

Lesson Plan

2 periods equivalent to 80 minutes

Overarching Science Goal: Identifying claims and evidence to make informed decisions

Topic: GM food

Overarching Language Goal: Arguing, Discussing, and Causal Explaining

Activity 1 – What is on our shelves – genetically modified food?			
Time	Intended Learning Outcomes	Teaching Flow	Materials
15 mins	<p>Students should be able to:</p> <ul style="list-style-type: none"> recognize that the issue of GM food is related to their daily lives point out that modern biotechnology enables the transfer of genes between organisms state the meaning of “GM food”. 	<ul style="list-style-type: none"> Ask students to bring favourite snacks and drinks to the lesson. <p>Teaching and Learning Cycle — <i>Stronger Teacher Responsibility</i></p> <ul style="list-style-type: none"> <i>Setting the context</i> <ul style="list-style-type: none"> Divide students into groups. Ask students to tell their peers the reason why they like the fruit, using a language pattern such as ‘I like....because....’ <p>Genre — <i>Causal explanation</i></p> <p>Teaching and Learning Cycle — <i>Stronger Teacher Responsibility</i></p> <ul style="list-style-type: none"> <i>Modelling & Deconstruction, Guided Construction, Independent Construction</i> <p>Register</p> <ul style="list-style-type: none"> <i>Concrete and everyday subject matter</i> <i>Informal roles and relationships and subjective meanings</i> <i>Language accompanying action – spoken means of communication</i> <p>Meso-scaffolding</p> <ul style="list-style-type: none"> <i>People: from individual to group</i> <ul style="list-style-type: none"> Show photos of different GM food and define ‘GM food’. Discuss why/how genes transfer between organisms by humans in the food industry. Ask students to vote on whether they should eat GM food and tabulate the number of students for, undecided, or against GM food. 	Photos of GM food

Activity 2: Is genetically modified food good or bad?			
Time	Intended Learning Outcomes	Teaching Flow	Materials
15 mins	<p>Students should be able to:</p> <ul style="list-style-type: none"> identify <i>claims</i> and supporting <i>evidence</i> for or against GM from articles recognize the controversy over producing GM food. 	<ul style="list-style-type: none"> Students read articles 1 (<i>for GM food</i>) and 2 (<i>against GM food</i>). <p>Genre — <i>Arguing and Discussing</i></p> <ul style="list-style-type: none"> Discuss the 2 articles with students through a list of guiding questions. Ask students to identify the <i>claims</i> and supporting <i>evidence</i> from the two articles. Students present the claims and evidence to group mates. <p>Genre — <i>Causal explanation</i></p> <p>Teaching and Learning Cycle — <i>Stronger Teacher Responsibility</i></p> <ul style="list-style-type: none"> <i>Modelling & Deconstruction, Guided Construction, Independent Construction</i> <p>Register</p> <ul style="list-style-type: none"> <i>Technical and abstract subject matter</i> <i>Formal roles and relationships and objective meanings</i> <i>Language accompanying action</i> — <i>spoken means of communication</i> <p>Meso-scaffolding</p> <ul style="list-style-type: none"> <i>People: from individual to group</i> <ul style="list-style-type: none"> Ask students again to vote on the development of GM food. Compare this result with the previous activity and ask whether students have changed their minds on the issue and why their decision has changed or not changed. 	<p>An article <i>for</i> GM food</p> <p>An article <i>against</i> GM food</p>

Activity 3: Should genetic modification continue?			
Time	Intended Learning Outcomes	Teaching Flow	Materials
40 mins	Students should be able to: <ul style="list-style-type: none"> point out that <i>claims</i> should be made based on <i>evidence</i> state the advantages and potential risks on human health, society and the environment of producing GM food. make <i>informed decisions</i> based on evidence. 	<ul style="list-style-type: none"> Students in groups discuss whether they accept or do not accept GM food. Students are required to design a poster to present their stance during a poster presentation competition in class. All posters are posted on the notice boards inside the classroom. Give students time to read all the posters themselves. Each group is given 7 minutes to present their poster to the whole class. Students choose the winning poster. Prizes are presented to the winners. <p>Genre — <i>Causal explanation</i></p> <p>Teaching and Learning Cycle — <i>Stronger Student Responsibility</i></p> <ul style="list-style-type: none"> <i>Guided Construction, Independent Construction</i> <p>Register</p> <ul style="list-style-type: none"> <i>Technical and abstract subject matter</i> <i>Formal roles and relationships and objective meanings</i> <i>Language as reflection – written means of communication</i> <p>Meso-scaffolding</p> <ul style="list-style-type: none"> <i>People: from individual, to group, to class</i> <i>Place: from group tables to the front of classroom</i> <i>Media: from sentence to poster</i> <ul style="list-style-type: none"> Students vote for GM food again and compare results. 	A2 Paper
10 mins	Students should be able to: <ul style="list-style-type: none"> understand the importance of <i>informed decisions</i>. 	<ul style="list-style-type: none"> Teacher discusses the following questions with students: <ul style="list-style-type: none"> <i>Have you changed your mind on GM food throughout the activities? What are your reasons?</i> <i>Has your decision been influenced by your classmates, the articles, other media or other evidence?</i> <i>What should we base our decisions upon?</i> <i>Should we always believe the claims made by others?</i> 	