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| Science 9 Unit Overview – DNA to Protein |
| Unit Name: | Reproduction – DNA to Protein |
| Duration:  | 2 Weeks |
| IRP Standards: | - Explain the process of cell division |
| Assessment Strategies | - DNA to Protein Poster Project- Part of the Reproduction Unit and associated quiz |
| Materials  | B.C. Science Probe 9 Chapter 2.1, 2.2 and 2.3 |
| LESSON | **OBJECTIVE** | **ACTIVITIES** |
| The Importance of Cell Division | Ss will identify the three main functions of cell division | Give worksheet on functions of cell division to students for them to work on (without use of previous notes or text book)Direct teach functions of cell divisionAllow students to complete or correct their worksheet and do activities in the book |
| Cell Structures Involved in Cell Division | Ss will identify what organelles are involved in cell division | Answer questions relating to three main functions of cell divisionGive worksheet on what organelles are involved in cell division to students for them to work on (without use of previous notes or text book)Direct teach what organelles are involved in cell divisionAllow students to complete or correct their worksheet and do activities in the book |
| From DNA to Proteins | Ss will understand the process in which DNA is used to make proteins  | Answer questions relating to what organelles are involved in cell divisionGive worksheet on DNA to proteins to work on (without use of previous notes or text book)Direct teach DNA to proteins Allow students to complete or correct their worksheet and do activities in the book |
| Assignment | See Appendix A | Introduce to the assignment to studentsShow examples of work from students done in years pastGive students up to three periods to work on the assignment in teams of no more than two |

# Appendix A - The Assignment as Posted on the Wikipage

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| Science 9 DNA and Protein Synthesis ProjectRemember, my notes can be found on <http://mrarcasclassdoesscience.weebly.com/>Do you know what DNA is and how it is created? Or how protein is made?Well you will because you will become the teachers of everyone else.You will be split up into groups of 2 and you will need to explain 1) What is DNA and what it looks like and its function **AND** 2) how protein is made. Make it interesting and show all learning.So how can you do it? Well you and your group have choices. You can make up a skit with props, make a bulletin board display (only two groups can choose this option) make a song/rap and preform it for the class, create an animation using your laptops or just about anything.. Your groups get to be as creative as you want.Unfortunately you don't have much time. Basically you have a week. So what are you waiting for?Here's a small time frame of what you and your group should do.**Monday:** Get to know your group members and create an action plan. Who is your leader?All students need to be contributing at ALL times. Question: Have you divided work evenly?Tell Mr. Arca what you are planning to do.Assign Homework! You will all need to do something as you only have one more class period to finish.Ensure everyone has materials to finish the projectWho will need to come into Mr. Arca's classroom at recess and lunch to get things finished?**Wednesday:** Create a deadline of what needs to be accomplished by the end of this period.Start your work as this is all the class time you have left. It's due Friday! Recess? Lunch?**Thursday:** FinishMarks:Information and learning /5Remember, this includes how you present the information, your visuals and how you've ensured all members in your group have understood the content. Mr. Arca will ask questions to all your groupQuestions to answer at the end of this projectHow did you ensure that all members have done equal workDoes everyone in your group understand DNA and protein synthesis? How do you know?What went well in your group? What didn't?What would you do differently for the next time?Would you work with these partners again on a different project? Why or why not?Links to help you get started[http://learn.genetics.utah.edu](http://learn.genetics.utah.edu/) - A great overall website to see what DNA looks like and how to make proteins<http://videos.howstuffworks.com/hsw/12588-the-science-of-life-rna-and-protein-synthesis-video.htm> - Contains a video on how proteins are made<http://www.cellsalive.com/> - May help with questions on what DNA looks like and parts of the cell

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|  | Unsatisfactory 1 mark  | Satisfactory 2 marks  | Good 3 marks  | Excellent 4 marks  |
| Required Information and all instructions followed | Only one or two requirements | 3 or 4 requirements | 5 or 6 requirements | All requirements |
| Appropriate detail and depth of knowledge | some details of the topic provided | either too much or too little detail | depth of content is appropriate for the audience | appropriate depth makes the presentation memorable |
| Organization of presentation | ideas presented in no particular order | most ideas‘flow’from one to another | ideas are presented logically | presentation leads the audience to a thorough understanding |
| Visual impact | few images provided and explanations are sketchy | poster has images, colour and some explanation | images and explanations are related and easy to see | explanations well supported by images ‐ poster captures attention of audience |
| Creativity in poster and presentation | little imagination throughout the presentation | examples used explain the topic poorly | examples or extensions relate well to the topic | examples and extensions are exceptionally relevant |

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