

Maharashtra Board Solutions Class 6-Science: Chapter 14- Light and the Formation of Shadows

BOOK SOLUTIONS
CLASS 6
GENERAL SCIENCE

CHAPTER 14
Light and the Formation of Shadows

IndCareer

GENERAL SCIENCE
STANDARD SIX

Maharashtra Board Solutions→



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Maharashtra Board Solutions Class

6-Science: Chapter 14- Light and the Formation of Shadows

Class 6: Science Chapter 14 solutions. Complete Class 6 Science Chapter 14 Notes.

Maharashtra Board Solutions Class 6-Science: Chapter 14- Light and the Formation of Shadows

Maharashtra Board 6th Science Chapter 14, Class 6 Science Chapter 14 solutions

Questions and Answers

1. Choose an appropriate word and fill in the blanks.

Question a.

A is a natural source of light.

Answer:

star

Question b.

A is an artificial source of light.

Answer:

candle

Question c.

When light passes through a prism, it gets separated into colours.

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Answer:

seven

Question d.

The image obtained in the pinhole camera is

Answer:

inverted

Question e.

A shadow is formed when an object comes in the way of light.

Answer:

opaque

Question f.

When a object comes in the way of light, light passes it. options :
seven, star, through, transparent, opaque, colors, shape, erect, inverted, luminous,
candle.

Answer:

transparent, through

2. Write whether the following objects are luminous or non-luminous.

Question a.

Object	Luminous/ Non-luminous
A book	
A burning candle	
A wax cloth	
A pencil	
A pen	
A light bulb	
A tyre	
A torch	

Answer:

Object	Luminous /Non-luminous
A book	Non-luminous
A burning candle	Luminous
A wax cloth	Non-luminous
A pencil	Non-luminous
A pen	Non-luminous
A light bulb	Luminous
A tyre	Non-luminous
A torch	Luminous
Stars	Luminous
The planets	Non-luminous

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A satellite Non-luminous

The Moon Non-luminous

3. Match the following.

Question a.

Natural sources of light	Man-made sources of light
--------------------------	---------------------------

The Sun	Tubelight
---------	-----------

Stars in the night sky	Light bulb
------------------------	------------

Fireflies	Torch
-----------	-------

Anglerfish	Burning candle
------------	----------------

Honey mushroom	Oil lamps
----------------	-----------

Answer:

Transparent	Opaque	Translucent
-------------	--------	-------------

Piece of glass	White plastic	Tinted glass
Water	Tea kettle	Oil paper
	Note book	Sheet of notebook
	Cloth	
	Wooden cupboard	Wax paper

4. Write the answers to the following.

Question a.

What things are necessary for the formation of a shadow?

Answer:

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Things necessary for the formation of a shadow are:

1. A source of light
2. An object
3. A surface or screen on which the shadow is formed

Question b.

When can an object be seen?

Answer:

We can see an object when reflected rays reach our eyes.

Question c.

What is a shadow?

Answer:

1. If an opaque object comes in the way of a light source, light does not pass through it.
2. As a result the light does not reach a wall or any other surface on the other side of the object.
3. That part remains dark. This dark part is called the shadow of the object.

Project:

Question 1.

Prepare a Newton's disc.

Question 2.

Find out how to save electricity with the help of the sunlight we receive during the day.

Question 3.

Read a biography of Sir C. V. Raman and find out about the discoveries he made.

Important Questions and Answers

Fill in the blanks.

Question 1.

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The is the main natural source of light.

Answer:

Sun

Question 2.

The light emitted by an electric torch is more than that obtained from a candle.

Answer:

intense

Question 3.

The left and right sides of the original object appear to be in the mirror.

Answer:

exchanged

Question 4.

The image is as far behind the mirror as the object is in of it.

Answer:

front

Question 5.

The of the image is the same as that of the object.

Answer:

height

Question 6.

The materials through which light passes is said to be

Answer:

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transparent

Question 7.

The materials through which light does not pass is said to be

Answer:

opaque

Question 8.

The materials through which light passes partially is said to be

Answer:

translucent

Question 9.

If an object comes in the way of a light source, light does not pass it.

Answer:

opaque, through

Question 10.

The shadow of an object formed due to sunlight is in the mornings and evenings and in the afternoon.

Answer:

long, short

Question 11.

The shadow of an object is formed only when does not pass through the object.

Answer:

light

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Question 12.

Stars are

Answer:

luminous

Question 13.

Planets, satellites are

Answer:

non-luminous

Question 14.

The largest sundial is at, New Delhi.

Answer:

Jantar Mantar

Question 15.

..... is celebrated as National Science Day.

Answer:

28th February

Question 16.

Light travels in a straight line. This is called

Answer:

linear propagation of light

Question 17.

The image formed on the diaphragm of the pinhole camera is

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Answer:

inverted

Question 18.

The kind of shadow an object forms depends upon the between the, the object and the or the on which the shadow is formed.

Answer:

relative distance, source of light, surface, screen

State whether following statements are True or False.

Question 1.

Light travels in a straight line.

Answer:

True

Question 2.

Stars are luminous.

Answer:

True

Question 3.

Image in a pinhole camera is inverted.

Answer:

True

Question 4.

In the afternoon, shadows are long.

Answer:

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False

Question 5.

Fireflies are a natural source of light.

Answer:

True

Question 6.

We see the candle clearly when we bend the tube.

Answer:

False

Question 7.

We can see our image clearly in running water.

Answer:

False

Question 8.

Tracing paper is transparent.

Answer:

False

Question 9.

The light obtained from an electric torch is more intense than that obtained from a candle.

Answer:

True

Question 10.

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28th February is celebrated as “National Science day” since 1987 in India.

Answer:

True

Question 11.

Classify the following into natural and man-made/artificial sources of light. (tubelight, light bulb, torch, burning candle, the sun, fireflies, anglerfish, honey mushroom, stars in the night sky, oil lamps, lanterns)

Answer:

Natural sources of light	Man-made sources of light
The Sun	Tubelight
Stars in the night sky	Light bulb
Fireflies	Torch
Anglerfish	Burning candle
Honey mushroom	Oil lamps
	Lanterns

Question 12.

Identify the transparent, opaque and translucent objects from among the following. (piece of glass, wax paper, tinted glass, oil paper, white plastic, a tea kettle, a notebook, cloth, water, a wooden cupboard, sheet of notebook.)

Answer:

Transparent	Opaque	Translucent

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Piece of glass	White plastic	Tinted glass
Water	Tea kettle	Oil-paper
	Notebook	Sheet of notebook
	Cloth	Wax paper
	Wooden cupboard	

Question 13.

Classify the following into the type of images they form: Clear image, faint image, no image. (still clear water, cemented wall, wooden surface, new steel dish, flower, glossy granite cladding of a wall, mirror, butter paper).

Answer:

Clear Image	Faint Image	No Image
Still clear water, New steel dish, Glossy granite cladding of a wall, Mirror	Butter paper	Wooden surface Flower Cemented wall

Question 14.

Relate images formed with the surfaces.

Answer:

1. The clear images are formed on plane surfaces.
2. Faint or no images are formed on rough surfaces.

Answer in one sentence.

Question 1.

What are luminous objects?

Answer:

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The objects which emit light i.e. which themselves are a source of light, are called luminous objects.

Question 2.

What determines the intensity of light?

Answer:

The intensity of light is determined by the extent to which the objects emit light.

Question 3.

What are non-luminous objects?

Answer:

The objects that are not sources of light themselves are called as non-luminous objects.

Question 4.

What are artificial sources of light?

Answer:

Man-made objects which emit light are artificial sources of light.

Question 5.

What are natural sources of light?

Answer:

Natural substances, materials which emit light are called natural sources of light.

Question 6.

What is linear propagation of light?

Answer:

Property of light travelling in a straight line is linear propagation of light.

Question 7.

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What is reflection of light?

Answer:

The rays of light falling on an object from a source of light are thrown back from the substance of that object. This is reflection of light.

Question 8.

How do we see objects around us?

Answer:

The rays of light falling on an object from a source of light are thrown back from the surface of that object. This is called reflection of light. We see the object when the reflected rays reach our eyes.

Question 9.

What is moonlight?

Answer:

Sunlight reflected from the surface of the moon reaching us, in which we see the moon is called the moonlight.

Question 10.

What type of image is formed in the mirror?

Answer:

The image formed in the mirror is 'laterally inverted' i.e. right side appears as left side and left side appears as right side.

Question 11.

What change do you see in the image if you decrease or increase your distance from the mirror?

Answer:

When the distance between object and mirror is increased the size of image decreases where as, when the distance is decreased the image size increases.

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Question 12.

What difference do you find in the height of the image in the mirror and yourself?

Answer:

The size of the image in the mirror is the same as that of the object.

Question 13.

What is the image on the diaphragm of the pinhole camera?

Answer:

An inverted or an upside down image of the candle is seen on the diaphragm of the pinhole camera.

Question 14.

What do you mean by transparent object?

Answer:

The objects / materials through which light passes are said to be transparent.

Question 15.

What do you mean by opaque materials?

Answer:

The materials through which light does not pass are said to be opaque.

Question 16.

What do you mean by translucent materials?

Answer:

The materials through which light passes partially are said to be translucent.

Question 17.

How is the shadow in the morning, afternoon and evening?

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Answer:

The shadows are long in the mornings and evenings and short in the afternoon.

Question 18.

What is shade of a tree?

Answer:

The shade of a tree is its shadow.

Question 19.

How many colours is sunlight made up of?

Answer:

Sunlight is made up of seven colours.

Give reasons for the following.

Question 1.

When we see in the mirror, we see our image in the mirror.

Answer:

When we see our face in the mirror, the light reflected from our face falls on the mirror and gets reflected back again. Hence, we see our image in the mirror.

Question 2.

Opaque materials cast shadow.

Answer:

An opaque material does not allow light to pass. Hence, it casts a shadow.

Question 3.

Transparent and translucent object do not cast a shadow.

Answer:

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Translucent objects cast a faint shadow whereas transparent objects do not cast a shadow at all because they allow light to pass through them.

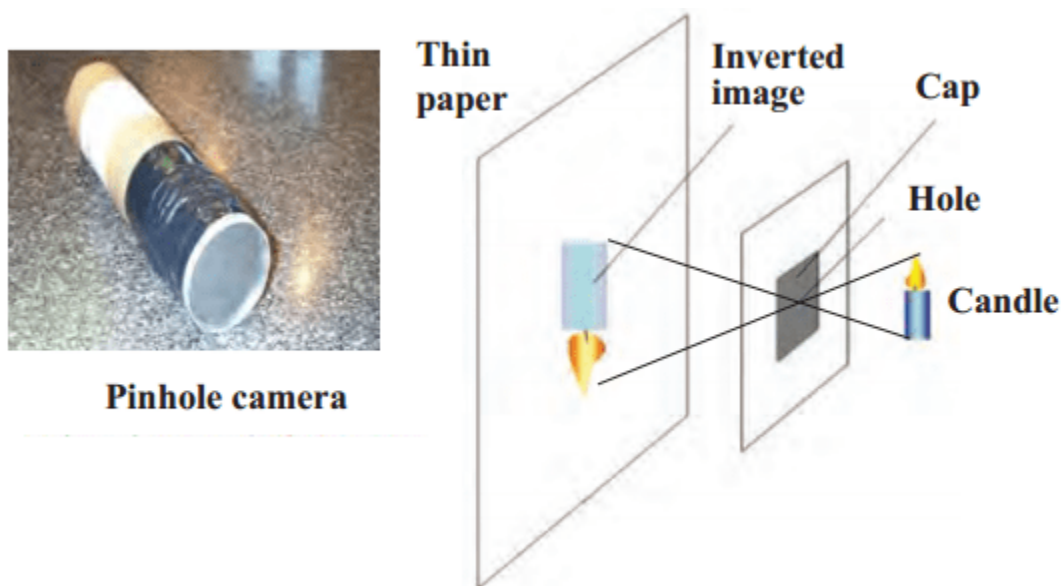
Use your brain power!

Question 1.

Why is the image on the diaphragm of the pinhole camera inverted?

Answer:

1. The pinhole camera works on the principle of light travelling in a straight line.
2. The rays of light from the candle flame go in all directions.
3. We consider only two rays that pass through the hole and fall on the screen.



4. The rays intersect at the pinhole.
5. Since the rays cross over at that point, the top of the object appears at the bottom of the image and the bottom of the image appears at the top. Thus, we see an inverted image of the candle.

Question 2.

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How will you light up a dark room using reflected light?

Answer:

Focusing on the wall with torch light. Mirrors or reflectors can be used to get light from outside.

Question 3.

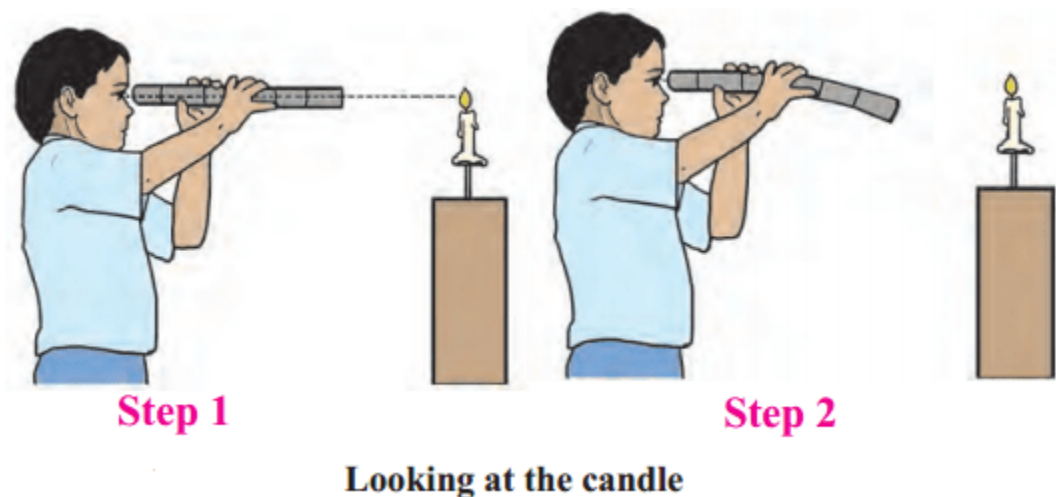
Try to start the TV by operating the remote control from behind it.

Answer:

T.V will not start.

Question 4.

In which step is the flame of the candle seen clearly? Why?



Answer:

In step 1 the flame of the candle is seen clearly because light travels in straight line.

Can you tell?

Question 1.

Can we see anything in total darkness?

Answer:

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No, we cannot see anything in total darkness.

Question 2.

What helps us to see the objects around us?

Answer:

Reflected light helps us to see objects around us.

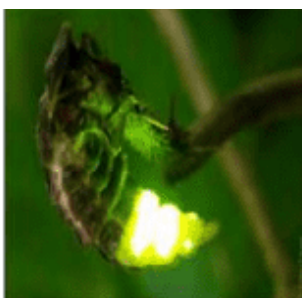
Question 3.

What does the light in each one of the pictures originate from?

Answer:



1.



2.



3.



4.

1. Bulb

2. Firefly

3. Candle

4. Sun

Question 4.

Name the natural sources of light.

Answer:

Sun, Fireflies

Question 5.

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In which objects do we see our reflection?

Answer:

All objects reflect light rays, but the best reflectors of light are mirrors, still water in a lake, new steel dish i.e. smooth shiny surfaces.

Question 6.

What difference do you notice on looking through the windows in the picture? What causes the difference? The picture shows transparent, opaque, translucent window panes. Spot them.



Window

Answer:

1. Through the first window we can see a clear picture of things outside.
2. Second window gives a faint image.
3. Through the third window, we can't see anything
4. The difference in the image is due to the material of the window panes.
5. The first window pane is transparent.
6. The second window pane is translucent.
7. The third window pane is opaque.

Answer the following questions in brief.

Question 1.

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List factors on which shadow depends.

Answer:

Shadow depends on relative distance between the source of light, the object and the surface on which the shadow is formed.

Question 2.

How we can see that light travels in straight line.

Answer:

1. In the morning or in the afternoon, rays of light enter a slit in a door, window or a small hole in the roof.
2. As these rays of light from the slit or the hole move towards the floor, the dust particles in their way are clearly seen.
3. Due to these particles, the path of light becomes visible to us.
4. Thus we can see that their path is along straight lines.

Question 3.

What is the difference between an object and its reflection? What causes the difference?

Answer:

1. Object and its reflection result in formation of images.
2. Reflections taking place from highly polished metals, mirrors, still water etc, form clear images.
3. Reflections taking place from wooden surface, flower, book form dull, blurred images.
4. The difference in reflections is caused by the surface of the object.
5. Regular reflections have smooth, polished surfaces, hence, image is clear.
6. Diffused reflections have hard, rough surfaces, hence, image is dull.

Question 4.

List characteristics of images in a plane mirror.

Answer:

1. The left and right sides of the original object appear to be exchanged in the mirror image.
2. The image is as far behind the mirror as the object is in front of it.

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3. The size of the image is the same as that of the object.

Question 8.

State the characteristics of image formed by a pinhole camera.

Answer:

Characteristics of an image formed by a pinhole camera are as follows:

1. It is inverted/upside down.
2. It can be obtained on a screen – real image.

Try this.

Question 1.

Make your friend stand in between the torch and the wall. What happens?

Answer:

Friend's Shadow forms on the wall.

Question 2.

Place a glass filled with water on a sheet of paper in the window so it receives direct sunlight. What is seen on the paper?

Answer:

We see rainbow colours on the paper.

Question 3.

Can we do the same in a dark room with the help of a prism and a torch? What do we learn from this?

Answer:

yes, we can. Light gets separated into seven colours. From this we learn that white light contains seven colours.

Question 4.

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If you dip the wire loop in the soap water and then blow it, soap bubbles are formed. Are the beautiful colours of the rainbow seen in these bubbles?

Answer:

Yes, splitting of white light into different colours takes place.

Question 5.

What do you see on holding a CD in the sun?

Answer:

CD reflects rainbow colours, and interesting : patterns.

Question 6.

Raise your right hand. In mirror which hand of the mirror image is raised?

Answer:

Left hand of the mirror image is raised.

Question 7.

Is there any difference between your height and height of the mirror image?

Answer:

The height remains the same.



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Class 6 Science

- Chapter 1- Natural Resources - Air, Water and Land
- Chapter 2- The Living World
- Chapter 3- Diversity in Living Things and their Classification
- Chapter 4- Disaster Management
- Chapter 5- Substances in the Surroundings - Their States and Properties
- Chapter 6- Substances in Daily Use
- Chapter 7- Nutrition and Diet
- Chapter 8- Our Skeletal System and the Skin
- Chapter 9- Motion and Types of Motion
- Chapter 10- Force and Types of Force
- Chapter 11- Work and Energy
- Chapter 12- Simple Machines
- Chapter 13- Sound
- Chapter 14- Light and the Formation of Shadows
- Chapter 15- Fun with Magnets
- Chapter 16- The Universe

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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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FAQs

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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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