Lesson Plan Template

| Creder 10 Subject Dialogy | | | | |
|---|---|---|--|--|
| Matarials, Scientific Articles, white boards, markers | | Technology N/A | | |
| Instructional Strategies: | | Guided Practices and Concrete Application | | |
| Direct instruction | Peer teaching/collaboration/ | Guideu Fractices and Concret | | |
| Guided practice | cooperative learning | Large group activity | Hands-on | |
| Socratic Seminar | Visuals/Graphic organizers | Independent activity | Technology integration | |
| Looming Contors | PRI | Pairing/collaboration | Imitation/Repeat/Mimic | |
| Learning Centers | Discussion/Debate | Simulations/Scenarios | | |
| Teclure | Madalina | Other (list) | | |
| internation | Modelling | Explain: | | |
| Othern (list) | | | | |
| Other (list) | | | | |
| Standard(s) | | Differentiation | | |
| Standard(S)- | | Differentiation | | |
| D | | Below Proficiency | | |
| Performance Standard H | S-LS3-1 Construct an | Delow Fronciency. | | |
| explanation to clarify rela | ationships about the role of DNA | Students below proficiency may | not make complete connection | |
| and chromosomes in cod | ing the instructions for | between how DNA works and Γ | NA technology but still be | |
| characteristic traits passe | d from parents to offspring. | capable forming opinions on DN | A technology and will find | |
| | | answers in the text with the help | of their peers during peer | |
| LS1.A: Structure and Fu | nction: All cells contain genetic | collaboration. | 1 01 | |
| information in the form of DNA molecules. Genes are | | | | |
| regions in the DNA that contain the instructions that code | | Above Proficiency: | | |
| for the formation of proteins. | | Students above proficiency will | make complete connections | |
| | | between how DNA works and E | ONA technology and will be | |
| ^^The previous standards | s we have covered over the past 3 | capable of forming opinions on | the use of DNA technology, | |
| weeks. | | leading their peer groups and ca | n do more research on a DNA | |
| | | technology that interests them d | uring their reflection. | |
| LS3.A: Inheritance of Tr | aits: DNA make up genes that | | | |
| are sections on chromosomes which are the instructions | | Approaching/Emerging P | roficiency: | |
| for forming individual ch | aracteristics (traits). All cells of | | | |
| an organism have the same genetic content. Gene | | Students as/emerging proficience | y will make sufficient | |
| expression is regulated in different ways. | | connections between how DNA | works and DNA technology and | |
| | 5 | will be capable of forming opini | ons on DNA technology and | |
| | | will work with their peers to col | laborate on ideas (both helping | |
| Objective(s) | | others and being helped themsel | ves). | |
| | | | | |
| By the end of class students | will have connected their prior | | | |
| knowledge of the function of DNA/ genetic material in an | | | | |
| organism to current scientific technologies (use of Genetically | | | | |
| Modified Organisms) by using evidence from scientific text to | | | | |
| support answers and form opinions they have on the use of | | | | |
| GMO technology. | | | | |
| | ·· • • | | | |
| Bloom's Taxonomy Cogni | tive Level: | | | |
| Analyze and Evaluate | | | | |
| Classroom Managament | (anoming(a)) | Dehavior Expectations (system | na stuatogias nuosodunos | |
| movement/transitions atc |) | specific to the lesson rules and | lavastations atc.) | |
| movement/transitions, etc | •) | specific to the lesson, i dies and | r expectations, etc.) | |
| Traditional seating | for beaker question and attendance | Participation is the biggest expe | ctation in this lesson Students | |
| Lab seating for reading activity | | know to be on task when they ar | re in the classroom. | |
| Choice seating for independent work | | In general cell phones are allow | ed provided they do not become | |
| 6 r r | | a distraction. | · ···· ······························· | |
| " | | | | |
| | | | | |
| | | | | |
| | | | | |
| Minutes | Procedu | res | | |
| 5 Set-up/Prep: Pi | rint off articles, place white boards, dr | y erase markers, and writing utens | sils around the lab tables | |

Lesson Plan Template

| 15 We will begin class with a beaker question. Then we will move to the lab tables in the back and students may only bring a highlighter/pen. Every lab table must have 4 people. Students will be able to choose their seats, but I will move them if there are less than four per table. When everyone is seated, I will introduce the activity: "We've beak learning a little about DNA Technology in lab on Tuesday and in Large Group. The goal of today is to learn some more about DNA Technology and really think about what it means that we can change someone/somethings DNA. Has anyone heard of GMCS?" Then, I will ask students to write down everything they know about GMO's on the group's white board. After a minute we will regroup discuss and then I will introduce the two articles we will be reading that give more information on GMO's. 5 Students will be creating questions about GMO's and finding the answers through reading two separate articles (Linked: https://newsela.com/read/gmo-salmoni/d/13185/ first pages attached below) that will provide different perspectives to its use. 20 real-life experimence, reflective questions, they will then collaborate with their group to create questions and sking what they want to how oko know about GMO's and what they think the articles we are going to read will answer. We will pick one question from each group to write on the large white board for everyone to sec. 20 real-life experimence, reflective questions-prohing on clarifying questions). 20 Review (wrap up and transition to next activity): 20 Review (wrap up and transition to next activity): 20 Review (wrap up and transition to next activity): 20 Re | 15 | Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate ques | | | | |
|---|---|---|---|--|--|--|
| a highlighter/pen. Fvery lab table must have 4 people. Students will be able to choose their seats, but I will move them if there are less than four per table. When everyone is seated, I will introduce the activity: "We veb even learning a lot about our genetic material. We everyone is seated learning a little about DNA Technology in lab on Tuesday and in Large Group. The goal of today is to learn some more about DNA Technology in lab on Tuesday and in Large Group. The goal of today is to learn some more about DNA Technology in lab on Tuesday and in Large Group. The goal of today is to learn some more about DNA Technology in lab on Tuesday and then I will introduce the two articles we will be reading that give more information on GMO's. 5 Explain: (concepts, procedures, vocabulary, etc.) Students will be creating questions about GMO's and finding the answers through reading two separate articles (Linked: https://mwwela.com/read/gina-salmoni/d/13185/ first pages attached below) that will provide different perspectives to its use. After learning what the students already know, they will then collaborate with their group to create questions asking what they want to know to know about GMO's and what they bink the articles we are going to read will answer. We will pick on question from each group to write the large white board To everyone to see. 20 Explore: (independent, concreate practic/application with relevant learning taskconnections from content to real-life experiences, reflective questions- probing or clarifying questions) Students will take about 7 minutes (more or less time based on what 1 observe) to read their assigned article, Students will nob ball work their text; secifi | 15 | We will begin class with a beaker question. Then we v | will move to the lab tables in the back and students may only bring | | | |
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Chinese company edits pig DNA, develops piglets that will stay pet-sized

By Los Angeles Times, adapted by Newsela staff on 10.30.15 Word Count 823 Level 1020L



A BGI gene-edited micro pig (left) stands next to some Bama mini pigs that are conventionally used for scientific research. Courtesy of Alison Van Eenennaam

BEIJING, China — Have you been longing for a "teacup" pig but worried that your pet might grow as big as your bathtub?

A Chinese company says it now has the answer: a swine that would weigh no more than about 33 pounds fully grown. The company, called BGI, created the pigs by changing their DNA, which contains the instructions for how each cell in the body works. DNA is passed on from parents to children.

Pint-Sized Porkers

BGI recently announced that it intends to start selling the miniature pigs for \$1,600. The company originally created them to study human diseases.

The pigs made a splash late last month when BGI showed them at the Shenzhen International Biotech Leaders Summit in China. The pint-size porkers were created through a process known as

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FDA says OK to salmon with genes modified to make it grow faster

By Associated Press, adapted by Newsela staff on 12.09.15 Word Count **815** Level **1040L**



Frankie Ragusa, general manager of Seattle distribution for Ocean Beauty Seafoods, carries a 40-pound Copper River salmon after its arrival at the Sea-Tac Airport outside Seattle, Washington, May 17, 2013. It was part of the first shipment of the season of Copper River salmon from Cordova, Alaska. AP/Ted S. Warren, File

WASHINGTON, D.C. — Before too long there may be a very odd thing on Americans' dinner plates. It looks exactly like salmon, and it is, but it is salmon that has been genetically modified. The salmon is the first altered animal cleared for humans to eat in the United States.

Scientists are altering the genes of salmon to make them grow faster. Genes are passed down by parents. Genes decide what someone looks like and how their body works. They make a person have wavy or straight hair, or blue or brown eyes, or even smile a certain way. Plants, animals and people all have genes. With new genes, now the salmon can grow faster.

Critics call it "Frankenfish," after the Frankenstein monster, but the Food and Drug Administration (FDA) granted its approval on Thursday, saying the faster-growing salmon is safe to eat. It could be available in grocery stores in a couple of years.

DNA Technology Research & Reflection



The term DNA technology refers to many different techniques that scientists use to manipulate DNA to make advancements in scientific technology. There can be both benefits and disadvantages to using DNA technology along with many ethical considerations and debates. On Tuesday we began watching "Human Nature" a documentary on the CRISPR gene and on Thursday we read about DNA technology and its impact on human lives. Your task is to write about your personal opinion on these DNA technologies. You may choose one of the technologies we discuss in class- or a new technology you want to research below- and answer (**in complete sentences**) the reflection questions. Get curious!

Branches of DNA Technology

| DNA Fingerprinting | CRISPR | Gene Therapy |
|--------------------|---------|---------------|
| GMO's | Cloning | Phage Therapy |

- 1. What DNA technology did you choose?
- 2. Briefly describe what this technology is. What is it used for?
- 3. What is one benefit of using this technology?
- 4. What is a potential disadvantage (or ethical consideration) of this technology?
- 5. Do you think scientists should use this technology? Why or why not?