

The Synthetic Interview

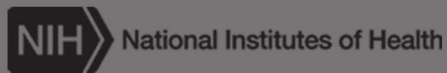
DARWIN

Lesson Plan
LITE Version



Select A Topic

The Origin of Species
and Evolution



The Partnership in Education

Produced by the Partnership in Education
Director John A. Pollock- pollock@duq.edu

Lesson plan written by: Mihiri Meepegama
Edited by: Brinley Kantorski
Print Layout and Design by: Stephanie Confer

Funding Provided By:
Science Education Partnership Award
National Institutes of Health
Duquesne University

Charles Darwin Interview Lite Lesson Plan

Time: 40 Minutes

Introduction

This lesson is designed to be used along with the *Charles Darwin Interview Lite* app. This is a free app which can be found in the Google Play store and the Apple App Store. A paid version of the app; *The Synthetic Interview: Darwin*, is also available. The paid version includes more questions and additional topics about Charles Darwin.

The lesson below was made to be used with the free version of the app; *Charles Darwin Interview Lite*. During this lesson students will research information about Charles Darwin, his adventures, discoveries, and the theory of evolution. Students will make observations of the people around them, and formulate hypotheses based on their observations. Prior to this lesson, the student should be familiar with the method of scientific inquiry; specifically how to make unbiased observations, and creating a hypothesis.

Standards

AAAS standards

By the end of grade eight, students should know that;

- Scientific investigations usually involve the collection of relevant data, the use of logical reasoning, and the application of imagination in devising hypotheses and explanations to make sense of the collected data. 1B/M1b*
- Collaboration among investigators can often lead to research designs that are able to deal with situations where it is not possible to control all of the variables. 1B/M2c*
- What people expect to observe often affects what they actually do observe. Strong beliefs about what should happen in particular circumstances can prevent them from detecting other results. 1B/M3ab
- Darwin published his theory in the mid-1800s in *Origin of Species*. Its dramatic effect on biology can be traced to his use of clear and understandable argument, the inclusion of a massive array of evidence to support the argument, comparison of natural selection to the selective breeding of animals in wide use at the time, and the utility of the theory as a unifying framework for guiding future research. 10H/H4*



Charles Darwin Interview Lite Lesson Plan

NGSS Standards

- Scientific knowledge can describe the consequences of actions but does not necessarily prescribe the decisions that society takes. (MS-LS4-5)
- Phenomena may have more than one cause, and some cause and effect relationships in systems can only be described using probability. (MS-LS4-4),(MS-LS4-5),(MS-LS4-6)

Objectives

- Students will be able to research information about Charles Darwin, his life, and his discoveries using the app *Charles Darwin Interview Lite*.
- Students will be able to make observations about human behaviour.
- Students will be able to formulate a hypothesis about human behaviour based on their observations.
- Students will be able to defend their hypothesis by presenting it for class discussion.

Materials

Electronic devices for each student with the app *Charles Darwin Interview Lite* previously installed. The app can be downloaded from the Google Play Store or the Apple App Store.



Click the links below for a photo tutorial on how to download the app.

[CLICK HERE to view the Android App Download Tutorial](#)



[CLICK HERE to view the iTunes App Download Tutorial](#)

Charles Darwin Interview Lite Lesson Plan

Set Up

- For this lesson each student will need either an iPad or a tablet device. Pre-plan the method of providing the students with these devices. For example, reminding them to bring their device to class during the previous lesson or checking out the devices from the school library.



- Print copies of handout 1; Get to Know Me, and handout 2; My Journal of the World, for each student.
- Arrange the classroom to facilitate group work. Arrange three or four tables to promote face to face discussions.



- Display a picture of Charles Darwin and the HMS Beagle along with the question

“Who am I and what is this object?”

- For the second activity of the lesson, students will be asked to go to specific areas in the school to make observations of people around them. Pre-plan each location, notify personnel in that location, and get the necessary permissions.

Suggested locations include:

- *Cafeteria
- *Library
- *Playground
- *Gym
- *Administrative office
- *Kitchen
- *Hallway



Charles Darwin

Interview Lite

Lesson Plan

Pre-Activity - 5 minutes

1. As the students enter the classroom direct their attention to the displayed pictures and questions.
2. Allow them to think about the answer, then hold a class discussion. Ask the students questions to get them to think more about what they see in the pictures. Suggested questions to stimulate thinking are given below. Encourage students to use the context of the picture (i.e. colors of the picture, clothing styles, make of the ship, etc) to explain their answers to the questions.
 - How old do you think he is?
 - Where is he from?
 - Do you think he is rich or poor?
 - What do you think his job is?
 - Which time period do you think the ship is from?
 - Do you think the ship sailed with rich or poor people?
 - Do you think it is a battleship?
3. Bring the class discussion towards the idea that **scientists use clues or signs from the environment around them to make educated guesses about why and how phenomena occur around us everyday.**



Activity - 25 minutes

1. Divide the students into groups of three or four.
2. Pass out the copies of handout 1: *Get to Know Me*, to each students along with either an iPad or tablet.
3. Instruct them to launch the app *Darwin Interview Lite*.
4. Use the steps below to demonstrate, to the students, how to use the app.
5. Instruct the students to find the answers for the questions in the yellow boxes using the app. Groups can discuss their answers, however each students should write their answers on their own handout. Do the first question as an example to show the students how to use the app.
6. Hold a class discussion to review the answers. The teacher should direct the discussion towards the idea that **Darwin was naturalist, who travelled the world on the HMS Beagle, making observations of the living things around him. Through his observations he was able to develop a hypothesis, then use his evidence to prove the theory of evolution.**



Charles Darwin Interview Lite Lesson Plan

7. Pass out handout 2; *My Journal of the World*. Go through the instructions on handout 2 with the students.
8. Assign a specific location for each group. Remind students to be mindful of their behaviour and that they should not disturb the natural environment.
9. Revisit the main idea from the pre-activity. *Scientists use clues and context to make their observations and come up with hypotheses about phenomena occurring around them.* Tell students that is important to be very descriptive when they write their observations. For example, instead of writing “the woman is wearing a jacket,” students should write “the woman is wearing a thick piece of clothing, that appears to be made of wool, covering most of her upper body and neck.”
10. As the students are making their observations, the teacher should walk around to the different locations to make sure they are conducting the activity properly.



Wrap -Up - 10 minutes

1. Once the students return to the class after making their observations, allow them to make inferences about their observations with a partner and develop a hypothesis based on their observations. Remind them they are acting as Darwin and must interpret observations as Darwin would
2. Have students present two main observations to the class and their inferences about the observations. Students should also present the hypothesis they developed based on their observations.
3. Allow the classmates to comment or add to the inferences. The teacher should remind the students that peer review takes place in the real world and is an important part of scientific inquiry.
4. A classroom discussion should be held about potential biases that could occur when observations are being made. **Our prior knowledge and experiences can affect the way we interpret our observations.** The teacher can use an example from an instance when the students observations were interpreted in a different way by his/ her classmate.



Charles Darwin Interview Lite Lesson Plan

Assessment

Ask students to write a letter to the King William VI as Darwin describing the observations that were made, the interpretations of the observations as Darwin, and finally the hypothesis they developed. The teacher should inform the students of the following guidelines for the letter.

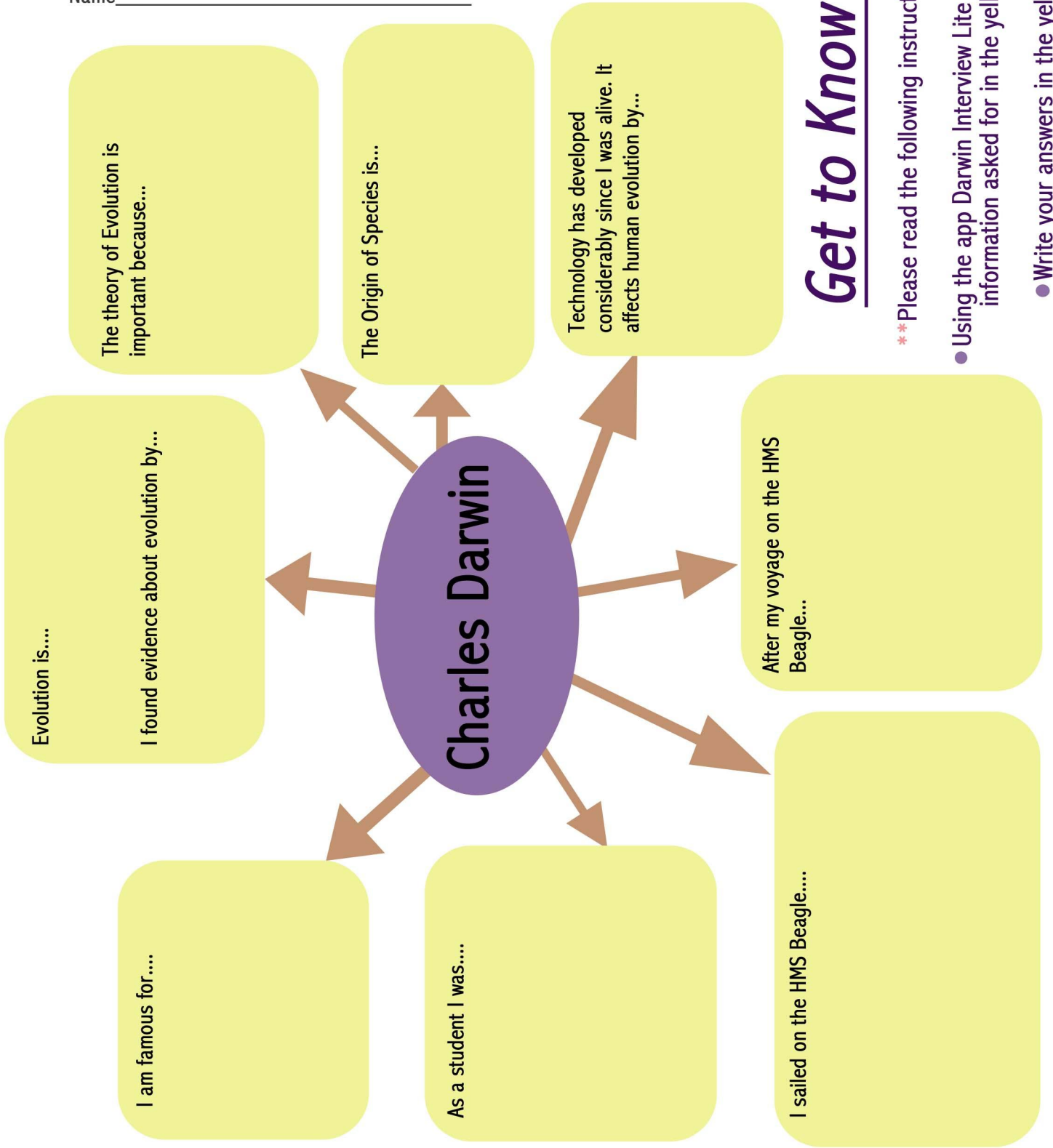
1. The letter must use the format of a formal letter addressed to King William VI.
2. It must describe 6 observations you made.
3. It must explain how each observation helped you create your hypothesis.
4. State the hypothesis and why it is worth investigating.

**Remind students their letter will be read by the King who may not know anything about science.



Charles Darwin Interview Lite

Name _____



Get to Know Me!

- ** Please read the following instructions carefully.
- Using the app Darwin Interview Lite find the correct information asked for in the yellow boxes.
- Write your answers in the yellow box.

Charles Darwin Interview Lite

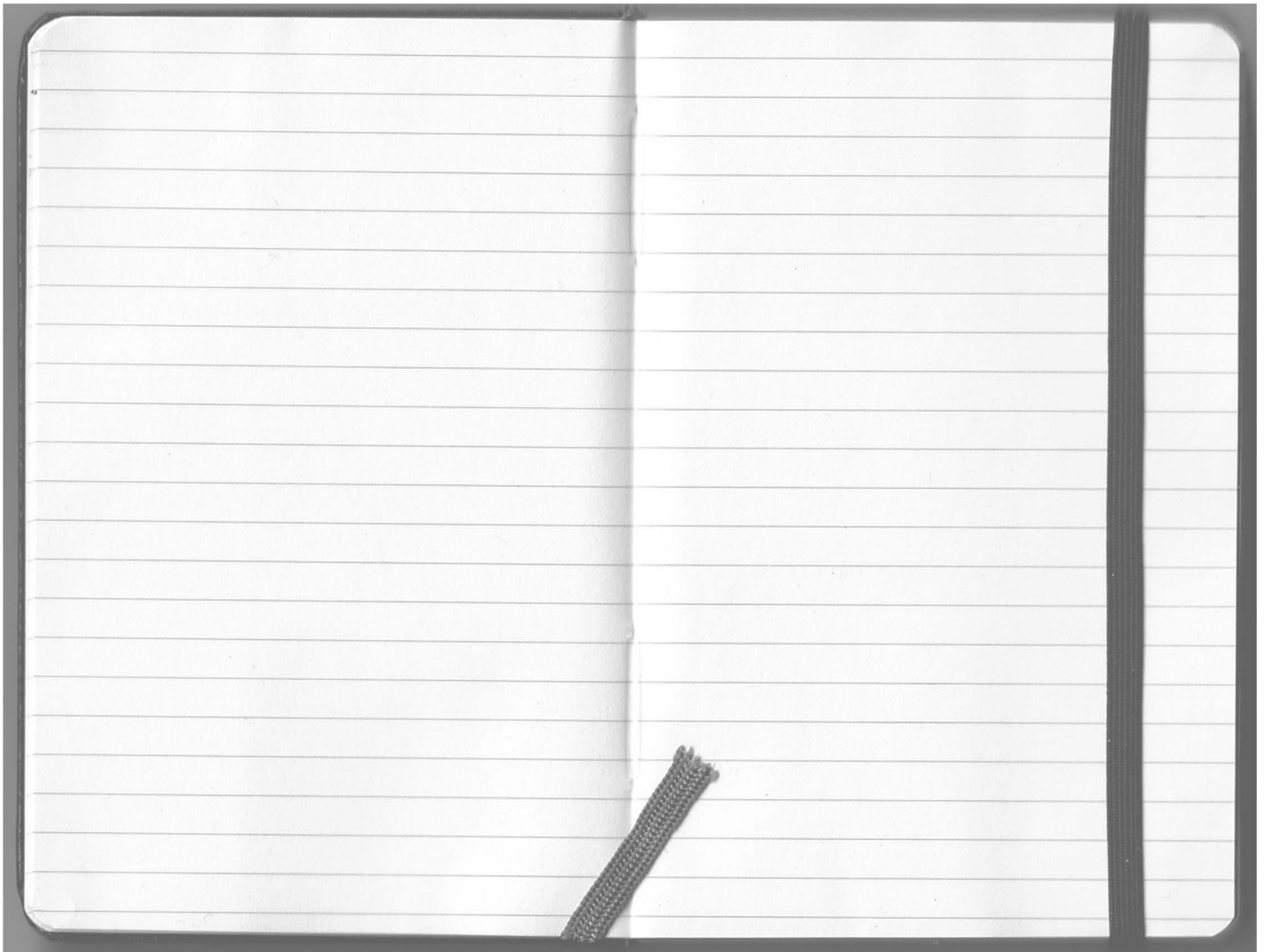
My Journal of the World

Name _____

Instructions

Imagine you are Charles Darwin who is observing the change in human behavior. With your group, go to your assigned location, and make observations about the behavior of people. You can make observations on what they are wearing, what they are carrying, where they are going, how they are talking, walking, sitting, how and what they are eating and drinking, etc.

Record your observations in this journal as Darwin did. Then return to the class and discuss with your group members what you observed and what questions you may have about human behavior. Do not forget to think like Darwin!



Charles Darwin Interview Lite

Rubric for Assessment

CATEGORY	Excellent	Good	Satisfactory	Needs Improvement
Description of observations made during the activity in class.	Descriptively states all 6 observations made during the activity.	States 5 observations made during the activity.	Only lists 4 to 6 observations but with no descriptions.	States less than 3 observations made during the activity.
Explanation on how the observations lead to the development of the hypothesis.	Provides a thoughtful/detailed explanation on how all 6 observations lead to development of the hypothesis.	Provides an adequate explanation on how all 6 observations lead to development of this question.	Provides an explanation on how the hypothesis was developed. Only links the explanation to less than 5 observations.	Provides an explanation on how the hypothesis was developed. Only links the explanation to less than 5 observations.
Hypothesis and its importance	Clearly states the hypothesis and uses valid examples to justify why it should be investigated.	Clearly states the hypothesis. Briefly explains why it should be investigated. No examples are used.	States only a question about the observations. Justification for investigation is very simple with no examples.	No hypothesis stated. No/very small justification as to why an investigation is needed.
Salutation and Closing	Salutation and closing have no errors in capitalization and punctuation.	Salutation and closing have 1-2 errors in capitalization and punctuation.	Salutation and closing have 3 or more errors in capitalization and punctuation.	Salutation and/or closing are missing.
Grammar & spelling (conventions)	Writer makes no errors in grammar or spelling.	Writer makes 1-2 errors in grammar and/or spelling.	Writer makes 3-4 errors in grammar and/or spelling.	Writer makes more than 4 errors in grammar and/or spelling.
Format	Complies with all the requirements for a formal letter.	Complies with almost all the requirements for a formal letter.	Complies with several of the requirements for a formal letter.	Complies with less than 75% of the requirements for a formal letter.

NAME: _____

TOTAL SCORE: _____