

Cloning

Topic

Science and Cloning

Aims

- To practice speaking through debating controversial issues in science
- To link students' knowledge of science with English
- To develop vocabulary related to science

Age group

Teens

Level

B1 +

Time

60 – 90 minutes

Materials

- Cloning Student worksheet

Introduction

This lesson is aimed at secondary school children between the ages of 12-18 years. The focus of the lesson is on oral communication, and the content and theme of the class, science and cloning, attempts to link the student's knowledge and interest in science with their English class and to act as an introduction to the relationship between science and studying English.

Students will do a quiz about general science topics with a focus on science in the UK, rank the importance of scientific achievements in modern life, do a vocabulary building exercise, discuss some controversial science topics and do an optional oral presentation and report writing.

Procedure

1. Task 1: Lead-in: Science Quiz

- To introduce the topic ask students if they are studying science at school and if they like it or not, why/why not, and what kind of things they do in their

science classes.

- Give them the Quiz (task 1) to complete in pairs or small groups. Alternatively, put the students into teams and read out the questions and answers, asking them to write down the correct option (like a pub quiz)
- Get students to swap papers and then correct, awarding one point for each correct answer

Answers: 1. B 54%, 2. C.99%, 3. A. 33%, 4. C (she discovered radium and coined the term radioactivity), 5. B, C, 1928

2. Task 2: Science and Modern life

- First of all write the words **Science and Modern Life** on the board and then ask students to brainstorm as a class what scientific achievements or discoveries have been most important for modern life and write all their ideas on the board or get some of the students to write them on the board as the other students shout them out. You may need to give the students one or two examples to start them off.
- Next give the students Task 2 and get them to do the ranking task individually. Then re-group the students in small groups and get them to compare and discuss the differences in their answers, and to decide upon the top 5 most important discoveries as a group. Once all the groups have decided, you can then get each group to report their top five back to the class. Ask them if they would add any other discoveries to the list, and why.

3. Task 3: Dolly the Sheep

- Before class you will need to prepare by cutting up the sentences of the text. One text will need to be cut up for each group.
- First of all write the word **cloning** on the board and ask the students if they understand what it means. Then ask the students to tell you anything they know about cloning.
- Now draw a little sheep on the board and write Dolly under it. Ask if any of the students know about Dolly the sheep and let them tell you whatever they know. Now tell them that they are going to read a text about Dolly the sheep.
- Put the students in to small groups and divide the cut-up sentences between all the members in the group. The students then have to piece the text together and find the answers to the questions.

Answers: 1. Roslin Institute, near Edinburgh, 2. 1996. 3. 6 years old 4. Because she was cloned from a sheep who was already six years old

4. Task 4: Follow up discussion

- Students can work in the same groups to discuss the questions. Encourage them to justify their answers and give reasons for their opinions here.

	<ul style="list-style-type: none"> Depending on the group, you could then open this up for a class discussion. Monitor and make a note of any good language / errors for feedback at the end
5. Task 5: To clone or not to clone	<ul style="list-style-type: none"> This discussion activity on cloning can be done in pairs or small groups. Give each pair or group the discussion cards and ask them to discuss the different scenarios about cloning on them one by one in their group. Once the students have finished discussing the cards in pairs or groups, you may want to close the activity by asking different pairs or groups their opinions on some of the scenarios and ask them if their opinions on cloning have changed. You will need to cut up the cards before class and give each group one set of cards.
6. Task 5: Expressions of certainty	<ul style="list-style-type: none"> This activity raises awareness about the important role that the English language plays in science. To introduce the topic write the following scientific acronyms on the board and ask if any of the students know what they stand for. Ask if they use the same acronyms in their own language? <p>AI (Artificial Intelligence)</p> <p>DNA (Deoxyribonucleic Acid)</p> <p>HIV (Human Immunodeficiency Virus)</p> <p>H₂O (Dihydrogen Monoxide = Water)</p> <p>CO₂ (Carbon Dioxide)</p> Ask if the students can think of any more common acronyms. The rest of the activity can be done in pairs or small groups. The students put the words into the correct category, and then you can correct the answers. Then students discuss the follow up questions. <p><i>Answers: Words used in biology: Plant, Leaf, Root, Earth, Mouse, Habitat, Virus, Experiment, Words used in chemistry: Liquid, Chemicals, Solution, Acid, Test Tube, Experiment, Virus, Words used in Computer Science: Program, Input, Hard Drive, Network, Mouse, Virus Words used in Maths: Addition, Equation, Subtraction, Equation, Root, Solution</i></p>
7. Task 7: Debate	<ul style="list-style-type: none"> The following topics can be used for debating or for discussion either as a class or in groups. First of all check that students understand what a debate is and how it works. If they do not understand then explain what a debate is and how the activity will work. For example:

	<p>“A debate is a contest, similar to a game, where two or more speakers present their arguments intent on persuading one another over to their viewpoint, Examples of real-life debate include parliament, law courts, academic debate”</p> <ul style="list-style-type: none"> • Then explain that the students will be divided into two groups, ‘for’ and ‘against’ the argument that they chose to debate. In turn each group will present their point of view, after which each side can ask the other side questions if they want to. At the end of the debate each side can make a summary of their arguments and the class/group then take a vote. • Let students chose the topic(s) they would like to debate and divide them into ‘for’ and ‘against’ groups. It is important you give students enough thinking and preparation time to be able to think of enough suitable arguments for their case before you start the debate. Access to the library, resource books or the Internet would be helpful at this stage of preparation. You may even want to give the students their debate topics as homework to research in the library or Internet and get them to prepare their arguments for debating in the next class. • You may choose to not include some of the more controversial topics, depending on your class, use your judgement here. • Depending on the level of your students you may also want to pre-teach some useful phrases to help them with their debating skills.
8. Optional follow-up	<ul style="list-style-type: none"> • Get students to orally present a recent science experiment they have done in class, or do a short presentation relating to a scientific discovery that interests them. • Get students to write a short report in English about an experiment they have done in their science lessons at school.

Contributed by

Jo Budden