

Maharashtra Board Solutions Class

7-Science: Chapter 15- Materials We Use

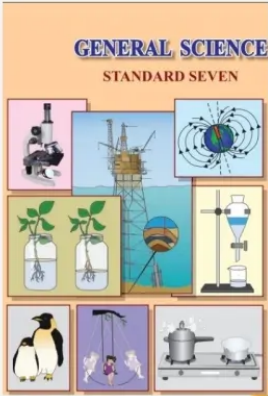
BOOK SOLUTIONS
CLASS 8
GENERAL SCIENCE

CHAPTER 15
Materials We Use

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GENERAL SCIENCE
STANDARD SEVEN

Maharashtra Board Solutions →



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Maharashtra Board Solutions Class

7-Science: Chapter 15- Materials We Use

Class 7: Science Chapter 15 solutions. Complete Class 7 Science Chapter 15 Notes.

Maharashtra Board Solutions Class 7-Science: Chapter 15- Materials We Use

Maharashtra Board 7th Science Chapter 15, Class 7 Science Chapter 15 solutions

Questions and Answers

1. Fill appropriate terms in the blanks:

(white cement, soap, detergent, wearing of bones, tooth decay, hard, soft, portland, fatty acid)

Question a.

The substance that helps water to remove dirt from the surface of material is called

Answer:

soap

Question b.

Fluoride is used in toothpaste to prevent

Answer:

tooth decay

Question c.

Soap is a salt of and sodium hydroxide.

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Answer:

fatty acid

Question d.

Synthetic detergents can be used in water as well.

Answer:

hard

Question e.

For construction purposes Cement is the most commonly used cement.

Answer:

white cement

2. Write answers to the following questions.

Question a.

How does the use of a detergent help to clean soiled clothes?

Answer:

1. A molecule of a detergent holds on to a water molecule at one end and an oil molecule at the other.
2. As a result the molecules of oil mix with the water.
3. This is how detergent acts on our soiled clothes. So detergent removes any oil or dirt sticking on to our clothes.
4. Due to the property of holding on to both oil and water, soap water spreads easily on many types of surfaces.
5. This property of spreading on a surface is called surface activity.
6. Detergents are surface active.
7. One effect of surface activity is lather formation.

Question b.

How will you check with the help of soap powder whether water is hard?

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Answer:

1. In the hard water, (of a well or a tube-well), soap does not give lather but forms a scum.
2. As a result, soap loses its cleansing property. So with help of soap we will come to know that it is a hard water.

Question c.

What are the important ingredients of a tooth paste and what is the function of each?

Answer:

1. The important ingredients of a toothpaste are calcium carbonate and calcium hydrogen phosphate.
2. They remove the dirt on teeth. These ingredients also polish the teeth.
3. A certain proportion of fluoride in the tooth paste helps prevent tooth decay.
4. It is essential for the enamel covering of teeth.

Question d.

What are the ingredients of cement?

Answer:

1. Cement is a dry, greenish grey powder with fine particles.
2. It is made from silica (sand), alumina (aluminium oxide), lime, iron oxide and magnesia (magnesium oxide).

Question e.

What will happen if cement is not used in making concrete?

Answer:

1. In making concrete strong, the ingredients cement, water, sand and gravel should usually be mixed in the ratio of 1 : 2 : 3 : 0.5 to achieve maximum strength.
2. If enough cement is not used then the concrete will eventually fall apart, as cement is used as a binding agent.

Question f.

Make a list of detergents, that you use. Answer: There are two types of detergents that we use, (a) Natural (b) Man-made detergents.

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1. Natural detergents are soap nut (ritha) soap pod (shikekai).
2. Man-made detergents are soap, hard soaps, soft soaps.
3. Synthetic detergents have taken the place of soap.
 - Detergents are commonly available as powders or concentrated solution.
 - Detergents are for laundry, washing clothes and cleaning dishes.
4. Alkaline detergents used for hard surface cleaning.

Question g.

What should be expected from a detergent for delicate garments?

Answer:

1. Detergents should not be strong, they may spoil the texture, colour of delicate garments.
2. Now a days many detergents are available especially for woollen, delicate clothes.
3. They should not contain bleach, phosphorous which will harm delicate clothes.

Question h.

What is meant by surface activity? Name three chemicals responsible for the surface activity of various detergents.

Answer:

1. Due to the property of holding on to both oil and water, soap water spreads easily on many types of surfaces.
2. The property of a substance of spreading on a surface is called surface activity and the substance is called surfactant.
3. Detergents are surface active.
4. They increase the spreading and wetting ability of water by reducing its surface tension.
5. Chemicals responsible for the surface activity of various detergents is phenol, Aprotinin.

3. What are the similarities and differences between:

Question a.

Natural detergents and Man-made detergents

Answer:

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Natural detergents

1. Soap nut (ritha) and soap pod (shikekai) are the natural detergents.
2. Natural detergents do not have harmful effect on human skin or on silk or woollen clothes.
3. Soap nut, soap pod contain a chemical saponin.
4. It is naturally available.

Man-made detergents

1. Soap is man-made detergent soft soap and hard soap.
2. Soap has effect on skin and cloth because it has chemicals in it.
3. Soap has acid in it, soap is sodium and potassium salt of fatty acids.
4. It is man made using chemicals and oil.

Question b.

Soap and Synthetic detergents

Answer:

Soap

1. Soap is man-made detergent, it is in use since ancient times.
2. Soap loses its cleansing property in hard water it does not give lather.
3. Soap was prepared by using animal fat and wood ash.
4. Variety of soaps are available, soft soap for bathing, hard soap for washing, cleaning.

Synthetic detergents

1. Synthetic detergent have taken the place of soap.
2. Synthetic detergent can be used in hard water also.
3. Synthetic detergent are obtained by subjecting fats, kerosene to various chemical processes.
4. Variety of synthetic detergents are available – Ariel, Surf Excel, etc.

Question c.

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Bath soap and Soap for washing clothes

Answer:

Bath soap

Soap for washing clothes

- | | |
|--|--|
| 1. Soft soap is used for bathing. | 1. Hard soap is used for washing clothes. |
| 2. Soft soap is potassium salt of fatty acids. | 2. Hard soap is sodium salt of fatty acid. |
| 3. Soft soap dissolves more easily readily in water. | 3. Hard soap do not dissolve easily in water. |
| 4. Now a days many perfumes, moisturizers are mixed to make it more attractive and useful. | 4. In this type of soap now a days germicides, anti foaming agents are mixed to make it more useful. |

Question d.

Modern cement and Ancient cement

Answer:

Modern cement

Ancient cement

- | | |
|---|--|
| 1. Cement manufactured from 60% lime, silica 25% and alumina 5%. the rest is iron oxide and gypsum. | 1. Romans used to make aqueous cement by mixing volcanic ash in moistened lime. It was very durable. |
| 2. It is the most commonly used cement for Construction work. | 2. It is Roman cement volcanic ash prevent cracks from spreading. |
| 3. It is called Portland Cement. | 3. It is called Aqueous Cement. |

4. Explain why –

Question a.

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Soap cannot be used in hard water.

Answer:

1. In the hard water of a well or a tube well, soap does not give lather but forms a scum.
2. As a result soap loses its cleansing property. So soap cannot be used in hard water.

Question b.

Oil does not mix in water. However, oil and water become homogenous if a sufficient quantity of detergent is added.

Answer:

1. A molecule of a detergent holds on to a water molecule at one end and an oil molecule at the other.
2. As a result the molecules of oil mix with the water, and we will see that the water and oil have become homogenous and the colour of the mixture appears milky.

Question c.

Synthetic detergents are superior to soap.

Answer:

1. Soap is a man-made detergent which has been in use since ancient times.
2. It was prepared by using animal fat and wood ash. In hard water, soap does not give lather, it loses its cleansing property.
3. So we can not use soap in hard water. Now synthetic detergents have taken the place of soap.
4. They can be used in hard water as well
5. Synthetic detergents have many more advanced properties like they are added with perfumes, conditioner for fabric, etc.

Question d.

Often coloured spots are formed on clothes during washing.

Answer:

1. Curry stains stick fast to the criss-crossing threads of the material of our clothes.
2. Curry contains turmeric a natural indicator which turns red in a basic solution.
3. Soaps are sodium salts of fatty acids and are basic in nature.

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4. While washing the clothes, turmeric reacts with soap solution and turns red forming red spots on the clothes.
5. But the spots disappear after washing the clothes with plenty of water.

Question e.

Tobacco masheri should not be used for cleaning teeth.

Answer:

1. Masher is the smokeless form of tobacco. It is tobacco, containing teeth cleaning powder
2. It contains tobacco leaves.
3. Tobacco contains toxic and Carcinogenic chemicals which can cause cancer, oral cancer, mouth and throat cancer, gum disease, tooth decay.
4. Its use can cause abnormal delivery in pregnant women.

Project:

Question 1.

Visit a cement factory. See how cement is prepared and discuss the process.

Question 2.

Write a conversation based on cement houses, mud-houses and wattle-and-daub houses.

Important Questions and Answers

Fill in the blanks:

Question 1.

The principal ingredients of a toothpaste are and which remove the dirt on the teeth.

Answer:

Calcium carbonate, calcium hydrogen phosphate

Question 2.

..... in the toothpaste helps prevent tooth decay.

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Answer:

Fluoride

Question 3.

The property of a substance of spreading on a surface is called

Answer:

surface activity

Question 4.

..... and are the natural detergent in common use.

Answer:

Soap nut, Soap pod

Question 5.

Soap nut and soap pod contain a chemical named

Answer:

Saponin

Question 6.

..... is a man-made detergent.

Answer:

Soap

Question 7.

..... is used for washing clothes.

Answer:

Hard soap

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Question 8.

..... is used for bathing.

Answer:

Soft soap

Question 9.

Hard soap is salt of fatty acids.

Answer:

Sodium

Question 10.

Soft soap is salt of fatty acids.

Answer:

Potassium

Name the following:

Question 1.

A substance which is spread on a given surface and used for cleaning.

Answer:

Surfactant

Question 2.

A chemical contained in soap nut and pod.

Answer:

Saponin

Question 3.

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An element which helps prevent tooth decay which is used in toothpastes.

Answer:

Fluoride

Question 4.

The latin word which means detergent.

Answer:

Detergere

Question 5.

A cement used for construction purpose.

Answer:

Portland cement

Question 6.

A mixture of cement, water, sand and gravel.

Answer:

Concrete

Question 7.

A natural detergent.

Answer:

Soap nut

Choose the correct option:

Question 1.

Which one of these material grows on an animal

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(cotton, rubber, wood, wool)

Answer:

Wool

Question 2.

Which of these is man-made?

(oranges, apples, plastic bags, tomatoes)

Answer:

Plastic bags

Question 3.

The statue is made from marble, marble is a material.

(weak, elastic, man-made, natural)

Answer:

Natural

Question 4.

Toy Duck is made from plastic. Plastic is a material.

(natural, man-made, raw, precious)

Answer:

Man-made

Question 5.

Which of these materials is natural?

(Nylon, Rock, Plastic, Polythene)

Answer:

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Rock

Question 6.

Which one of these is a natural material?

(Lemonade, Cola, Water, Ice cream)

Answer:

Water

Question 7.

The toy plane made from wood. Wood is a material.

(man-made, natural, weak)

Answer:

Natural

Question 8.

Which one of these materials is natural?

(Nylon, cotton, polythene, polyesters)

Answer:

Cotton

Match the following:

Question 1.

Column 'A'

Column 'B'

1. Fluoride

a. Man-made detergent

2. Soap nut

b. Sodium salt of fatty acid

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- | | |
|----------------------|-----------------------------------|
| 3. Soap | c. Man-made material |
| 4. Cotton | d. Prevents tooth decay |
| 5. Nylon | e. Potassium salt of fatty acid. |
| 6. Hard soap | f. Natural detergent |
| 7. Calcium carbonate | g. Natural material |
| 8. Soft soap | h. Main ingredients of toothpaste |

Answer:

- | Column 'A' | Column 'B' |
|----------------------|-----------------------------------|
| 1. Fluoride | d. Prevents tooth decay |
| 2. Soap nut | f. Natural detergent |
| 3. Soap | a. Man-made detergent |
| 4. Cotton | g. Natural material |
| 5. Nylon | c. Man-made material |
| 6. Hard soap | b. Sodium salt of fatty acid |
| 7. Calcium carbonate | h. Main ingredients of toothpaste |
| 8. Soft soap | e. Potassium salt of fatty acid. |

Find out:

Answer the following questions:

Question 1.

What is the source of the fluoride in a tooth paste or tooth powder?

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Answer:

A naturally occurring mineral found in tooth paste and drinking water. Sodium Fluoride (NaF) is the source of fluoride in toothpaste.

Question 2.

Note down all the information given on a tooth powder/toothpaste container or carton and discuss.

Answer:

1. The carton shows the name of the company and name of toothpaste and its contains all the ingredients present in toothpaste.
2. Licence No. of company, Regd. Trade Mark of Colgate Palmolive Co-manufactured by Colgate-Palmolive (India) Ltd. Licenced user of Trade Mark made in India. Tooth paste contains 1000 ppm max of available fluoride when packed.

Expt. Date:
Batch No.:

3. Ingredients: Calcium carbonate, sorbitol, sodium lauryl sulphate, silica, sodium silicate flavour, sodium monofluoro phosphate, sodium bicarbonate, benzyl alcohol.
4. Direction for use: Brush thoroughly atleast twice a day.
5. Children under 6 years of age should have adult supervision and use only appropriate amount.

Question 3.

Now a days why are the roads made of concrete?

Answer:

1. Concrete is prepared by mixing cement, limestone, sand, gravel, and water. It is solid, more durable and strong.
2. There is no erosion for many years and roads are smoother. So the roads are made of concrete.

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Question 4.

What causes the hardness of water?

Answer:

1. Hardness is a measure of amount of dissolved salts in water.
2. It is caused by dissolved salts like carbonates, chlorides mostly of calcium and magnesium
3. Presence of these makes washing of clothes by soap difficult.
4. Hard water is water that has high mineral content.
5. Hard water is formed when water percolates through deposits of limestone and chalk.

Can you tell?

Answer the following questions:

Question 1.

Which substances were used earlier for cleaning teeth?

Answer:

In olden times neem twigs, coal powder ash, tooth powder, salt, pomegranate rind, were used for cleaning teeth.

Question 2.

What do we use today to clean our teeth?

Answer:

Now a days we use variety of toothpastes and tooth powders to clean our teeth.

Question 3.

What do we use for cleansing our body?

Answer:

Soap, many liquid body wash are also used to clean our body.

Question 4.

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What are the materials used for construction?

Answer:

Metals, wood, stone, cement, concrete, timber, bricks, metal sheet, soil, Earth, marble, aluminium, iron, steel, bamboo, glass, plastic.

Concrete: is a wet mixture of sand, gravel, cement, and water used to create building foundations, footpaths or roads.

Question 5.

Which of the houses seen in the pictures here have a strong structure? Why?



Houses



Answer:

The houses made from stone, bricks, and cement and concrete have a strong structure.

Write short notes on or Explain:

Question 1.

Natural detergent

Answer:

1. It is naturally available soap nut (ritha) and soap pod (shikekai) are the natural detergents in common use.
2. They contain a chemical named saponin.

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3. Soap nut and soap pod do not have any harmful effect on human skin or on silk, woollen threads, and cloth.

Question 2.

Man-made detergents

Answer:

1. Detergent which is made by processing naturally available material, soap is a man-made detergent which has been in use since ancient times.
2. In those days soap was prepared by using animal fat and wood ash.
3. Therefore two types of soap (a) Hard Soap is used for washing clothes. It is a sodium salt of fatty acids, (b) Softsoap is used for bathing. It is a potassium salt of fatty acids.
4. It does not cause irritation of the skin.
5. But we can't use soap in hard water because soap does not give lather but forms a scum. So, soap loses its cleansing property so now synthetic detergent have taken the place of soap.
6. Synthetic detergents are obtained by subjecting these raw materials (fats and kerosene) to a variety of chemical processes. These can be used in hard water as well.

Question 3.

Soap

Answer:

Two types of soap are:

1. Hard soap is used for washing clothes. It is a sodium salt of fatty acids.
2. (a) Softsoap is used for bathing. It is a potassium salt of fatty acids, (b) It does not cause irritation of the skin, (c) But we can't use soap in hard water because soap does not give lather but forms a scum, (d) So, soap loses its cleansing property so now synthetic detergents have taken place of soap, (e) Synthetic detergents are obtained by subjecting these raw materials (fats and kerosene) to a variety of chemical processes, (f) These can be used in hard water as well.

Question 4.

Concrete

Answer:

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1. Concrete is prepared by mixing cement, water, sand and gravel.
2. For making a strong and leak proof slab certain substances are mixed in concrete.
3. Now a days, roads are made of concrete because they are very durable, strong and smooth.

Question 5.

Surface activity

Answer:

1. Soap molecule has the property of holding on to both oil and water soap water spreads easily on many types of surfaces.
2. The property of a substance of spreading on a surface is called surface activity and the substance is said to be a surfactant.
3. Detergents are surface-active. One effect of surface activity is lather formation.

Question 6.

Explain the method of preparation of soap.

Answer:

Material required for preparation soap are 15 g sodium hydroxide, 60 ml coconut oil, 15 g salt, perfume, a glass rod, beaker, tripod, wire gauze, burner, water mould etc.

Procedure:

1. Take 60 ml of coconut oil in a beaker.
2. Dissolve 15 g sodium hydroxide in 50 ml water. Mix the sodium hydroxide solution in the oil slowly, while stirring with a glass rod.
3. Heat the mixture, and boil it for 10 – 12 minutes, stirring it all the while.
4. Take care that the mixture does not boil over while heating.
5. Dissolve 15 g salt in 200 ml water, pour this solution into the above mixture and stir.
6. The soap formed by the chemical reaction now floats on the water. After some time, it becomes thick.
7. Now separate the thick soap and add the perfume to it, shape the bar of soap using the mould.
8. In this process, fat and alkali combine to form salts of fatty acids.
9. Chemically, soap is a sodium or potassium salt of fatty acids.

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- Chapter 1- The Living World: Adaptations and Classification
- Chapter 2- Plants: Structure and Function
- Chapter 3- Properties of Natural Resources
- Chapter 4- Nutrition in Living Organisms
- Chapter 5- Food Safety
- Chapter 6- Measurement of Physical Quantities
- Chapter 7- Motion, Force and Work
- Chapter 8- Static Electricity
- Chapter 9- Heat
- Chapter 10- Disaster Management
- Chapter 11- Cell Structure and Micro-organisms
- Chapter 12- The Muscular System and Digestive System in Human Beings
- Chapter 13- Changes - Physical and Chemical
- Chapter 14- Elements, Compounds and Mixtures
- Chapter 15- Materials We Use
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- Chapter 20- In the World of Stars

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The Maharashtra State Board of Secondary and Higher Secondary Education or MSBSHSE (Marathi: महाराष्ट्र राज्य माध्यमिक आणि उच्च माध्यमिक शिक्षण मंडळ), is an **autonomous and statutory body established in 1965**. The board was amended in the year 1977 under the provisions of the Maharashtra Act No. 41 of 1965.

The Maharashtra State Board of Secondary & Higher Secondary Education (MSBSHSE), Pune is an independent body of the Maharashtra Government. There are more than 1.4 million students that appear in the examination every year. The Maha State Board conducts the board examination twice a year. This board conducts the examination for SSC and HSC.

The Maharashtra government established the Maharashtra State Bureau of Textbook Production and Curriculum Research, also commonly referred to as Ebalbharati, in 1967 to take up the responsibility of providing quality textbooks to students from all classes studying under the Maharashtra State Board. MSBHSE prepares and updates the curriculum to provide holistic development for students. It is designed to tackle the difficulty in understanding the concepts with simple language with simple illustrations. Every year around 10 lakh students are enrolled in schools that are affiliated with the Maharashtra State Board.

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As of now, the MSCERT and Balbharti are responsible for the syllabus and textbooks of Classes 1 to 8, while Classes 9 and 10 are under the Maharashtra State Board of Secondary and Higher Secondary Education (MSBSHSE).

How many state boards are there in Maharashtra?

The Maharashtra State Board of Secondary & Higher Secondary Education, conducts the HSC and SSC Examinations in the state of Maharashtra through its nine Divisional Boards located at Pune, Mumbai, Aurangabad, Nasik, Kolhapur, Amravati, Latur, Nagpur and Ratnagiri.

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