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## ATL FAQs

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### 1. What kind of training should be provided to students of different age group and different interest level?

**Ans.**

Atal Tinkering Labs has 4 levels that can be taught in schools.



#### **Level 1 – Pre-Tinker (for all students in 6 – 12<sup>th</sup>)**

Open to all the students in the school as per the mandate of the ATL Grant. The objective here is to create awareness, provide an orientation about ATL fuelling interest and inspiring the students to take up tinkering

#### **Recommended process / ways**

- Class Teachers will be responsible for activities at this level

For all school students (Grade VI – Grade XII) interested in tinkering

- Organise 6 sessions of one hour per batch spanning over introduction, orientation, ATL visit, pre-Ideathon and generating ideas
- Participation certificate can be given to all the students by the school.
- The Classes scheduled can be organised as given in the FAQ below

#### **Level 2 – Tinker Club (open to interested students)**

Open to selected interested students – selected through self-registration / nomination by teachers. The objective is to have focused sessions and steer the students towards serious tinkering and innovative process

#### **Recommended process / ways**

Designated ATL in-charge will manage all at this level

- Have 2 sessions of 2 hours per week for 8 weeks; introducing students to design thinking and implementing predefined innovative activities. The periods that can be used for these classes can be referred from the FAQ below
- Participation certificate can be given to all the students by the school.

### **Level 3 – Tinker Lab (at least 3 batches of 30 students in a year – to work on specific ideas and projects)**

This level would have small size batches – 30 each from different age groups. These students will work in the lab with the ATL in-charge on specific ideas and projects

#### **Recommended process / ways**

- Select students from the previous level on the basis of aptitude, interest, previous experience, passion, mind-set, willingness, and completion of 5 club activities
- 3 batches / cohorts based on age group will work in the ATL for at least 3 months – Junior batch (12-14 years), Middle batch (14-16 years), Senior batch (16-18 years). All the sessions will take place in the ATL under the guidance of ATL in-charge with support from external mentors and local communities
- Participation certificate can be given to all the students by the school.

### **Level 4 – Post-Tinker Lab (for motivated students to work on real time projects with the help of mentors)**

Students from any of the previous three levels could be part of activities of this level. These students are competent enough to create and tinker on their own with only supervisory support from the ATL in-charge. They are the self-driven, self-motivated ones who would be working on specific ideas and projects and be involved in creating solutions for local/global problems.

#### **Recommended process / ways**

- Self-motivated and passionate students will be a select handful.
- All the sessions will take place in the ATL under supervision of ATL in-charge
- Students would be working on real time projects and engage in active prototyping on their own and/or in partnership/ with support from other government programs – AIMS Incubators, other higher education universities, maker spaces etc.
- This level is open ended, with no fixed duration
- These students can participate in external/ internal competitions, challenges, innovative festivals etc.
- Participation certificate can be given to all the students by the school

## **2. What kind of resources will be given in terms of books and guidance from NITI? And what training will be provided to the schools for running ATL activities?**

**Ans.** NITI will provide lot of ATL content material, including ATL user manual, Tinker Handbook, ATL videos etc. The target audience will include School Principal, ATL in-charge, other associated teachers, school students, mentors associated and many more.

The purpose of the content material is to help and guide the ATLs to understand what is Tinkering, why is Tinkering relevant, how to integrate Tinkering Lab in their day to day school time table, how to document the work of Tinkering Lab, how to create reports, and thereby how to successfully run a Tinkering Lab.

The resources will also include different concepts like ideation, design thinking, digital literacy, computational thinking, physical computing, leadership and other soft skills etc. Other open source and online resources can also be used for guiding the students.

Schools are encouraged to look up the Internet for similar material that is open source and available for free.

NITI will conduct orientation sessions for ATL-in-charge's for running the ATL. NITI will organize workshops and Tinker fest for students to help them generate new ideas and create prototypes and experience innovation process. Schools will be encouraged to conduct more workshops at their level.

### **3. How will the ATL Labs be monitored in the school? and what kind of learning and evaluation model must be used?**

**Ans. NITI is currently developing an online monitoring system for all ATLS.** The School will have to upload the following information on AIM portal on a monthly, quarterly and annual basis. More details will be shared soon.

- a) General information about school, ATL advisory committee and faculty members
- b) Inventory of equipment and consumables
- c) Financial expenditure – capital and operational
- d) Details on activities conducted by schools like curriculum sessions, intra-school events, inter-school events, guest lectures, hands-on workshop, projects by students etc.
- e) Student engagement
- f) Mentors associated with ATL

The school should promote self-directed learning to the students. ATL-in-charges should act as guides and help them as required and not mandate anything such as lectures or lessons.

### **4. How to schedule curriculum for ATL activities for various classes?**

- The school can utilise zero periods/class teacher's period for dedicated sessions
- They can use block periods for continuous lab sessions – this would help provide the students ample time to work at a stretch.
- Make a time table for after school hours for school students and similarly, students from other schools to use the ATL

### **5. What should be the qualification of ATL-in-charge (can be on part time basis?)**

**Ans.** Young & dynamic with Bachelors in science or engineering, teacher in school with a proven expertise and interest in electrical, electronics, computer, physics along with a strong drive to help young people build skills, confidence & an opportunity to do something new and out of box, proficient in English & local languages. They should be engaged on a full time basis.

The Following is a sample Job Description for ATL incharge-

- The ideal candidate would be young and dynamic with a bachelor's degree in science or engineering.
- He/ she would have 3-5 years of experience with working with students on STEM projects and working with school systems.
- He/ she could be a teacher in school with a proven expertise and a deep interest in electrical, electronics, computer, physics along with a strong drive to help young people build skills, confidence & an opportunity to do something new and out of box

- Enthusiasm and willingness to learn and make things
- Experience and/or strong interest in working with young people ages 12-18 years
- He/ she should be proficient in English as well as the local language.
- Should possess strong interpersonal and life skills
- Should be able to demonstrate and promote positive thinking skills and commitment to growth mind-set with creative problem solving, solutions orientation, and persistence.
- Prior expertise with technical and STEM subject matter would be a plus, with the interest and curiosity to learn more and support participants in their interests and direction.
- Skills with technology, art, craft, engineering, music, science, green design, and other such themes OR curiosity and commitment to developing such skills
- A commitment to work as a team

## **6. What are the roles and responsibilities of the ATL-in-charge?**

- A. Setting up the ATL - Support the school head and/ or the concerned person for hard and soft infrastructure, logistics related to setting up the lab
  
- B. Managing the ATL
  - B.1. Organize campaigns in schools to spread awareness and get larger number of students to join in the ATL
  - B.2. Facilitate the learning process as per pre-decided curriculum
  - B.3. Steer students towards becoming technology creators and solving local community problems
  - B.4. Identify and develop partnerships with relevant stakeholders - mentors, industry experts, makers etc.; Establishing contacts to obtain in-kind donations for ATL
  - B.5. Maintain databases, document activities, generate reports, create events etc.
  
- C. Providing support to the students
  - C.1. Provide general support and offer encouragement
  - C.2. Work one-on-one or in groups
  - C.3. Offer specific guidance or workshops in areas of expertise
  - C.4. Organize logistics for projects
  - C.5. Bring any serious concerns/issues to the attention of School Head