



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.

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.

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.

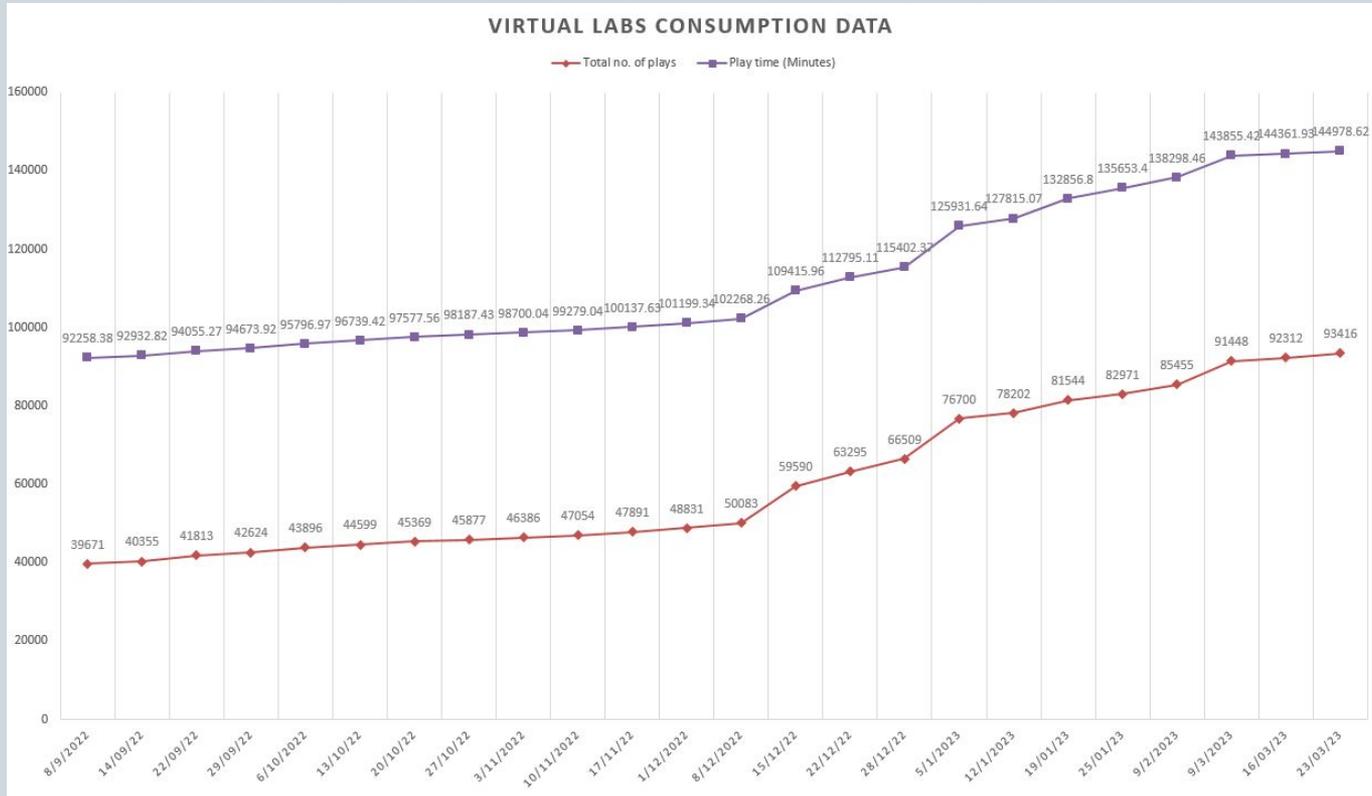
Pedagogical integration of Virtual labs

Virtual labs can help learners in following ways:

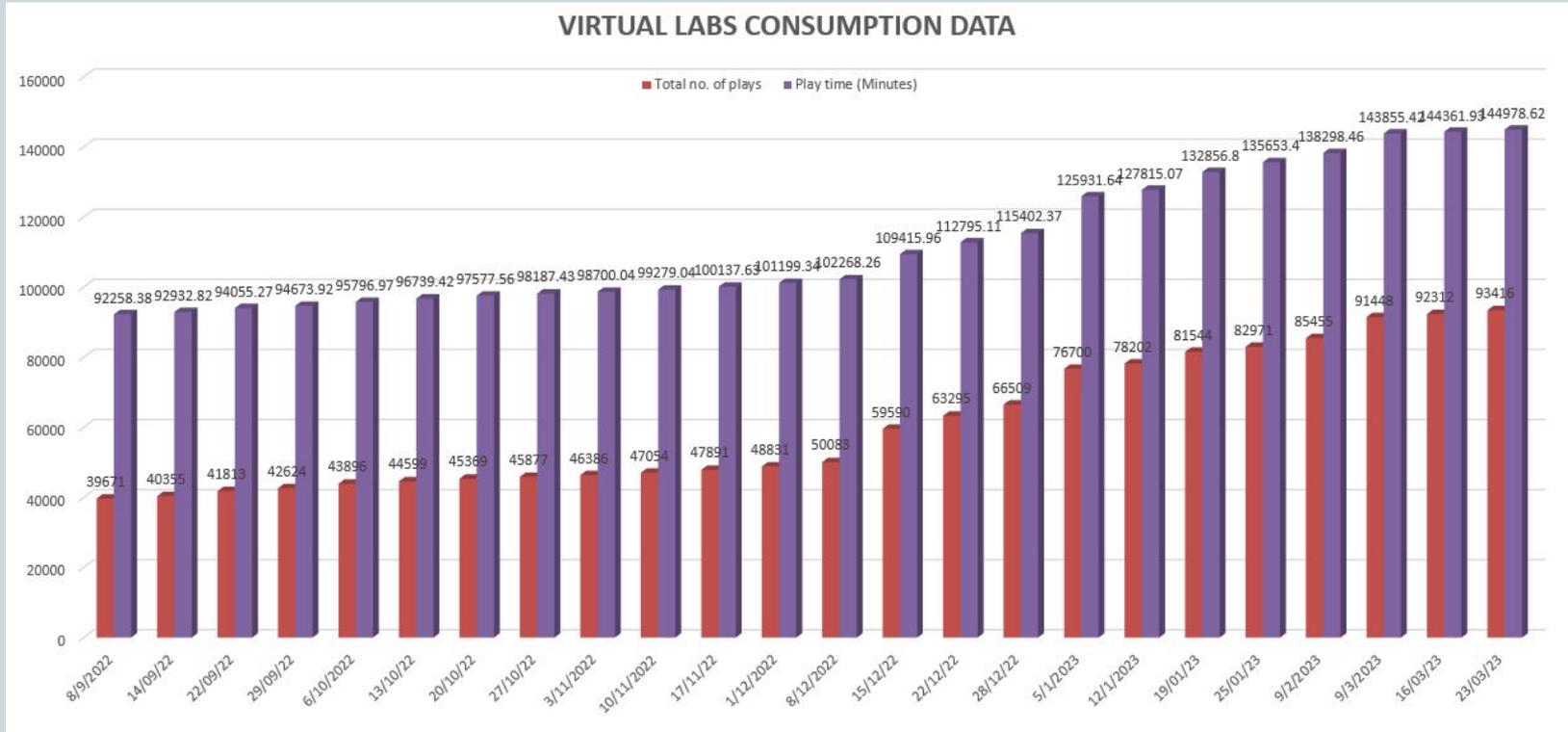
- perform experiments multiple times without consuming chemicals
- revise theoretical concepts
- obtain result of time consuming experiments
- analysis of results improving logical thinking skill

Virtual Labs was launched on 29th July, 2022

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



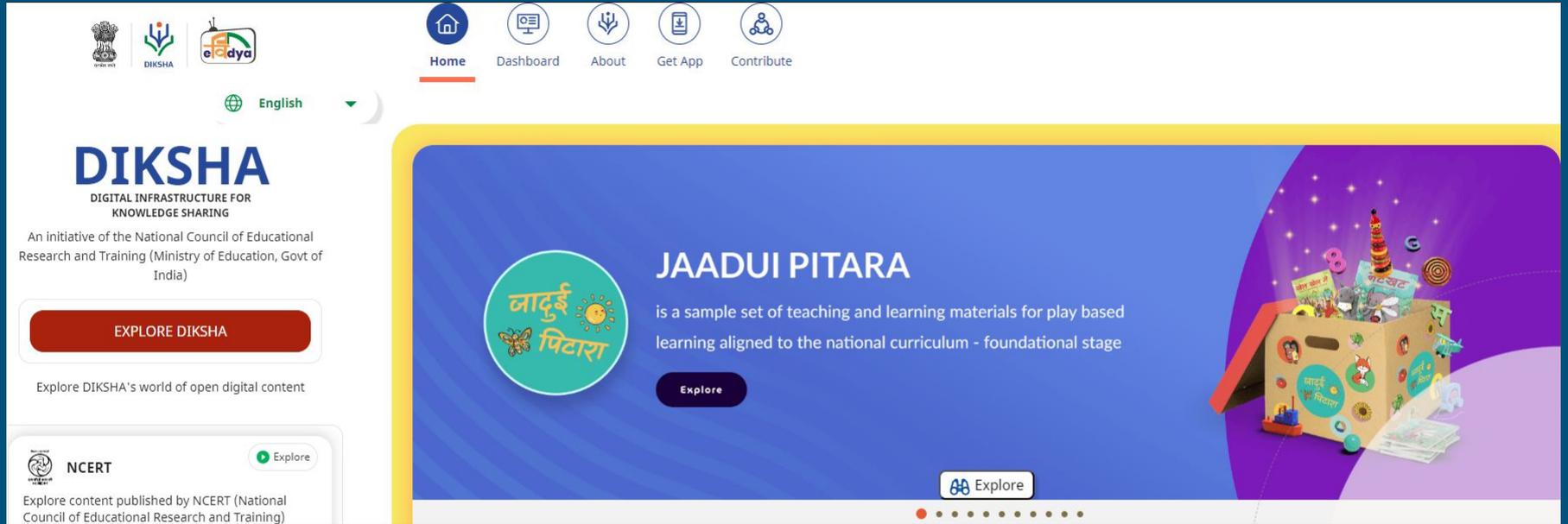
Following data shows that large no. of users are taking benefit of available resources



Steps to reach at your desirable resource

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

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



The screenshot shows the homepage of the Diksha portal. At the top left, there are logos for the Government of India, Diksha, and eVidya. 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, it states 'An initiative of the National Council of Educational Research and Training (Ministry of Education, Govt of India)'. A prominent red button says 'EXPLORE DIKSHA'. A secondary button says 'Explore DIKSHA's world of open digital content'. On the right, a large banner for 'JAADUI PITARA' (Magic Box) is displayed, featuring a colorful box filled with educational toys and materials. The text describes it as 'a sample set of teaching and learning materials for play based learning aligned to the national curriculum - foundational stage'. There are 'Explore' buttons for this section. At the bottom left, there is a section for 'NCERT' with an 'Explore' button and the text 'Explore content published by NCERT (National Council of Educational Research and Training)'. A small 'Explore' button is also visible at the bottom right of the banner area.

Home Dashboard About Get App Contribute

 English

DIKSHA

DIGITAL INFRASTRUCTURE FOR
KNOWLEDGE SHARING

An initiative of the National Council of Educational
Research and Training (Ministry of Education, Govt of
India)

[EXPLORE DIKSHA](#)

Explore DIKSHA's world of open digital content

 **NCERT** [Explore](#)

Explore content published by NCERT (National
Council of Educational Research and Training)

जादुई पिटारा

JAADUI PITARA

is a sample set of teaching and learning materials for play based
learning aligned to the national curriculum - foundational stage

[Explore](#)

[Explore](#)

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

The screenshot shows 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, colorful banner for 'Virtual Labs' with a microscope and various scientific icons. A small 'Explore' button is located at the bottom of the banner. At the bottom left, the NCERT logo is visible with an 'Explore' button next to it.

Government of India | DIKSHA | eGdya

Home | Dashboard | About | Get App | Contribute

English

DIKSHA

DIGITAL INFRASTRUCTURE FOR KNOWLEDGE SHARING

An initiative of the National Council of Educational Research and Training (Ministry of Education, Govt of India)

[EXPLORE DIKSHA](#)

Explore DIKSHA's world of open digital content

Virtual Labs

[Explore](#)

NCERT [Explore](#)

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

Virtual Labs eContent

The screenshot displays a grid of seven buttons for different grade levels, arranged in two rows. The top row contains buttons for Grade 6, Grade 7, Grade 8, and Grade 9. The bottom row contains buttons for Grade 10, Grade 11, and Grade 12. Each button features a dark blue background with a glowing circuit pattern and a white 'Explore' button with a magnifying glass icon.

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, a white navigation bar includes a hamburger menu icon, a search icon, and page navigation controls showing "1 / 1".

The main content area features a lab experiment page 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 page is decorated with scientific illustrations like a microscope, a globe, and laboratory glassware.

On the right side, a sidebar lists various topics with expandable sections. The section for "24. Photosynthesis" is expanded, showing three items: "Experiment PDF" (with a sub-item "Experiment_24"), "Explanation Resources" (highlighted with a red box and containing a sub-item "Photosynthesis"), and "Importance of Light in Photosynthesis" (listed twice). Other topics in the sidebar 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 footer with "Page 1 of 1 • 100%", the word "Photosynthesis", and icons for "Share" and "Fullscreen".

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

Theoretical resources

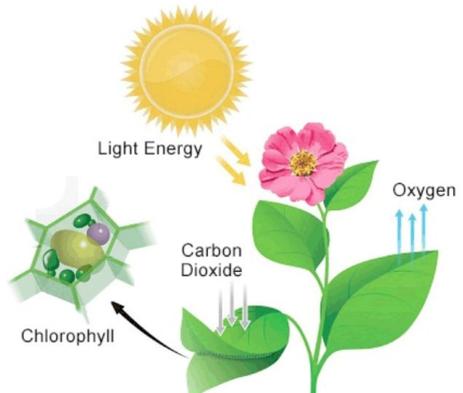
Theory Procedure Animation Simulator Video Viva Voce Resources Feedback

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 bright yellow sun emits rays labeled "Light Energy". Below the sun, a pink flower is shown. To the left, a magnified view of a green leaf cell shows a green chloroplast with a yellow nucleus and a purple vacuole, labeled "Chlorophyll". An arrow points from the chloroplast to the main leaf. The main leaf has three green leaves. Three white arrows labeled "Carbon Dioxide" point into the leaf. Three blue arrows labeled "Oxygen" point out of the leaf. The title "Photosynthesis" is centered above the diagram.

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

The screenshot displays 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 side of the simulation, there is a control panel 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 menus are four buttons: "Start", "Stop", and "Reset". The simulation itself shows a glass test tube inverted in a beaker of water, with a green aquatic plant inside. A lamp is positioned to the right, casting a beam of light onto the plant. 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 as approximately 12:30.

Enjoy self paced
engaging learning experience
on Virtual Labs on DIKSHA!