


VIRTUAL LABS ON DIKSHA


Central Institute of Educational Technology
NCERT, New Delhi

RECOMMENDATION OF NEP 2020

National Education Policy (2020) recommends-

- Creating virtual laboratories so that all students have equal access to quality practical and hands-on experiment-based learning experiences.
 - Though, there is no substitute to hands-on experience of physical laboratory, virtual labs have the great potential to enhance actual laboratory experience.
 - These lab based e-resources can help students in visualizing the concepts in a better manner.
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IDEA BEHIND SETTING UP OF VIRTUAL LABS

- The virtual labs are based on the idea that lab experiments can be taught using internet more efficiently in a cost-effective manner.
 - They will also benefit the students who do not have access to physical labs or schools where equipments are not available.
 - Experiments can be accessed anytime and anywhere.
 - Virtual labs overcome the constraints of time as physical labs are available only during school hours.
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WHAT WILL YOU EXPERIENCE?

Following resources are available on Virtual Labs on DIKSHA to enhance your learning experience:

- **Theory and Procedure** provide information of the concept related to the experiment.
- **Animation and Video** help in visualizing theoretical concepts.
- **Simulation** provides real time experience of performing experiments.
- **Viva voce** is for self evaluation, you can assess how much you have grasped the concept.
- **Feedback** is meant for improving the resources from user's perspective.

PEDAGOGICAL INTEGRATION OF VIRTUAL LABS

Virtual labs can help **learners** in following ways:

- perform experiments multiple times without consuming chemicals
 - revise theoretical concepts
 - obtain result of time consuming experiments
 - analysis of results improving logical thinking skill
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- A decorative graphic consisting of several parallel white lines of varying lengths and orientations, located in the bottom right corner of the slide.

PEDAGOGICAL INTEGRATION OF VIRTUAL LABS

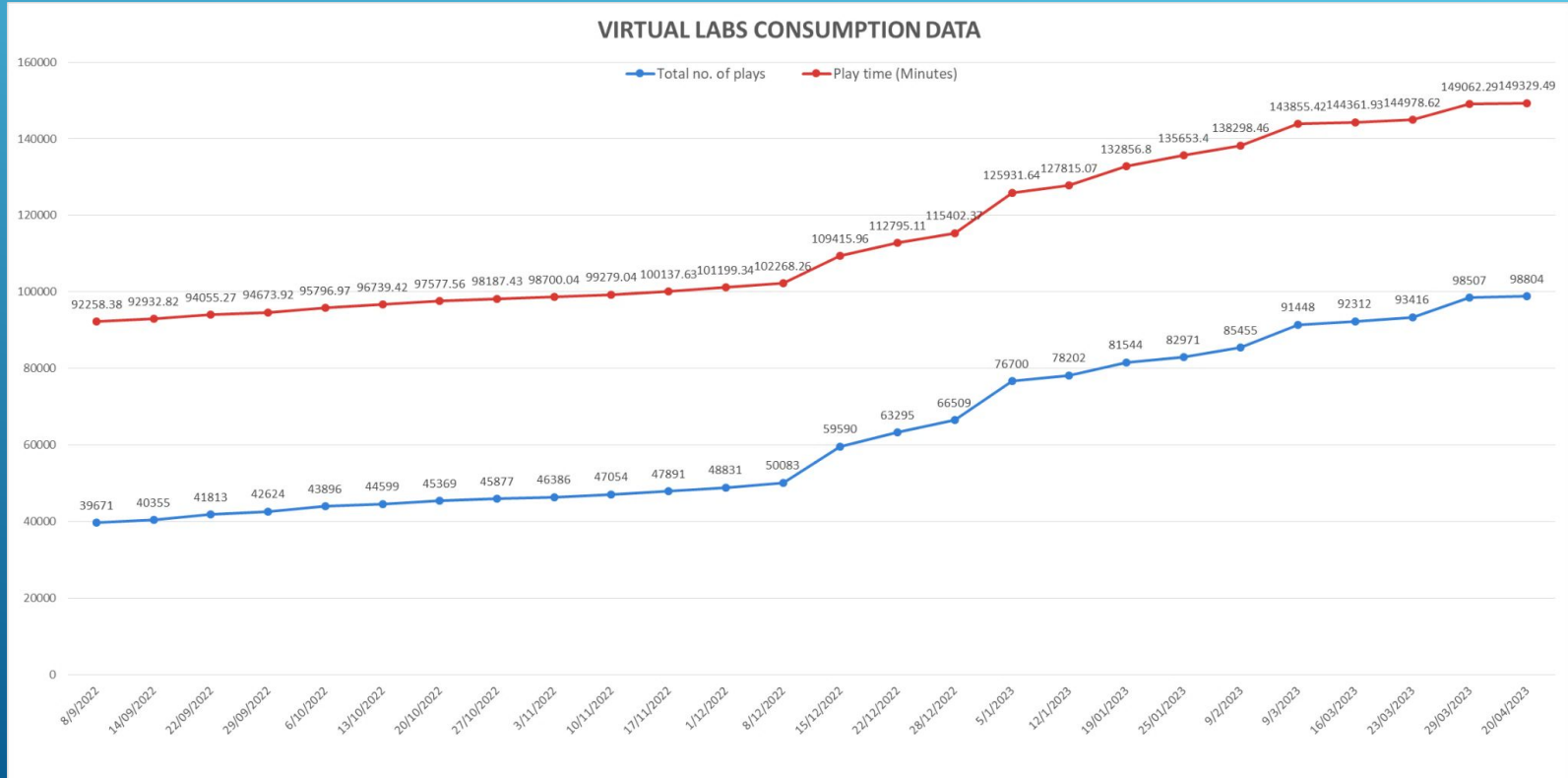
Virtual labs can help **teachers** in following ways:

- Design lesson plan integrating Virtual labs
- Use Virtual labs to demonstrate experimentation skills and help learners in developing such skills

EXPERIMENTATION SKILLS		
Observation	Prediction	Controlling variables
Interpretation	Communication	Forming conclusions

Virtual Labs was launched on 29th July, 2022

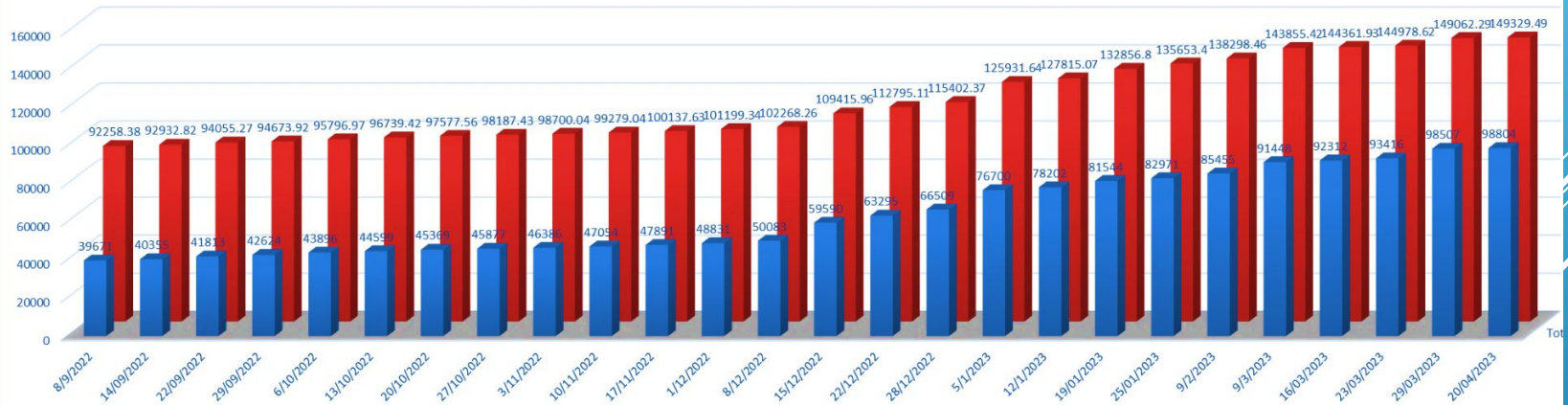
FOLLOWING DATA SHOWS THAT A LARGE NO. OF USERS ARE TAKING BENEFIT OF AVAILABLE RESOURCES



FOLLOWING DATA SHOWS THAT A LARGE NO. OF USERS ARE TAKING BENEFIT OF AVAILABLE RESOURCES

VIRTUAL LABS CONSUMPTION DATA

■ Total no. of plays ■ Play time (Minutes)



STEPS TO REACH AT YOUR DESIRABLE RESOURCE

URL: [HTTPS://DIKSHA.GOV.IN/](https://diksha.gov.in/)

A decorative graphic consisting of several parallel white lines of varying lengths, slanted upwards from left to right, located in the bottom right corner of the slide.

- [SEARCH HTTPS://DIKSHA.GOV.IN/](https://diksha.gov.in/)

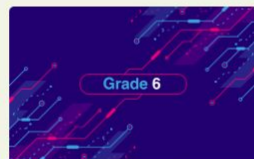
The screenshot shows the Diksha website interface. At the top left are logos for the Government of India, Diksha, and eDyda. A navigation bar includes icons for Home, Dashboard, About, Get App, and Contribute. A language selector shows 'English'. The main header features the 'DIKSHA' logo and the tagline 'DIGITAL INFRASTRUCTURE FOR KNOWLEDGE SHARING'. Below this is the text 'An initiative of the National Council of Educational Research and Training (Ministry of Education, Govt of India)' and a red 'EXPLORE DIKSHA' button. A secondary button says 'Explore Diksha's world of open digital content'. At the bottom left is the NCERT logo and another 'Explore' button. The central banner is for 'Mann ki Baat', a comic book covering 9 distinguished personalities. It features a yellow background with a microphone icon and the text 'मन्न की बात 100 MANN KI BAAT 100'. A large image of Prime Minister Narendra Modi speaking is on the right, with several speech bubbles containing his quotes: 'IT WILL TAKE A LIFETIME TO CLEAR THE HIMALAYS', 'WHEN WE WORK TOGETHER, I SEE THE LIGHT AT THE END OF THE TUNNEL', 'I'LL TAKE ANOTHER BAG, PRADEEP!', 'THAT'S THE GREAT 5 BAG, MORE AND 5 BAG', 'FOR AUBURNTON AND ATTORNEYSHIP BY JOHN ROBERTSON WARESON (MANN) ESAT', and 'MY FAVORITE, LOOK IN THE HINDRAMP, THE HORRIBLE'. A small 'Explore' button is at the bottom of the banner.

- SCROLL BANNERS TO FIND VIRTUAL LABS VERTICAL AND CLICK ON ITS “EXPLORE” ICON.

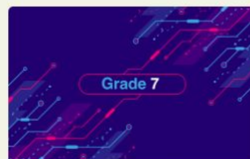
The screenshot shows the top section of the DIKSHA website. At the top left are the logos for the Government of India, DIKSHA, and eGdya. To the right is a navigation menu with icons and labels for Home, Dashboard, About, Get App, and Contribute. Below the navigation is a language selector set to 'English'. The main content area features the DIKSHA logo and tagline 'DIGITAL INFRASTRUCTURE FOR KNOWLEDGE SHARING', followed by a description of the initiative and a prominent red 'EXPLORE DIKSHA' button. Below this is a smaller 'Explore DIKSHA's world of open digital content' link. At the bottom left, the NCERT logo and another 'Explore' button are visible. The central focus is a large, vibrant banner for 'Virtual Labs' with a light blue background and a grid pattern. The banner is filled with various scientific icons including an atom, a rocket, a microscope, a DNA helix, a flask, and chemical structures. The text 'Virtual Labs' is written in large, bold, orange letters. At the bottom of the banner, there is a small 'Explore' button with a magnifying glass icon and a series of dots indicating a carousel.

- SCROLL DOWN ON THE LANDING PAGE OF VIRTUAL LABS TO REACH ECONTENT OF CLASSES 6-12.

Virtual Labs eContent



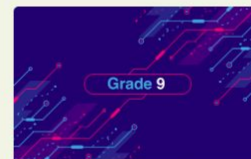
🔗 Explore



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Virtual Labs eContent



Explore

- हिन्दी Medium
- English Medium

- Mathematics
- Science



Explore

- हिन्दी Medium
- English Medium

- Mathematics
- Science
- English



Explore

- हिन्दी Medium
- English Medium

- Mathematics
- Science
- English



Explore

- हिन्दी Medium
- English Medium

- Mathematics
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Explore

- हिन्दी Medium
- English Medium

- Mathematics
- Science



Explore

- हिन्दी Medium
- English Medium

- Mathematics
- Physics
- Chemistry
- Biology
- Computer Science



Explore

- हिन्दी Medium
- English Medium

- Mathematics
- Physics
- Chemistry
- Biology

CLICK ON THE “EXPLORE” ICON OF THE DESIRABLE CLASS, SELECT THE MEDIUM OF INTERACTION, THEN CHOOSE A SUBJECT YOU WISH TO STUDY.

- **CLICK ON THE EXPLANATION RESOURCE TO REACH THE LINK FOR RELATED RESOURCES**

The screenshot shows a digital lab manual interface. At the top, a yellow header contains a back arrow, the text 'Science Lab Manual', and 'English • Class 10'. Below this is a navigation bar with a hamburger menu, a zoom control (minus, plus, 1 / 1), and navigation arrows. The main content area features a slide with the title 'Lab Experiment: Importance of Light in Photosynthesis' and the instruction 'Please click on the link mentioned below to access related resources.' Below the text is a blue underlined link: '[Importance of Light in Photosynthesis](#)'. The slide is decorated with scientific illustrations like a microscope, a globe, and laboratory glassware. Logos for 'AMRITA' and 'CDAC' are visible in the top right of the slide. On the right side, a vertical list of topics is shown, each with a dropdown arrow. The topic '24. Photosynthesis' is expanded, showing a list of resources. The 'Explanation Resources' section is highlighted with a red box and contains a link for 'Photosynthesis'. Below it are two links for 'Importance of Light in Photosynthesis'. Other topics in the list include '20. Saponification reaction for preparation of soap', '21. Compare the foaming capacity of different samples of soap', '22. Compare cleansing action of soap in soft and hard water', '23. Structure of stomata', '25. Importance of carbon dioxide in photosynthesis', and '26. Liberation of carbon dioxide gas during aerobic respiration'. At the bottom of the interface, there is a 'Page 1 of 1 • 100%' indicator, the word 'Photosynthesis', and 'Share' and 'Fullscreen' icons.

Science Lab Manual
English • Class 10

Lab Experiment: Importance of Light in Photosynthesis

Please click on the link mentioned below to access related resources.

[Importance of Light in Photosynthesis](#)

Page 1 of 1 • 100%

Photosynthesis

20. Saponification reaction for preparation of soap

21. Compare the foaming capacity of different samples of soap

22. Compare cleansing action of soap in soft and hard water

23. Structure of stomata

24. Photosynthesis

Experiment PDF

Experiment_24

Explanation Resources

Photosynthesis

Importance of Light in Photosynthesis

Importance of Light in Photosynthesis

25. Importance of carbon dioxide in photosynthesis

26. Liberation of carbon dioxide gas during aerobic respiration

- A VARIETY OF RESOURCES WILL HELP YOU IN YOUR LEARNING JOURNEY.

Theory

Procedure

Animation

Simulator

Video

Viva Voce

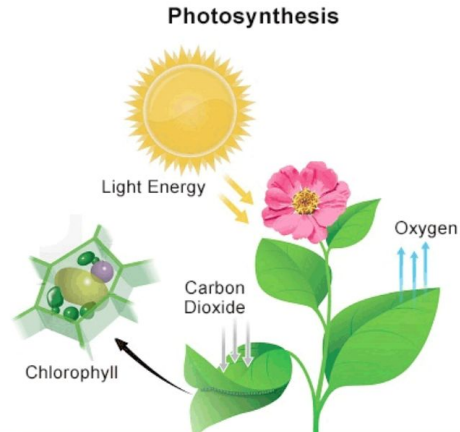
Resources

Feedback

Objective

Our objective is to show experimentally that light is necessary for photosynthesis.

The Theory



- A VARIETY OF RESOURCES WILL HELP YOU IN YOUR LEARNING JOURNEY.

The image displays a digital learning interface for a science simulation. At the top, a navigation bar contains several icons and labels: Theory, Procedure, Animation, Simulator, Video, Viva Voce, Resources, and Feedback. Below this, the main content area features a simulation titled "Importance of Light in Photosynthesis". The simulation includes a control panel on the left with three dropdown menus: "Select the power source:" (set to 40 W), "Select the distance of the power source:" (set to 50 cm), and "Select the colour of the filter:" (set to Clear). Below these are buttons for "Start", "Stop", and "Reset". The simulation itself shows a glass tube inverted in a beaker of water, with a green plant inside. A lamp is positioned to the right, casting light on the plant. A ruler at the bottom indicates a distance of 50 cm. A clock on the wall shows the time is approximately 1:50. A "SAVE" button is located in the top right corner of the simulation area.

**ENJOY SELF PACED
ENGAGING LEARNING EXPERIENCE
ON VIRTUAL LABS ON DIKSHA!**

