

The Application of Modern Teaching Method and Group Cooperative Teaching in Biology Experiment Class

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Abstract: With the improvement of school teaching conditions, modern teaching methods have been involved in classroom teaching, such as interactive electronic whiteboard, physical exhibition, etc. These modern teaching methods enrich classroom contents and enhance students' interest in learning. Team cooperation is a teaching method to give full play to students' autonomous learning. How to use modern teaching methods in the biology experiment class, combine group cooperation teaching, and improve the efficiency of experiment, will be the problem that modern biology teachers should think about.

1. Introduction

The contents of this section are selected from the experimental contents of the nine-year compulsory education textbook "Plant Cells" in the first chapter, the second section of Unit 2 of the seventh grade biology textbook published by the People's Education Press. This lesson is based on the students' preliminary mastery of the operation process of the microscope and their understanding of the structure of plant cells. For the first time, students learn to make temporary pieces and observe plant cells with a microscope. Through the study of this lesson, students can have an intuitive understanding of the morphological structure of cells, but also can exercise students' experimental practical ability, and it is also very important to cultivate students' correct scientific attitude and innovative thinking.

2. Learning Situation Analysis

Before learning this lesson, students initially possess the skills of using microscopes. Through the understanding of plant cells, students also grasp the basic structure of cells. They are eager to see tiny cells under the microscope. They are very interested in learning. Today's students' practical ability and thinking ability are greatly improved compared with the previous students, so this lesson should fully mobilize the enthusiasm of students, let the students take the initiative to explore learning, make temporary installments. Nowadays, students are very expressive and willing to show themselves, but their sense of cooperation is weak. So in this lesson, I adopt group cooperative teaching, let the students take the group as the unit, study and discuss together, draw up the experimental plan of this group, strengthen the spirit of unity and cooperation.

3. Teaching Objectives and Teaching Emphasis

(1) Knowledge objectives

Enumerate the basic types of slide specimens, and understand the basic structure of plant cells.

(2) Capability objectives

Learn the basic methods of making plant cell temporary tablets, observe plant cells with a microscope, and practice drawing plant cell structure sketches.

(3) Goals of emotion, attitude and values

Experiencing the process of making temporary film, exchanging the experience of making; drawing the sketch of plant cell structure objectively and truly according to my own observation. Making and observing temporary loading of plant cells; The basic structure of plant cells.

4. Teaching Difficulties

Making and observing temporary loading of plant cells, Based on the above analysis, I made the following attempts in this lesson.

4.1. Group Cooperative Learning is one of the Three Learning Methods Advocated

Compared with the traditional receptive classroom teaching, this teaching method is more conducive to the cultivation of students' innovative spirit and practical ability. Biology is a natural science based on experiments. Team cooperative teaching can really cultivate each student's practical ability and inquiry ability. Therefore, in this section of the experimental teaching methods, I mainly use group cooperative teaching. For example, in reviewing the use of the microscope before class, I take two people as a group and send each group a slide specimen. In the prescribed time, I can see that those groups can cooperate with each other, and use the microscope to observe the contents of the slide specimen. Before explaining the process of making temporary film, because the students have strong practical ability and problem analysis ability, after explaining the use of experimental equipment and matters needing attention, after the experiment materials, let the students explore and design the experiment by themselves in groups, conduct inspection, guide and help in the process of the experiment, and focus on it. Find out the innovation points of students, encourage them and offer guidance. When the experiment is finished, the students of each group summarize the experiment of this group, send a classmate to introduce the inquiry process of this group by using the physical exhibition stand, put forward the problems found in the experiment in the course of explanation, and solve them by other groups, so as to summarize the production process and matters needing attention of the temporary installation. This kind of group cooperative learning has changed from passive to active, from independent learning to cooperative learning, which has trained students' ability to operate, observe and cooperate with others.

4.2. Using Multimedia to Stimulate Students' Interest in Learning Break

4.2.1. Application of Physical Booth

Traditional biological experiments are often conducted by teachers on the platform to demonstrate the experimental process, introduce the points needing attention in the experiment, and then operate by students. This traditional teaching method has many drawbacks, such as biological experimental equipment, materials are often small, such as the cover glass used in this lesson, dropper, students are not easy to observe. There is a long distance between students and teachers. There are always some students who can not clearly see the experimental process, such as the

process of peeling the inner epidermis of onion scales in this lesson, the way of covering the slide, the method of dyeing, etc. Therefore, when students operate independently, they can not grasp the essentials, affect the experimental results and experimental phenomena, and teaching needs to be explained separately. The physical exhibition booth makes up for the above shortcomings. The experimental instruments to be explained, such as slides, cover slides, permanent mounting slides, are displayed and introduced on the physical exhibition booth. Students can watch through the large screen, which is clear and clear. The introduction of slide specimen classification can also put all kinds of slices, smears and packaged specimens on the physical exhibition stand. Students can easily distinguish the characteristics of various slide specimens by observing their names and shapes. One of the teaching objectives of this lesson is to learn how to draw a sketch of plant cell structure. After the teacher explains, the students will draw many problems. There is not enough time to explain them. After the students have drawn the observed plant cell diagram, they can choose some representative cell structure sketches, display them on the physical exhibition stand, and let the students show them. The process of drawing is summarized. Teachers give explanations on universal problems. Teachers and students sum up the essentials of drawing biological sketches together. Students' learning efficiency will be improved a lot. The application of the real stand closer to the distance between teachers and students, the object being observed visually and clearly, enhance the experimental effect, increase the efficiency of the experiment.

The application of 2.PPT cell structure observed in this class are invisible to the naked eye, need the aid of microscope, the student alone operation can not determine the structure of watch under the microscope is correct. The traditional teaching method, the teacher can only cell structure of the picture on the blackboard, and there are some differences in the structure figure and real always painted, or go to the student teachers by watching, explain, will appear to have no guidance to students after class. The image under the microscope to photograph made of PPT, presented by the big screen, and then to guide the class, let the students have targeted observation, can save experimental time and improve the accuracy. Explain the difference between the bubble and the bubble cell, the picture appeared on the screen, see clearly the difference between the students and the bubble cells, avoiding the observed problems. The experimental materials how to flatten, without flattening will appear what effect, to what extent the effect of material was the best, can be made into PPT, to display the students to explain the contents of the. PPT also can be inserted into the video, such as students' inquiry after making temporary loading process can play video, let the students discuss in groups, each group summed up the problems in the process, summed up the experimental matters needing attention. The application of PPT courseware makes the experimental results clear and the experimental efficiency improved.

4.2.2. The Cell Structure Observed by PPT in this Lesson is Invisible to the Naked Eye.

It is necessary to observe with the help of a microscope. When students operate alone, they can not judge whether the structure observed under a microscope is correct or not. Traditional teaching methods, teachers can only draw cell structure on the blackboard, and there will always be some differences between hand-drawn structure and objects, or when teachers go to the students to watch and explain one by one, there will be no guidance from the students until the end of the class. The images observed under the microscope are photographed and made into PPT, which is displayed on the big screen, and then guided by the whole class, so that students can have targeted observation, saving experimental time and improving accuracy. When explaining the difference between bubbles and cells, the students can clearly see the difference between bubbles and cells by presenting the picture of bubbles on the big screen, thus avoiding the problems in observation. How to flatten the experimental material, what observation effect will appear without flattening, and to what extent the observation effect is the best when the material is dyed can be made into PPT, which shows the

content of the explanation to the students intuitively. PPT can also insert videos. For example, after the students have finished exploring, they can play the videos of the process of making temporary films. Students can study and discuss in groups, summarize the problems in the process of each group, and summarize the points for attention in the experiment. The application of PPT courseware makes the experimental results clear and the experimental efficiency improved.

4.3. The application of interactive whiteboard PPT courseware is vivid

It is designed by the teacher according to his own ideas before class. It is based on the teacher's teaching ideas, and its playing order is fixed. It can not change with the actual situation of the classroom. It has no flexibility and is not conducive to students' personality. Exhibition. Interactive electronic whiteboard has these advantages, so this lesson I take PPT and interactive electronic whiteboard combined way. For example, when summarizing the precautions in the production of temporary installation, I will present the production process on the electronic whiteboard, while summarizing with the students, while using the whiteboard pen to highlight the key points by changing colors and symbols. When reviewing the cell structure, the cell structure map is presented on the electronic whiteboard, and the students are asked to mark the structural names of each part on the electronic whiteboard. When consolidating the production process of temporary installment, the picture in the production process is disrupted and animated, and then the students are re-ordered. The electronic whiteboard is flexible, it can change the teaching method according to the specific situation of students, and students are also more participatory.

5. Conclusions

Students like this interactive teaching very much, and their interest in learning naturally improves. The application of multimedia teaching equipment has the characteristics of intuition, image, vividness, shortening students' cognitive process, expanding students' cognitive space and improving learning efficiency. Team cooperative teaching gives full play to the initiative of students from the distribution, so that students develop the spirit of cooperation and inquiry consciousness in the process of group cooperation. Practice has proved that guiding students to carry out group cooperative learning and using multimedia teaching methods to support the classroom can make the biology experiment course lively and interesting. Students not only exercise their learning ability, but also enjoy the fun of learning in the colorful classroom.

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