NITI Aayog

AIM
ATAL INNOVATION MISSION

ATAL TINKERING LAB COMMUNITY DAY

To commemorate the Birth Anniversary of Dr. B. R. Ambedkar and provide equal opportunity to all.

APRIL 2022

ATAL TINKERING LAB

Community Day celebration during the month of April

Tinkering in schools has become a nationwide movement and NITI Aayog is pleased to announce the **'ATL Community Day celebration',** to provide an equal opportunity to all for innovation.

ATL Community Day will be celebrated in Atal Tinkering Labs across the nation in the month of April, to commemorate the birth anniversary of Dr. B R Ambedkar.

Let us together unleash the innovator inside

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ATLs shall open up their gates to the children from nearby non-ATL schools, NGOs, social welfare organizations and local community to celebrate a fun filled day to tinker and innovate, by conducting open sessions on tinkering and innovation.

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ATL Community Day will introduce children who don't have access to formal education, to the philosophy of Atal Tinkering Labs.

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Schools may conduct a series of tinkering and ideation workshops, trainings and showcase events in their ATL premises.

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Mentors of Change, Parents and Teachers are encouragd to support their respective ATLs to conduct the tinkering sessions.

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Venue:

Your school's ATL

Sharing with AIM, NITI Aayog

Schools can conduct and share the Facebook Live, pictures and videos of the event on Facebook or Twitter using tags @atalinnovationmission @aimtoinnovate #ATLCommunityDay @NITIAayog. AIM will be sharing your videos from AIM/ NITI Aayog page.

The best stories shall be featured on the ATL Wall of Fame.

Celebrating #ATLCommunityDay:

The #ATLCommunityDay shall be celebrated as a full day event, or series of events comprising of various parallel hands-on sessions, showcase exhibition and workshops.

Schools must:

1. Leverage ATL resources and equipment and conduct various sessions on tinkering and innovation by trained mentors, teachers and students.

2. Provide upcycling, basic tinkering, prototyping and DIY kits to conduct the event.

3. Conduct an innovation exhibition, showcasing key innovations created by students

Sample Agenda:

Time	Agenda	
9:00 am to 9:15 am	Launch of #ATLCommunityDay	
9:15 am to 9:45 am	Take a tour of ATL	
9:45 am to 10:45 am	ATL Workshop/Session 1* (School can choose the theme)	ATL Workshop/Session 2* (School can choose the theme)
10:45 am to 11:00 am	Take a Snack Break	
11:00 am to 12:15 pm	ATL Workshop/Session 3* (School can choose the theme)	ATL Workshop/Session 4* (School can choose the theme)
12:15 pm to 1:30 pm	ATL Workshop/Session 5* (School can choose the theme)	ATL Workshop/Session 6* (School can choose the theme)
1:30 pm to 2:00 pm	Showcase Time!	

*Schools can select from the activities suggested/listed below

ATL grant fund utilization:

- Schools may utilise Rs. 5000/- (Rupees Five Thousand Only) for every 100 community children attending the #ATLCommunityDay for preparation. Schools must adhere to the fund utilisation guideline as per the clause No. 2, point (d) of Grant-in-Aid Fund Utilization guideline, link : https://aim.gov.in/pdf/Grant-in-Aid_Fund_Utilization_Guideline.pdf*

- The ATL schools are not allowed to make any payment to any trainer/volunteer/mentor/vendor/professional to conduct any session related to the event from ATL grant amount.

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Sample activities for ATL Community day celebration

Following are some suggestive activities ATL schools can conduct during the #ATLCommunityDay. Schools are encouraged to innovate further and create unique events for their event.

Activity 1: Alchemy Fun

Converting chemical energy into electrical energy, and lighting an LED.

Material Required:
1. Salt
2. Water
3. 5 Cups
4. 5 Copper strips
5. 5 zinc strips
6. Wires
7. Crocodile clips
8. Stationery

Steps:
1. Take five paper cups and fill them with water.
2. Add a spoon of salt to each cup.
3. Connect two wires to the LED. Connect the copper strip to one wire, and the zinc strip to the other.
4. Make the arrangement for the rest of the circuit as shown in the figure.
5. The LED should light when all the wires are connected.

Learning outcomes:
1. Understanding energy conversion
2. Understanding basic chemistry of atoms, ions, charge

Reference link:
https://www.youtube.com/watch?v=AeJ7F7N084U

Activity 2: Tinkering with my family

Exploring DIY kits in the ATL with family members, to unleash the creativity

Material Required:
1. DIY Kits
2. Robotics Kit
3. 3D printer

Steps:
1. Invite parents to team up with their children and participate in the hands-on session.
2. Issue one DIY/robotics kit to each team
3. Conduct an ideation session to identify a problem statement
4. Create a possible solution using the kits available

Learning outcomes:
1. Parent-child teamwork
2. Basic engineering skills
3. Ideation

Tips:
1. Allot 45 mintues to 1 hour for this session.
2. Invite teams to present their creation
3. Schools might give special recognition/awards to top performing teams.

Activity 3: Soldering champions

Learning the basics and safety norms of soldering

Material Required:
1. Small piece of FR2/PCB Board (4cmx4cm)
2. LEDs
3. Resistors
4. Button switch
5. Coin cell with case
6. Soldering iron with solder wire and paste
7. Safety pin

Steps:
1. Presentation on basic electronic components and their use – LEDs, resistors, button switch, coin cell and soldering system.
2. Safety first – share do's and don't's of soldering.
3. Create a simple circuit diagram to light 1 LED via a button switch and share it with the participants.
4. Create a kit from material required and distribute to each participant.
5. Conduct hands-on session on soldering.
6. Ensure each participant gets their own soldered LED badge.

Learning outcomes:
1. Basics of electronics
2. Soldering
3. Safety
4. Electronic components and their use.

Tips:
1. Each soldering station must have 2 ATL students to assist participants.
2. Ensure all participants use the soldering iron in a safe manner.
3. Encourage participants to decorate their PCB board with stationery available.

Activity 4:
I can make electrons move!

Create a working circuit using simple electronics resources and lighting an LED

Material Required:

1. LEDs
2. Coin/button cells
3. Single core wire
4. Copper Tape
5. Stationery
6. Coloured paper, foam board, card board
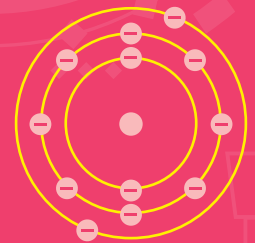
Steps: Explore and create your own circuit.

Learning outcomes:

1. Basics of electronics
2. How circuits work
3. Components

Tips:

1. Play videos about paper circuits and showcase some ideas.
2. Encourage students to use material from earlier activities and build from it.

Activity 5: Fast and Curious

Create a car powered by a baloon's air pressure and race it to the finish.

Material Required:
1. Balloon
2. Cardboard
3. Straws
4. Spokes/wood sticks
5. Wheels
6. Rubber band
7. Stationery

Steps:
Follow the steps as per the following link :
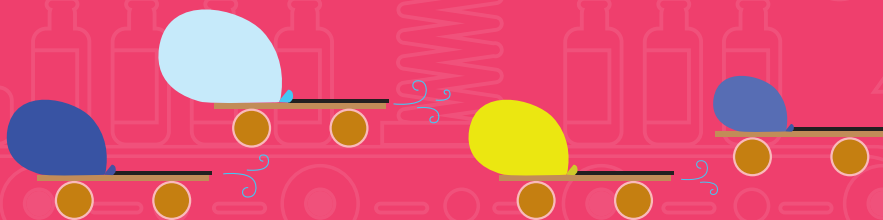https://www.wikihow.com/Make-a-Balloon-Car.
Learning outcomes:
1. Newton's law of motion
2. Friction
3. Conservation of energy

Tips:
1. Parents and their wards can work together to create the fastest balloon car.
2. Schools may conduct a balloon car race tournament.

Activity 6:
Stepping into the 3rd dimension

Conduct an interactive session on 3D printing

Material Required:
1. 3D printer
2. 3D printed objects
3. Projector (for presentation and videos)

Steps:
1. Select expert students to conduct 3D printing hands on session.
2. A presentation with videos and demonstration for the 3D printing session shall be created and delivered.

Learning outcomes:
1. Additive manufacturing technology
2. 3D printing concepts
3. Basic understanding of machinery

Tips:
1. Keep the 3D printer ON and working at all the times.
2. Encourage more hands-on and demonstration time.

Activity 7:
Can we build it? Yes we can!

Build a stable and strong bridge made out of newspaper

Material Required:
1. Stack of newspapers
2. Desired stationery items

Steps:
1. Form groups of 5-6 students each with the desired time of 20-30 minutes.
2. Build a newspaper structure which is able to support weight.
3. Strongest structure wins.

Learning outcomes:
1. Structures
2. Team building
3. Basic engineering

Activity 8: Balloon Train

Create the longest and strongest structure made of baloons

Material Required:
1. Pack of Balloons
2. Thread
3. Cello Tape
4. Stationery

Steps:
Open the floor for the children to create the best balloon structure within stipulated amount of time.

Learning outcomes:
1. Structures
2. Team work
3. Planning and leadership

Tips:
1. Create groups of 5-8 participants.
2. Mix them up well, encourage them to work with peers they are not familiar with.
3. Gift winning teams a 3D printed ATL souvenir.
4. Encourage participants to share their key learnings.
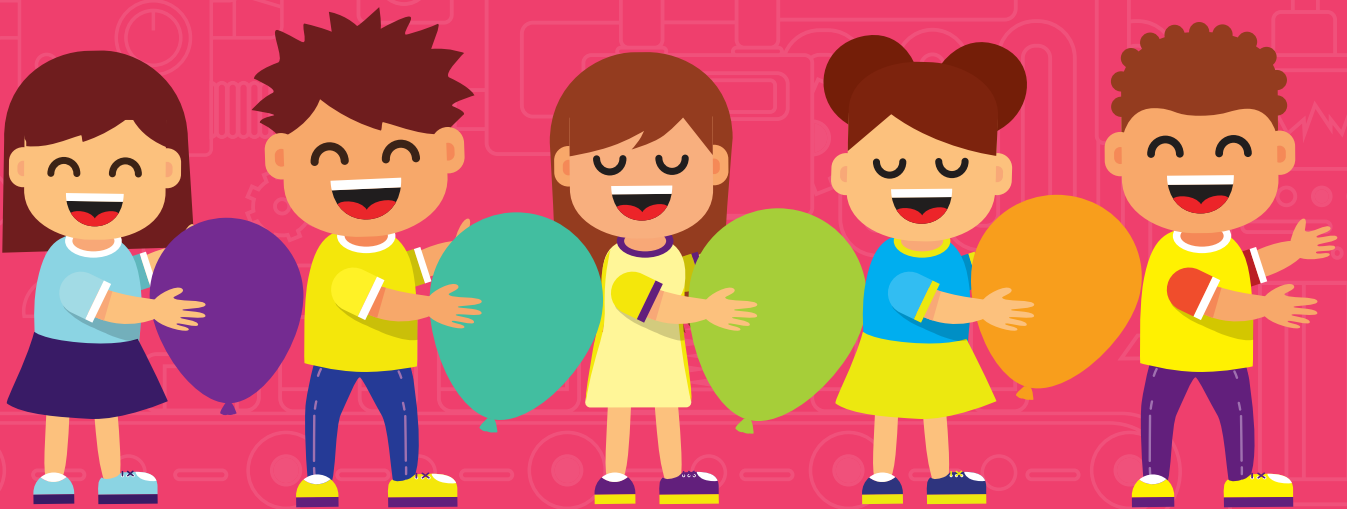
Activity 9: Force and Pressure Activity

Supplies Needed:
1. 2 Kitchen sponges
2. Drinking straw
3. Plastic bag that zips like a Ziploc bag
4. Pom poms, toy cars and anything else that they might want to move

Instructions:
1. Simply place the two kitchen sponges, one on top of the other, inside the plastic zip lock bag.
2. Place the drinking straw between the two sponges so that one end of the straw is inside the bag and the other end is sitting outside the bag.
3. Seal up the bag.
4. In addition to closing the zip lock seal on the bag, you will also need to seal it with adhesive tape.
5. Blow into the straw to inflate the bag.
6. Now place a pom pom on a flat surface and place the bag behind them so that the straw is positioned to blow the pom pom.
7. Press down hard on the sponges and watch the pom pom roll away!

Tips:
1. There can be a competition amongst 4-5 participants.
2. Mix them up well, encourage them to work with peers they are not familiar with.

Activity 10: Flower Coloring

Supplies Needed:
1. Food coloring
2. Some small cups
3. Water

Instructions:
1. Decide what colors you would like the flowers to be and then add that color to your glass.
2. You will need to add enough food coloring to create a strong color in the water.
3. Just a few drops of coloring will not have much of an effect.
4. Snip the last centimeter of your carnation steam and place the stem in the colored water.
5. Now just wait.
6. Over the next few hours you will see signs of the coloring emerge in the petals, and even in the leaves.
7. Our experiments have shown that sometimes the color emerges within a few hours, other times it takes a day or two.

Tips:
1. Kids can separate in groups of 2-3.
2. Each group can choose one color.
3. Once the flower is colored, students can exchange their flowers with the other groups and share the observations.