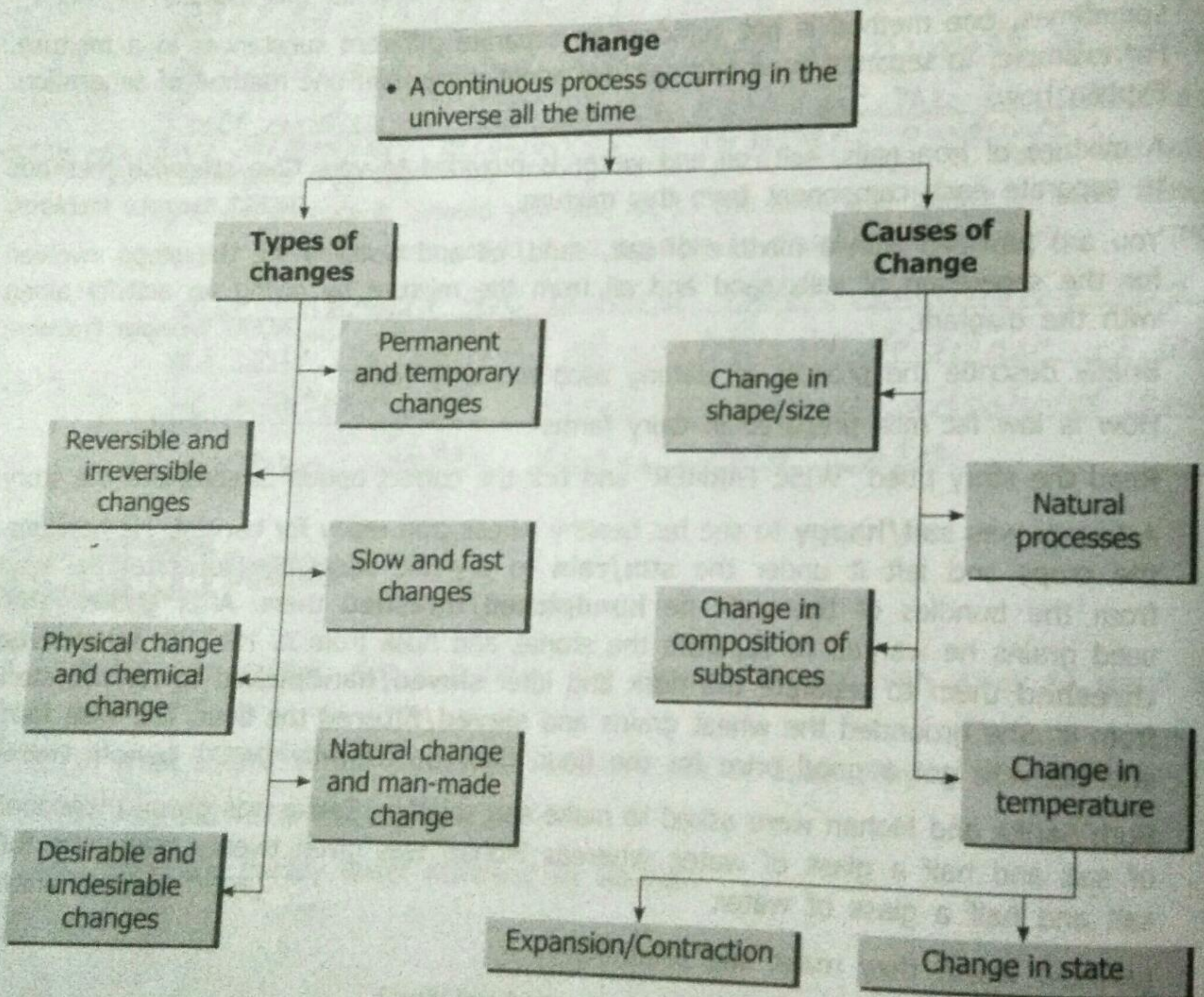


# Changes Around Us



## Chapter at a Glance







## Topicwise Assignment

### Can All Changes Always Be Reversed?

A. Tick (✓) the natural changes in the following:

- |                        |                                     |                       |                                     |
|------------------------|-------------------------------------|-----------------------|-------------------------------------|
| 1. Blooming of flowers | <input checked="" type="checkbox"/> | 2. Plucking of flower | <input type="checkbox"/>            |
| 3. Ripening of mango   | <input checked="" type="checkbox"/> | 4. Cooking of food    | <input type="checkbox"/>            |
| 5. Change of seasons   | <input checked="" type="checkbox"/> | 6. Trimming of nails  | <input type="checkbox"/>            |
| 7. Increase in height  | <input checked="" type="checkbox"/> | 8. Baking of bread    | <input type="checkbox"/>            |
| 9. Blowing of wind     | <input checked="" type="checkbox"/> | 10. Rusting of iron   | <input checked="" type="checkbox"/> |

B. Which of the following changes cannot be reversed? [NCERT Exemplar Problems]

1. Blowing of a balloon:
2. Folding a paper to make a toy aeroplane:
3. Rolling a ball of dough to make roti:
4. Baking cake in an oven:
5. Drying a wet cloth:
6. Making biogas from cow dung:
7. Burning of a candle:

Reversible

Reversible

Reversible

Irreversible

Reversible

Irreversible

Irreversible

C. Paheli mixed flour and water and (i) made a dough, (ii) rolled the dough to make a chapati, (iii) baked the chapati on a pan, (iv) dried the chapati and grinded it in a grinder to make powder. Identify the changes (i) to (iv) as the changes that can be reversed or that cannot be reversed. [NCERT Exemplar Problems]

(i) Irreversible (ii) Reversible

(iii) Irreversible

(iv) Irreversible

D. Look at figure which shows three situations: 1. a burning candle 2. an extinguished candle 3. melting wax. [NCERT Exemplar Problems]

1.



2.



3.





Which of these shows a reversible change and why?

Melting wax shows a reversible change as melting wax gets its solid (original) form back on cooling.

Could There Be Other Ways to Bring a Change?

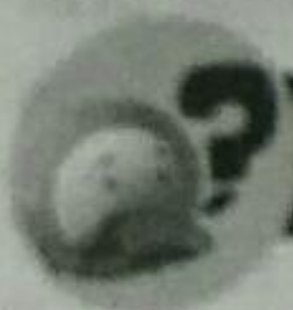
A. Define the following:

1. Expansion: The change of size or shape of an object to slightly larger size is called expansion.
2. Contraction: The reduction in size or shape of an object on cooling is called contraction.
3. Melting: The change of state of a substance from solid to liquid on heating is called melting.

B. Conversion of ice into water and water into ice is an example of change which can be reversed. Give four more examples where you can say that the changes can be reversed.

[NCERT Exemplar Problems]

1. Blowing of a balloon
2. Dough to make chapati
3. Folding a paper
4. Melting of wax.



## Integrated Assignment

### Objective Type Exercises

A. Multiple Choice Questions:

[NCERT Exemplar Problems]

1. Pick the change that can be reversed from the following:

(a) Cutting of trees

☐

(b) Melting of ghee

☒

(c) Burning of candle

☐

(d) Blooming of flower

☐

2. Which of the following changes cannot be reversed?

(a) Hardening of cement

☒

(b) Freezing of ice cream

☐

(c) Opening a door

☐

(d) Melting of chocolate

☐



3. An iron ring is heated. Which of the following statements about it is incorrect?
- (a) The ring expands. ☐
  - (b) The ring almost comes to the same size on cooling. ☐
  - (c) The change in this case is reversed. ☐
  - (d) The ring changes its shape and the change cannot be reversed. ☒
4. While lighting a candle, Paheli observed the following changes:
- (i) Wax was melting.
  - (ii) Candle was burning.
  - (iii) Size of the candle was reducing.
  - (iv) Melted wax was getting solidified.
- Of the above, the changes that can be reversed are
- (a) (i) and (ii) ☐
  - (b) (ii) and (iii) ☐
  - (c) (iii) and (iv) ☐
  - (d) (i) and (iv) ☒
5. Salt can be separated from its solution (salt dissolved in water), because
- (a) mixing of salt in water is a change that can be reversed by heating and melting of salt. ☐
  - (b) mixing of salt in water is a change that cannot be reversed. ☐
  - (c) mixing of salt in water is a permanent change. ☐
  - (d) mixing of salt in water is a change that can be reversed by evaporation. ☒
6. Rolling of chapati and baking of chapati are the changes that
- (a) can be reversed. ☐
  - (b) cannot be reversed. ☐
  - (c) can be reversed and cannot be reversed, respectively. ☒
  - (d) cannot be reversed and can be reversed, respectively. ☐
7. Iron rim is made slightly smaller than the wooden wheel. The rim is usually heated before fixing into the wooden wheel because on heating, the iron rim
- (a) expands and fits onto the wooden wheel. ☐
  - (b) contracts and fits onto the wooden wheel. ☐
  - (c) no change in the size takes place. ☐
  - (d) expands first, then on cooling contracts and fits onto the wooden wheel. ☒



**B. Fill in the blanks:**

- Changes can be compared on the basis of their pace, as slow change and fast change.
- Climbing up stairs is a fast change, while growing up is a slow change.
- Sometimes, changes can be classified as per their desirability. For example, the burning of wood in fire place is desirable while the burning of trees in a forest fire is undesirable.
- Many changes occur around us on their own, such as blooming of flowers and ripening of fruits.
- Many changes are caused by us, such as cooking of food and making biogas from cow dung.
- The changes which can be reversed are called reversible changes.
- The changes which cannot be reversed are called irreversible changes.
- The melting of wax is different from burning of wax because the former is an example of reversible change, while the latter is of irreversible change.
- The burning of an incense stick is irreversible change.
- Cutting of vegetable and cooking of vegetable are both irreversible changes.

**C. Some changes have been given in the table. State whether the change can be reversed or not. Also, write the name of substance formed.**

Change	Can be reversed (Yes/No)	New substance formed
1. Dissolution of salt in water	<u>Yes</u>	<u>No</u>
2. Souring of milk [NCERT]	<u>No</u>	<u>Yes</u>
3. The melting of ice candy [NCERT]	<u>Yes</u>	<u>No</u>
4. Boiling of egg	<u>No</u>	<u>No</u>
5. Grinding of grain	<u>No</u>	<u>No</u>
6. Cow dung to biogas	<u>No</u>	<u>Yes</u>
7. Making cheese from milk	<u>No</u>	<u>Yes</u>
8. Knitting of yarn	<u>Yes</u>	<u>No</u>
9. Sawing a piece of wood [NCERT]	<u>No</u>	<u>No</u>
10. Dissolving sugar in water [NCERT]	<u>Yes</u>	<u>No</u>
11. The cooking of food [NCERT]	<u>No</u>	<u>No</u>
12. The ripening of a mango [NCERT]	<u>No</u>	<u>No</u>



D. Match the following:

- Column I
1. Contraction
  2. Evaporation
  3. Expansion
  4. Melting
  5. Heating

- Column II
- 3 (a) Increasing the size of a substance
  - 4 (b) Conversion of solid into liquid form
  - 5 (c) Raising the temperature of a substance
  - 1 (d) Decreasing the size of a substance
  - 2 (e) Changing of a liquid into gaseous form

## Subjective Type Exercises

### A. Very Short Answer Questions

1. You use a pencil and an eraser. With repeated use, their shape and size changes. Can we reverse this change? What are such changes called?

No, we can not get the original shape or size of pencil and eraser after repeated use. Such changes are called irreversible.

2. Can we reverse the following changes? If yes, suggest the name of method.

[NCERT Exemplar Problems]

(a) Water into water vapour:

Evaporation

(b) Ice into water:

Melting

(c) Water vapour into water:

Condensation

(d) Curd into milk:

This change cannot be reversed

3. Tearing of paper is said to be a change that cannot be reversed. What about paper recycling?

[NCERT Exemplar Problems]

Paper can be recycled but recycled paper is different in colour and texture from original paper.

4. Change of a bud into a flower is a change which cannot be reversed. Give four more such examples.

[NCERT Exemplar Problems]

(i) Ripening of fruit (ii) Ageing of person  
(iii) Increase in height of a child (iv) Weathering of rocks to form soil



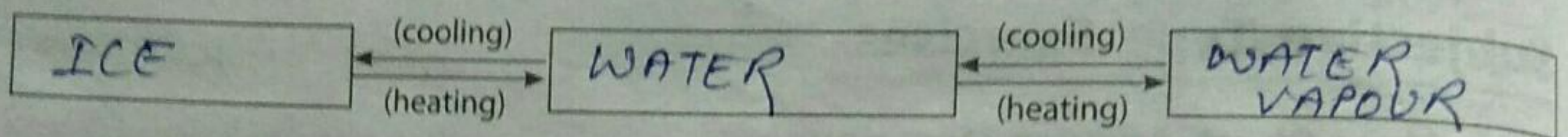
5. How is the iron blade fixed into wooden handles of digging tools?

The iron blade is heated to a very high temperature so that it expands. The wooden handle is fixed inside it. On cooling, it contracts and forms the required digging tool.

6. If we heat water in a pan, it begins to boil after some time. On further heating, water in the pan starts reducing. Why?

When water is further heated after boiling, its state changes into vapour and gets lost into surrounding air.

7. Complete the following:



8. A black material called tar is used for repairing roads. What type of change occurs in tar on heating? [HOTS]

On heating tar, it becomes liquid. It is an irreversible change.

9. How is curd formed from milk?

A small quantity of curd is added to warm milk. The milk is now set aside for a few hours. The milk is converted to curd.

10. To walk through a waterlogged area, you usually shorten the length of your dress by folding it. Can this change be reversed? [NCERT]

Yes, this change is reversible. By unfolding the dress, the dress length will be again normal.

11. You accidentally dropped your favourite toy and broke it. This is a change you did not want. Can this change be reversed? [NCERT]

No as it cannot get back its original shape.

12. A drawing sheet changes when you draw a picture on it. Can you reverse this change? [NCERT]

If the picture is drawn by using colours then it is irreversible but if the picture is drawn by pencil, then it can be reversed.



13. A thick coating of a paste of Plaster of Paris (POP) is applied over the bandage on a fractured bone. It becomes hard on drying to keep the fractured bone immobilised. Can the change in POP be reversed? [NCERT]

No, the changes in POP will not reversed as POP on mixing with water becomes hard. It is an irreversible change.

### B. Short Answer Questions

1. A balloon is inflated by blowing air. How will you reverse this change? If an inflated balloon is pricked with a pin, will you be able to reverse this change? Explain.

The change can be reversed by releasing the opening of the balloon so that all the air escapes out. However if the balloon is pricked with a pin, it will burst. Such a balloon cannot be inflated again. Thus it is an irreversible change.

2. Cite the difference between the following changes:

(a) Making a toy boat by folding paper and

(b) cutting out a boat from paper.

a) When a paper is folded to make a boat, we can unfold the boat to get back original paper sheet.

b) By cutting out a paper, we cannot reverse this as it does not get back its original form.

3. Give examples to explain the difference between changes that can or cannot be reversed.

[NCERT]

Changes that can be reversed :

• Making toy by folding paper • Heating of pan

Changes that can not be reversed :

• Hardening of cement • Flower blossom

4. Observe the following diagrams and explain each stage. At what stage can we obtain the lump of clay back?





Or

A potter working on his wheel shaped a lump of clay into a pot. He then baked the pot in an oven. Do these two acts lead to the same kind of changes or different? Give your opinion and justify your answer. [NCERT Exemplar Problems]

In first stage, the lump of clay is moulded to form a pot on a potter's wheel. In second stage the clay pot is baked to form an earthen pot. Hence the lump of clay can be retrieved after first stage.

5. How is it possible to fit the metal rim over a cart wheel tightly? Explain.

The metal rim is made slightly smaller than the wooden wheel. On heating, the rim expands and fits on to the wheel. Cold water is then poured over the rim contracting the size of rim and fits tightly onto the wheel.

6. A piece of iron is heated till it becomes red-hot. It then becomes soft and is beaten to a desired shape. What kind of changes are observed in this process—reversible or irreversible?

[NCERT Exemplar Problems]

Or

How does a blacksmith change a piece of iron into different tools? What type of change occurs in iron?

[HOTS]

A blacksmith heats the piece of iron till it becomes red hot. It then becomes soft and is beaten into a desired shape. On cooling it comes in original form. <sup>NO</sup> So, new substance is formed in this case. It is reversible changes.

7. An incense stick is burnt. What are the changes that take place in it? Are these changes similar to changes that occur on burning a matchstick?

When an incense stick is burnt, it changes to form some gases and gets converted into solid ashes. This is similar with the burning of matchstick.

\* New substance is formed

\* Both changes are irreversible.



8. Do the changes occur when two substances are mixed together? Give two examples of such changes—one reversible and one irreversible.

Yes, the changes occur when two substances are mixed together. \*Reversible: when salt is added to water.  
\*Irreversible: when lime juice is added to milk.

9. Boojho's sister broke a white dove, a symbol of peace, made of Plaster of Paris (POP). Boojho tried to reconstruct the toy by making a powder of the broken pieces and then making a paste by mixing water. Will he be successful in his effort? Justify your answer. [NCERT Exemplar Problems]

No, because after mixing water into powder it becomes hard on drying and this change is irreversible. This would not form the same POP as it was before.

10. Paheli 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? [NCERT Exemplar Problems]

The metal lid of the pickle bottle expanded due to heat and became loose. Then the bottle could be easily opened.

11. A bag of cement lying in the open gets wet due to rain during the night. The next day the sun shines brightly. Do you think the changes, which have occurred in the cement, could be reversed? [NCERT]

No, the changes could not be reversed because, rainwater makes the cement wet and the warmth of the sun makes it hard so this change can not be reversed.