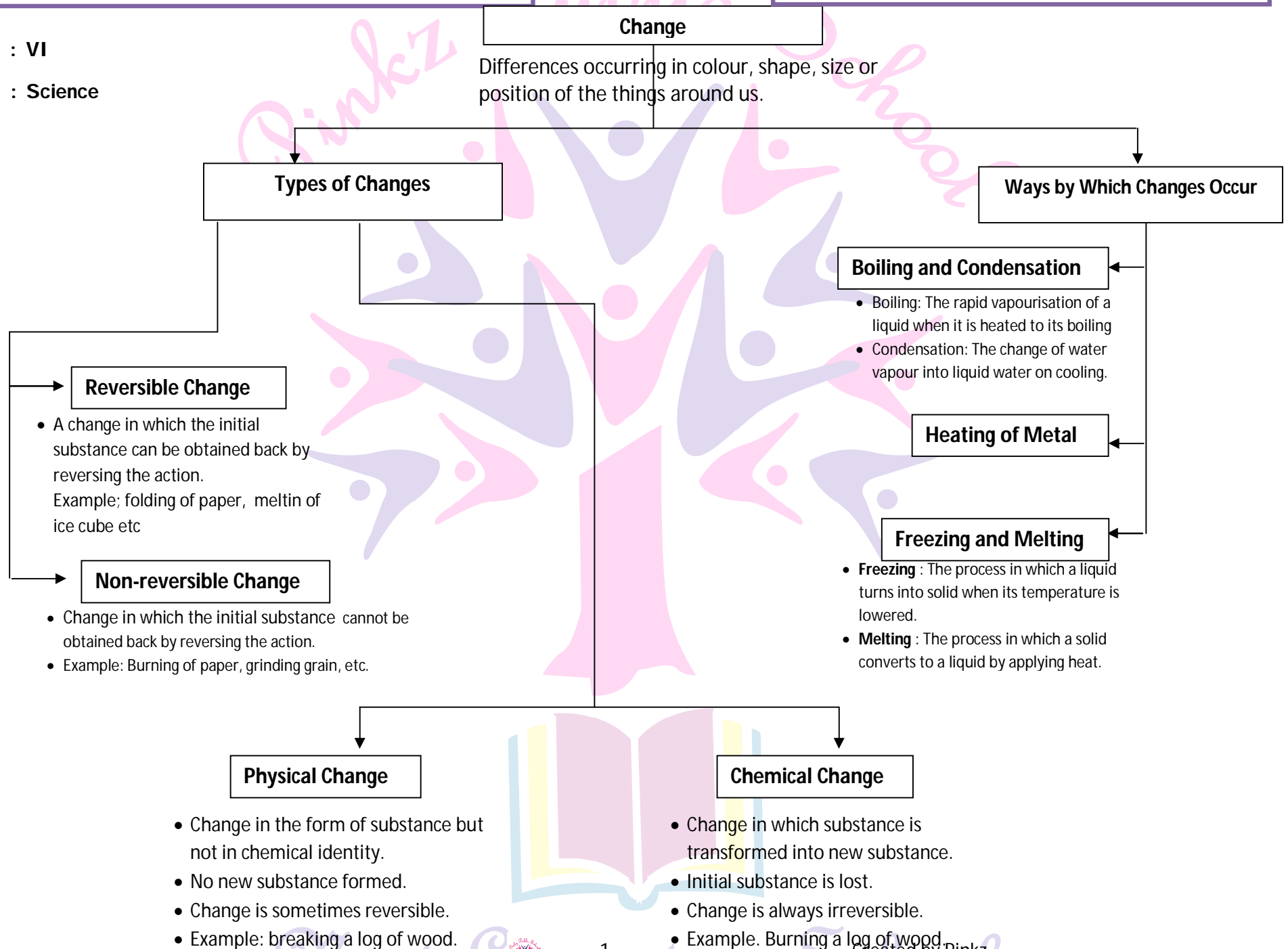


Grade : VI
Subject : Science



I. Know the Terms

- **Contraction:** It is a phenomenon in which a substance shrinks or changes its shape.
- **Expansion:** A phenomenon in which a substance expands or changes its shape.
- **Freezing:** The phenomenon of a liquid turning into solid form at low temperature.
- **Physical Change :** It is a change in which the physical property of a substance changes and no new substance is formed.
- **Chemical Change :** It is a change in which the chemical properties of a substance or substances change and form a new substance.
- **Dissolve :** To mix a solid, liquid or gas with water or any other solvent to form a solution.
- **Solution:** A mixture of two or more solids (solutes) in a liquid (solvent).
- **Slow change:** It is a kind of change that takes long time to complete.
- **Fast Change:** It is a change that takes short time to complete.
- **Reversible Change:** It is a change that can be reversed and the original shape and size of the substance can be obtained.
- **Irreversible Change:** It is a change that cannot be reversed.
- **Evaporation:** The process of conversion of water into water vapours is known as evaporation.
- **Boiling:** The process in which any liquid starts to convert into steam at a certain temperature is called boiling.
- **Factors affect evaporation:** i. Surface area, ii. Temperature, iii. Pressure, iv. Wind.
- **Difference in Evaporation and Boiling:** Evaporation is a surface process. Boiling takes place throughout the liquid.
- **Moderate Change:** The changes neither very fast nor very slow are called moderate change.
- **Condensation:** The process of changing of a substance from vapour to liquid on cooling.
- **Melting:** The process of conversion of solid into liquid.

Next Generation School

Objective Type Questions

(1 Mark each)

I. Multiple choice questions

1. Pick the change that can be reversed from the following : **[NCERT Exemplar]**
- (a) Cutting of trees (b) Melting of ghee
(c) Burning of candle (d) Blooming of flower
2. Which of the following changes can not be reversed ? **[NCERT Exemplar]**
- (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 ? **[NCERT Exemplar]**
- (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 can not 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 :
- [NCERT Exemplar]**
- (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: **[NCERT Exemplar]**
- (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 can not 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 : **[NCERT Exemplar]**
- (a) Can be reversed (b) Can not be reversed
(c) Can be reversed and respectively (d) Can not be respectively.

7. Iron rim is made slightly smaller than the wooden wheel. The rim is usually heated before fixing onto the wooden wheel because on heating the iron rim **[NCERT Exemplar]**
- Expands and fits onto the wooden wheel
 - Contracts and fits onto the wooden wheel
 - No change in the size takes place
 - Expands first, then on cooling contracts and fits onto the wooden wheel
8. Change that leads to the formation of substance is called :
- Chemical change
 - Physical change
 - Biological change
 - None of these
9. Grinding of grain is :
- Physical change
 - Chemical change
 - Biological change
 - All of these
10. What kind of change is the rising of Sun ?
- Physical change
 - Reversible change
 - Periodic change
 - Sudden change
11. What kind of change occurs in the eruption of a volcano ?
- Physical change
 - Sudden change
 - Irreversible change
 - All of these
12. Breaking of toy is a :
- Reversible change
 - Periodic change
 - Irreversible
 - All of these
13. Which is a way to make a change happen ?
- Heating of substance
 - Mixing of substance with another substance
 - Cooling of substance
 - All of the above
14. Rusting of iron is an example of :
- Slow change
 - Fast change
 - Physical change
 - Reversible change
15. When a chocolate melts, it is :
- a reversible change
 - an irreversible change
 - a physical change
 - both (a) and (c)
16. A physical change is :
- Always reversible
 - Usually reversible
 - Always irreversible
 - None of these
17. When a candle is lighted, which one of the following changes is not reversible ?
- Melting of solid wax
 - Wax vapour burns into flame
 - Liquid wax changes into vapours
 - All of the above

| | | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| 1. (b) | 2. (a) | 3. (d) | 4. (d) | 5. (d) | 6. (b) | 7. (d) | 8. (a) | 9. (a) |
| 10. (c) | 11. (d) | 12. (c) | 13. (d) | 14. (a) | 15. (d) | 16. (b) | 17. (b) | |

I. True or False.

1. The boiling of rice is a physical change.
2. Burning of fuels is a chemical change.
3. Melting of wax is a physical change.
4. Formation of curd from the milk is a physical change.
5. Formation of rust is a chemical change.

| | | | | |
|----------|---------|---------|----------|---------|
| 1. False | 2. True | 3. True | 4. False | 5. True |
|----------|---------|---------|----------|---------|

II. True or False.

1. A potato remains a potato even after it is cooked, Hence, cooking is a physical change.
2. Souring of milk is a reversible change.
3. Salt can be obtained from sea water by the process of evaporation.
4. Drying of clothes is a physical and an irreversible change.
5. Physical changes can not be reversed while chemical changes can be reversed.

| | | | | |
|----------|----------|---------|----------|----------|
| 1. False | 2. False | 3. True | 4. False | 5. False |
|----------|----------|---------|----------|----------|

III. True or False.

1. Bursting of a balloon is an irreversible change.
2. Rusting of iron is a physical change.
3. A reversible change cannot be undone.
4. Expansion of an iron rod on heating is a reversible change.
5. Growing of a baby to an adult is a permanent change.

| | | | | |
|----------------------------------------------------|-------------------------------------------------|--|--|--|
| 1. True | 2. False. Rusting of iron is a chemical change. | | | |
| 3. False. An irreversible change cannot be undone. | | | | |
| 4. True | 5. True | | | |

I. Fill in the blanks.

1. Liquids _____ on freezing.
2. Burning of candle is _____ process.
3. Melting of wax is _____ process.
4. Colouring of paper is _____ change.
5. In chemical change, constituents lead to the formation of new _____.
6. _____ of iron is an irreversible change.
7. Freezing of water is an example of _____.
8. If you could capture all the steam that is made when water in a kettle boils, you could turn it back to water by _____.
9. During a _____ change, new substances are formed.
10. Changing of bread into toast is an _____.

| | | | | |
|-------------|----------------------|---------------|-----------------|------------------|
| 1. Solidify | 2. Irreversible | 3. Reversible | 4. Irreversible | 5. Product |
| 6. Rusting | 7. Reversible change | 8. Cooling | 9. Chemical | 10. Irreversible |

II. Fill in the blanks.

1. Complete the following with a suitable word/words:

- (i) Melting of ice is a _____ change.
- (ii) Burning of paper is a _____ change.
- (iii) Formation of rust on iron nail is a _____ change.
- (iv) Formation of curd from milk is a _____ change.
- (v) Formation of steam from water is a _____ change.

| | | | | |
|--------------|---------------|----------------|---------------|--------------|
| (i) physical | (ii) chemical | (iii) chemical | (iv) chemical | (v) physical |
|--------------|---------------|----------------|---------------|--------------|

2.

- (i) The method of separating substances based on size, colour and shape is called _____.
- (ii) The process used for separating grains from stalk is called _____.
- (iii) Pebbles and stones are removed from sand by _____.
- (iv) Transferring the clear liquid into another container using a glass rod is called _____.
- (v) The process of converting vapours back into liquid is called _____.

| | | | | |
|------------------|----------------|---------------|------------------|------------------|
| (i) hand picking | (ii) threshing | (iii) sieving | (iv) decantation | (v) condensation |
|------------------|----------------|---------------|------------------|------------------|

Quiz Time

1. You grow taller. Whether this change in you is reversible or not.
2. The flowers bloom and then wither away. Whether this change is reversible? Give reason for your answer.
3. Give an example to show that how a change may occur?
4. A black material (tar) is heated for repairing a road. Whether the change caused in tar, by heating, can be reversed?
5. Give two examples which show slow changes.
6. Give two examples of fast changes.
7. What are those changes called which can be reversed?
8. Can you change the shape of an eraser after erasing?
9. Which kind of change is deforestation?
10. What type of change melting of wax is?
11. What do you know about the fast changes?
12. You accidentally dropped your toy and broke it. Can this change be reversed?
13. A bag of cement lying in the open gets wet due to rain during night. Could the change in the cement be reversed or not?

Answer.

1. It is not a reversible change.
2. No, because the withered flower cannot be regained.
3. A change may occur by heating a substance or by mixing it with some other substance.
4. On cooling, tar takes its own original form. So it can be reversed.
5. (i) Growing of trees (ii) Ripening of fruits.
6. (i) Combustion of paper (ii) Blowing of balloon.
7. Reversible changes.
8. Yes.
9. Irreversible change.
10. Physical change (reversible).
11. The changes that take short time to complete.
12. No.
13. No.

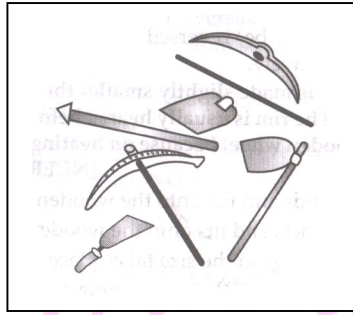
Intext Questions

1. In the given table, check whether the given changes can be reversed or not.

| Change | Can be reversed |
|------------------------------------------|-----------------|
| Raw egg to boiled egg | Yes/No |
| Batter to Idli | |
| Wet clothes to dry clothes | |
| Woollen yarn to knitted sweater | |
| Grain to its flour | |
| Cold milk to hot milk | |
| Straight string to a coiled string | |
| Bud to flower | |
| Milk to paneer | |
| Cowdung to biogas | |
| Stretched rubber band to its normal size | |
| Ice cream to molten ice cream. | |

| Change | Can be reversed |
|------------------------------------------|-----------------|
| Raw egg to boiled egg | No |
| Batter to Idli | No |
| Wet clothes to dry clothes | Yes |
| Woollen yarn to knitted sweater | Yes |
| Grain to its flour | No |
| Cold milk to hot milk | Yes |
| Straight string to a coiled string | Yes |
| Bud to flower | No |
| Milk to paneer | No |
| Cowdung to biogas | No |
| Stretched rubber band to its normal size | Yes |
| Ice cream to molten ice cream. | Yes |

2. How is the iron blade in these tools fixed to the wooden handle?



The iron blade of these tools has a ring in which 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 to become larger in size and now the handle easily fits into the expanded ring. On cooling the ring, it contracts and fits tightly onto the handle.

3. You have seen that construction workers heat a black materials called coal tar, for repairing a road. State whether the change which has occurred in coal tar on being heated is reversible or irreversible.

The melting of coal tar is a reversible change because when coal tar is heated, it melts and is converted into thick dark liquid which again solidifies on cooling.

4. How does a blacksmith change a piece of iron into different tools and what change takes place in iron, on being heated ?

The heating of iron is a reversible change. When a blacksmith first heats a piece of iron it becomes red hot. It then becomes soft and can be beaten into desired shape.

5. When salt is dissolved in water, what change is happening at the end ?

Salt dissolving in water is a physical change. The chemical composition of the salt is not changed after dissolution.

Textbook Questions

1. To walk through a water-logged area, you usually shorten the length of your dress by folding it . Can this change be reversed ?

Yes, this change can be reversed by unfolding the dress.

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

No, this change can not be reversed.

3. Some changes are listed in the following table. For each change, write in the blank column whether the change can be reversed or not.

| S.No. | Change | Can be reversed (Yes/No) |
|-------|-------------------------------|--------------------------|
| (i) | The sawing of a piece of wood | |
| (ii) | The melting of ice candy | |
| (iii) | Dissolving sugar in water | |
| (iv) | The cooking of food | |
| (v) | The ripening of a mango | |
| (vi) | Souring of milk | |

| S.No. | Change | Can be reversed (Yes/No) |
|-------|-------------------------------|--------------------------|
| (i) | The sawing of a piece of wood | No |
| (ii) | The melting of ice candy | Yes |
| (iii) | Dissolving sugar in water | Yes |
| (iv) | The cooking of food | No |
| (v) | The ripening of a mango | No |
| (vi) | Souring of milk | No |

4. A drawing sheet changes when you draw a picture on it. Can you reverse this change ?

This change can be reversed by using eraser, if a pencil is used in drawing. But if pen or paint is used for drawing, then we can not reverse this change.

5. Give examples to explain the difference between changes that can or can not be reversed.

Some changes that can be reversed are :

Melting of ice, heating of milk, drying of clothes, stretching the rubber band etc.

Some changes that can not be reversed are :

Cooking of food, souring of milk, burning of paper, ripening of fruits etc.

The changes in which the original state can be recovered are called reversible changes while the changes in which the original state can not be recovered are called irreversible changes.

I. Very Short Answer Type Questions

1. Give two examples of slow changes.

- (a) Growing of plants (b) Ripening of fruits.

2. Give two examples of fast changes.

- (a) Blowing of balloon (b) Rolling out roti from dough ball.

3. Give two examples of reversible changes.

- (a) Drying of wet clothes (b) Heating of milk.

4. Give two examples of irreversible changes.

- (a) Milk to cheese (b) Cooking of food.

5. Can you say deforestation is an irreversible or reversible change?

It is an irreversible change.

6. Can you change the shape of an eraser after erasing?

Yes.

7. Why does a blacksmith heat the metal rim to fix it on a cart wheel?

A blacksmith heats the metal rim to fix it onto a cart wheel because a metal rim is made slightly smaller. On heating, the rim expands and fits onto the wheel. Then on cooling, the rim contracts and fits tightly onto the wheel.

8. What are slow and fast changes? Give examples.

The changes which take place in a long period of time are called slow changes whereas that changes which take place in a short period of time are called fast changes.

Examples:

(a) Rusting of iron, formation of day and night, ripening of fruits, growing of tree are slow changes.

(b) Burning of paper, stretching of rubber band, blowing of balloons, bursting crackers are fast changes.

9. Classify the following into slow and fast changes:

- (i) Spinning of top (ii) Formation of day and night
(iii) Formation of curd from milk (iv) Change of season
(v) Making curd from milk by adding lemon juice.

| | | | | |
|-----------------|------------------|-------------------|------------------|-----------------|
| (i) Fast change | (ii) Slow change | (iii) Slow change | (iv) Slow change | (v) Fast change |
|-----------------|------------------|-------------------|------------------|-----------------|

10. Classify the following as slow or fast change:

- | | |
|------------------------|--------------------------------|
| (i) Beating of heart | (ii) Change of seasons |
| (iii) Burning of paper | (iv) Weathering of rocks |
| (v) Melting of wax | (vi) Cooking of food |
| (vii) Burning of wax | (viii) Melting of ice cream |
| (ix) Curding of milk | (x) Formation of day and night |

| | | | | |
|-----------|------------|-------------|-----------|----------|
| (i) Fast | (ii) Slow | (iii) Fast | (iv) Slow | (v) Fast |
| (vi) Slow | (vii) Fast | (viii) Fast | (ix) Slow | (x) Slow |

11. Write some changes happening in our body.

- | | |
|--------------------|--------------------------|
| (a) Our nails grow | (b) Our hair grows |
| (c) We grow taller | (d) Our weight increases |

12. Some common changes are given in Table 6.1. Which of these changes do you think can be reversed?

Table 6.1 Some common changes.

| Change | Can be reversed Yes/ No |
|-----------------------------------------------|-------------------------|
| (i) Raw egg to boiled egg | |
| (ii) Batter to idli | |
| (iii) Wet clothes to dry clothes | |
| (iv) Woollen yarn to knitted sweater | |
| (v) Grain to its flour | |
| (vi) Cold milk to hot milk | |
| (vii) Straight string to a coiled string | |
| (viii) Bud to flower | |
| (ix) Milk to paneer | |
| (x) Cow dung to biogas | |
| (xi) Stretched rubber band to its normal size | |
| (xii) Melting of ice-cream | |

| | | | | | |
|----------|----------|----------|---------|---------|----------|
| i. No | ii. No | iii. Yes | iv. Yes | v. No | vi. Yes |
| vii. Yes | viii. No | ix. No | x. No | xi. Yes | xii. Yes |

13. Is melting of wax reversible or irreversible?

Reversible.

14. Name the method used to separate cream from curd.

Churning (Centrifugation).

15. How will you separate sand and water from their mixture?

We will separate sand and water by sedimentation and decantation method.

II. Very Short Answer Type Questions

1. A cement bag left open gets hard after some time, what type of change it is?

Chemical change.

2. Is making an omelette reversible or irreversible change?

Irreversible change.

3. Is boiling of an egg a physical or a chemical change?

Chemical change.

4. Name two changes in yourself that you face every day?

a. Daily hair growth

b. Daily nail growth

5. How can you say that pickling of lemon is a desirable change?

Pickle adds taste to our food. Hence, pickling of lemon is a desirable change.

6. Melting of wax is an irreversible change. Is it correct?

No, it is not correct because melting wax becomes solid again on cooling.

7. The ash is left over by a burning of matchstick. Can you get back matchstick from the ash?

No, because it is an irreversible change.

8. Define periodic change.

A change which repeats after a regular interval of time is known as periodic change.

9. Which change is permanent — physical change or chemical change?

Chemical change is permanent because in this change, an entirely new substance is formed with different properties.

10. What is a solution?

When a solid is dissolved in a liquid, solution is formed.

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

Yes, this change can be reversed by unfolding the paper aeroplane.

12. Look at figure given below, which shows three situations.

(A) Burning candle

(B) An extinguished candle

(C) Melting wax

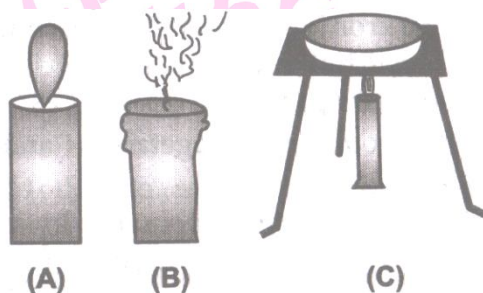


Fig.

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

No. This change is irreversible.

I. Short Answer Type Questions.

1. Give four examples for each physical and chemical changes.

Physical Change:

- a. Drawing a line from light pencil on a paper.
- b. Arranging building blocks.
- c. Ironing clothes
- d. Taking bath

Chemical Change:

- a. Preparation of ghee
- b. Preparation of Dosa
- c. rusting of iron
- d. making coffee

2. Some changes occur themselves. What are they called? give two examples.

Natural changes, eg. a tree full of leaves becomes leafless, fixing of curd.

3. Write two examples for slow and fast changes.

Slow change - ripening of fruit, fixing of curd

Fast change - tearing a paper, grinding.

4. Classify into physical/chemical changes.

- a. Burning of tree
- b. Cutting of tree
- a. Burning of tree - Chemical change
- b. Cutting of tree - Physical change

5. Classify into reversible/irreversible changes.

(a) Growth of plant. (b) Falling of rain.

(a) Growth of plant—Irreversible change.

(b) Falling of rain—Irreversible change.

6. Explosion of a cracker is a chemical change. Explain.

When we burn a cracker, it explodes. Heat, light and smoke come out after explosion. Many new products are formed. Hence, it is a chemical change.

7. Why do you keep vegetables and fruits in refrigerator ?

Vegetables and fruits are spoiled by bacteria and other microbes. To prevent them from spoilage, they are stored at low temperature in refrigerator where microbes are unable to survive.

8. What are reversible changes ? Give two examples.

The changes, which can be reversed by reversing the conditions, are called reversible changes. For example : (i) Conversion of ice into water by heating, (ii) Stretching a rubber band

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

(a) Water into water vapour

(b) Water vapour into water

(c) Ice into water

(d) Curd into milk [NCERT Exemplar]

(a) Yes, it can be done by condensation.

(b) Yes, it can be done by evaporation

(c) Yes, it can be done by freezing.

(d) Not possible, curd can not be converted into milk.

10. Tearing of paper is said to be a change that can not be reversed. What about paper recycling? [NCERT Exemplar]

Yes it is tree, a piece of paper once torn cannot be reversed.

The recycling of paper gives a paper but it is not the same as the original paper. The colour and texture of the paper change in recycling of paper.

11. Which of the following changes cannot be reversed ?

(a) Blowing of a balloon

(b) Folding a paper to make a toy aeroplane

(c) Rolling a ball of dough to make roti (d) Baking cake in an oven

(e) Drying a wet cloth

(f) Making biogas from cowdung

(g) Burning of candle [NCERT Exemplar]

The changes that can not be reversed are given as below :

(a) Baking cake in an oven

(f) Making biogas from cowdung

(g) Burning of a candle

12. What are periodic and non-periodic changes ? Give examples.

Periodic change : A change that repeats after a definite time interval is known as periodic change, e.g., phases of moon, heart-beat, etc.

Non-periodic change : A change that does not repeat again and again after a regular interval of time is known as non-periodic change, e.g., earthquake, flood and so on.

13. Give examples of three quick natural changes.

Examples of three quick natural changes are :

- (a) Collapsing of a building during an earthquake.
- (b) Uprooting of trees during a tempest.
- (c) Tsunami.

14. 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]

He will not be successful in his effort because making of toy from Plaster of Paris (POP) is a change that can not be reversed.

15. Differentiate between physical and chemical changes. Give two examples.

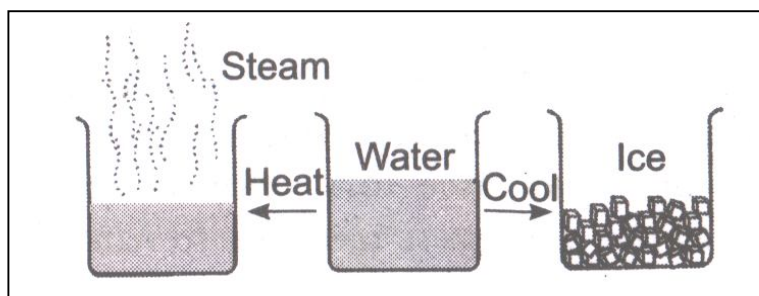
| S.No | Physical change | Chemical change |
|------|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|
| (a) | Only physical properties like colour, volume, etc change. | The chemical composition and chemical properties of the reacting substances undergo a change. |
| (b) | No new substance is formed. Examples (i) Conversion of water into ice, (ii) Tearing of paper. | One or more new substances are formed Examples : (i) Burning of cooking gas, (ii) Ripening of fruits. |

II. Short Answer Type Questions

1. What is a physical change? Explain with example.

The changes in which only physical properties of substances are changed and no new substance is formed is called physical change. It is a reversible change.

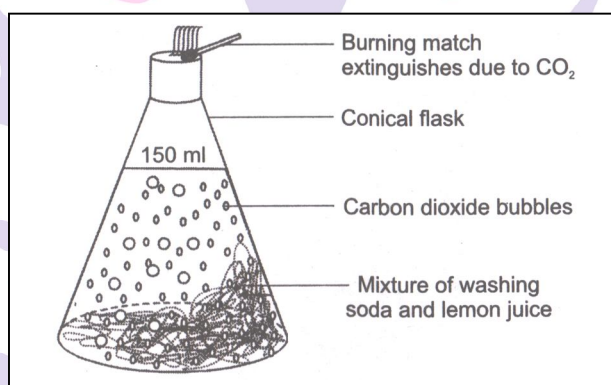
Example: Boiling and freezing of water.



2. What is a chemical change?

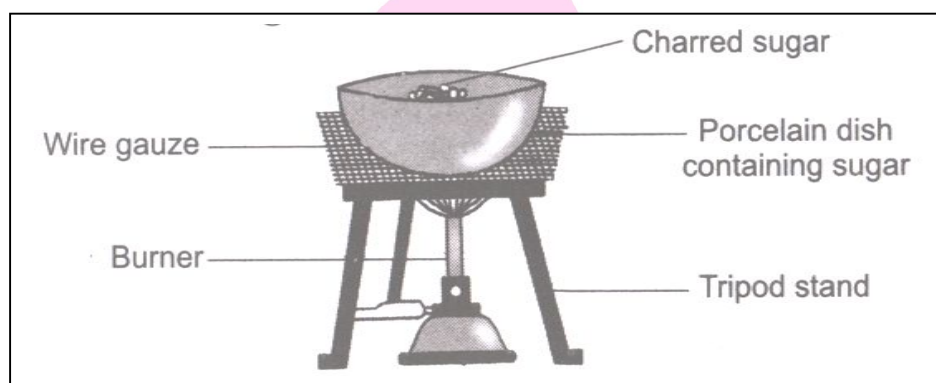
The changes in which new substance with new chemical properties are formed are called chemical changes.

Example: Reaction between washing soda and lemon juice in which CO_2 and other substances are formed.



3. What happens when sugar is heated?

When sugar is heated continuously then a black powdery substance is formed. This is a chemical change.



Next Generation School

III. Short Answer Type Questions

1. A drawing sheet changes when you draw a picture on it. Can you reverse this change?

If a pencil is used to draw on the drawing sheet, the action can be reversed by erasing the drawing with an eraser. But if a pen is used to draw, the action cannot be reversed.

2. Give examples to explain the difference between changes that can or cannot be reversed. [NCERT]

i. On inflating a balloon, its shape changes. This change can be reversed when air is allowed to escape. But if the balloon bursts, the change will be irreversible.

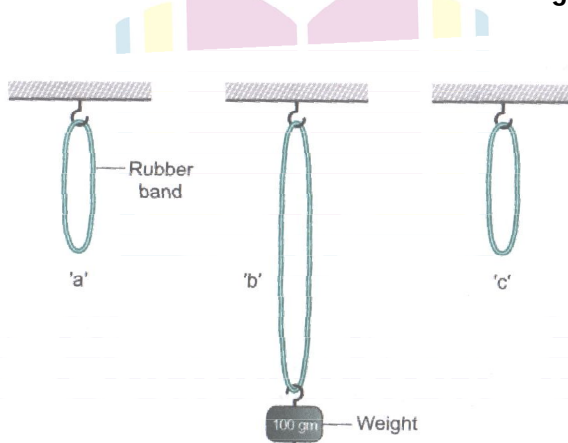
ii. When a paper is folded, it can be unfolded to its original shape. This change is reversible. But if the paper is burnt, the action is irreversible.

3. Some changes are listed in the following table. For each change, write in the blank column, whether the change can be reversed or not. [NCERT]

| S.No | Change | Can be reversed (Yes/No) |
|------|-------------------------------|--------------------------|
| i. | The sawing of a piece of wood | |
| ii. | The melting of ice candy | |
| iii. | Dissolving sugar in water | |
| iv. | The cooking of food | |
| v. | The ripening of a mango | |
| vi. | Souring of milk | |

| | | | | | |
|-------|---------|----------|--------|-------|--------|
| i. No | ii. Yes | iii. Yes | iv. No | v. No | vi. No |
|-------|---------|----------|--------|-------|--------|

4. Study the figure given and below and state the kind of change it shows.



The figure shows an example of a _____ and _____ change.

Reversible, physical.

5. 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?

The changes in the cement cannot be reversed. The cement will harden and cannot be changed back to its original form.

6. Is steaming of idli batter to make idli a reversible change? Give reasons to support your answer.

No, because once the idli batter is steamed, it undergoes a chemical change which is irreversible.

7. Energy is needed for a change. Give two examples to support this statement.

- i. When ice is kept outside the freezer, it melts.
- ii. When alcohol is put on the back of palm, it evaporates.

8. Can a change take place when two materials are not in contact? Give an example to support your answer.

No, because one material influences the other. For example, sharpening of a pencil with blade.

9. Changes involve interaction. Give an example to support this statement.

During the process of rusting, the iron has to be in contact with the moist air or water.

10. Explain the term 'solute' and 'solvent' with an example.

Solute is the substance that is dissolved in the solvent to form a solution. For example, in a sugar solution, sugar is the solute and water is the solvent.

I. Long Answer Type Questions

1. What kinds of changes occur in burning a candle ? Give reasons.

When a candle burns, both physical and chemical changes take place. On burning a candle, the wax melts and is solidified again on cooling. So, melting of wax is a physical change. But the burning of candle also produces light and some gases like carbon dioxide. Hence, the burning of wick of a candle is a chemical change.

2. Give one example in each case :

- (a) Change which occurs on heating but can be reversed.
- (b) Change which occurs on heating but can not be reversed.
- (c) Change which occurs on cooling but can be reversed.

(d) Change which occurs on mixing two substances but can be reversed.

(e) Change which occurs on mixing two substances but can not be reversed.

[NCERT Exemplar]

(a) Heating of iron rod

(b) Baking of chapati

(c) Freezing of water into ice

(d) Dissolving salt in water

(e) Mixing of cement and water

3. 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]

These two acts lead to the different kinds of changes. The changes that take place are : Making a lump of clay into a pot-Reversible change. Baking the pot in an oven-Irreversible change.

4. Change of a bud into a flower is a change, which can not be reversed. Give four more such examples. [NCERT Exemplar]

The changes that can not be reversed are referred to as irreversible changes.

Some examples of such changes are given below :

(i) Burning of coal

(ii) Digestion of food

(iii) Cooking of food

(iv) Formation of curd from milk

5. 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]

The changes that can be reversed are referred to as reversible changes.

Some examples of such changes are given below :

(i) Melting of ghee

(ii) Heating of milk

(iii) Folding of a paper

(iv) Drying a wet cloth

6. It was Paheli's birthday, her brother Simba was helping her to decorate the house for the birthday party and their parents were also busy making other arrangements.

Following were the activities going on at Paheli's home :

(a) Simba blew balloons and put them on the wall.

- (b) Some of the balloons got burst.
- (c) Paheli cut colourful strips of paper and put them on the wall with the help of tape.
- (d) She also made some flowers by origami (Paper folding) to decorate the house.
- (e) Her father made dough balls.
- (f) Mother rolled the dough balls to make puries.
- (g) Mother heated oil in a pan.
- (h) Father fried the puries in hot oil.

Identify the activities at Paheli's home, as those that can be reversed and those which can not be reversed. [NCERT Exemplar]

Reversible changes :

- (a) Simba blew balloons and put them on the wall.
- (d) She also made some flowers by origami (Paper folding) to decorate the house.
- (e) Her father made dough balls.
- (f) Mother rolled the dough balls to make puries.
- (g) Mother heated oil in a pan.

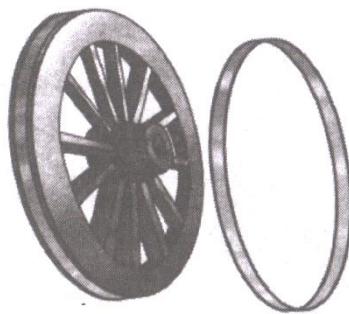
Irreversible changes :

- (b) Some of the balloons got burst.
- (c) Paheli cut colourful strips of paper and put them on the wall with the helps of tape.
- (h) Father fried the puries in hot oil.

II. Long Answer Type Questions

1. Explain how a metal rim slightly smaller than a wooden wheel can be fixed on it.

The metal rim is always made slightly smaller than the wooden wheel. The metal rim is heated. On heating, the rim expands and fit onto the wheel. Cold water is then poured over the rim. Due to cooling the metal rim contracts and fits tightly onto the wheel.



Next

School

2. How does curd being set? Is this change reversible?

A small quantity of curd is added to warm milk. The milk is stirred and is 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 (cannot be reversed) change.

III. Long Answer Type Questions

1. 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 ground 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]

Changes i), iii) and iv) cannot be reversed, change ii) can be reversed.

2. Distinguish between the following on the basis of nature of change or formation of new substance.

- a. Reversible change and irreversible change.
- b. Physical change and chemical change

| a. | Reversible change | Irreversible change |
|----------------------------|----------------------------------------|-------------------------------------------|
| Nature of change | The change is reversible | The change is irreversible |
| Formation of new substance | Initial substance can be obtained back | Initial substance cannot be obtained back |
| b. | Physical change | Chemical Change |
| Nature of change | Only the physical appearance changes. | The chemical properties change. |
| Formation of new substance | No new substance is formed | An entirely new substance is formed. |

High Order Thinking Skills (Hots) Questions

1. Rohit puts a few drops of alcohol on the back of his hand. The alcohol disappears and his hand feels cool. Why does this happen ?

It happens because, the heat energy required for the change is provided by the body.

2. In places, such as the mountains, where temperatures get very low during winters, the plastic pipes meant for water transportation break. Why do you think it happens ?

Water pipes break because the water inside them expands as it gets close to freezing. This causes an increase in pressure inside the pipe. When the pressure gets too high for the pipe to contain, it breaks.

Flowchart

3. Sometimes the rail tracks become curved. Explain why this happens.

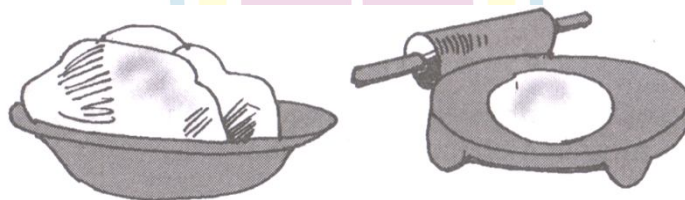
We know that the heating of any metal causes it to expand. In the same way, the sun heat causes the rail tracks made up of metal to expand. So, these tracks become curved.

4. Some bags of cement lying on the floor get wet due to the leakage of tap water in the room. The next day, they are kept in the sunshine. Do you think the changes, that have occurred in the cement could be reversed ?

Cement bags are converted into a hard mass due to the chemical reaction with water. A new product is formed, which has entirely different properties. So it being a chemical change cannot be reversed.

Skill-Based Questions

1. Write the changes shown in this figure.



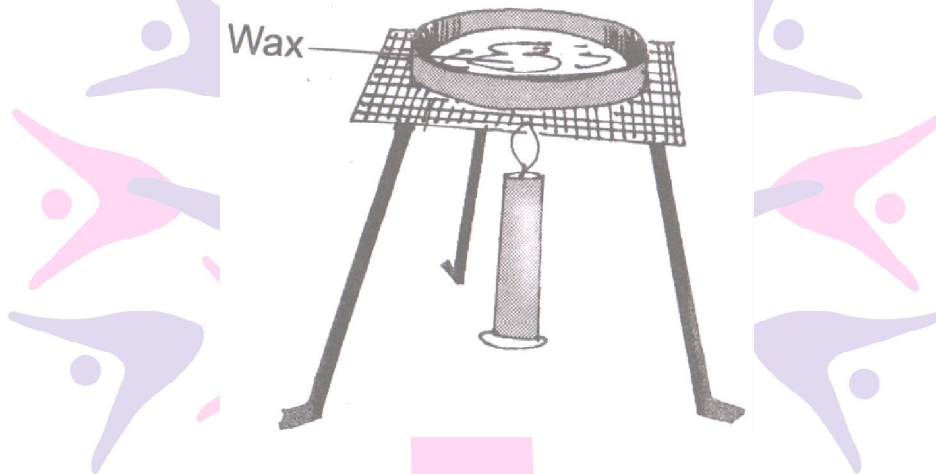
- a. The flour changes into dough (or chemical change)
b. The dough changes into circular roti (Physical change)

2. Write the change in this figure.



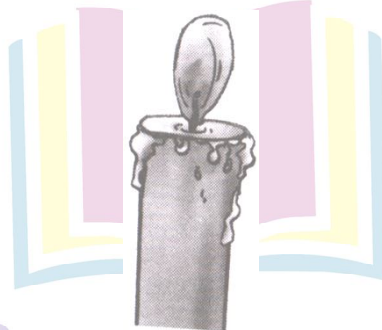
A balloon changes its size and shape on blowing air into it. (Physical change)

3. Can this change be reversed?



Yes, on heating wax changes into liquid. On cooling, it again becomes solid so, this change is reversible.

4. Draw a picture of a burning candle and tell which type of change is observed.



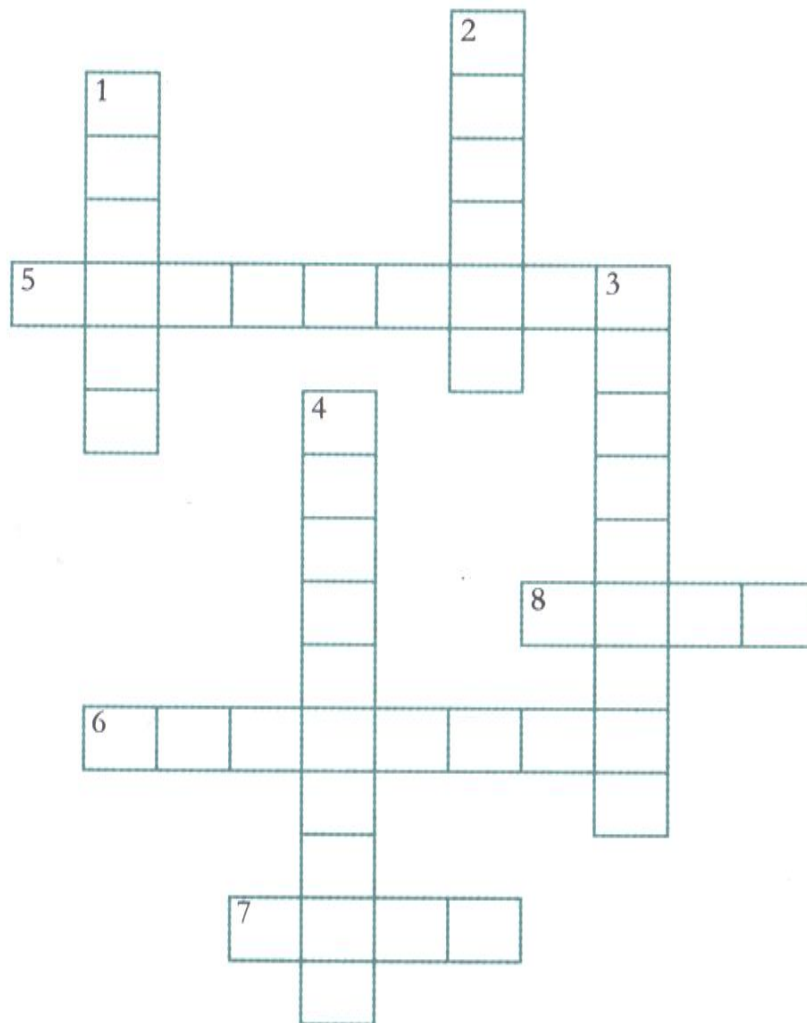
This figure shows both physical and chemical changes, i.e. melting is a physical change and burning is a chemical change.

5. Draw a picture of a 'chapatti'.



Crossword Puzzle

1. Solve the crossword puzzle with the help of clues provided.



Across

- 5. A solution in which no more solute can be added
- 6. A change that is temporary and can be reversed



7. A change that takes time to occur
8. A change that occurs very rapidly

Down

1. What happens to metals on heating
2. A solid that dissolves in water
3. A change that is good
4. A change in which the original substance can be got back

Across

5. Saturated
6. Physical
7. Slow
8. Fast

Down

1. Expand
2. Solute
3. Desirable
4. Reversible

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