



Master Lesson Plan

For

Light Shadows and Reflections

Board	Standard	Subject	Chapter	Language	Reference Link	Creation
CBSE	STD VI	Science	Light Shadows and Reflections	English	Light, Shadows and Reflections	2020-10

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Light Shadows and Reflections

1. MS_Objectives_Light, Shadows and Reflections

Notes to the teacher: This asset lays down the proposed plan for transacting this chapter. It states the asset objectives of the MLP. This asset is for teacher's reference and need not be taught to the students:

Students will be able to.

- differentiate between luminous and non-luminous objects
- classify different objects as transparent, translucent and opaque
- list the uses of transparent, translucent and opaque objects in our daily life
- explain how shadows are formed
- show the formation of shadows using opaque objects
- sustain their interest in learning more about shadows
- design a pin hole camera
- identify the pinhole camera in nature
- demonstrate that light travels in a straight line
- recognize the examples for rectilinear propagation of light in our day to day life
- notice the reflection of light from a mirror.
- examine the reflection of light
- internalize the concept of whatever is projected in is reflected out
- demonstrate that a mirror changes the direction of light that falls on it
- assess themselves on different concepts of the topic 'Light, Shadows and Reflections'

Time to teach	Asset Type	Theme	SubTheme
3 Minutes	Main Script	Light	What makes things visible? Through convex mirrors(characteristics of images, uses), Reflection through mirrors (characteristics of images, uses), Pin-hole camera, Periscope, non-luminous objects, Linear propagation of light, Laws of reflection, Kaleidoscope formation, What makes things visible through convex mirrors (characteristics of images, uses), Reflection through concave mirrors (characteristics of images, uses), Pin-hole camera, Luminous and non-luminous objects, Rectilinear propagation of light, Laws of reflection, Kaleidoscope, Image formation

2. IQ_Are we luminous?

[Notes to the teacher - Teacher may enable the students to think and come out with as many answers as possible before giving out the right answer/ answers]

1) What are luminous objects? Is our human body luminous?

Answer:

- Luminous objects are the objects that emit light of their own.
- No, human bodies are not luminous. We do not have our own light. We reflect the light falling on us.

2) What will happen if we are all luminous objects?

Answer:

- There will be too much of light on earth that can spoil our eyes.
- We will become bio-luminescent creatures.
- We would be known as a 'human flash light'.

3) What will be the condition of our earth if we had no luminous objects in the universe ?

Possible Answer:

- If luminous objects are absent there will be total darkness always..
- The objects will not emit or reflect light to our eyes and we would not be able to see anything.



4) What are non-luminous objects? Is moon a non-luminous object? Justify your answer.



Answer:

- Non-luminous objects are the objects that do not emit light of their own but reflect the light falling on them.
- Yes, moon is a non-luminous object. Moon does not produce the light of its own, it just reflects the sun light. So, moon is a non-luminous object.

List of the images used

1. Dark-earth: <https://pixabay.com/illustrations/planet-dark-earth-3105308/>
2. Moon: <https://www.publicdomainpictures.net/en/view-image.php?image=1957&picture=full-moon>

Time to teach	Asset Type	Theme	SubTheme
4 Minutes	Inquisitive Questions	Light	Luminous and non-luminous Luminous and non-luminous

3. MS_Types of Objects!

Transparent Objects:

- Objects that allow light to pass through them are called transparent objects.
- We can see clearly through a transparent object.
- Transparent objects do not cast any shadow.

- Example: Pure water, thin plastic, plain glass and clean air etc. Pure water, thin plastic and plain glass allow light to pass through them and also we can see clearly through them. So they are transparent objects.



Translucent Objects:

- Objects that allow light to pass through them partially are called translucent.
- Only some light can pass through translucent objects so we cannot see an object clearly through a translucent object.
- Translucent objects cast a vague (not clear) shadow.
- Example: Frosted glass, tracing paper, butter paper, bubble wrap etc. They allow light to pass through them partially. We cannot see clearly through them. So they are translucent objects



Opaque objects:

- Objects that do not allow any light to pass through them are called opaque objects.
- We cannot see through any opaque object.
- Opaque objects cast shadow.
- Example: wood, rock, book etc. Wood, book and rock do not allow light to pass through them. So they are opaque objects



List of the images used

1. Pure-water: <https://www.publicdomainpictures.net/en/view-image.php?image=27533&picture=water-glass>
2. Plain glass: <https://pixnio.com/objects/glass/empty-glass-of-water>
3. Plastic-cup: <https://www.pxfuel.com/en/free-photo-iucom>
4. Frosted glass: <https://pixabay.com/photos/hardest-winter-cold-frost-1243073/>
5. Tracing paper: <https://pixabay.com/photos/fan-tracing-paper-crafts-634332/>
6. Wood: <https://www.publicdomainpictures.net/en/view-image.php?image=177006&picture=bunch-of-felled-trees>
7. Rock: <https://pixabay.com/photos/png-clipping-rock-graphics-pierre-1345905/>
8. Book: <https://pixabay.com/photos/book-it-science-angular-js-944462/>

Time to teach	Asset Type	Theme	SubTheme
8 Minutes	Main Script	Light	Transparent, opaque and tra objects, Transparent, opaque translucent objects

4. DD_Uses of transparent, translucent and opaque objects

1) We use spectacles to correct our eye sight. Spectacles are made of material (lenses) which is transparent. So we can see clearly through them.



2) Our houses are made of bricks, doors etc, which are opaque. They provide privacy and keep us warm and safe through out.



3) Windows of our houses are made of glass which is a transparent object and they help us to get enough light inside our house.



4) The tracing paper which is translucent is used for tracing maps, drawings and designs.



5) Sunglasses which we use in summer for protection from sunlight are translucent in nature.



List of the images used

1. Spectacles: <https://pixabay.com/photos/glasses-reading-glasses-spectacles-1246611/>
2. Bricks: <https://www.publicdomainpictures.net/en/view-image.php?image=150004&picture=construction-brick-stack>
3. Wood-door: <https://pixabay.com/en/door-wooden-door-wood-closed-2982587/>
4. glass-door: <https://pixabay.com/en/japan-home-front-door-sunshine-2170046/>
5. Tracing paper: <https://pixabay.com/photos/fan-tracing-paper-crafts-634332/>
6. Sun-glasses: <https://www.publicdomainpictures.net/en/view-image.php?image=287706&picture=cute-baby-boy-in-sunglasses>

Time to teach	Asset Type	Theme	SubTheme
6 Minutes	Day-to-day Relevance	Light	Transparent, opaque and tra objects, Transparent, opaque translucent objects

5. MS_Shadows

- Shadow is the dark shape or area formed when light is blocked by an object or is the dark shape formed by an opaque object when light falls on it.



- When light falls on an opaque object, light cannot pass through it and the opaque object will cast shadow of the object.



- Suppose if we focus light on the book with at or chin open air at night. We do not see any shadow of the book. When light is focused on the book after placing a plank at a distance of 1 metre above the book, a clear shadow is formed on the plank(screen).



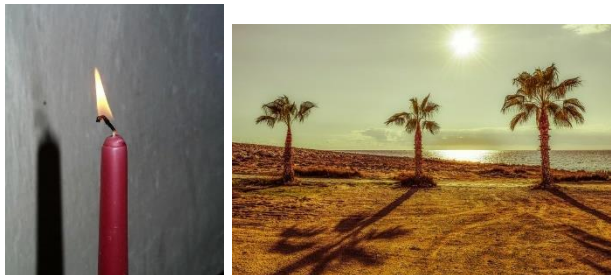
- So, a screen is also required to form a shadow. Ground, wall etc can be screens to see shadow.
- We need a source of light, an opaque object and a screen to see a shadow. We cannot see shadow in a dark room.
- Shadows give us some information about shapes of objects. Sometimes it can be misleading also. We can create some shadows with our own hands and make others believe them as shadows of different animals.



- Because of the straight line path followed by light rays, we can get different shaped shadows for a single object by changing its position
- Shadows are always dark irrespective of the colour of the object.



- Any light source can cause shadows.



List of images used

1. Shadow: https://en.wikipedia.org/w/index.php?title=File:People_Shadow.JPG
2. Ball-shadow: <https://pixnio.com/sport/football/football-soccer-ball-sport-blue-shadow-ground>
3. boy-experiment: OC: Original contribution –rushmish@gmail.com
4. Hand-shadow: SSSVV Gallery
5. Green-ball: <https://www.publicdomainpictures.net/en/view-image.php?image=187920&picture=green-soccer-ball-2>
6. shadow-candle: <https://pixnio.com/objects/candles/candle-shadow>
7. Shadow-sunlight: <https://pixabay.com/photos/palm-trees-sun-sunlight-shadows-2978579/>

Time to teach	Asset Type	Theme	SubTheme
8 Minutes	Main Script	Light	Shadows, Shadows

6. SA_Shadow formation

Aim: To show that only opaque objects form shadows.

Resources Required: Torch, a book, a duster, a glass plate and a polythene cover

Setting for the Activity: Indoor

Type of Activity: Experiment

Procedure: With the help of a torch, try to form shadows of a book, a duster, a polythene cover and a glass plate on the wall of your classroom.

Observation: You will observe that clear shadows of the book and the duster and an un clear shadow of the polythene cover are formed, and no shadow is formed for the glass plate.

Conclusion: The above observation shows that objects like the book and the duster do not allow light to pass through them and hence these objects form shadows. The polythene cover partially allows light to pass through it and hence it forms an unclear shadow. The glass plate allows light to pass through it completely and hence it does not form any shadow.

Precautions:

Use the torch carefully and do not focus it directly on other's eyes.

Questions to Ponder

- Differentiate transparent and opaque objects.

Answer: Transparent objects allow light to pass through them where as opaque objects do not allow light to pass through them.

- What type of objects form an unclear shadow?

Answer: Translucent objects which allow light to pass through them partially form unclear shadows.

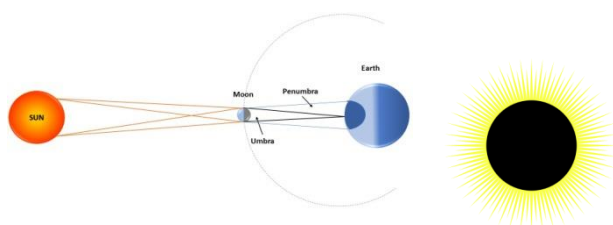
Time to teach	Asset Type	Theme	SubTheme
10 Minutes	Suggested Activity	Light	Shadows, Shadows

7. IA_Shadow facts!

1) Eratosthenes, the head librarian of the Great Library of Alexandria was the first person to calculate the size of the planet Earth with a high degree of accuracy. He performed this using simple geometric equations and measurements of shadows. over 2,000 years ago, around 250 BCE.



2) An eclipse of the sun occurs when the moon revolving in its orbit around the earth comes between the sun and the earth. The moon blocks the light of the sun and a shadow of the moon is cast over the earth's surface



3) A long time ago, people observed the way how the shadows are formed by the sun and utilized this principle in making the world's most primitive clocks, the sundials.



4) The size of the shadow depends on the distance of the object from the light source, closer the object longer is the shadow.

- In the morning and evening, Sun is low in the sky and so casts long shadow and in the mid day, Sun is directly above the objects so casts a short shadow



List of the images used

1. Earth: <https://pixabay.com/vectors/world-earth-planet-globe-map-1301744/>
2. Sundial: <https://pixabay.com/photos/sundial-clock-sun-ancient-sun-dial-587636/>
3. Solar-eclipse: SSSVV Gallery
4. Solar-eclipse: <https://openclipart.org/detail/285229/solar-eclipse>
5. Long-shadow: <https://pixabay.com/photos/shadow-play-personal-couple-man-236818/>
6. Short-shadow: <https://pixabay.com/photos/tree-small-tree-lone-tree-green-1439369/>

Time to teach	Asset Type	Theme	SubTheme
6 Minutes	Interesting Asides	Light	Shadows, Shadows

8.SA_Pin hole camera!

Aim: To design a pinhole camera.

Resources Required: One old cardboard box(20x15x10)cm, black paper, butter paper, a needle and a candle



Setting for the Activity: Indoor

Type of Activity: Demonstration

Procedure:

1. Cut a big window on the top surface of the box.



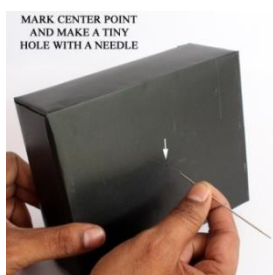
2. Apply glue on the window frame of the box and stick butter paper on the area on which glue has been applied.



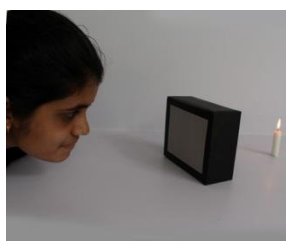
3. Cover the big opposite surface of the box with black paper in such a way that no light rays penetrate from joints.
4. Then cover the rest of the butter paper window with black paper.



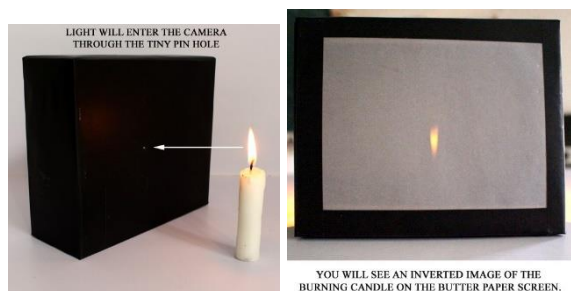
5. Mark centre point and make a tiny hole with needle.



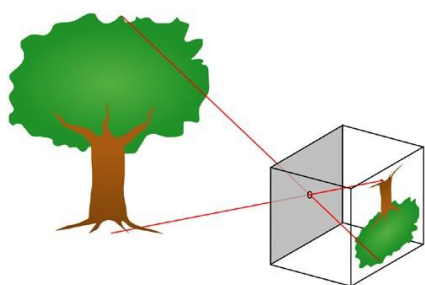
6. Place box on the table as shown below and place a lighted candle near the hole and view through butter paper window.



Observation: Light will enter the camera through the tiny pin hole. We will see an inverted image of the burning candle on the butter paper screen.



Ray-Diagram for image formation by Pin hole camera



THIS RAY DIAGRAM SHOWS HOW THE RAYS FROM THE TREE ENTER THE PIN HOLE CAMERA AND PRODUCE AN INVERTED IMAGE ON THE SCREEN.

Conclusion: Students will be able to design a pinhole camera.

Precautions:

1. Students should be careful while working with needle and lighted candle.
2. Students should position the lighted candle in such a way that the inverted image of the burning candle exactly forms on the butter paper window.

Discussion Questions:

1. What property of light is used in the working of a pin hole camera?

Answer : Rectilinear propagation of light (Light travels in a straight line).

2. Can you use the pinhole camera in the dark?

Answer : No, We need bright light(sunlight)to capture the images in the camera.

List of images:

1. Materials-required: <http://www.arvindguptatoys.com/arvindgupta/toys/Pinholecamera02.jpg>
2. Cutting: <http://www.arvindguptatoys.com/arvindgupta/toys/Pinholecamera03.jpg>
3. Cutting2: <http://www.arvindguptatoys.com/arvindgupta/toys/Pinholecamera04.jpg>
4. Apply-glue: <http://www.arvindguptatoys.com/arvindgupta/toys/Pinholecamera06.jpg>
5. Stick-butterpaper: <http://www.arvindguptatoys.com/arvindgupta/toys/Pinholecamera08.jpg>
6. Covering-blackpaper: <http://www.arvindguptatoys.com/arvindgupta/toys/Pinholecamera10.jpg>
7. Cover-blackpaper: <http://www.arvindguptatoys.com/arvindgupta/toys/Pinholecamera11.jpg>
8. Making-hole: <http://www.arvindguptatoys.com/arvindgupta/toys/Pinholecamera12.jpg>
9. View-pinhole: <http://www.arvindguptatoys.com/arvindgupta/toys/Pinholecamera13.jpg>
10. Pinholecamera: <http://www.arvindguptatoys.com/arvindgupta/toys/Pinholecamera14.jpg>
11. Inverted-image: <http://www.arvindguptatoys.com/arvindgupta/toys/Pinholecamera15.jpg>
12. Raydiagram-pinholecamera: <http://www.arvindguptatoys.com/arvindgupta/toys/Pinholecamera16.jpg>

Time to teach	Asset Type	Theme	SubTheme
15 Minutes	Suggested Activity	Light	Pin-holecamera,Pin-holec

9. MS_Nature's pin hole camera!

- In hot summer afternoon when we walk below a tree covered with many leaves, we notice small patches of sunlight below.
- These are the pinhole images of the sun.
- The small gaps between the leaves act as pin holes.



Tree: <https://www.publicdomainpictures.net/en/view-image.php?image=105593&picture=forsyth-park>

Time to teach	Asset Type	Theme	SubTheme
2 Minutes	Main Script	Light	Pin-hole camera, Pin-hole camera

10. SA_Light travels in a straight line!

Aim: To demonstrate that light travels in a straight line.

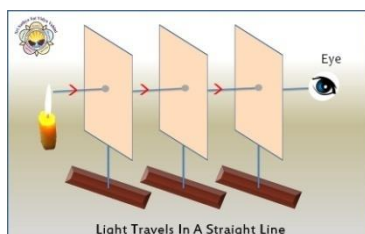
Resources required: Three cardboard pieces of same size and a candle.

Setting for the Activity: Indoor

Type of Activity: Demonstration

Procedure:

1. Take each cardboard piece and make a small hole at the centre in such a way that the holes of the three cardboard pieces lie along a line as shown and are in alignment.
2. Adjust the candle flame in line with the holes on the cardboard. Ask the students to view the flame through the hole of the last card board.
3. Change the alignment of the cardboard by slightly shifting the third board and ask the students to see the flame through the third cardboard.
4. Shift the second cardboard and ask the students to observe the flame through the hole of the last cardboard



Observation:

We can view the flame through the hole of the last cardboard when the candle flame is in line with the holes on the cardboard.

We cannot view the flame when the alignment of the cardboards is changed slightly by shifting the third board.

We cannot view the flame when the alignment of the cardboards is changed slightly by shifting the second board.

Conclusion: We can view the flame only when the candle flame is in line with the holes on the cardboard.
Hence, light travels in a straight line

Precautions:

1. Students should be careful while making the holes into card board pieces
2. Students should be careful while lighting the candles and also while changing the position of the candle.

Discussion Questions:

How do light rays travel? What is the name given to this property of light?

Answer: Light travels in a straight line and this property is referred as “rectilinear propagation of light”.

Image source

SSSVV Gallery

Time to teach	Asset Type	Theme	SubTheme
15 Minutes	Suggested Activity	Light	Linear path of light, Linear path

11. DD_Rectilinear Propagation of Light

The following are the examples for rectilinear propagation of light in our day to day life

- 1) Light coming through the ventilator of our house.



- 2) The search light from airport or light house.



- 3) The light from head lights of an automobile.



4) The light from the projector in a movie theatre.



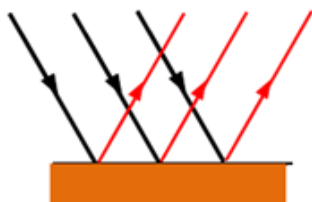
List of the images used

1. light-ventilator: <https://pixabay.com/photos/dust-doorway-door-window-sunlight-1523106/>
2. light-house: <https://www.publicdomainpictures.net/en/view-image.php?image=194346&picture=lighthouse-shining-bright>
3. light-automobiles: <https://pixabay.com/photos/mercedes-car-auto-motor-luxury-1568085/>
4. projector: <https://pixabay.com/illustrations/camera-film-video-recording-660090/>

Time to teach	Asset Type	Theme	SubTheme
3 Minutes	Day-to-day Relevance	Light	Linear path of light, Linear p

12. MS_Mirrors and Reflection

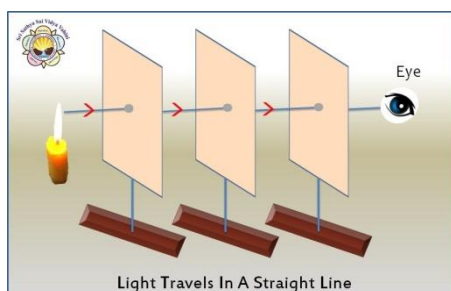
- The bouncing back of light when it falls on an opaque surface is called as reflection.



- When we hold a smooth polished surface, like mirror or a metal plate in front of our face, we see our reflection on it as an image. Shiny and polished surfaces act as mirrors.



- Mirrors change the direction of the light falling on it.
- Rectilinear Propagation of Light: Light always travels in a straight line. This property of light is called as Rectilinear Propagation of Light.



- Shadows are formed due to the blocking of the straight moving light rays by opaque objects.



List of the images used

1. Reflection: OC: pavani.sathyasai@gmail.com
2. Boy-mirror: <https://pixabay.com/en/child-boy-mirror-reflection-856132/>
3. ball-shadow: <https://pixabay.com/photos/ball-color-paul-shadow-background-1065139/>
4. Light travels in straight line: SSSVV Gallery

Time to teach	Asset Type	Theme	SubTheme
4 Minutes	Main Script	Light	Meaning and definition of re Meaning and definition of re

13. VC_Self Reflection

Learning Domain- Classroom

Introduction to value-

The mind is like a mirror, which reflects good or bad thoughts which originate from our desires. When the **mirror** of our mind is illuminated with positivity, it reflects and illuminates the whole world with positivity.

Quote

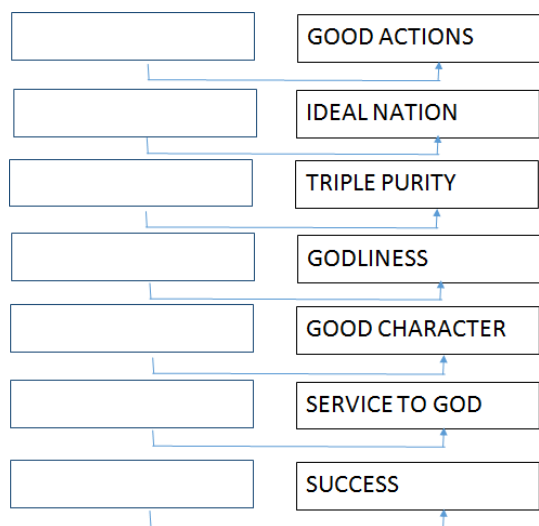
What you think of yourself is much more important than that what others think of you, this is Peace (From the book 'Human Values' by Antonio and Sylvie Craxi)

Directions

Please divide the class into two or three groups and select a leader for each group. Distribute the activity sheet

In which various outputs are given to each group, each group has to discuss and fill in the required inputs. When the sheets are duly filled in by each group, the group leader has to read out the answers and explain the logic behind them.

The key to the sheet is given and a note is attached for the teacher's reference at the end to summarize and explain the various inputs.



Answers:

1. GOOD THOUGHTS—All actions arise from our thoughts, so good thoughts will lead to good actions.
2. IDEAL INDIVIDUAL—An ideal nation is formed by collection of individuals practicing good values.
3. Unity in thought, word and deed leads to purity.
4. CLEANLINESS—Where there is cleanliness, there is Godliness. We have to keep ourselves and our surroundings clean.
5. GOOD HABITS—You sow a thought and reap an action; you sow an action, you reap a habit; you sow a habit, you reap a character.
6. SERVICE TO MAN--Service to man is service to God
7. HARDWORK—Hard work leads to success

Questions to discuss:

1. Do you help others?
2. Do you wait for your turn or do you push your way to the front?
3. Do you always tell the truth?
4. Do you recognize your mistake?

Conclusion

Self-analysis is the process by which we try to know ourselves, it is the first step to become better individuals.

Image Source:OC:pavani.sathyasai@gmail.com

Time to teach	Value Type	Value Sub Type	Value Attribute
10 Minutes	Peace		Quotation

14. SA_Reflection of light!

Aim of the experiment: To prove that the light travels in a straight line and gets reflected from a mirror.

Materials required: Comb, thermocol piece, black paper and a mirror.

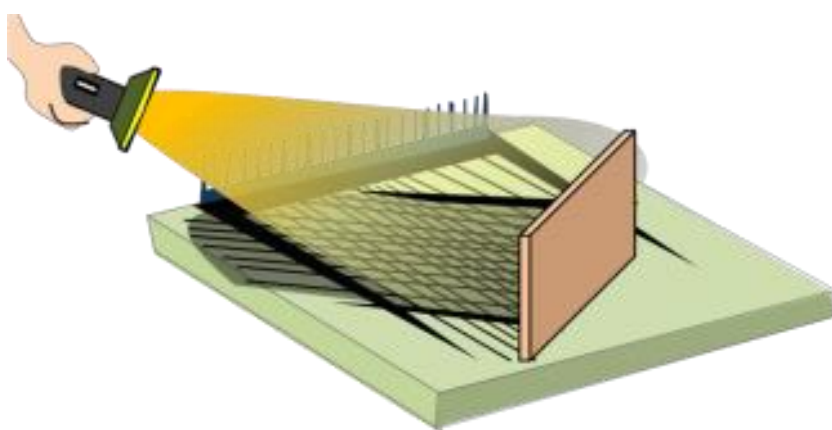
Setting for the Activity: Indoor

Type of Activity: Demonstration

Procedure:

1. Take a comb and fix it on one side/end of a large thermocol sheet.
2. Fix a mirror on the other end of the sheet.
3. Spread a black paper between the mirror and the comb.
4. Send a beam of light from a torch through the comb.

Observation: A pattern is formed where in we can see that light travels in a straight line and gets reflected from the mirror.



Inference: Light travels in a straight line and gets reflected from a mirror.

Precautions:

1. Students should be careful while handling the torch light and should not focus light directly on to the others eyes.
2. Students also should be careful while fixing mirror on thermocol.

Discussion Questions:

- **Define reflection of light**

Answer: The bouncing back of light when it falls on an opaque surface is called as reflection.

image source : Original contribution –rushmish@gmail.com

Time to teach	Asset Type	Theme	SubTheme
8 Minutes	Suggested Activity	Light	Meaning and definition of reflection Meaning and definition of re

15. VC_Input-Output

Learning Domain- Classroom

Introduction to value-

The mind is like a mirror, which reflects good or bad thoughts which originate from our desires. When the mirror of our mind is illuminated with positivity, it reflects and illuminates the whole world with positivity.

Shadows are formed when objects block a source of light.

Sun and shadow- When we are walking towards the west as the sun rises in the east, our shadow will move ahead of us, much bigger than our size. As the sun rises gradually, our shadows become smaller, meaning, if the light of knowledge is behind us, or if we are walking away from knowledge, the darkness of shadow envelopes ahead.

When the Sun is high in the sky at noon, the shadows are short, right under the feet. Similarly, if we are standing under the source of Light, if we are under the umbrella of knowledge, the darkness disappears or diminishes.

What it teaches us is that shadows loom when we walk away from source of Light.

Reflections are due to light bouncing off smooth objects. The smoother the object – the better the reflection. The rougher the object– worser the reflection, light gets scattered. The darker the object, light gets absorbed, so very little is reflected.

If our hearts are positive and clear like a mirror, our interactions and relationships will also be honest and clear reflecting our positive values.

Life is like a mirror; what you do comes back to you. Hence reflections are an important part of learning.

‘What we see in others is a reflection of what we see in ourselves. Reflection leads to Self – regulation and better Learning.’

Time to teach	Value Type	Value Sub Type	Value Attribute
10 Minutes	Peace		Quotation

16. SA_Mirror and light activity!

Aim: To show that a mirror changes the direction of light that falls on it.

Resources Required: A Mirror and a torch

Setting for the Activity: Indoor

Type of Activity: Demonstration

Procedure:

1. A student should hold a mirror and stand a little away from another student who will focus the light of a torch on the mirror.
2. The person holding the torch should adjust his fingers over the torch light in such a way that a beam of light emerges between the gap of the fingers and falls on the mirror.
3. At the same time we can see a patch of light falling on the other side.
4. The light of the torch should be adjusted in such a way that the patch of light falls on another person standing in the room.

Observation:

It will be observed that the light travels in a straight line and gets reflected from a mirror.

Conclusion:

We learn from this activity that a mirror changes the direction of light that falls on it.

Precautions:

1. This activity should be performed only in a dark room or in the night.
2. Students should be careful while handling the torch light and should not focus light directly on to the others eyes.
3. Students should handle the mirrors carefully as they may cause injury or cut their fingers

Discussion Questions:

- **What does the rectilinear propagation of light mean?**

Answer: Rectilinear propagation of light means that light travels in a straight line.

- **Define reflection**

Answer: The bouncing back of light when it falls on an opaque surface is called as reflection.

Time to teach	Asset Type	Theme	SubTheme
8 Minutes	Suggested Activity	Light	Mirror formula , Meaning an reflection of light, Mirror form and definition of reflection

17. QA_Light, Shadows and Reflections - A recap!**I. Answer the following questions:****1. Circle the luminous objects-**

Torch, lighted candle, pencil, sun, moon

Answer:

Sun is luminous and the remaining are all non-luminous objects.

Torch, lighted candle, pencil, Moon, Sun

2. Raju, Ramu and Seenu were playing on the ground and they were thirsty. They went to a house nearby to drink water. Raju drank water using a plain glass tumbler, Ramu from a blue coloured glass tumbler and Seenu from a steel tumbler.

After they finished drinking water, they were trying to see each other through their tumblers. Who would be able to see the others through their tumbler? Justify your answer.

Answer:

- Raju could clearly see his friends through the plain glass tumbler. Plain glass is a transparent object. It allows all the light to pass through it
- Ramu could not see his friends clearly through his blue coloured glass tumbler but he could make them out. Coloured glass is a translucent object. So it only allows light to pass through partially.
- Seenu could not see his friends through his steel glass at all. Steel is an opaque object. It does not allow light to pass through at all.

3. Classify the following objects into transparent, translucent and opaque.**Glass tumbler, rock, fibre glass, wall, tracing paper, cloth, book and wood**

Answer:

Transparent: glass tumbler

Translucent: fibre glass, tracing paper

Opaque: rock, wall, cloth, book and wood

4. A Riddle**I'm your follower in the light,****Yet I'm invisible in the night****At various sizes I appear****I won't harm you, have no fear****What am I?****Answer:** Our shadow**5. What is the difference between an image and shadow?**

Answer: An image is formed when light is reflected from a mirror or any shining object, while a shadow is formed when the path of light is obstructed by an opaque object.

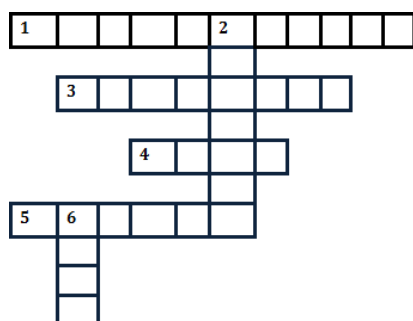
II. Choose the correct answer for the following:**1. Objects do not allow any light to pass through them.****a) Transparent b) Opaque c) Translucent d)None****2. Light travels in a _____ line.****a)Straight b)Curved c)Circular d)None****3. are the objects that do not emit light of their own.****a) Luminous b)Non-luminous c)Both d)None****4. is the colour of the shadow of a blue ball.****a)Blue b)Green c)Colourless/dark d)None**

Answers: 1-b 2-a 3-b 4-c

III. Match the following

<u>Group A</u>	<u>Group B</u>
1. Reflection of light	a. Inverted Image
2. Pinhole camera	b. Light
3. Translucent	c. Allows light partially
4. Rectilinear propagation	d. Bouncing back of light when it falls on an opaque surface

Answer: 1-d, 2-a, 3-c, 4 –b

IV. Solve the following puzzle

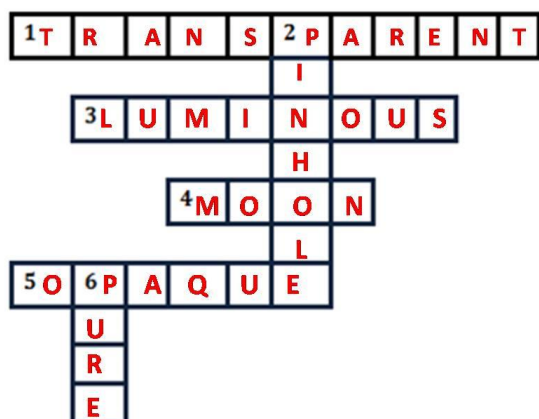
Across:

- _____objects cannot form shadows(11)
- objects can emit light of their own(8)
- An example for non-luminous object(4)
- A shadow is formed when light is blocked by object.(5)

Down:

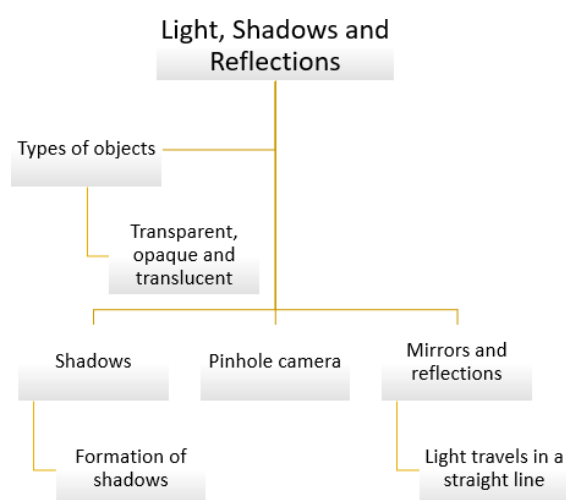
- _____camera works on rectilinear propagation property of light.(7)
- _____Water is an example for transparent.

Solution



Time to teach	Asset Type	Theme	SubTheme
15 Minutes	Assessments	Light	What makes things visible? hole camera, Meaning and reflection of light, Luminous luminous objects, Linear pa of reflection, Image formatio things visible?, Shadows, P Meaning and definition of re Luminous and non-luminous path of light, Laws of reflection formation

18. MS_Summary_Light, Shadows and Reflections



Time to teach	Asset Type	Theme	SubTheme
5 Minutes	Main Script	Light	Transparent, opaque and tra objects, Pin-hole camera, L non- luminous objects, Linea Laws of reflection, Image fo mirrors, Concave mirrors, Transparent.opac