Towards equitable and sustainable development

through ubiquitous and low-cost access to learning

Priyadarsan Patra SEEDS



Sustainable Economic and Educational Development Society Sowing seeds of change since 1993

(A tax-exempt US non-profit dedicated to equitable development)

SEEDS mission is rooted in our wish to promote educational and economic progress and development not only for the common folks particularly in Odisha, but also in the developing world at large

www.seedsnet.org





www.facebook.com/seedsnet.org
SEEDS - Catalysts of Change





• March 1993 as Kalahandi-**Bolangir-Koraput Development**

YEAR **Initiative**

VISION

• Equitability, Sustainability, Grassroots Education & Nonsectarian Development

PLACE

 Began at UT Austin and spread to various corners of the World









METHODS



long-term,
self-supporting,
environmentally non-predatory

Equitable

Fair, Just

SEEDS promotes Economic and Educational progress



Decentralized
Primarily Bottom-up
Approach

Inclusive

Collaboratively address systemic development issues









Computing for Masses



Rural Math Talent Search



Nano Finance



Cyclone Rehab Project in Odisha & Vizag



Modern public library initiative



Preservation of art forms



Mahila Shanti Sena (Female Peace Brigade)







Rural Math Talent Search (RMTS)

- Rural students fall behind their urban counterparts after class-V due to fewer resources and lack of recognition
- Conducted by Institute of Math and Applications, Bhubaneswar.
 - Partially sponsored by the Indian Dept. of Atomic Energy
- Objectives:
 - Seek out and nurture rural math talents
 - > Train teachers
 - > Teaching in a cooperative environment
 - Modern methods of teaching mathematics

RMTS Scholars





	140.01		
SI.No	Name of the Centres	Students	Districts
Column1	Column2	Column3	Column4
1	L.N.Primary School,Marcona	100	Balasore
2	S.R Bidyapitha, Bagrukhi	75	Balasore
3	Ladarpali High School	90	Bargarh
4	Debahal Nodal U.P School	122	Bargarh
5	Janhapara M.E School	92	Bargarh
6	Lastala Nodal U.P School	106	Bargarh
7	Mahatma Gandhi College, Bhukta	50	Bargarh
8	Tikira U.G.M.E School,	105	Bhadrak
9	Khageswar M.E School,Chhayalsingh	50	Bhadrak
10	Brahmapur Nodal U.P. School	123	Bhadrak
11	Govt. U.P School,Khaprakhol	100	Bolangir
12	Manamunda G.M.E School	35	Boudh
13	Palsagora N.U.P School	30	Boudh
14	Charichhak T.O.M.E School	32	Boudh
15	P.Katak N.U.P School	69	Boudh
16	B.N.Pur Nodal U.P School	41	Boudh



RMTS succeeded to

- Identify and support promising youngsters in <u>rural</u> areas of Orissa from 6th Grade and some who are entering college.
- Overhaul the educational system and to bring the underprivileged class into main stream
- Provide 100's of scholarships, training and policy advice, advocacy
- Bring a ray of hope and a dream of the future in the young boys and girls..



Student Himalaya goes to win in international competition!



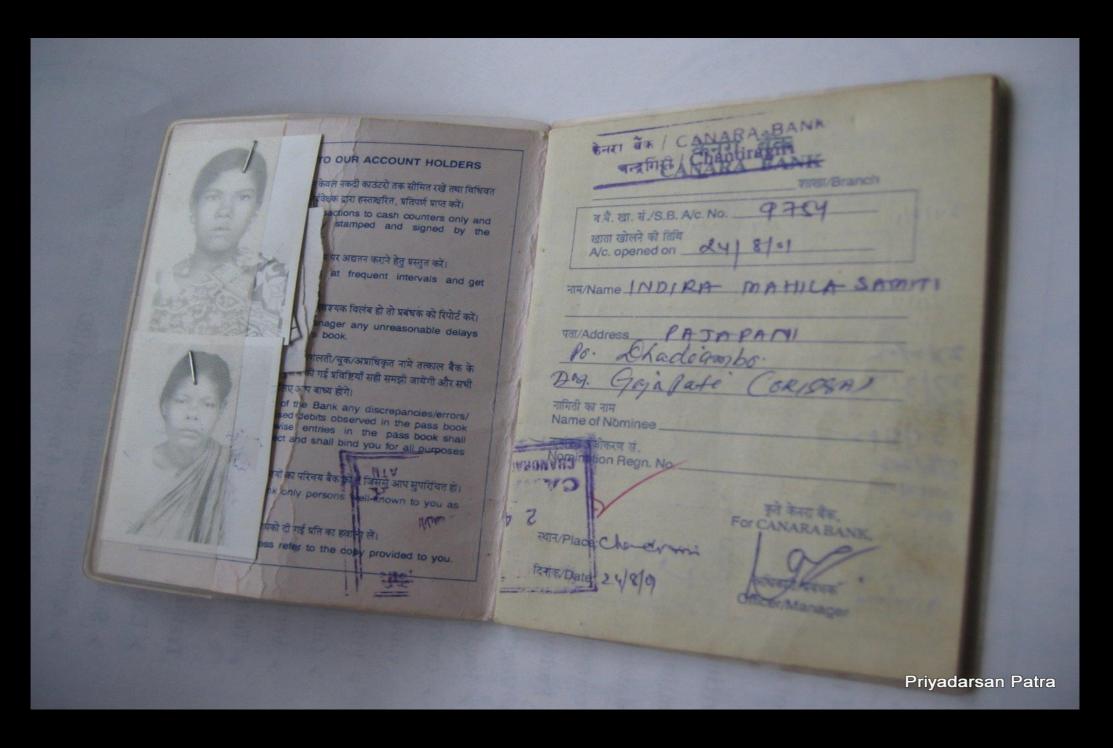


Nano-finance (Aamara Biswas)

- Partnering with Aamara Biswas, which helps the poorest of the poor women in their emergency needs for food, healthcare, small trades and their children's education through Nano Finance.
- Primary objective is to give small (\$12) interest free loans for 1 year
- ➤ This stops women from going to money lenders with interest rates of 120% or more
- > 500 rupees (less than 12 dollars) can bring security to a woman's life and lessen her burden in time of emergency!

Women's Self-help Groups







Independence and dignity from owning a savings book



Mahila Shanti Sena (MSS)

- (Female Peace Brigade)
 Women Corps in villages as peace movement for building just society, since 2002
- > Focuses on violence, poverty, illiteracy, unemployment, neglect, crime, sanitation, natural disasters, village service
- > Training camps, workshops, conferences for grass roots member groups consisting of 5 or 10
- > Cross-state (Odisha, Bihar, UP, Assam...) and crosscountry (India, Canada)
- Partners: Canadian Gandhi Foundation for World Peace, SEEDS (USA), Unnayan NGO (Odisha)
- > Inspiration: Acharya Ramamurty, Gandhi



Mahila (Women)





Sabhaas (Meets)



Computing for the Masses (CfM) and Education without Borders (EWB)

- Information and Communication technologies (ICT) are accessible to a few creating a "digital divide".
- > CfM creates new forms of income generation
 - Remote magazine/news production/typesetting, printing cards or handbooks, computer-assisted tutoring, service remote calls, etc.
- It breaks the information barrier to development





School where first "Computing for Masses" was hosted







Preservation of dying art forms

- Pala is a valuable cultural tradition of Odisha, combining theatre, Odissi music, highly refined Odia and Sanskrit poetry, wit, humor, and social satire.
- Ravanna Chhaya (shadow puppetry) originated in Odisha, and then spread through South and Southeast Asia.
- > Both of these art forms may be facing extinction under the relentless pressures of modern entertainment media.
- In 2008, we initiated a project to help sustain and enrich both the art forms which involved: (a) popularization; (b) training; (c) scholarship; (d) publication; and a (e) plan for selfsustainability after a few years.
- Shows/ workshops/ seminars have been held in the larger rural/suburban centers: Keonjhar, Anugul, Katak, Jagatsinghpur.





Chilika Museum of Art









Cyclone Rehab Project in Odisha & Vizag

- Residents of approximately 380 villages in 30 Gram Panchayats of Balasore and Mayurbhanj districts have been affected by the floods that hit the state of Odisha following the aftermath of Cyclone Phailin.
- With many of the state resources utilized in keeping people safe during the cyclone, there has been little time to react to the consequences.
- The organization has also been working with volunteers and other socially responsible groups to ensure that medical relief material reaches families.

Garampetta village devastated by Cyclone Phailin School supplies to get children back

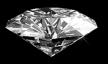


Disaster
Rehab Work &
Water-shed
Projects









Modern Public Library Initiative

Worked to create "Odisha Public eLibrary" and other "Model Rural or Urban Libraries; collaborating with Odisha

Society o working v

➤ What we laptop/te like mate "friends-c

class pub

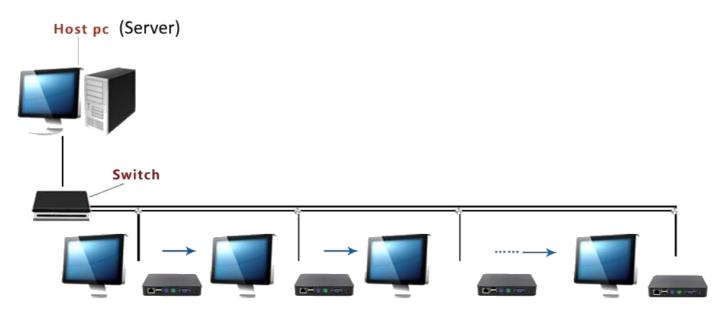
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n-academy Isiastic base of for a worldold.

Libraries need to become community centers for a modern, vibrant democracy!

Education without Borders

Ubiquitous and low-cost access to learning



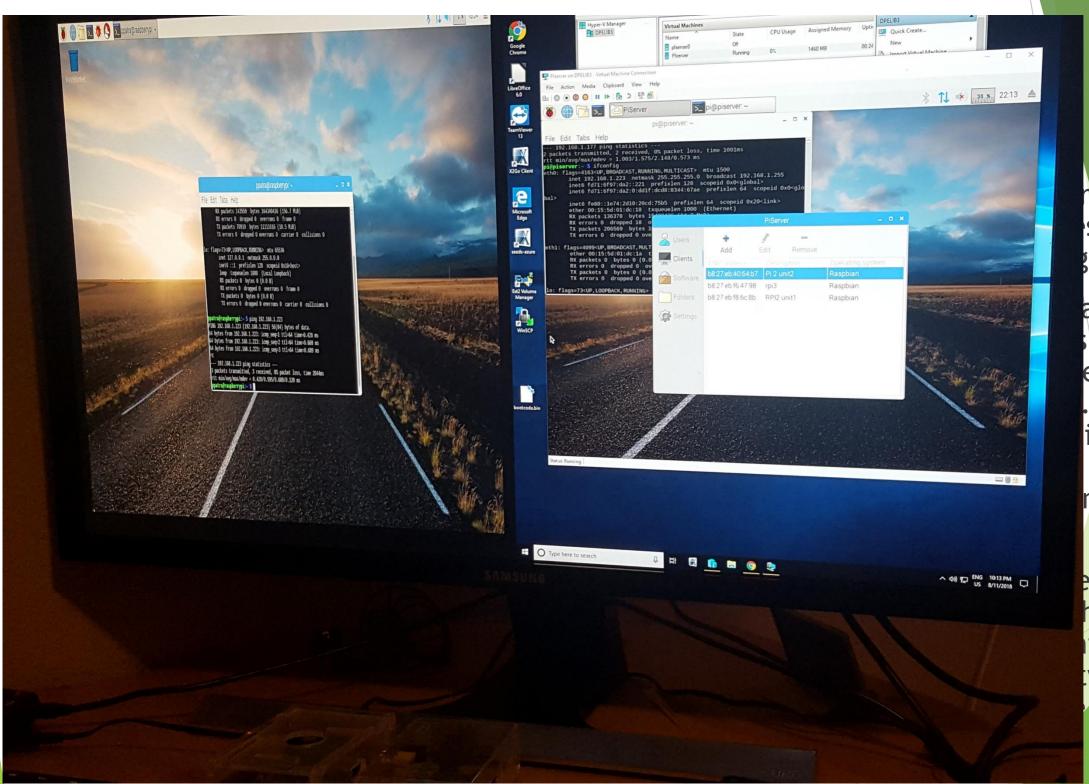
Thin Computers







Demo of the networked system



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run on an himeans you tage of the work, and server.



Edison - Fun Robotics for Tomorrow's Inventors

The super affordable robot for learning and inventing. Edison is Lego compatible, easy to program and has built-in programs that are activated by driving over barcodes.

EdBooks - Your EdVenture into Robotics

EdBook1 - You're a controller EdBook2 - You're a programmer EdBook3 - You're a builder Lesson Plans EdMat Robotics Activity Mat Programming Software Firmware Updates

Search Khan Academy

The Edison robot is an innovation from Microbric, an Australian company based in South Australia. Microbric has been providing educational products to schools since 2004. The materials references were not changed in any way and are released under the license, Creative Commons Attribution-ShareAlike 4.0 International (CC BY-SA 4.0). More information is available at https://meetedison.com.



Khan Academy Health & Medicine

Nearly 200 videos on health topics, covering the workings of major body systems and the diseases that affect them. All Khan Academy content is available for free at www.khanacademy.org.

The Lungs
Influenza
Blood
Blood Vessel Diseases
Fetal Circulation
Arterial Stiffness
Healthy Lifestyle
Endocrinology and Diabetes
Health Care System

Cervical Spine Hypertension Lah Values and I

Lab Values and Concentrations
Heart Disease and Stroke
Heart Muscle Contraction
Heart Depolarization
Nerve Regulation of the Heart
Pressure Volume Loops
Changing the PV Loop
Preload and Afterload
Miscellaneous

These materials do not provide medical advice and are for informational purposes only. This content is not intended to be a substitute for professional medical advice, diagnosis or treatment. Always seek the advice of a qualified health provider with any questions you may have regarding a medical condition. Never disregard professional medical advice or delay in seeking it because of something you have read here.



Fantastic Phonics

Fantastic Phonics is a complete 16 week intensive reading scheme for schools and families, with 60 printable stories, multimedia and video.

Series One Series Two

Colon Disease

Series Three



GCF LearnFree.org

Hundreds of high-quality illustrated articles and videos focusing on technology, job training, reading, and math skills, produced by the Goodwill Community Foundation.

Apple Career Computers Digital Lifestyle Everyday Life Google Information Sawy Internet Basics Job Development Math Basics Office 2000 Office 2003 Office 2007 Office 2010 Office XP OpenOffice Reading Social Media



UNESCO's IICBA Electronic Library

Teachers' resources from the UNESCO International Institute for Capacity Building in Africa.

Primary Mathematics in English Primary Science in English Secondary Science in English

Locally served Self-learning resources, contd.



TED Talks

TED (Technology, Entertainment, Design) is an invitation-only event where the world's leading thinkers and doers gather to find inspiration.

This collection includes nearly 2000 short videos on thought provoking topics from several years worth of events around the world.



Open Access Odia Books

All SEEDS OAOB is a not-for-profit project, initiated by National Institute of Technology, Rourkela, Srujanika, Bhubaneswar and Pragati Utkal Sangh, Rourkela. It disseminates the available information in Odia language treasured in our local libraries and individual collections. The project is made available online to millions of readers worldwide. An open access repository containing resources pertaining to Odia literature and culture, OAOB provides free access to researchers, scholars, historians, librarians, and the general public at all point in time.



विकिपीडिया ଓଡ଼ିଆ ଉଇକିପିଡ଼ିଆ

विकिपीडिया दुनिया के सबसे बड़े विश्वकोश, उपयोगकर्ताओं के लिए बनाया है, मॉडरेट, और संपादित उपयोगकर्ताओं द्वारा होता है। इस विश्वकोश चित्र के साथ 100,000 से अधिक लेख कहीं भी है और स्वतंत्र रूप से किसी के लिए उपलब्ध है। यह पूरी तरह से खोजा संस्करण Kiwix द्वारा प्रदान किया गया। ଓଡ़िଆ ଉଇବିପିଡ଼ିଆ ଏକ ଖୋଲା ଜ୍ଞାନକୋଷ



english wikiversity english wikivoyage hi.wikiquote Quotes in Hindi or.wikipedia encyclopedia in Odia Odia dictionary/wiktionary



Great Books of the World

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Adventure (24 titles)
Biographies (24 titles)
Children's Stories (23 titles)
Comedy & Humor (38 titles)
Drama (35 titles)
Fantasy (20 titles)
Folklore (7 titles)

Historical Fiction (38 titles)
Historical Non-Fiction (30 titles)
Horror (18 titles)
Mystery (17 titles)
Philosophy & Religion (30 titles)
Poetry (41 titles)
Romance (35 titles)
Science Fiction (27 titles)
Short Stories (25 titles)

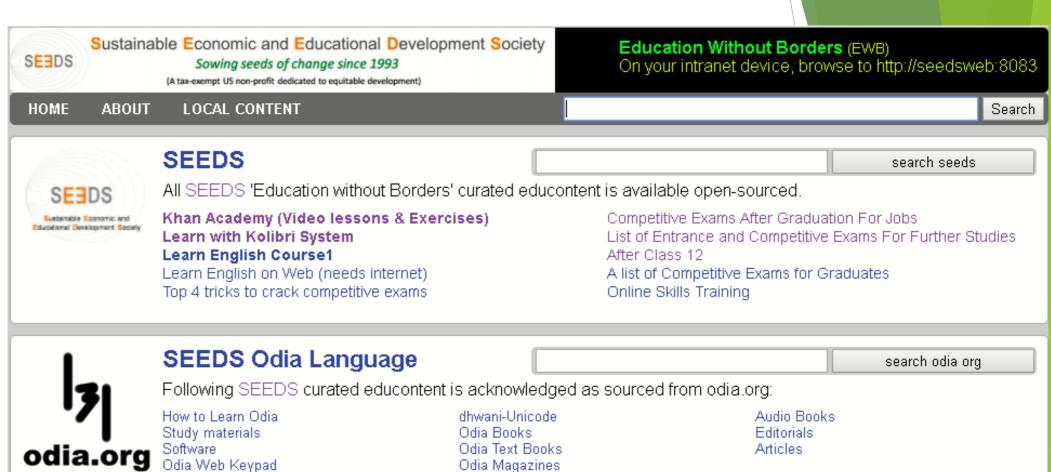


Hesperian Health Guides

Search Health Guides

Easy to understand, practical, accurate, and heavily illustrated guides on health topics that for remote areas where access to medical personnel and facilities is limited.

Flipped model of learning and experimentation



Sanskrit Slokas



Toys from Trash

Web Dhwani - Odia

Collection of Hindi videos. Create toys from household items.

Block Games



Professional programmers create programs by writing lines of text for a computer to interpret. This is the most efficient process for creating large programs, but it can be hard for a beginner to learn programming concepts and programming syntax simultaneously. As a beginner, you can get started with a visual programming tool, which lets you create programs without getting stuck over syntax rules. Google Blockly is a good tool for this purpose since it runs online and can generate actual JavaScript or Python code.



Math Expression

Math tutoring materials that include Math videos, Study Tips, Practice Questions and Step-by-Step solutions. For each lesson, read the study tips carefully and take note of the important concepts/ideas before watching the video. These tips will guide you in your math thinking strategies.



MedlinePlus Medical Encyclopedia

More than 4,000 cross-referenced medical articles from the U.S. National Library of Medicine and the National Institutes of Health. Includes comprehensive illustrations and photographs.

A.	-Ag	Ah-Ap	Aq-Az	B-Bk	Bl-Bz	C-Cg	Ch-Co
Ср	-Cz	D-Di	Dj-Dz	E-Ep	Eq-Ez	F	G
Н	-Hf	Hg-Hz	l-In	lo-lz	J	K	L-Ln
Lo	-Lz	M-Mf	Mg-Mz	N	0	P-PI	Pm-Pz
	Q	R	S-Sh	Si-Sp	Sq-Sz	T-Tn	To-Tz
	U	V	W	X	Υ	Z	0-9

These materials do not provide medical advice and are for informational purposes only. This content is not intended to be a substitute for professional medical advice, diagnosis or treatment. Always seek the advice of a qualified health provider with any questions you may have regarding a medical condition. Never disregard professional medical advice or delay in seeking it because of something you have read here.



Music Theory

Comprehensive music theory lessons and exercises to begin your journey into the realm of music.



OLPC Educational Packages

A collection of educational materials consolidated by the OLPC project.

Storybooks
Web Design
Wikibooks
Wikislice General
Wikislice Animals
WikiHow
Biology

Wikislice Chemistry Wikislice Physics Nature Photographs World Culture How to Build Musical Instruments y-Bee-See - An interactive ABC picturebook

A compact multilingual translation dictionary

Search MedlinePlus



PhET(Older)

PhET Interactive Simulations, a project at the University of Colorado Boulder, is a non-profitopen educational resource (OER) project founded in 2002 by Nobel Laureate Carl Wieman. PhET began with Wiemans vision to improve the way science is taught and learned. Their stated mission is "To advance science and math literacy and education worldwide through free interactive simulations."

Resources, contd.



CK-12 Textbooks

Search ck12

High quality textbooks on STEM (Science, Technology, Engineering and Math) from ck12.org.

Algebra Explorations, Pre-K through Grade 7

Basic Algebra

Basic Algebra Concepts

Algebra 1

Algebra I Teacher's Edition

Algebra 2

Basic Geometry

Basic Geometry, Teacher's Edition

Basic Geometry Concepts

Geometry

Geometry, Teacher's Edition CK-12 Trigonometry Concepts

Trigonometry

Trigonometry, Teacher's Edition

Basic Probability and Statistics - A Short Course

Basic Probability and Statistics - A Full Course

CK-12 Basic Probability and Statistics Concepts - A Full Course

CK-12 Advanced Probability and Statistics Concepts
Probability and Statistics (Advanced Placement)

Advanced Probability and Statistics Teacher's Edition

Calculus

Calculus, Teacher's Edition

Basic Physics

CK-12 People's Physics Concepts Physics - From Stargazers to Starships

21st Century Physics

Chemistry

Chemistry, Teacher's Edition Chemistry - Labs & Demos

Biology

Biology Workbook

Biology, Teacher's Edition Life Science for Middle School

Earth Science Concepts

Earth Science for Middle Schools
Earth Science for High Schools

Engineering - An Introduction for High School



MIT Scratch

Scratch is a programming language that makes it easy to create your own interactive stories, animations, games, music, and art.

As young people create and share Scratch projects, they learn important mathematical and computational ideas, while also learning to think creatively, reason systematically, and work collaboratively. Scratch is designed especially for ages 8 to 16, but is used by people of all ages.



The Free Encyclopedia

Wikipedia for Schools

Search Wikipedia

This curated selection of articles from Wikipedia can be used offline by school children around the world. 6000 articles, 26 million words and 50,000 images make Wikipedia for Schools bigger than Harry Potter, the Lord of the Rings and the Chronicles of Narnia put together!

Art
Business Studies
Citizenship
Countries
Everyday life
Design and Technology

Geography
History
IT
Language and Literature
Mathematics

Music

People Portals Religion Science



Interactive World Map

Browse the world from the global to the local with this interactive and searchable world map from OpenStreetMaps and the XSCE project.

Resources, contd.



PhET Interactive Simulations, a project at the University of Colorado Boulder, is a non-profit[1] open educational resource (OER) project founded in 2002 by Nobel Laureate Carl Wieman. PhET began with Wiemans vision to improve the way science is taught and learned. Their stated mission is "To advance science and math literacy and education worldwide through free interactive simulations."



Powertyping

Full lessons and exercises to learn touch typing or improve your typing skills. Include many entertaining typing games, tests an practice drills.



Practical Action

Search Practical Action

Practical Action has been using appropriate technology to help people in the developing world for more than four decades. The focus is on helping local people do what they already do even better. Here you will find broad knowledge bank of technologies that you can replicate.

Agriculture
Construction
Crop processing
Disaster response, mitigation and rebuilding
Energy
Environment and adaptation to climate change
Fisheries
Food processing

Information, communication, learning
Livestock
Manufacturing, handicraft, process industries
Natural resources management
Social and economic development
Transport and infrastructure
Waste management
Water and sanitation



Radiolab

Radiolab is an audio show about curiosity. Where sound illuminates ideas, and the boundaries blur between science, philosophy, and human experience.

Radiolab is produced by WNYC, a public radio station in New York City.



Scale of the Universe

Explore the universe from the fantastically small to the awesomely large with this interactive demonstration of the size of things.

This module requires Flash or a Flash-capable browser like Chrome.



SEEDS

search seeds

All SEEDS 'Education without Borders' curated educontent is available open-sourced.

Khan Academy (Video lessons & Exercises)
Learn with Kolibri System
Learn English Course1
Learn English on Web (needs internet)

Learn English on Web (needs internet)

A list of Competitive Exams for Gr.
Top 4 tricks to crack competitive exams

Online Skills Training

List of Entrance and Competitive Exams For Further Studies
After Class 12
A list of Competitive Exams for Graduates
Online Skills Training

Competitive Exams After Graduation For Jobs

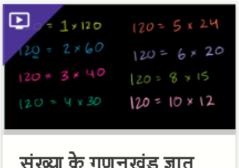
Kolibri educational sub-system & materials



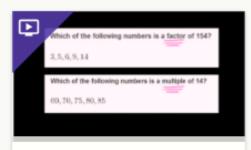
<u>Channels</u> > <u>Khan Academy (hi)</u> > <u>गणित</u> > <u>कक्षा 6 (भारत)</u> > <u>गुणनखंड और गुणज</u> > गुणनखंड और गुणज

गुणनखंड और गुणज

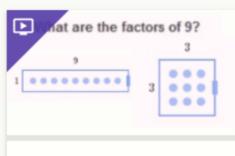
आइए गुणनखंड और गुणज के बारे में कुछ अधिक सीखते हैं।



संख्या के गुणनखंड ज्ञात करना



गुणनखंड और गुणज ज्ञात करना



गुणनखंड ज्ञात करना



गुणनखंड युग्म



MIT Blossoms

Pratham Books' StoryWeaver Touchable Earth (en)



Khan Academy without Internet!



⊞ Math	E Early math	□ Review of shapes, operations and large numbers	 	■ Intro to reflective symmetry
≅ Science	ा Class 5 (India)		⊞ Rotational	Introduction to the concept of an "axis of symmet
Economics and finance	E Class 6 (India)	E Area and perimeter - Part	symmetry	Practice identifying lines of symmetry on shapes
	E Class 7 (India)	⊨ Parts and		
- Carenatina	E Class 8 (India)	wholes		

⊞ Math	□ Physics	i≡ Introduction to electrical engineering	
Science	⊞ Chemistry		components (resistors, capacitors, and inductors), and
Economics and finance	■ AP Chemistry		⊞ Resistor circuits
	☐ Organic chemistry		Series and parallel resistors, delta-wye networks, and the voltage divider
humanities		≡ Semiconductor devices	
	⊞ Biology	≡ Signals and	■ DC circuit analysis Determine the state of a DC circuit using Kirchhoff's
≡ Test prep		systems	Laws, node voltage method, mesh or loop
E Partner content	Electrical engineering	⊨ Home-made robots	■ Natural and forced response
E College,	:= Health and	≡ Lego robotics	Circuits containing capacitors and inductors change with time. The natural and forced response of
careers, and more	medicine		
I≡ MAP Recommended Practice			If we limit ourselves to input signals shaped like sines or cosines, we can develop a whole AC

Setting up 3-computer elibrary/ e-school in a village

- An enthusiastic, tech-savvy local person (teacher or learner)
- 2. Server computer (1)
- 3. 4- or 8 -port Router/Switch with Wifi (1)
- 4. Optional internet access/subscription/dongle
- 5. Client computers -- e.g. raspberry Pi (2)
- 6. Display monitors (2)
- 7. TV/monitor with HDMI (1)
- Keyboard-mouse combos (3)
- 9. Headset/headphones (3)
- Power cords and ethernet cables to hook them and power up
- 11. Optional: extra hard-disk, internet camera, printer, etc.
- 12. Any number of mobile devices (phones and tablets that connect over wifi)

To help you get a sense of the cost of components, I did some research on Amazon-India and found these deals on 8/19/2018:



Quantum 4 Port USB Hub with Switch and LED Indicator -Color may vary(Black or White) Rs.169.00



MTT® [2 - Pack] 1.2 meter Premium Micro USB to USB Cable High Speed USB 2.0 Male A to Micro B for Android Smartphones (2 PACK BLACK) Rs.399.00



Zebronics 15.6 inch (39.6 cm) LED Monitor - Full HD with VGA, HDMI Ports - ZEB-A16FHD LED (Black) rs 3,425.00



iBall Rocky Over-Ear Headphones with Mic rs. 469.00



Prolink PRS1240 - Wireless-N 4-Port ADSL2+ Modem/300Mbps Router rs. 900.00



Neo Wired Multimedia Keyboard and Mouse Combo (Black) rs.449.00

It is when you give of you that you have

"We rise

ting

-Robert Ingersoll

MAKE A FERENCE

miewieuse payst interest

Benjamin Franklin