

CURRENT PRACTICES AT SCHOOL LEVEL

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Objectives

1. To instill innovation in Science, Mathematics and Technology teaching
2. To kindle interest and aptitude through enquiry based learning
3. To nurture and nourish Scientific aptitude
4. To create curiosity and probing nature

Methods adopted by Kendriya Vidyalayas

Activity based teaching

- ▶ The concepts are made clear by involving the children to experiment and explore through structured activities.

Example: The concept of Acids and Bases is introduced with the real life commodities. Children after introducing the basic idea of acids and bases are asked to collect samples, check the acid/base nature with the help of litmus paper provided to them. This type of activities create curiosity and excitement and bring real life close to school activities.

Experiment based teaching creates curiosity

- ▶ The Science laboratories help to promote observation, analytical thinking and capacity to draw inferences from their observations.
- ▶ Simple experiments in Physics , Chemistry and Biology are shown in the class rooms and allow the students to perform. The observations will be recorded by them and finally draw conclusion by themselves.
- ▶ Example: Experiment to prove laws of reflection, time period of oscillatory motion etc.

Participation in Science and Mathematics exhibitions

- ▶ Involves children in creating static and working models
- ▶ Various concepts in Physics, Chemistry, Biology and Mathematics will be explained through models. Exposure to such activities will broaden the understanding of the children

Science projects under Children Science congress

- ▶ Gives them to research on a theme ,make observations and conclude.The process of writing the report and presentation of the topic makes them understand in a comprehensive manner.
- ▶ Focal theme : Understanding Weather and Climate
- ▶ Sub themes:
 - ▶ 1Weather around you
 - ▶ 2Weather and Climate-Impact of human activities
 - ▶ 3Weather and climate-Ecosystems
 - ▶ 4Weather and climate-Society & culture
 - ▶ 5Weather and climate-Agriculture
 - ▶ 6Weather and climate-Health

Investigatory projects

- ▶ It is a part of the curriculum in Class XI and XII
- ▶ Small objectives are chosen which are related to the topics taught in Theory. Simple experiments are conducted by the students in the laboratory and analyse the observations and make conclusions
- ▶ Example. Finding the functional groups in various food items
- ▶ Detecting adulteration in food etc

INSPIRE program in KVs

- ▶ Innovation in Science Pursuit for Inspired Research
- ▶ Students are given opportunity to explore and design new models on their own
- ▶ Kumari Ankita Patra of Class X prepared a model which was selected for the INSPIRE award at the National level. She prepared a small working model to produce electricity from the speed breakers.

TEACHER CONTENT DEVELOPMENT

Rigorous induction training for new appointees

- ▶ Gives understanding of the objectives of School teaching. This is being done in KVS on a regular basis for new recruits in the form of in-service course.

Regular on the job training

This is also imparted in KVS regularly to the teachers of all subjects in the form of workshops, Inservice courses and short term training.

Some more practices to implement

- ▶ The Teacher: Pupil ratio to be reduced to 1:20
- ▶ Teachers should know their students well. Display sincere interest in their lives. They should be able to correlate with the lifestyle at home.
- ▶ Coordinating House and School environment
- ▶ School and home should not be separate worlds
- ▶ Give scope to the child to interact with the environment

- ▶ Teacher professional development. Quality of a school cannot exceed the quality of its teachers.
- ▶ Teacher to be given more autonomy within limits. Avoid strict rules and give freedom to explore
- ▶ Quality of teachers will improve by Training, giving incentives, giving certain amount of autonomy, providing resources, freedom to use resources

- ▶ In the secondary classes, separate teachers to teach Physics, Chemistry and Biology would be helpful rather than having integrated Science teachers
- ▶ To quench the thirst of knowledge of a child it would be necessary for the teacher to have higher level of knowledge. Specialists in Physics, Chemistry and Biology alone can do justice compared to a single teacher teaching all the subjects.

- ▶ Information technology and social media to play key role
- ▶ Use of new techniques in class room transactions without using formal textbooks , syllabus & examinations.
- ▶ To implement Case study based education which involves students to gather and share information which increases inquisitiveness in the students
- ▶ Activities that inculcate creativity among students to be included.
- ▶ Presentations ,role-play, which will tickle the curiosity, and create passion for knowledge to be part of learning.

Some more practices to implement

- ▶ Build the capacity in a child
- ▶ To question
- ▶ To probe
- ▶ To think
- ▶ To discuss
- ▶ To analyse
- ▶ To draw inference
- ▶ To conclude
- ▶ To unlearn

THANK YOU