

स्वामी विवेकानंद
महाविद्यालय
उदगीर जि. लातूर.



**Swami Vivekanand
Mahavidyalaya,**
Udgir Dist. Latur

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(Recognized Under Section 2(f) & 12(b) of U.G.C. Act 1956)

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Date :

TEACHING PEDAGOGY USED

(Academic Year 2022-23)

1. ICT Enabled Learning

ICT refers to the use of Information and Communications Technology to teach the scientific ideas that promotes open source learning.

In order to make the accessing, storing, transmitting, and manipulation of information more easy, this approach integrates telecommunications, computers and relevant enterprise software, storage, middleware, and audio-visual systems required to handle the topic.

2. Video clips

This teaching technique makes use of instructional video clips available online or in libraries to show and teach a new concept.

The evolution of a process can be conveyed better with animation videos. It can also be videos of demonstration of an idea or an application side of a theory or an interview with a scientist, tutorial by a subject expert and more.

3. Flipped Classroom

In this innovative teaching technique, students are asked to go through video instructions or tutorials in the initial stage, i.e. digital learning.

The second stage will be in classrooms where they involve in challenging tasks and assignments based on the information gathered through video assets. This flipped learning frees up class time for activities such as hands-on labs, guided practice or online simulations.



4. Power Points

Instead of the conventional talk and chalk methods, teachers now include power point presentations in their classroom sessions to make it more interesting.

They connect the computers to projectors to address a larger classroom and include interesting slides with diagrams and flow charts to make the teaching more interactive.

5. Social media

The different social media platforms can be used wisely to teach science to make the science classrooms more interesting and engaging. For instance, students can be asked to follow scientists in Twitter and share his/her new thoughts and findings in class or to use Feedly for improving the content of their research projects.

Students can also use Vine to document and to share science videos, Pinterest account for sharing images for research projects or writing prompts or WordPress class account for peer-to-peer learning.

6. Virtual science labs

There are many virtual science labs available online for free and therefore, this approach almost gives hands on experience of learning the subject without much expense.

Detailed diagrams, illustrations or close up pictures allow students to virtually get inside a plant or animal part without actually doing it. Dissections in biology can be studied thoughtfully with a virtual hands-on sensation without the problem of odour and similarly, experiment a chemical reaction without burns.

7. Computational thinking

This is an advanced technique to improve thinking and problem-solving skills. The method comprises decomposition i.e. breaking large problems into small units and pattern recognition-related problems to the ones which were already solved successfully in the past.

Computational thinking skills also cover algorithms-step by step approach to reach a solution; abstraction-neglecting unimportant details and debugging-refining these steps.



8. Story Telling

Students love to hear stories and therefore, storytelling is one of the best ways to get their attention in class.

Teacher can explain the facts of biology or the laws of physics in the form of stories. This is a mental organizer as human brains can remember stories than just plain facts. Some teachers present the whole concept as a story while some others use a story to open and end the session.

9. Role Play

This innovative method is becoming an integral part of science education as students can intellectually and physically involve through activities while learning a new concept.

Activities can be organized in classroom sessions where a group of students can take the role of atoms or molecules to study a chemical reaction or they can represent a scientist group to demonstrate the particular scientist's laws.

10. Visual clues

Using visual clues easily supplements auditory information and students can easily connect better with ideas.

The multi-sensory experiences improve their understanding and memorization. This includes drawings, diagrams, and pictures to assist theory and setting up examples to show its application side.

The sequence of lab procedures can be better taught using pictures with words approach.

11. Embodied Learning

In this approach, mind and body of the students work together to explore science. The physical feedback, as well as the resultant actions, will reinforce their learning process.

This idea is well supported by today's technology such as visual systems that track movement or wearable sensors to collect physical and biological data.

12. Science museums

Give opportunity to students to visit a science museum as part of the learning process. This gives them access to innovative resources and they can visualize data they learned in class.

They can have a look at the real work of scientists which improves their urge to learn about it further. Regular visits to museums make learning science more engaging and interesting.



13. Projects

This can be an individual activity or group activity which helps students to showcase the application side of what they learnt through theory.

This method involves choosing the idea, building a plan, executing the plan and finally evaluating it. When students pass through these stages, they can improve their skills to express ideas, problem solving, overcoming the challenges, team work and self-assessment.

14. Multimedia Approach

This method is a blend of text, audio, animation, video, still images or interactivity content forms to teach diverse difficult to understand concepts in science.

The educator can convey vast information using advanced media, devices and techniques, and involve a wide range of activities to provide a meaningful learning experience.

15. Research books

The teacher can promote the use of research books in classrooms rather than just text books and lecture notes. Students are asked to do a research on whatever topic is covered in class by means of libraries, websites or by talking with experts.

This can include the extended information of their syllabus and their findings with diagrams and charts to emphasize it. They can share their research books with classmates too.

16. Documented Problem Solving

In this method, the teacher insists students record their thought process when solving a problem. They are asked to explain their reasoning for reaching the particular solution rather than simply presenting a solution.

This kind of documented problem solving helps them to have a deeper understanding of their process and gives an option for self-analysis.

17. Science kit

This is one of the innovative methods of teaching science to kids and adults alike. Let it be physical science, life science, or earth science, teachers are now making use of science kits to help students have an engaging educational experience.

They can conduct small experiments with guided instructions to identify rock specimens, to watch out for insect metamorphosis or demonstrate chemistry reactions.



18. Science movies

Teachers take initiatives to take them for science movies in theatres or in school halls that clearly showcase the application side of scientific concepts.

More than just entertaining them, many science movies captivate their attention and illustrate diverse science concepts in the real world. Science and nature-focused documentaries is one of the best ways to introduce science to kids than spoon feeding them with text book content.

19. Science Exhibition

Encourage your students to take part in science exhibitions as part of school level or inter-school level competitions. This is a great opportunity to bring out their creativity in science and design an application based on a scientific concept.

Develop this inquisitiveness and creative mindset in students right from the elementary classes to help them to grow up as science enthusiasts.

20. Field trips

In the middle of boring classroom sessions, take your students out for field trips to experience science while learning. Go to an aquarium, a nature center, a scientist's home or visit a pet store.

You can also spend some time with the students in the bird park or simply go on a nature walk to experience the science around while learning new concepts.

21. Science clubs

Set up science clubs in your schools or community, which is an ideal approach to STEM education that assimilates high quality hands-on instruction.

This is the right place for science enthusiasts to share and discuss new happenings in the science world and to connect innovative ideas to what they actually learned.

22. Interactive science journals

This is an advanced version of lecture notes in which students express the information they learnt into different templates and elicit their own responses.

Students can use this technique effectively to have a deeper connection to their learning and this activity promotes their higher level thinking. They can be creative with their notebooks using pictures, charts and comments, thus, building an encompassing resource for future reference.



23. Science at home

Like scientists say, science starts from home. Encourage your students to discover science at home from elementary classes itself. Ask them to find out a specific science concept application at home as assignments and let them discover science on the go.

There are fun science activities at home that involve parents and kids such as measuring Earth's circumference with a shadow, creating under water fireworks with chemistry, building a balloon powered toy car and a lot more.

24. Science Quiz

Include a quiz as a part of your classroom sessions when teaching science. This can be done as a whole class activity by splitting the group into 4 or more sets. The questions can include the application of the theory taught in class. Students can discuss and share ideas to find the solution within the stipulated time frame. This teaching approach helps students to think from different angles and sometimes, to think out of the box.



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