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It gives me great pride and pleasure in bringing to you **Sura's Science Guide** for **7<sup>th</sup> Standard Term - III**. It is prepared as per the New Syllabus and New Textbook for the year 2019 - 20.

This guide encompasses all the requirements of the students to comprehend the text and the evaluation of the textbook.

Additional questions have been provided exhaustively for clear understanding of the units under study.

In order to learn effectively, I advise students to learn the subject section-wise and practice the exercises given. It will be a teaching companion to teachers and a learning companion to students.

Though these salient features are available in this Guide, I cannot negate the indispensable role of the teachers in assisting the student to understand the subject thoroughly.

I sincerely believe this guide satisfies the needs of the students and bolsters the teaching methodologies of the teachers.

I pray the almighty to bless the students for consummate success in their examinations.

**Subash Raj, B.E., M.S.**

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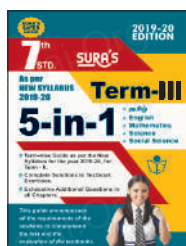
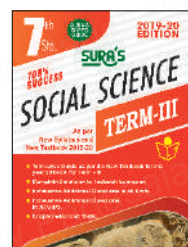
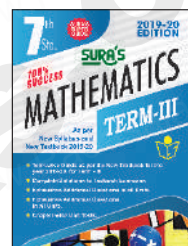
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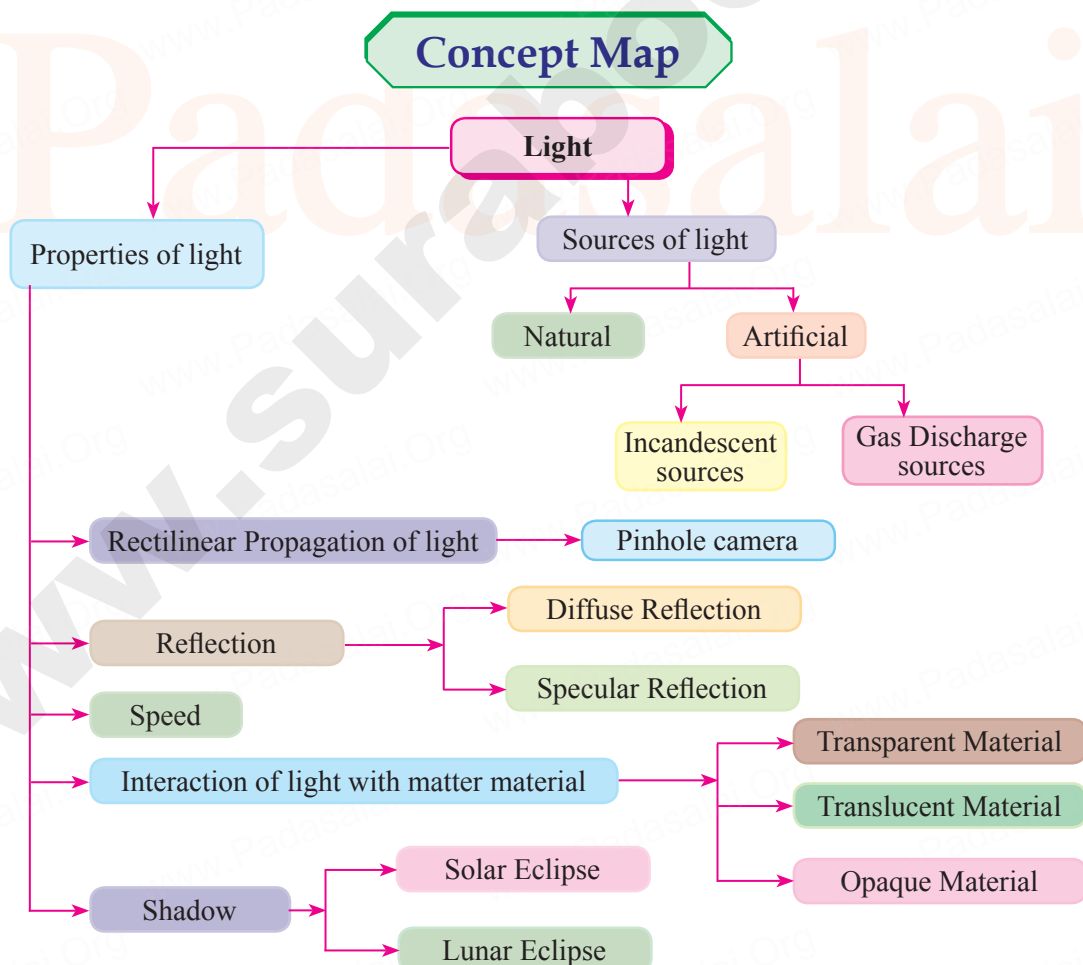
## 01

## LIGHT

## LEARNING OBJECTIVES

- ❑ understand that light is an energy
- ❑ differentiate natural and artificial light sources
- ❑ understand rectilinear propagation of light
- ❑ understand formation of shadows
- ❑ know reflection of light and its types
- ❑ know the laws of reflection
- ❑ understand the properties of the images formed in a plane mirror
- ❑ understand dispersion and spectrum
- ❑ understand synthesis of colors

## Concept Map







**3. The image formed by the plane mirror is laterally inverted, hence the image seen through the periscope is also laterally inverted**

**Ans. False.** Correct statement : The image formed by the plane mirror is laterally inverted, hence the image seen through the periscope is **erect**.

This is because in periscope, image is reflected by two mirrors.

**4. We see planets because they reflect light from the sun**

**Ans. True**

**5. We see a book because it reflects the light that falls on its surface**

**Ans. True**

**6. The image formed in a pinhole camera is always inverted**

**Ans. True**

**7. The image formed in a pinhole camera is always the same size as the object**

**Ans. False.**

**8. The image formed in a plane mirror is upside down**

**Ans. False.** Correct statement : The image formed in a plane mirror is **erect**.

**9. A plane mirror is opaque**

**Ans. True**

**10. A shadow is formed on the same side of the object as the source of light.**

**Ans. False.** Correct statement : A shadow is formed on the **opposite** side of the object as the source of light.

**11. We are able to see things around us with the help of regular reflection**

**Ans. True**

**12. After passing through a prism, white light splits into a band of seven colours**

**Ans. True**

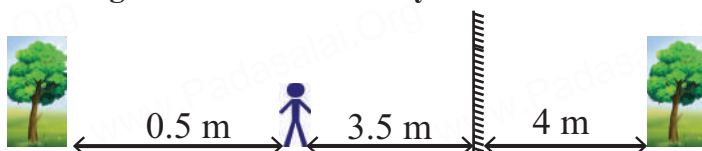
#### **IV. Match the following:**

1.	Rectilinear propagation	Primary source of light
2.	Plane Mirror	Non-luminous object
3.	Fire fly	Periscope
4.	The Moon	Pinhole camera
5.	Wide light source	Spectrum of light
6.	Regular reflection	luminous object
7.	The sun	Penumbra
8.	Band of seven colors	Glossy surface



- 3. A person is looking at the image of a tree in a mirror placed 3.5 m in front of him. Given that the tree is at 0.5 m behind his eyes. Find the distance between the image of the tree and his eyes. What are needed to see an object?**

**Ans.**



Distance between the person and the mirror = 3.5 m

Distance between the person and tree (object) = 0.5 m.

The image formed in the mirror = 4 m

The distance between the image of the

tree and his eyes = 4 + 3.5 = 7.5 m

Things needed to see an object :

- ❖ Source of light
- ❖ Object
- ❖ Eyes

- 4. What are luminous objects?**

**Ans.** All objects which emit light energy by themselves are called luminous objects.  
Ex. : Sun, electric bulb.

- 5. Is the moon a luminous object?**

**Ans.** No, the moon is non-luminous. The reason is that moon does not produce its own light. Instead, it reflects the light of the sun falling on it.

- 6. What are the three types of materials based on the absorption of light?**

- Ans. (i)** Transparent Material  
**(ii)** Translucent Material  
**(iii)** Opaque Material

- 7. What are the parts of shadow?**

- Ans. (i)** Umbra  
**(ii)** Penumbra

- 8. What are the properties of shadow?**

**Ans. Properties of shadow :**

- (i)** All objects do not form shadows. Only opaque objects form shadows.
- (ii)** Shadows will be formed in the opposite side of light source.
- (iii)** It cannot be determined the characteristics of an object by its shadow.
- (iv)** The shadow will be always darker, whatever may be the color of light rays.
- (v)** Light source, opaque object are shadow all are in a straight line.
- (vi)** The size of shadow depends upon the distance between light source and object and the distance between object and the screen.

- 9. What is plane mirror?**

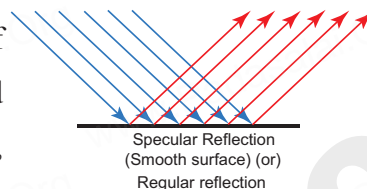
**Ans.** A plane mirror is a mirror with a flat reflective surface. A plane mirror makes an image of objects in front of it.



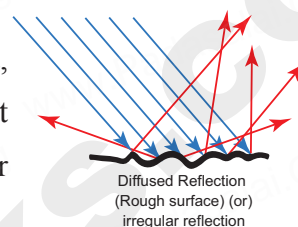
## VI. Answer the following questions in detail:

1. What are regular and irregular reflection? Explain with the help of diagrams.

**Ans. (i) Regular reflection :** When a parallel beam of light on striking some smooth and polished surface is reflected as a parallel beam of light, such a reflection is called regular reflection.



**(ii) Irregular reflection :** When a parallel beam of light, on striking some rough surface, is reflected in different directions, then such a reflection is called irregular or diffused reflection.



2. What are the difference between luminous and non-luminous objects? Give two examples of each.

**Ans.**

	Luminous objects	Non-luminous objects
1.	All objects which emit light energy by themselves are called luminous objects.	All objects which do not emit light energy of their own, but reflect the light energy falling on them and hence, become visible are called non-luminous object.
2.	Ex. : Sun, stars, torch light, burning candle etc.	Ex. : Metals, trees, houses, stones, moon etc.

3. Write about two everyday situations that tell you that light travels in a straight line.

**Ans. (i)** Formation of shadow : Shadows are formed when some light rays continue its travel in straight lines while other rays are stopped by an object.

**(ii)** When there is a small hole in a room, light travels only in a straight line.

4. Differentiate between a reflection and a shadow.

**Ans.**

	Reflection	Shadow
1.	When light falls on a surface, the direction of ray is changed. This change in direction is known as reflection of light.	Shadow is an image formed by obstruction of light.
2.	Eg. : You see your reflection in a pool of water or mirror.	Eg. : If you place your hand in front of a candle, you will see the image of the hand on the wall. This image will show only the outline of the object placed in front of the light source.



- 5. Which of the following is not luminous object?**  
 (a) Sun (b) Moon (c) Candle (d) Bulb  
**[Ans. (b) Moon]**
- 6. White light is composed of \_\_\_\_\_**  
 (a) seven colours (b) five colours  
 (c) three colours (d) only one colour  
**[Ans. (a) seven colours]**
- 7. The image which can be obtained on screen is called \_\_\_\_\_**  
 (a) erect (b) real (c) virtual (d) inverted  
**[Ans. (b) real]**
- 8. If we mix lights of the colours of the rainbow we will get**  
 (a) pink light (b) brown light  
 (c) colourless light (d) black light  
**[Ans. (c) colourless light]**
- 9. Which one of the following is involved for the formation of rainbow in the sky?**  
 (a) Expansion of light (b) Expansion of heat by the Sun  
 (c) Distance between the Earth and the Moon  
 (d) Dispersion of light  
**[Ans. (d) Dispersion of light]**
- 10. A virtual image is**  
 (a) always real (b) always uncapturable on a screen  
 (c) always inverted (d) always caught on a screen  
**[Ans. (b) always uncapturable on a screen]**

## II. Fill in the Blanks.

- 1. Objects which are able to emit light are known as \_\_\_\_\_. [Ans. light sources]**
- 2. Passing electricity through certain gases at a very low pressure can produce \_\_\_\_\_. [Ans. light]**
- 3. \_\_\_\_\_ is a simple device which helps us to understand about the rectilinear propagation of light. [Ans. Pin-hole camera]**
- 4. The light falling on the mirror is called as \_\_\_\_\_ and the light reflected is called \_\_\_\_\_. [Ans. incident ray, reflected ray]**
- 5. The angle formed between the reflected ray and the normal is \_\_\_\_\_. [Ans. angle of reflection]**
- 6. Light travels \_\_\_\_\_ km per second in air or vacuum. [Ans. 3 lakh]**
- 7. Materials that allow light to pass through completely are known as \_\_\_\_\_ material. [Ans. transparent]**
- 8. Materials that allow light to pass through partially are called \_\_\_\_\_ materials. [Ans. translucent]**



## 8. What is meant by synthesis of colour?

- Ans. (i)** Synthesis of colour is the method of creating colour by mixing various proportion of two (or) three distinct colours of light.  
**(ii)** These distinct colours are Red, Green and Blue called as primary colours.

## 9. When lighting a bulbs in a dark room, light spreads the whole room quickly. Give reason.

- Ans. (i)** When lighting a bulb in a dark room, light spreads the whole room quickly.  
**(ii)** This is because the light travels very fast.  
**(iii)** Light travels three lakh kilometers per second in air or vacuum.  
**(iv)** In theory, nothing can travel faster than light.

## VIII. Long Answer:

### 1. Write the difference between real image and virtual image.

**Ans.**

	Real image	Virtual image
1.	It can be taken on a screen.	It cannot be taken on a screen.
2.	The rays of light, after reflection actually meet at a point.	The rays of light, after reflection appear to meet at a point.
3.	It is always inverted	It is always erect but laterally inverted

### 2. Explain the importance of optical fiber.

- Ans. (i)** Optical fiber is a device that works on the principle of total internal reflection by which light signals (huge data) can be transmitted from one place to another place with a negligible loss of energy in a very short time.  
**(ii)** It consists of a cable having one or more thin flexible fibers with a glass core through which light signals can be sent.  
**(iii)** Optical fiber can be twisted and bent easily.  
**(iv)** When a light ray of light is incident at one end of the core of optical fiber, it suffers total internal reflection at the many places inside the fiber and emerges at the other end with negligible loss of energy.  
**(v)** The data or information in the form of pulses of light, can be sent through bundles of optical fibers.  
**(vi)** Optical fibers have become very important in high-speed communications, such as cable TV and high-speed broadband services. Fiber optic cables are able to carry more signals than traditional copper cable telephone lines.

### 3. With help of a diagram, write a note on : a. Solar eclipse, b. Lunar eclipse.

**Ans. a) Solar eclipse**

Solar eclipse occurs, when the Moon arrives between the Sun (S) and the Earth (E). The shadow of the Moon appears on the Earth at A as shown in picture. Hence, those who are at the region A are unable to see the Sun instantly. This is solar eclipse. But, those who are at the region B and C are able to see the sun partially.





## UNIT TEST

Time : 60 min.

Marks : 25

### I. Choose the correct answer:

(3 × 1 = 3)

1. Light is a form of \_\_\_\_\_.

- (a) matter (b) energy  
(c) medium (d) particle

2. Which of the following is the best reflector of light?

- (a) Plastic plate (b) Plane mirror  
(c) Wall (d) Paper

3. Which of the following is a natural source of light?

- (a) Electric lamp (b) Electric filament  
(c) Torch light (d) Sunlight

### II. Fill in the blanks.

(4 × 1 = 4)

4. The splitting of white light into seven colours is called \_\_\_\_\_.

5. Light travels \_\_\_\_\_ km per second in air or vacuum

6. Magenta, Cyan and yellow are called \_\_\_\_\_ colour.

7. The Moon \_\_\_\_\_ Sun light.

### III. True or False - If false, give the correct statement.

(3 × 1 = 3)

8. The image formed in a plane mirror is upside down

9. After passing through a prism, white light splits into a band of seven colours

10. You can see a rainbow only when your back is towards the Sun.

### IV. Give very short answer:

(3 × 1 = 3)

11. What are luminous objects?

12. What is prism?

13. Name the triangular piece of glass that splits white light into different colours.

### V. Give short answer:

(2 × 2 = 4)

14. State laws of reflection.

15. What do you mean by lateral inversion?

### VI. Answer the following in detail:

(2 × 4 = 8)

16. Write about two everyday situations that tell you that light travels in a straight line.

17. What are the characteristics of an image formed in a plane mirror?





#### 4. The galaxy containing young and hot stars is

- (a) elliptical galaxy (b) irregular galaxy  
(c) cluster (d) spiral galaxy

[Ans. (d) spiral galaxy]

#### 5. With the launch of this satellite, ISRO became capable of launching 4 ton heavy satellites

- (a) GSAT- 13 (b) GSAT- 14  
(c) GSAT- 17 (d) Way par GSAT- 19

[Ans. (d) Way par GSAT-19]

### II. Fill in the blanks:

1. Waxing of Moon means \_\_\_\_\_. [Ans. growing or expanding]

2. Heliocentric model is proposed by \_\_\_\_\_. [Ans. Nicolus copernicus]

3. \_\_\_\_\_ is the prevailing model of Evolution of the Universe.  
[Ans. The Big Bang Theory]

4. \_\_\_\_\_ is a large constellation which covers a large part of the sky.  
[Ans. Ursa Major]

5. \_\_\_\_\_ is the first satellite launched by India [Ans. Aryabhata]

### III. True or False – If False give the correct answer

1. On a full Moon day, when the Sun is setting in the west, Moon rises in the West.

Ans. False. Correct statement : On a full Moon day, when the Sun is setting in the west, Moon rises in the East.

2. The word crescent refers to the phases where the Moon is less than half illuminated.

Ans. True.

3. Galilio accepted the Geo-centric model.

Ans. False. Correct statement : Galilio **did not** accepted the Geo-centric model.

4. Our Milky Way galaxy is identified as an elliptical galaxy.

Ans. False. Correct statement : Our Milky Way galaxy is identified as an **spiral** galaxy.

5. The planet Venus in our solar system doesn't have a Moon.

Ans. True

### IV. Match the following:

1.	Rohini	GSLV-Mark III
2.	GSAT-14	GSLV Mark III D1
3.	GSAT-19	SLV-3
4.	Chandrayaan-2	PSLV-XL C25
5.	Mangalyaan	GSLV-D5



## Additional Questions

### I. Choose the correct answer.

1. What type of galaxy is the milky way?

- (a) Spherical (b) Irregular  
(c) Spiral (d) Elliptical

[Ans. (c) Spiral]

2. Stars mainly consists of \_\_\_\_\_.

- (a) Oxygen and hydrogen (b) hydrogen and helium  
(c) Oxygen and nitrogen (d) Carbon and helium

[Ans. (b) hydrogen and helium]

3. The Great Bear or Saptha Rishi Mandalam are the names of

- (a) The Ursa Major (b) Orion  
(c) Both a and b (d) None of these

[Ans. (a) The Ursa Major]

4. GSLV means \_\_\_\_\_.

- (a) Global Satellite Locus Verification  
(b) Geostationary Satellite Launch Vehicle  
(c) German Satellite Launching Vehicle  
(d) None of these

[Ans. (b) Geostationary Satellite Launch Vehicle]

5. Parsec is equal to \_\_\_\_\_

- (a) 2 light years (b) 5 light years  
(c) 4.56 light years (d) 3.26 light years

[Ans. (d) 3.26 light years]

6. The hottest planet in the solar system is \_\_\_\_\_

- (a) Mercury (b) Venus  
(c) Sun (d) Mars

[Ans. (b) Venus]

7. The first artificial satellite is \_\_\_\_\_

- (a) Sputnik - I (b) Sputnik - II  
(c) Apollo - II (d) Vostok

[Ans. (a) Sputnik - I]

8. The nearest galaxy to our Milky way is \_\_\_\_\_

- (a) Andromeda (b) Proxima centauri  
(c) Large megallanic cloud (d) None of these

[Ans. (a) Andromeda]

9. Earth orbit around Sun in \_\_\_\_\_ days.

- (a) 465 (b) 365 (c) 687 (d) 24

[Ans. (b) 365]

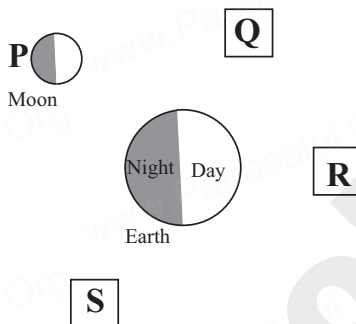


### VIII. Creative questions: HOTS

1. Do stars emit light only during night?

**Ans.** No. Stars emit light all the time. But we are not able to see their light due to excess brightness of the Sun.

2. In the given picture out of the positions P, Q, R and S which will indicate the position of the Sun. Draw the Sun at the appropriate position.



**Ans.** Sun will be at position R.

3. We never see the backside of the Moon from the Earth. Is it true?

**Ans.** Yes, as the Moon revolves around the Earth facing one part of the Moon towards the Earth, then we never see back side of the Moon from the Earth.





## Must Know Definitions

<b>Polymers</b>	:	All the proteins present in your body are <b>polymers</b> .
<b>Natural fibres</b>	:	Fibres that are obtained from plant or animal sources are called <b>natural fibres</b> .
<b>Synthetic fibres</b>	:	Fibres that are made using raw materials from petroleum are <b>synthetic fibres</b> .
<b>Fibres</b>	:	<b>Fibres</b> are long strands of molecules interwoven to form linear, string-like structures that can be woven, knitted, matted or bonded.
<b>Thermoplastics</b>	:	Plastics that get deformed easily on heating and can be bent are known as <b>thermoplastics</b> .
<b>Thermosetting plastic</b>	:	Plastics that do not get deformed easily on heating and cannot be bent are known as <b>thermosetting plastics</b> .
<b>Plastic</b>	:	Plastic is a synthetic polymer that can be moulded or shaped in any form.
<b>Bio-degradable</b>	:	A material that gets decomposed through natural processes and action by bacteria is called <b>biodegradable</b> .
<b>Non-biodegradable</b>	:	Substances that cannot decay by natural process when acted upon by decomposition.



## EVALUATION

### I. Choose the correct answers :

- The first man-made fibre is \_\_\_\_\_.  
 (a) Nylon (b) Polyester (c) Rayon (d) Cotton  
**[Ans. (c) Rayon]**
- Which of the following is the strongest?  
 (a) Rayon (b) Nylon (c) Acrylic (d) Polyester  
**[Ans. (b) Nylon]**
- When you place a natural fibre in a flame it \_\_\_\_\_.  
 (a) melts (b) burns (c) gets nothing (d) explodes.  
**[Ans. (b) burns]**
- A synthetic fibre which has similar properties to wool is \_\_\_\_\_.  
 (a) Nylon (b) Polyester (c) Acrylic (d) PVC  
**[Ans. (c) Acrylic]**
- A good application of plastic is the use of \_\_\_\_\_.  
 (a) Blood bags (b) Plastic cutlery  
 (c) Plastic straws (d) Plastic carry bag  
**[Ans. (a) Blood bags]**



**4. A bucket made of plastic does not rust like a bucket made of iron. Why?**

- Ans. (i)** The reason is due to their chemical composition.  
**(ii)** The bucket is made of plastic which does not react with the oxygen and humidity present in air.  
**(iii)** While the iron reacts with the oxygen, air corrodes to form rust.

**5. Why is it better to avoid the use of plastic products?**

- Ans. (i)** Plastics do not decompose by natural processes and action of bacteria and are therefore not biodegradable.  
**(ii)** A lot of the plastic produced globally is designed to be used only once and thrown away, creating a large amount of plastic waste.  
**(iii)** Plastic waste ends up being recycled, incinerated, landfilled, dumped or ends up littering our environment.  
**(iv)** So, it is better to avoid the use of plastic products.

**6. Give two examples of thermosetting plastics.**

**Ans.** Bakelite, Melamine.

**7. What is the 5 R principle?**

**Ans.** Plastic disposal is the 5 R principle, Refuse, Reduce, Reuse, Recycle and Recover is called as 5 R principle.

**X. Short Answer :**

**1. What does the term biodegradable mean?**

**Ans.** A material that gets decomposed through natural processes and action by bacteria is called biodegradable.

**2. What kind of fabric is suitable to dress-up and play in summer? Why?**

- Ans. (i)** In summer it is better to wear clothing that is made out of cotton materials rather than synthetic.  
**(ii)** This is because most synthetic fibres absorb very little moisture and do not allow air circulation making them hot and uncomfortable to wear.

**3. How do plastics impact animals and the environment?**

- Ans. (i)** The increase in the use of plastics, particularly the one-time use and throw away plastic has serious impacts on the environment, animals and our health.  
**(ii)** We have seen garbage dumps with different plastics. One big problem with plastics is that they do not decompose or biodegrade.  
**(iii)** This leads to large amounts of waste that will not disappear and end up accumulating and polluting the environment.  
**(iv)** Many animals confuse plastic for food and eat it by accident. When leftover food is thrown away it is often packed in plastic. Animals smell the leftover food and eat the plastic by accident.

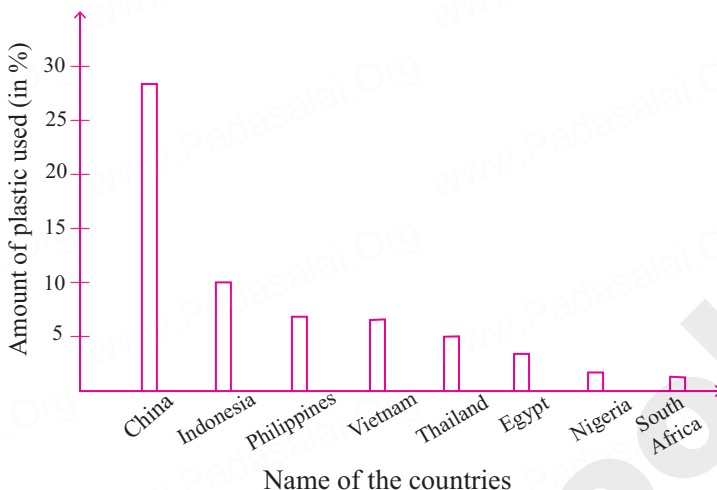




iii) Read the following information and convert them into a graph to compare the countries and the amount of plastic they use.

China contributes the highest share - that is around 28%, of the total plastic used globally. Indonesia uses 10%, both the Philippines and Vietnam use 6% each; Thailand uses 3.2%, Egypt 3%, Nigeria 2.7% and South Africa 2%.

Ans.



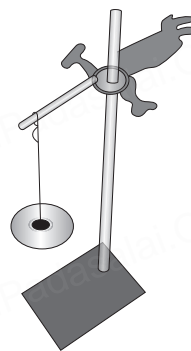
### Intext Activities

#### → ACTIVITY - 2

How Strong is Nylon? Take an iron stand with a clamp. Take samples of cotton, wool, nylon and silk threads of about 50cm in length.

First tie cotton thread to the stand so that it hangs freely from it. At the free end, attach a CD as plate so that weights can be placed on it. Add weights starting from 10 grams one by one, until the thread breaks. Note down the total weight required to break the cotton thread. Repeat the same activity with the wool, silk and nylon threads. NOTE: All the varieties of threads should be of same thickness.

Arrange the threads in the order of increasing strength.



Ans. Cotton, Wool, Silk, Nylon.

What do you infer from the above activity?

Ans. Nylon thread is the strongest thread.

Which type of fibre is the strongest?

Ans. Nylon.

Which type of fibre is the weakest?

Ans. Cotton.





**4. Pick the synthetic fibre out of the following.**

- (a) Jute (b) Cotton (c) Nylon (d) Wool

[Ans. (c) Nylon]

**5. Which is a thermosetting plastic?**

- (a) Melamine (b) Polythene (c) PVC (d) Nylon

[Ans. (a) Melamine]

**6. Which of the following is non - bio degradable?**

- (a) Plastic (b) Paper (c) Cotton cloth (d) Wood

[Ans. (a) plastic]

**7. The material similar to silk in appearance is.**

- (a) nylon (b) rayon (c) polyester (d) terylene

[Ans. (b) rayon]

**8. The fibres such as rayon, nylon, polyester are obtained from \_\_\_\_\_**

- (a) natural resources (b) chemical substances  
(c) minerals (d) plants and animals

[Ans. (b) chemicals substances]

**9. Which of the following fibres is considered as the strongest natural fibre?**

- (a) Cotton (b) Jute (c) Silk (d) Wool

[Ans. (c) Silk]

**10. Which of the following is found in sanitary products?**

- (a) Nylon (b) Wool (c) Jute (d) Rayon

[Ans. (d) Rayon]

**II. Fill in the Blanks.**

- 1.** Polymers are very long chains made of repeating smaller molecules called \_\_\_\_\_.  
[Ans. monomers]

- 2.** All the \_\_\_\_\_ present in your body are polymers.  
[Ans. proteins]

- 3.** \_\_\_\_\_ is made of sugar molecules and is the main component of cotton used in clothing.  
[Ans. Cellulose]

- 4.** \_\_\_\_\_ and \_\_\_\_\_ are the building block monomers that make up many different types of plastics.  
[Ans. Ethylene, propylene]

- 5.** \_\_\_\_\_ are long strands of polymers interwoven to form linear, string-like structures.  
[Ans. Fibres]

- 6.** Fibres that are made using raw materials from \_\_\_\_\_ are synthetic fibres.  
[Ans. petroleum]

- 7.** The cellulose dissolves in the chemicals added to it and produces syrup called \_\_\_\_\_.  
[Ans. Viscose]

- 8.** Nylon is a plastic polymer made of chemical units called \_\_\_\_\_.  
[Ans. Polyamides]



## VII. Long Answer

### 1. Explain about plastic eating bacteria.

- Ans. (i)** In 2016, scientists from Japan tested different bacteria from a bottle recycling plant and found that *Ideonellasakaiensis* 201-F6 could digest the plastic used to make single-use drinks bottles that are made of polyethylene terephthalate (PET).
- (ii)** The bacteria works by secreting an enzyme known as 'PETase', that breaks down plastic into smaller molecules.
- (iii)** These smaller molecules are then absorbed by the bacteria as a food source.
- (iv)** The scale of the bacteria breaking down plastics is much slower and will therefore not solve the crisis we are facing.

### 2. Write a note on manufacturing of glass.

- Ans. (i)** Glass is prepared by heating ( $\text{SiO}_2$ ) silicic oxide until it melts, about  $1700^\circ\text{C}$  and Sodium Carbonate is added to it.
- (ii)** Then it is cooled down really fast.
- (iii)** When  $\text{SiO}_2$  silicic oxide melts, the silicon and oxygen atoms break out of their crystal structure.
- (iv)** If we cooled it slowly, the atoms would slowly line up back into their crystalline arrangement.
- (v)** But if we cool the liquid fast enough, the atoms of the silica will be halted in their tracks, they won't have time to line up, and they will be stuck in any old arrangement, with no order to the arrangement of the atoms.
- (vi)** We call materials like this as amorphous.

### 3. Write the importance of rayon.

- Ans. (i)** Some types of rayon are made from the short cotton fibres left on cotton seeds after ginning.
- (ii)** Rayon is cheaper than silk, can be woven like natural silk fibre and can be dyed in a wide variety of colours.
- (iii)** It can be mixed with cotton to make bed sheets or with wool in the production of carpets and home furnishing products.
- (iv)** Rayon is also found in sanitary products, diapers, bandages and gauze for dressing wounds.

## VIII. Complete the following crossword with the help of the clues provided:

### Across:

5. First artificially made fibre.
6. Join together to form polymers.
7. Made of ester units.

### Down:

1. Terylene and cotton blend.
2. An example of a thermosetting plastics.
3. Artificially made fibres.
4. Used to make parachutes.



4. If 4.5kg of fuel is completely burnt and amount of heat produced stands measured at 1, 80,000 KJ. What is the calorific value?

**Ans.** Amount of fuel = 4.5 kg  
Heat produced = 1,80,000 kJ  
Calorific value = ?

**Solution :**

$$\begin{aligned}\text{Calorific Value} &= \frac{\text{Heat produced}}{\text{Amount of fuel}} \\ &= \frac{1,80,000}{4.5} = 40,000 \\ \therefore \text{Calorific value} &= 40,000 \text{ kJ / kg.}\end{aligned}$$

### VIII. Answer in Detail:

1. Explain briefly about antibiotic and analgesic.

**Ans. Antibiotics :**

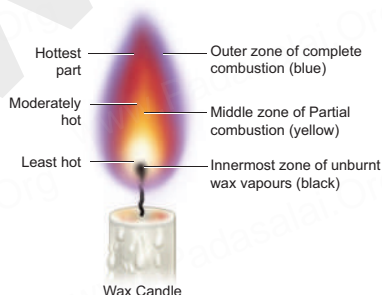
- (i) Many micro organisms and plants synthesize chemicals which are toxic in nature to protect them from invading organisms.
- (ii) Those biosynthesized chemicals can be isolated from the plants/micro organisms and was used as medicines against infectious diseases, these substances were called as antibiotics.
- (iii) Ex: Chloramphenicols, tetracyclines, Penicillin derivatives, cephalosporin's and their derivatives.
- (iv) The world's first antibiotic penicillin was discovered by Dr. Alexander Fleming.

**Analgesics :**

- (i) Analgesics or pain killers that react like the pain-suppressing chemicals released by the body.
- (ii) They suppress the feeling of 'pain'.
- (iii) This analgesics drug selectively relieves pain by acting either in CNS (Central Nerves System) or on peripheral pain mechanism, without significantly altering consciousness.

2. Make labeled diagram of a candle flame.

**Ans.**



**Structure of a Candle flame**



9. \_\_\_\_\_ resistance is defined as the ability of the microorganisms to resist the effects of an antibiotic to which they were once sensitive. [Ans. Antibiotic]
10. The process of osmosis, the salts and sugars pull water into your bloodstream and speed up \_\_\_\_\_. [Ans. rehydration]

### III. True or False - if false, give the correct statement.

1. If there is inadequate salt in the intestinal wall, the body will not be able to absorb water.

Ans. True.

2. Acidity issues arise when there is excess production of acetic acid due to triggers.

Ans. False. Correct statement : Acidity issues arise when there is excess production of **hydrochloric acid** due to triggers.

3. The lining of our stomach with a pH of 4 to 6 is designed as such to withstand a high acidic environment.

Ans. False. Correct statement : The lining of our stomach with a pH of **1 to 3** is designed as such to withstand a high acidic environment.

4. The bacteria staphylococcus is meant to cause deadly diseases such as pneumonia, sore throat etc.

Ans. True.

5. Fleming named the mould *penicillium notatum*, from which the antibiotic penicillin was isolated.

Ans. True.

6. Paracetamol interacts with the receptors and reduces the intensity of pain signals to the brain.

Ans. True.

7. Bacteria and virus can thrive above a certain temperature.

Ans. False. Correct statement : Bacteria and virus **cannot** thrive above a certain temperature.

8. The adverse effects of antihistamines are mouth dryness and sleepiness.

Ans. True.

9. Complete combustion of the fuel takes place and the colour of the flame is yellow and is the hottest part of the flame.

Ans. False. Correct statement : Complete combustion of the fuel takes place and the colour of the flame is **blue** and is the hottest part of the flame.

### IV. Match the following :

1.	1. White flame	(a)	Table salt
	2. Indigo flame	(b)	Bleaching powder
	3. Blue flame	(c)	Potassium chloride
	4. Orange flame	(d)	Epsom salt

[Ans. (1-d, 2-c, 3-b, 4-a)]



**II. Fill in the blanks.**

**(2 × 1 = 2)**

3. Penicillin was first discovered by \_\_\_\_\_.  
4. Once infection is sensed the immune system releases a chemical called \_\_\_\_\_..

**III. Write true or false If false, give the correct answer: (1 × 1 = 1)**

5. Analgesics are the substances that lower the temperature during fever.

**IV. Answer any six of the following.**

**(6 × 2 = 12)**

6. How many types of combustion are there?  
7. Name a substance which can be used as an antiseptic as well as disinfectant?  
8. What is fever?  
9. **Analogy:**  
Inner zone of flame : : \_\_\_\_\_, outer  
zone of flame : : \_\_\_\_\_  
10. If 4.5 kg of fuel is completely burnt and amount of heat produced stands measured at 1, 80,000 KJ what is the calorific value.  
11. What do you mean by inflammable substance?

**V. Answer the following in detail.**

**(2 × 4 = 8)**

12. Explain briefly about antibiotic and analgesic?  
13. Write the characteristics of a good fuel.

**Answer Key**

- I. 1. (b) Antipyretic 2. (c) hydrochloric acid  
II. 3. Alexander Fleming 4. Pyrogen  
III. 5. False. Correct statement : Antipyretic are the substances that lower the temperature during fever.  
IV. 6. Refer Sura's Guide Text book Q. No. VI - 6  
7. Refer Sura's Guide Text book Q. No. VI - 3  
8. Refer Sura's Guide Additional Q. No. VI - 3  
9. (i) Black (ii) Blue  
10. Refer Sura's Guide Text book Q. No. VII - 4  
11. Refer Sura's Guide Additional Q. No. VI - 5  
V. 12. Refer Sura's Guide Text book Q. No. VIII - 1  
13. Refer Sura's Guide Additional Q. No. VII - 2







5. Sorter's Disease is otherwise known as \_\_\_\_\_.

- (a) Asthma (b) Anthrax  
(c) Typhoid (d) Cholera

[Ans. (b) Anthrax]

## II. Fill in the blanks :

1. Proteins and \_\_\_\_\_ is rich in milk.

[Ans. calcium]

2. \_\_\_\_\_ is extracted from bee hives.

[Ans. Honey]

3. Anthrax is caused by \_\_\_\_\_.

[Ans. Bacillus anthracis]

4. \_\_\_\_\_ is the strongest natural fibre.

[Ans. Silk]

5. Peace silk was produced in the year \_\_\_\_\_.

[Ans. 1992]

## III. True or False - If False, give the correct answer :

1. Animals are the greatest gift of nature.

Ans. True.

2. Horse hair is used as bristles in small painting brushes.

Ans. True.

3. Wool is the fibre derived from the silk worm.

Ans. False. Correct statement : **Silk** is the fibre derived from the silk worm.

4. Ahimsa silk is otherwise known as Mulberry silk.

Ans. False. Correct statement : Ahimsa silk is otherwise known as **peace** silk.

5. Pencillin is the best medicine for curing Anthrax.

Ans. True.

## IV. Match the following :

1.	Cocoons	Meat
2.	Peace silk	Poultry
3.	Broilers	Silk worm
4.	Sweet Liquid	Andhra pradesh
5.	Goat	Honey

Ans.

1.	Cocoons	Silk worm
2.	Peace silk	Andhra pradesh
3.	Broilers	Poultry
4.	Sweet Liquid	Honey
5.	Goat	Meat





## Intext Activities

### → ACTIVITY - 1

Some of the food items are given below. Find out their ingredients and sources.

S.No.	Food Item	Ingredients	Sources
1.		Chicken	Animals
		Spices	
		Oil/Ghee	Plants/Animals
		Curry leaves	Plants
		Coriander leaves	Plants
2.		Fish	Animals
		Spices	Plants
		Oil/Ghee	Plants/Animals
		Lemon	Plants
3.		Milk	Animals
		Tea leaf/Coffee nut	Plants
		Water	
		Sugar	
4.		Oil/Ghee	Plants/Animals
		Sugar	
		Milk	Animals
		Nuts	Plants
		Flavour	
		Honey	Plants
5.		Rice	Plants
		Egg	Birds
		Spices	
		Oil	Plants/Animals
		Coriander leaves	Plants

**V. Long Answer any one.****(5 × 1 = 5)****16.** Write about Ahimsa Silk.

(or)

Write the uses of the wool.

### Answer Key

- |  |                |              |
|--|----------------|--------------|
| I. 1. (b) Milk                                   | 2. (b) Anthrax | 3. (a) virus |
| 4. (c) second                                    |                |              |
| II. 5. Bacillus anthracis                        | 6. 1992        | 7. carding   |
| III. 8. True.                                    |                |              |
| IV. 9. Refer Sura's Guide Textbook Q. No. VI - 2 |                |              |
| 10. Refer Sura's Guide Textbook Q. No. VII - 2   |                |              |
| 11. 1-c, 2-d, 3-b, 4- e, 5 -a                    |                |              |
| 12. (i) Wire, (ii) Non conductor                 |                |              |
| 13. Refer Sura's Guide Textbook Q. No. VI - 1    |                |              |
| 14. Refer Sura's Guide Additional Q. No. III - 2 |                |              |
| 15. Refer Sura's Guide Additional Q. No. III - 4 |                |              |
| V. 16. Refer Sura's Guide Textbook Q. No. IV - 1 |                |              |

(or)

Refer Sura's Guide Textbook Q. No. VIII - 4

★★★★★



8. A \_\_\_\_\_ orientation means a horizontal display.

- (a) Landscape (b) Portrait  
(c) Both (a) and (b) (d) None of these

[Ans. (a) Landscape]

9. A \_\_\_\_\_ page is shorter in height but wider in width

- (a) Landscape (b) Portrait  
(c) Both (a) and (b) (d) None of these

[Ans. (b) Portrait]

## II. Answer the following question:

1. What is drawing?

**Ans.** Draw is a vector drawing tool that can produce everything from simple diagrams or flowcharts to 3D artwork.

2. How can you create a new document?

**Ans.** To create a new document, do any one of the following methods

- (i) Click the New Document button on the menu bar.
- (ii) Choose File → New command from the menu bar.
- (iii) Press CTRL+N keys on the keyboard.

3. How can you print a document?

**Ans.** To print a document or selected pages follow the steps given below:

- (i) Open the document to be printed.
- (ii) Choose File → Print command on the menu bar.

The Print dialog box will open. Select the Options like print range, Number of copies, Printer name etc. See that printer is switched on and the paper is available in the printer tray.

- (iii) Click OK.

4. What is the difference between cut and copy?

**Ans.** The main difference between Cut and Copy is that cut removes the selected data from its original position while copy creates a duplicate of the original content.

5. What is font?

**Ans.** A font is a set of characters and numbers in a certain style. Each font looks different from other fonts.

6. What is paragraph alignment?

**Ans.** Paragraph alignment refers to the appearance of the left and right sides of the paragraph.

## III. Paragraph Questions:

1. What are the components of LibreOffice?(any five)

**Ans.** LibreOffice includes the following components.

### Text Document:

Writer is a featurerich tool for creating letters, books, reports, newsletters, brochures, and other documents.

**Sura's Model Summative Question paper** ○ Science ○ 7th Std

15. Analogy :
- stars : \_\_\_\_\_ .
  - Nearest galaxy : Andromeda :: Nearest star
16. Give the expansions of PSLV and GSLV.
17. Assertion – Reason  
Option:
- Both A and R are true and R is the correct explanation of A.
  - Both A and R are true but R is not the correct explanation of A.
  - A is true but R is false.
  - A is false but R is true.
- Assertion (A) : Vegetable peels buried in the soil disappear within two weeks.  
Reason (R) : Vegetable peels are compostable.
  - Assertion (A) : It is good to avoid plastics.  
Reason (R) : Plastics end up polluting the environment.
18. It is not advisable to burn plastic and synthetic fabrics. Why?
19. A plastic bag dumped in the soil stays without breaking down for 500 years. If a new generation starts in every 30 years, how many generations would it take to see the plastic bag finally broken down?
- 20.
- | A           | B                     |
|-------------|-----------------------|
| 1. Nylon    | Thermoplastic         |
| 2. PVC      | Thermosetting plastic |
| 3. Bakelite | Non-stick cookwares   |
| 4. Teflon   | Fibre                 |
21. \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_ are called green house gases (Fleming / lenis pastor)
22. How many types of combustion are there?
23. Analogy :  
Inner zone of flame : \_\_\_\_\_, outer zone of flame : \_\_\_\_\_
24. If 4.5kg of fuel is completely burnt and amount of heat produced stands measured at 1, 80,000 KJ what is the calorific value.
25. Picture based question:



Arul and Aakash were doing an experiment in which water was to be heated in a beaker. Arul kept the beaker near the wick in the yellow part of candle flame. Aakash kept the beaker in the outer most part to the flame. Whose water will get heated in a shorter time?

**Sura's Model Summative Question paper ○ Science ○ 7th Std**

17. a) a)Both A and R are true and R is the correct explanation of A.  
 b) a) Both A and R are true and R is the correct explanation of A.
18. Refer Sura's Guide Textbook Q. No. IX - 3, Unit - 3.
19. It would take 16 to 17 generations to see the plastic bag finally broken down.
- 20.

A	B
1. Nylon	Fibre
2. PVC	Thermoplastic
3. Bakelite	Thermosetting plastic
4. Teflon	Non-stick cookwares

21. CO<sub>2</sub>, Methane, Chlorofluorocarbons.
22. Refer Sura's Guide Textbook Q. No. VI - 6, Unit - 4.
23. Least hot, Hottest part
24. Refer Sura's Guide Textbook Q. No. VII - 4, Unit - 4.
25. Refer Sura's Guide Textbook Q. No. IX, Unit - 4.
- 26.

1.	Cocoons	Silk worm
2.	Peace silk	Andhra pradesh
3.	Broilers	Poultry
4.	Sweet Liquid	Honey

27. a) True  
 b) False. Correct statement : Ahimsa silk is otherwise known as peace silk.
28. Refer Sura's Guide Textbook Q. No. IX - 1, Unit - 5.
29. Refer Sura's Guide Textbook Q. No. II - 1, Unit - 6.
30. Refer Sura's Guide Textbook Q. No. II - 5, Unit - 6.
- III. 31. Refer Sura's Guide Textbook Q. No. VI - 7, Unit - 1.
32. Refer Sura's Guide Textbook Q. No. VIII - 1, Unit - 2.
33. Refer Sura's Guide Textbook Q. No. VIII - 3, Unit - 5.
34. Refer Sura's Guide Textbook Q. No. XI - 1, Unit - 3.
35. Refer Sura's Guide Additional Q. No. VII - 1, Unit - 3.
36. Refer Sura's Guide Additional Q. No. VIII - 1, Unit - 4.
37. Refer Sura's Guide Additional Q. No. III - 3, Unit - 6.

