



FUN CO-CURRICULAR ACTIVITIES FOR MIDDLE SCHOOLS

CONTENTS

LETTER FROM C.E.O.	1
BC IN PRACTICE	2
CLUSTER LIST	4
CLUSTERS EXPLORED	6
LESSON PLAN OVERVIEW	14
WHAT IS KARKHANA?	20
PROFILE OF KARKHANA TEACHERS	21
PROFILE OF KARKHANA BOARD	23

LETTER FROM C.E.O.



Dear Principals and School Leaders,

You know better than I do that a great school is about more than just test results. Good schools deliver good marks in board exams. But great schools deliver good marks and much more. Great schools know that their students need 21st century skills to prepare them for what comes after their degrees, whether the SLC or a PhD. Through many hours of conversations with school leaders, I know that many schools in Nepal want to innovate their teaching and learning methods.

These schools also know that innovation is not a solo project. They need the support of experts to introduce innovative ideas into their curriculum. In the 21st century, we need to think of schools as platforms which allow our children to access specialist educators from across disciplines. Through our BeeCreative program, Karkhana provides specialists who will make your science, computing, OBT and math education joyful and exciting.

BeeCreative (BC) is a co-curricular program designed to bring stimulating hands-on experiences into the classroom. These experiences do not replace the regular curriculum, instead they enhance it. BC raises students' curiosity about what they learn in their regular Science, Computing, OBT and Math classes. By getting students excited about these topics, BC increases their willingness to learn in regular classes. BeeCreative creates classes that are interactive, practical but still curricular.

I often describe the BeeCreative program through an analogy. To grow into healthy adults, children need nutritious meals. For us in Nepal, that meal would be some lovingly prepared '**dal**', '**bhat**', and '**tarkari**'. Yet, we all know that just eating **dal**, **bhat**, **tarkari** everyday can get boring. That is why we invented '**achaar**' - to make meals more interesting and increase our willingness to eat necessary nutritious food.

Think of BeeCreative as **achaar** for Science, Math, OBT and Computing classes. Your regular curricular classes are the **dal**, **bhat** and **tarkari** that all students need. We provide the **achaar** to make sure they eat their full share of **dal-bhat-tarkari**. Our experience shows that the BeeCreative **achaar** will make your students more eager to learn in their regular classes.

As you get to know our work you will discover a long list of reasons to implement the BeeCreative package. But the best reason you will find is that students love our classes. And as principals and teachers in our partner schools will tell you, their students look forward to Karkhana classes all week. I hope you will find enough reasons to consider this program for your school. Please be ensured we are with you in this journey of change.

Pavitra Gautam
CEO, Karkhana

BC IN PRACTICE

01

What is the BC program?

BeeCreative is a co-curricular program in which our teachers carry kits and come to your school to teach your students in your own classroom. The classes are hands-on, interactive, and related to the curriculum.

02

What classes is it appropriate for?

The BeeCreative program is currently designed for students between grades 4 and 8. We are now expanding the program for lower grades.

03

How is BC delivered inside my school?

One period a week is set aside for BC. This one period is for each class/section that BC is used for. Let's say your school has two sections and runs BC for grades 6 & 7, the schedule might look something like this:

Tuesday 2nd period (9.30 AM - 10.15 AM): 6A

Tuesday 3rd period (10.25 AM - 11:10 AM): 6B

Tuesday 5th period (12.00 PM - 12:45 PM): 7A

Tuesday 6th period (12.45 PM - 01:30 PM): 7B

Note: Days/timings are flexible but have to be allocated before the beginning of the academic year.

We will come in and teach that period each week for the whole academic year.

04

Are the BeeCreative classes related to the curriculum?

Yes. BC classes are designed to increase your students' curiosity about what they learn in regular classes. Thus, the classes are organized into clusters, with each cluster directly linked to a specific part of the curriculum.

05

What are clusters?

Clusters are a group of 6 - 8 classes that result in a coherent learning sequence. Each cluster is organized to explore a specific topic or focus area of the curriculum in depth while also building interdisciplinary skills.

06

Can I choose the clusters my students receive?

Yes. The BeeCreative program has a large list of clusters that you can choose from. Given that they are between 30 and 40 classes per academic year, you get to choose three to five clusters per year for your school.

07

Who are the teachers?

Our extensively trained teachers are from a diverse range of fields. Given our history and interests, we have many teachers who were once engineers. At the same time, we also have teachers from fields as diverse as social work and management.

08

How much does the BeeCreative program cost?

We are committed to transparent pricing, so all our clients should pay exactly the same rate. The cost of the BC program for schools is **650 rupees per student per month for 12 months i.e. 7800 a year per student**. This package includes our teachers, all the material we bring into the classroom, and all learning aids (e.g. charts, AV materials etc). We permit a minimum of 20 students and a maximum of 36 students in a class.

09

Can I negotiate a discount?

Yes, but it is an easy negotiation because we offer just one kind of discount. For making your full annual payment at the start of the year we offer a 5% discount. Otherwise, we believe that all our clients should pay the same rate. Our pricing is open and transparent. For the 2074 academic year, the fixed price is 650 rupees per student.

Niladri Pariyal

Principal, Triyog



BeeCreative has been running in Triyog for 3 years now. I like the program because my students enjoy it. But even more importantly I rely on Karkhana's involvement at Triyog to help me shape my long term academic strategy. Karkhana is more than a service provider in my school. They truly are partners in Triyog's future.

Manoj Bishwakarma

Vice-Principal, Paragon



At Paragon, where we have 6 sections per grade level, we are strongly focused on delivering quality education to a large number of students. Thus we need expert partners to help us introduce new innovations. The BeeCreative program has made our students excited and we look forward to growing the program in our school.

CLUSTER LIST

Clusters are a group of 6-8 classes, organized to explore a specific topic or focus area of the curriculum in depth while also building interdisciplinary skills.

01 Fun with Electronics

The **Fun with Electronics** series has eight sessions that explore a wide range of fun applications of electronics. Students explore how circuits might be used in crafts, they learn how to design a scientific experimentation tool, create soft circuits that don't use wires, and even design circuits they can wear.

Science: Electricity and Magnetism **OBT:** Crafts

02 Storytelling and Communication

The **Storytelling** series includes activities that encourage students to create or adapt stories and tell them. Presentation techniques such as paper slides, storyboarding, and public speaking will also be taught to help them communicate their stories.

Language: Communication **Science:** Energy Transformation **OBT:** Soft Skills, Crafts

03 Making Things Move

The **Making Things Move** series experiments with various ways of animating objects for both the arts and sciences. Students explore a wide range of activities from imitating the motion of human muscles to making wheel and axle systems.

Science: Simple Machines, Energy Transformation **OBT:** Crafts, Soft Skills

04 Computational Thinking and Algorithms: Part I

Computational Thinking (CT) is a process that generalizes a solution to open-ended problems. Open-ended problems encourage full, meaningful answers that take into account multiple variables. To build CT skills, students need competencies such as decomposition, data representation, generalization, modeling, and algorithm designing.. This series uses games, puzzles and paper based projects to develop CT skills.

Google's Computational Thinking: Decomposition, Pattern recognition, Algorithm design

05 Structures and Stability

The **Structure and Stability** series include structural design activities. These activities challenge students to create complex structures using very basic materials while keeping firmness or balance or stability of structure.

Math: Mensuration, Shapes **Science:** Stability, Balance **OBT:** Soft skills, Crafts

06

Communication Technologies

The history of communication technology is as old as the history of human civilization. Innovation in the communication technology, however, exploded in the last 150 years as humans learned how to create better tools and understood more physics. This series explores some of those technologies and provides hands-on experiences of the basic principles that govern everything from mobile phones to remote controls.

Science: Waves, Lights, Sound, Electricity and Magnetism **OBT:** Soft skills, Crafts

07

Creative Technique

Is creativity an innate skill or can it be learned? Artists, designers and inventors use creative techniques to generate new and unique ideas. This series digs into those approaches and guides students in using them to solve day-to-day problems.

MIT Design Thinking: Divergent thinking, Convergent thinking

Language: Communication **OBT:** Soft Skills, Crafts

08

Be the Computer

Computers are everyday tools now and soon enough small computers will be embedded into everything we use, from cars to microwaves. Therefore, knowing how a computer works is as essential for the 21st century child as knowing how to read was for the generation before. This series uses role playing to make students act as various components of a computer, both hardware and software, to develop a deeper understanding of its working principles.

Math: Binary Conversion **Computer:** Hardwares

Google's Computational Thinking : Pattern recognition, Algorithm design

09

Design and Visual communication

In today's world because we are bombarded with so much information, we ignore most of it. If you have an important message to communicate, how would you break through the clutter? Using good design and effective visual communication can be one solution. This series explores various introductory principles to present information in aesthetically pleasing ways.

Mathematics: Statistics **Visual Communication Techniques:**

OBT: Soft Skills, Crafts **Language:** Communication

10

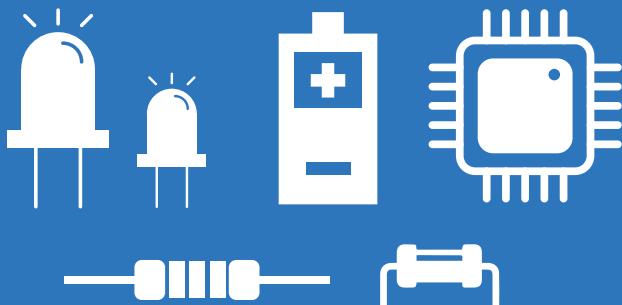
Math-a-magic

Mathematics is all around and students have opportunities to use it for real world problems everyday. **Math-a-magic** connects day-to-day objects and activities with their mathematics classes. It explores a wide range of concepts like mathematical patterns found in nature to magical ways to do calculations faster.

Mathematics: Geometry, Algebra **OBT:** Soft Skills, Crafts

..... CLUSTER 01

FUN WITH ELECTRONICS



Circuits are in every electronic device we use.
How can we use circuits in a creative way?

DESCRIPTION

The **Fun with Electronics** series has eight sessions that explores a wide range of fun application of electronics. Students explore how circuits might be used in crafts, they learn how to design a scientific experimentation tool, create soft circuits that don't use wires, and even design circuits they can wear.

LESSONS INCLUDED

Conductor Insulator: Students will make instruments that can detect the flow of current. They will learn about conductors and insulators by using this device to explore a range of materials.

LEDs and Crafts: Students will integrate paper crafts with LEDs and batteries, developing an understanding of open and closed circuits in the process.

Electric Maze: Students will learn the concept of open and closed circuits by making an electric maze game.

Vibrator Motor Bot: Students will figure out how a vibrator motor works by making a dancing robot.

Understanding Resistance: Students will discover the effects of resistance by observing the brightness of LEDs paired with different resistors.

Electric Path: Students will learn about series and parallel connections of electric load by making fun paper circuits.

Conductive Me: Students will learn that the human body is conductive by turning themselves into a circuits.

Wearables: Students will learn to design and prototype wearables by making rings that react when they touch each other.

CURRICULAR TIES

1. Science

- a. Electricity and Magnetism
 - i. Source of electricity -Battery/Cells
 - ii. Circuits
 - iii. Conductor Insulator
 - iv. Open, closed and short circuit
 - v. Application of electricity

2. Occupation, Business, and Technology

- a. Paper crafts

KARKHANA CRITERIA

Creativity



Collaboration



Critical Thinking



Communication



Hands-on



..... CLUSTER 02

STORYTELLING AND COMMUNICATION



“

Communication is an essential skill for the 21st century. How do you communicate your ideas in an interesting way?

DESCRIPTION

The **Storytelling** series includes activities that encourage students to create or adapt stories and tell them. Students will also learn presentation techniques such as paper slides, storyboarding, and public speaking to help them communicate their stories effectively.

LESSONS INCLUDED

Story to Art: Students will learn about different types of energy by reading stories and turning them into art.

Art to Story: Students will learn about storyboarding, a technique frequently used to plan movies and TV shows, and use it to plan a sequential task.

Pop up Cards: Students will learn paper folding techniques and apply earlier lessons in the series to make pop-up greeting cards.

Random Curves: Students will use their imagination to turn a few random curves on a piece of paper into characters with a history and story.

Toy Design: Students will learn to prototype their ideas using limited resources by making a toy for a 3-year-old kid.

Pecha Kucha: Students will improve their communication skills by creating their own improvised story.

Hexaflexagon 2D: Students will learn to follow instructions by making a 2D hexaflexagon.

Hexaflexagon 3D: Students will follow instructions to make a 3D hexaflexagon and add a story in their hexaflexagon.

CURRICULAR TIES

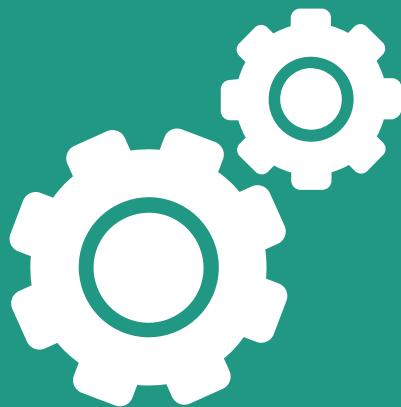
1. Science
a. Transformation of Energy
2. Occupation, Business and Technology
b. Paper Crafts
3. English
c. Communication

KAR KHANA CRITERIA

Creativity	★ ★ ★ ★ ★
Collaboration	★ ★ ★ ★ ★
Critical Thinking	★ ★ ★ ★ ★
Communication	★ ★ ★ ★ ★
Hands-on	★ ★ ★ ★ ★

..... CLUSTER 03

MAKING THINGS MOVE



Motion is at the heart of many innovations.
How do you take inanimate objects and give
them the ability to move?

DESCRIPTION

The **Making Things Move** series experiments with various ways of animating objects for both the Arts and Sciences. Students will explore a wide range of activities from imitating the motion of human muscles to making wheel and axle systems.

LESSONS INCLUDED

Motors: Students will explore applications of motors by using it to make their own product.

Loop Glider: Students will learn to follow stepwise instructions to make their own loop glider.

Automaton: Students will learn a technique to translate circular motion into linear motion by making an automaton. They will create a story to bring their automaton to life.

Straw Muscles: Students will learn how muscles function by making a prototype of the human hand using straws and strings.

Kinetic Arts: Students will learn the idea of Kinetics by making a small kinetic art using drilled popsicle sticks and pins.

Balloon Car: Students will learn about Newton's third law of motion by making a paper car that runs on balloon power.

Single Motor Bot: Students will learn about the direction of current flow in a simple motor circuit by creating their own single motor bot.

Zoetrope: Students will learn how animations are created by making a Zoetrope.

CURRICULAR TIES

1. Science

- a. Application of Simple Machines:
 - i. Wheel and Axle
 - ii. Pulley
- b. Energy
 - i. Newton's law of motion
 - ii. Transformation of Energy
- c. Electricity
 - i. Open, closed and short circuit

2. Occupation, Business and Technology

- a. Paper Crafts

KARKHANA CRITERIA

Creativity	★ ★ ★ ★ ★
Collaboration	★ ★ ★ ★ ★
Critical Thinking	★ ★ ★ ★ ★
Communication	★ ★ ★ ★ ★
Hands-on	★ ★ ★ ★ ★

..... CLUSTER 04

COMPUTATIONAL THINKING AND ALGORITHMS

PART I



“

How do computers solve complex problems so quickly? Can we use similar approaches to solve complex problems quickly?

DESCRIPTION

Computational Thinking (CT) is a process that generalizes a solution to open-ended problems. Open-ended problems encourage full, meaningful answers that take into account multiple variables. To build CT skills, students need competencies of decomposition, data representation, generalization, modeling, and algorithm designing. This series uses games, puzzles and paper based projects to develop CT skills.

LESSONS INCLUDED

Paper Programming I: Students will demonstrate an understanding of algorithms by writing instructions for a robot to solve a maze.

Paper Programming II: Students will learn about simplifying and optimizing algorithms by developing multiple approaches that solve a complex maze drawn on a graph paper.

Searching Algorithm: Students will explore, by playing a fun game, how a computer searches keywords in a fraction of a second.

Sorting Algorithm: Students will learn, by playing games with each other, at least one strategy computers use to sort data.

Parity Magic: Students will learn how a computer detects errors in the transmission of data by performing magic tricks with their friends.

Encryption: Students will explore a way to keep messages and passwords a secret as they transmit through the class.

Memory Management: Students will compress long texts into shorter form and relate that to memory optimization in a computer.

CURRICULAR TIES

Google's Computational Thinking Ties

- a. Decomposition
- b. Pattern recognition
- c. Algorithm designs

KARKHANA CRITERIA

Creativity



Collaboration



Critical Thinking



Communication



Hands-on



LESSON PLAN OVERVIEW

CLUSTER: MAKING THINGS MOVE COURSE: MOTORS



Goals/Objectives

Students will learn about various applications of a motor by using it to make their own product.



Essential Question

What are the applications of motors?



Prior Knowledge Required

This might be easier for students who have a basic idea of batteries and wires. However, the content can be delivered to students without any prior knowledge as well.



Description of Lesson

1. Students observe batteries and motors.
2. Students find out about how a motor works.
3. Students build their own project and create a story behind their project.

KARKHANA CRITERIA

This lesson also provides opportunities for students to:

Work collaboratively?

Yes, students have to work with their group to complete the task of building their product using motors.

Communicate?

Yes, students have to develop a story about their project and share it in front of their friends.

Think Critically?

No.

Be Creative?

Yes, students have to think what they can make with only a motor and battery.

Hands-on?

Yes, the students will make products using motors.

PREPARATION: 10 Groups of 3 Students

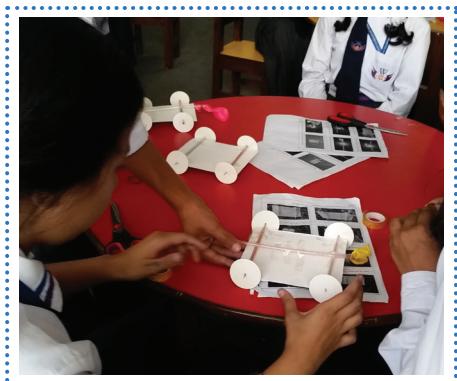
Material Name	Amount per Group	To Whole Class	Total Group	Total Materials	Needs Refill
Demo Kit					
None	--	--	--	--	--
Teacher's Pack					
Lesson Plan Printout	--	1	--	1	No
Student's Pack					
DC motor	1	--	10	10	No
Spinny (circular discs)	1	--	10	10	No
Common materials					
A4 Color paper pack	--	10	--	10	Yes
9V Battery pack with caps	--	10	--	10	No
Scissors pack	--	10	--	10	No
Masking tape pack	--	10	--	10	No
Pencil pack	--	10	--	10	No

LESSON PLAN: MOTORS

Steps/Timing	Details
Behavior Expectations 5/5 min	<p>When teacher needs attention or feedback</p> <ul style="list-style-type: none"> • 5-4-3-2-1 • Stop look listen • Thumbs up, thumbs down
Engaging Students 3/8 min	<ul style="list-style-type: none"> • Teacher says, "What do helicopters, fans, bikes, washing machines, water pumps and vacuum cleaners have in common?" Use only three or four examples. • Note: In case of confusion provide a sample question like, 'What is common among movie halls, buses, classrooms, and restaurants?' Answer: chair. • Teacher asks indirect questions like what makes them rotate? What do you call something that rotates by applying electricity? • Teacher then introduces the term motor.
Introducing Materials 15/8 min	<ul style="list-style-type: none"> • Teacher asks students to explore batteries and take note of few important observations. • Teacher asks a few students about their observations and introduces the terms 'polarity of batteries' and 'short circuit'. • Teacher introduces the motor and asks students to make it work. Teacher also asks students to reverse the polarity of batteries and see what happens to the motor. • Teacher introduces alligator wires. • Teacher introduces the spinny and asks students to add the spinny to their motor. • Safety: Tell students that the 9V battery is safe and they won't get electric shocks.
Discussion 19/4 min	<ul style="list-style-type: none"> • Teacher asks students what they can make if they are provided with papers, glues and scissors. Teacher can put forward some ideas to help students. • Alternately, the teacher can show 3-4 examples as models for students. Note: Mobile showcase, fan, rotating earth, and spaceship are some examples.
Build 14/35 min	<ul style="list-style-type: none"> • Students discuss what they want to build with their groups and start building. • Safety: Ask students to be careful with scissors and pass them with the sharp edge facing inward.
Sharing 10/45 min	<ul style="list-style-type: none"> • Teacher randomly picks a project of any one group and provides a demo of a simple story behind the project. • Note: Students can make their own stories. It can be fantasy, fictional etc. • Teacher asks student to come up with their own story. And finally asks them to share their project and story. • Alternately, the teacher can ask the following assessment questions? <ul style="list-style-type: none"> » What did you learn about motors today ? » What did you learn about batteries today ? » What are the ways to be safe while using a battery ?

CLUSTER: MAKING THINGS MOVE

COURSE: BALLOON CAR



Goals/Objectives

Students will learn about Newton's third law of motion by making a paper car that runs on balloon power.



Essential Question

How have you seen wheel and axle being used?



Prior Knowledge Required

None.



Description of Lesson

1. Provide each team with build instructions and ask them to go through it.
2. Assign fetcher for each team and ask teams to collect required materials.
3. Give time to make the car.
4. Ask the students to power up their car with the balloon.
5. Discuss the applications of Newton's law in the car they just made.
6. Have a race in the end if there is enough time.

KARKHANA CRITERIA

This lesson also provides opportunities for students to:

Work collaboratively?

The students will work in groups of three to make a balloon car.

Communicate?

The students will share with the whole class what changes they made to make their balloon car function smoothly.

Think Critically?

The students will make changes to their design to make the car function smoothly.

Be Creative?

The students can make modifications to their car to make it look cool.

Hands-on?

The students use the provided materials to make a balloon car.

PREPARATION: 10 Groups of 3 Students

Material Name	Amount per Group	To Whole Class	Total Group	Total Materials	Needs Refill
Demo Kit					
None	--	--	--	--	--
Teacher's Pack					
Lesson Plan Printout	--	1	--	1	No
Student's Pack					
Straw pipe	3	--	10	30	Yes
Balloon	1	--	10	10	Yes
Wheels cutout	4	--	10	40	Yes
Construction paper (15x 20)	1	--	10	10	Yes
Food Sticks	2	--	10	20	Yes
Common materials					
Scissors pack	--	10	--	10	No

LESSON PLAN: BALLOON CAR

Steps/Timing	Details
Behavior Expectations 2/2 min	When teacher needs attention or feedback <ul style="list-style-type: none"> • 5-4-3-2-1 • Stop look listen • Thumbs up, thumbs down
Engaging Students 5/7 min	<ul style="list-style-type: none"> • Divide students into groups of three • Provide each group with the “balloon car” instruction sheet • Ask them to discuss with their team about the project they are making
Give responsibilities 5/12 min	<ul style="list-style-type: none"> • Assign a fetcher in each team • Ask fetchers to collect all materials needed. Have a printed list of materials ready for each group near the materials area. <p>Note: Talk about tools safety</p>
Build the car 20/32 min	<ul style="list-style-type: none"> • Give the teams time to build the car • Go around and check with each team's progress • Share with the whole class if there is something interesting in the build process <p>Note: Tell the students to test if their cars move and how they can improve the design to make it go smoothly.</p>
Reflect Newton's Law	<ul style="list-style-type: none"> • Ask few teams to explain how the car moved forward. • Teacher explains Newton's Law <ul style="list-style-type: none"> » For each action there is an equal but opposite reaction. » Here air blowing out of the balloon is an action force that results into the forward motion of the car as the reaction.
Play /Enhance the car 5/42 min	<ul style="list-style-type: none"> • Play time • Improve time

Milan KC

Principal, ACE School



The BeeCreative classes around Science, Arts and Computing have been running in ACE school for 2 years now. The children participate in these classes wholeheartedly and become curious about learning new scientific concepts. In my many years of teaching I have seldom seen students get so excited about classes.

WHAT IS KARKHANA?

Karkhana is an education company and makerspace. Its programs are designed to stimulate creativity, critical thinking, risk taking and making skills necessary for innovation. Karkhana is run by a team of technologists turned educators thus bringing a strong understanding of core skills needed in this tech-infused world.

Karkhana is active in the global maker and education communities, Karkhana has been invited to participate and present its work in events such as the Maker Block in Singapore, Hackteria in Indonesia, Maker Faire in Shenzhen, China and Transformaking in Indonesia.

Karkhana is involved in multidisciplinary collaborative communities around the world, and we bring that same multidisciplinary perspective to our teaching. Our hands-on, making based classes combine Science, Technology, Arts, Engineering and Maths into one coherent whole.

Karkhana's premier product, sets of afterschool enrichment classes, are 12-week long modules that meet every Saturday for 3 hours. They have been running in Nepal since May 2014. These classes draw students from a diverse range of schools such as St. Xaviers, Ullens, Malpi City, ACE School and Rato Bangala. These classes have also been conducted internationally at locations including the Science Center in Singapore and Bumi Pemuda Rahayu (BPR) in Yogyakarta, Indonesia.

The **BeeCreative** package began in 2014 with pilot programs in Triyog Higher Secondary School. It is currently implemented in a growing number of schools including ACE, Phoenix, Paragon, Kasthamandap and Pragya Kunj.

Please visit

www.karkhana.asia - for more information about Karkhana

www.karkhana.asia/info - to learn about its teaching/learning philosophy

www.karkhana.asia/stories - its blog for cool projects happening at Karkhana

Contact **01-4412624 / 9807227110 / 9802072533** for more details



PROFILE OF KARKHANA TEACHERS



Dipeshwor Man Shrestha

Dipesh enjoys composing computer programs and his own songs on the guitar. Dipesh earned his Bachelors in Engineering from IOE, Pulchowk and recently completed a residency at New York University. His favorite thing about being a teacher is that it allows him to keep exploring different disciplines from geology to music.

Hasin Shakya

Hasin loves to travel, eat and read, preferably all at the same time. Hasin has a Masters in ICT from AIT, Bangkok and Telecom SudParis, France. He was formerly a researcher for Bell Labs, Alcatel Lucent. He is also the facilitator of Reboot Nepal, a bi-monthly tech industry executive meeting that discusses policy, programs and strategies. His favorite part of being a teacher is getting to share his passion for problem solving with kids.



Sunoj Shrestha

Sunoj has been a tinkerer since he was a kid. He founded a robotics club in his college and later co-founded the Robotics Association of Nepal in 2011. He rides his mountain bike to work everyday and rides it to the outskirts of the Kathmandu Valley most weekends. Sunoj is an engineer by training, but a maker at heart. For him being a teacher is like being a kid again because whatever his students get to make, he gets to make first.



Sachet Manandhar

Sachet has a keen interest in music and sports. He loves playing football and is a die-hard supporter of the Arsenal football club. Sachet has a strong interest in design, arts and crafts. He keeps himself busy with DIY projects in his leisure time. Sachet has a degree in Electronics and Communication engineering from Kathmandu University. Sachet's favorite part of being a teacher is seeing his students transform their ideas into tangible things.





Suresh Ghimire

Suresh has been a robotics enthusiast for the longest time, a passion that led him to co-found the Robotics Association of Nepal(RAN) in 2010. He loves riding his motorbike on unpaved hilly roads, exploring new places and visiting tech events around the world. Suresh studied at the Himalaya College of Engineering and later earned a B.Ed from Tribhuvan University. His favorite part of being a teacher is that it gives him a great excuse to keep learning.

Roshan Bhatta

Roshan loves tinkering with electronics, designing embedded systems and CGI special effects. Roshan also enjoys learning about human psychology, particularly how influence and persuasion work. His favorite part of being a teacher is that he gets a huge opportunity to shape the values and behaviors of the children he works with.



Aakriti Thapa

Coming from a family full of teachers, **Aakriti** loves working with and for children. Though her degree is in Social Work she had been teaching for 3 years prior to joining Karkhana. She wants to pursue her further studies in Child Psychology. She takes a deep interest in designing and building tools, especially tools for teaching. Her favourite thing about being a teacher is that she gets to make a social impact through education.

Irina Sthapit

Intrigued by space **Irina** loves spotting shooting stars in the night sky. While (unfortunately) she cannot go to space physically at the moment she explores space through her hobby of making DIY antennas. She is also a passionate violinist and frequently plays in orchestras around Kathmandu. Irina studied Electronics and Communication engineering from Kathmandu Engineering College before becoming a Karkhana teacher. Her favourite part of being a teacher is getting to learn new things from students everytime she goes inside a classroom.



Milan Dahal

Milan loves experimenting with musical instruments. You can often see him pondering on a math problem in his free time. After completing his engineering, he taught mathematics in two public schools for three years as a Teach for Nepal fellow. As a teacher of Karkhana, he engages with students from different schools in making, building and learning at the makerspace at iHub (American Library Makerspace).

PROFILE OF KARKHANA BOARD



Dr. Shanta Dixit

Dr. Dixit is the co-founder of Rato Bangala School (RBS) and Chairperson of Rato Bangala Foundation (RBF). Since its founding in 1992, under Dr. Dixit's curricular and administrative leadership RBS has been a national leader in child-centric education. Dr. Dixit also launched RBF to bring tested and proven teaching practices to government schools in rural Nepal. For its work in Dailekh, RBF received the UNESCO-Hamdan Prize for Outstanding Practice and Performance in Enhancing the Effectiveness of Teachers in 2012. Dr. Dixit earned both her Undergraduate and Doctorate degrees from Columbia University in New York City.



Ashutosh Tiwari

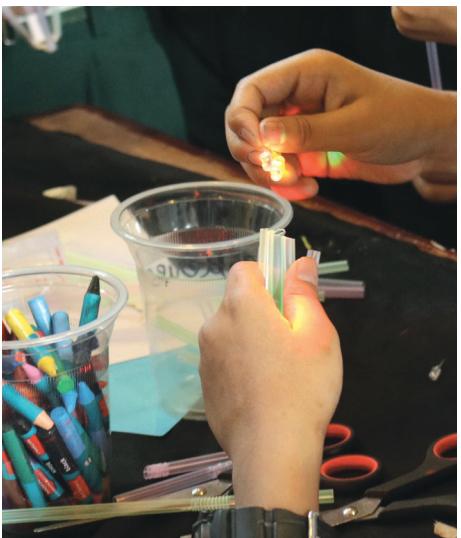
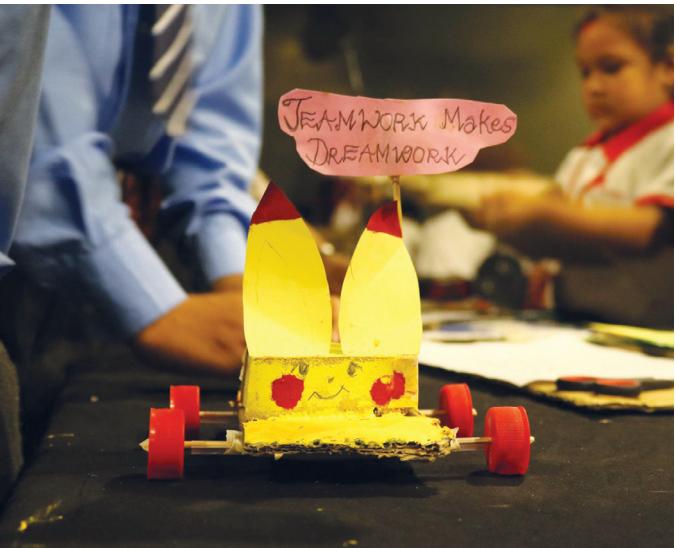
Mr. Tiwari is the CEO of Sherpa Adventure Gear, an outdoors apparel manufacturer in Kathmandu, Nepal. Sherpa exports its high-end apprals to 22 countries and employs 1,500 workers, most of whom are rural women. Formerly Mr. Tiwari was the Country Representative at WaterAid, chair of 114-member-strong Association of International NGOs (AIN) and CEO of Himalmedia. In 2008, with two friends, Mr. Tiwari co-founded an online open-source platform called Entrepreneurs for Nepal (E4N), which has now grown to accommodate more than 40,000 members. Mr. Tiwari's academic background is in economics and public policy, which he studied at Harvard. In 2011, the World Economic Forum honoured him as a Young Global Leader.



Sakar Pudasaini

Mr. Pudasaini is a technologist and an educator. The technologist in him sees that the world he lives in is malleable, both in the material and cultural senses, and responsive to those who find the right tools to mold it with. He founded Karkhana to lead his students to that same insight. Formerly he co-founded GalliGalli, a not-for-profit that eases access to public services by crowd-sourcing process information about them. He also serves as a Visiting Professor at the Interactive Media Arts program at NYU Shanghai. Mr. Pudasaini studied Computer Science at Johns Hopkins University and in recent years he has pursued 'higher education' in the University of Youtube+Wikipedia+Library Genesis, where he studies disparate subjects in an aimless fashion.





LOCATION MAP



CONTACT INFORMATION

- ⌚ +977-01-4412624
- 📍 Gyaneshwor, Kathmandu
- ✉️ info@karkhana.asia
- 🌐 www.karkhana.asia
- 🐦 @KarkhanaN
- 🌐 /karkhana.asia