

Virtual Labs on DIKSHA



Central Institute of Educational Technology
NCERT, New Delhi

Recommendation of NEP 2020



New National Education Policy 2020 (NEP 2020)



- Access to quality practical and hands-on experiment-based learning experiences to each student
- Virtual labs enhance actual laboratory experience
- Lab based e-resources help students in visualizing the concepts

Advantages of Virtual labs



- Available on DIKSHA for free
- Accessed anytime and anywhere
- Complements, supplements physical labs

Resources available on Virtual Labs

- **Theory and Procedure**- concept related to the experiment
- **Animation and Video**- help in visualizing theoretical concepts
- **Simulation**- provides near to real experience of performing experiments
- **Viva voce**- self evaluation for learners

Virtual labs help learners in following ways

- perform experiments multiple times without consuming chemicals
- revise theoretical concepts
- obtain result of time consuming experiments
- analysis of results thereby inculcating logical thinking skill



Pedagogical integration of Virtual labs

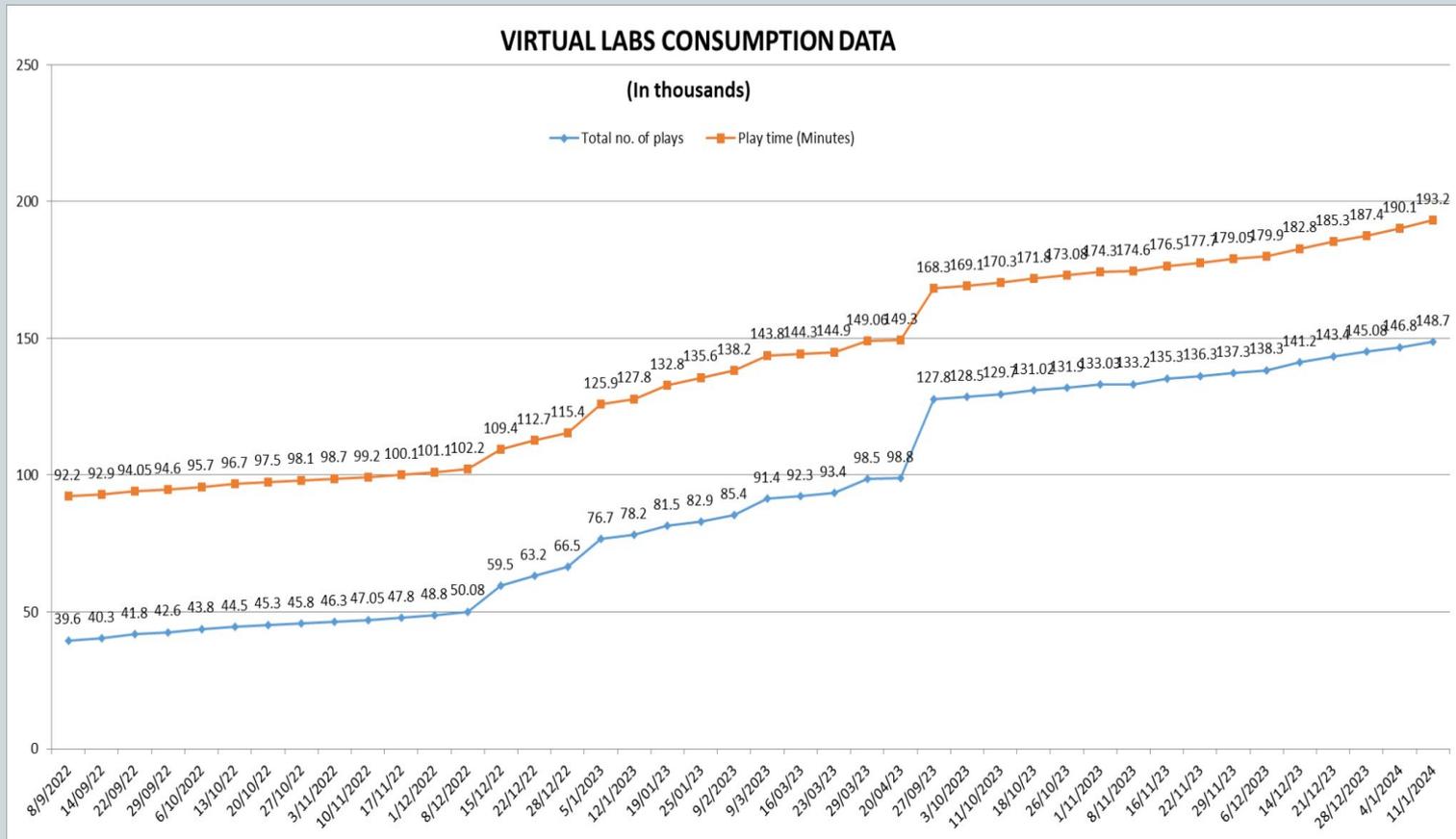
Virtual labs can help **teachers** in following ways:

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

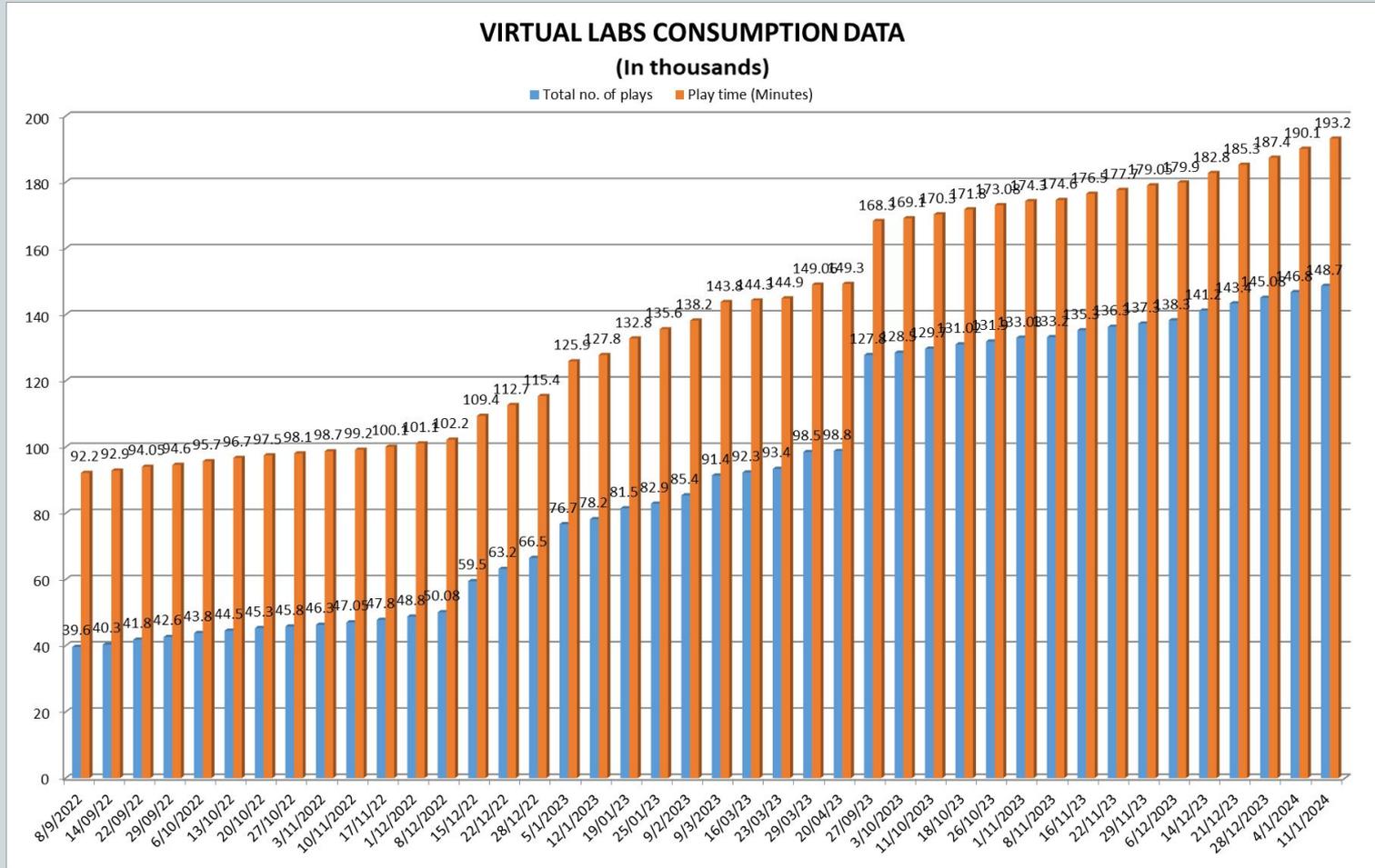


Virtual Labs was launched on 29th July, 2022

Following data shows that large no. of users are taking benefit of available resources



The data shows that large no. of users are taking benefit of available resources



Steps to reach at desirable resource

URL: <https://diksha.gov.in/>

- Search <https://diksha.gov.in/>

The screenshot shows the homepage of the Diksha portal. At the top, there are logos for the Government of India, Diksha, and oDya. A navigation bar includes icons for Home, Dashboard, About, Get App, and Contribute. A language selector is set to English. The main header features the Diksha logo and the tagline 'DIGITAL INFRASTRUCTURE FOR KNOWLEDGE SHARING', along with a description of its role as an initiative of the National Council of Educational Research and Training (Ministry of Education, Govt of India). A prominent red button labeled 'EXPLORE DIKSHA' is present, with a sub-link 'Explore Diksha's world of open digital content' below it. The central focus is a large banner for the 'vivo Ignite Technology & Innovation Awards'. The banner includes the Vivo logo, the award title, and an illustration of a woman using a microscope. Key details on the banner include: 'We are inviting young innovators to pave the way for a better tomorrow.' and '#JoyOfBeingInspired'. It also lists 'Grades 8th to 12th' and 'Prizes & Rewards Worth ₹30 Lakh+'. The 'Last Date of Submission' is '03rd Jan 2024', and a 'Register Now' button is provided. Logos for NCEERT and the Ministry of Education are also visible in the banner area.

- Scroll banners to find Virtual labs vertical and click on its “Explore” icon.

The screenshot displays the top section of the DIKSHA Virtual Labs website. At the top left, there are 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 header features the 'DIKSHA' logo and the tagline 'DIGITAL INFRASTRUCTURE FOR KNOWLEDGE SHARING', followed by a description of the initiative. A prominent red button labeled 'EXPLORE DIKSHA' is present, with a sub-button 'Explore DIKSHA's world of open digital content' below it. The central focus is a large, vibrant banner for 'Virtual Labs' with a blue and yellow background, featuring various scientific icons like a microscope, DNA, and chemical structures. A small 'Explore' button is located at the bottom center of the banner. At the bottom left, the NCERT logo is visible with an 'Explore' button next to it.

- Scroll down on the landing page of Virtual labs to reach eContent of classes 6-12.

Virtual Labs eContent



The image displays a grid of seven buttons for Virtual Labs eContent. The buttons are arranged in two rows: the top row contains Grade 6, Grade 7, Grade 8, and Grade 9; the bottom row contains Grade 10, Grade 11, and Grade 12. Each button features a dark blue background with a glowing circuit pattern in red and white. The grade level is centered on each button in a white rounded rectangle. Below each button is a dark blue button with a white cursor icon and the word 'Explore' in white text.

Grade 6	Grade 7	Grade 8	Grade 9
Grade 10	Grade 11	Grade 12	

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
- Science
- English



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 displays a digital interface for a Science Lab Manual. At the top, a yellow header bar contains a back arrow, the text "Science Lab Manual", and "English • Class 10". Below this is a white navigation bar with a hamburger menu icon on the left and zoom controls (minus, plus, 1 / 1, left arrow, right arrow) on the right. The main content area features a blue and white graphic with the title "Lab Experiment: Importance of Light in Photosynthesis". Below the title, it says "Please click on the link mentioned below to access related resources." and a blue underlined link "Importance of Light in Photosynthesis". The bottom left of the main area shows "Page 1 of 1 • 100%". The bottom of the page has a "Photosynthesis" label, a "Share" icon, and a "Fullscreen" icon. On the right side, a sidebar lists numbered items: 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, 25. Importance of carbon dioxide in photosynthesis, and 26. Liberation of carbon dioxide gas during aerobic respiration. Under item 24, there are three resource cards: "Experiment PDF" (containing "Experiment_24"), "Explanation Resources" (containing "Photosynthesis" and highlighted with a red box), and "Importance of Light in Photosynthesis" (two identical cards).

- Variety of resources will help you in your learning journey.

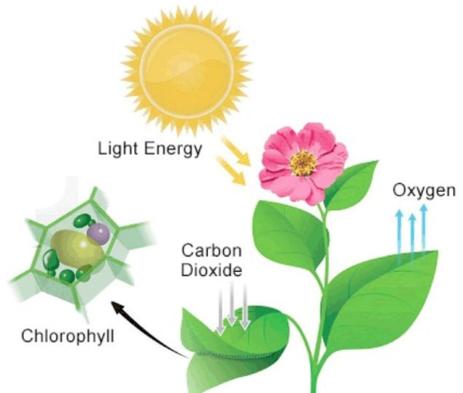
Theoretical Biology: Photosynthesis

Navigation: Theory Procedure Animation Simulator Video Viva Voce Resources Feedback

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

The Theory

Photosynthesis



The diagram illustrates the process of photosynthesis. At the top, a sun icon is labeled "Light Energy". Yellow arrows point from the sun to a pink flower and a green leaf. The leaf is shown in cross-section, revealing a chloroplast with a green oval labeled "Chlorophyll". Three white arrows labeled "Carbon Dioxide" point into the leaf. Three blue arrows labeled "Oxygen" point out of the leaf.

- Variety of resources will help you in your learning journey.

The screenshot shows a digital learning interface with a top navigation bar containing icons for Theory, Procedure, Animation, Simulator, Video, Viva Voce, Resources, and Feedback. The main content area features a simulation titled "Importance of Light in Photosynthesis" with a "SAVE" button in the top right corner. On the left, a control panel includes 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 "Start", "Stop", and "Reset" buttons. The simulation itself depicts a glass tube with a plant inside, illuminated by a lamp. A ruler at the bottom indicates a distance of 50 cm between the lamp and the plant. A clock on the wall shows the time is approximately 1:50.

Virtual Labs on DIKSHA
provide self paced
engaging learning experience