HUMAN EVOLUTION	**TIME** [2Hr 30 minutes]

OVERVIEW

Human evolution involves the story of mankind from the beginning. This will show all the aspects and different theories put forward to explain the origin of human from apes. To explain the concept of this voyager stories and project has been made to show the real time google earth location of place of origin of mankind and where evidences (fossils) are being found.

BIOLOGY/ HUMAN EVOLUTION	**AGE LEVEL-** Grade 10 to 12 (15-17 years)
Learning Objectives **Students will be able to-** **1.** Define the term evolution and compare the process taking place in environment simultaneously. **2.** Identify the location of the origin place of humans. **3.** Name different groups of hominids that existed. **4.** Roughly estimate the age of homo species. **5.** Discuss the factors that led to the evolution of humans.	**Inquiry** By imposing a question- Q1. Humans , as we see ourselves, have we existed like this since beginning of our evolution? The students will off course say No. Q2. So how did we become as we are? Q3. Where did we originate and what factors changed us to present forms? Q4. Are apes our ancestors?
Materials Needed 1. Internet connection for learner 2. Google Earth access 3. Textbook NCERT Grade 10 and Grade 12 4. Notebook and stationary items to make notes.	**Lesson Summary** • Engage: Learners will form teams of 3 or 4 members each and analyze the four questions asked in the inquiry section of the lesson. They will jot down their points including the evidences which help us incoming to such conclusions. • Explore: Learners will be shown a Google Earth voyager project on human evolution where they will explore different possibilities of human origin and evolution. • Explain: Probing more about the evidences used by

	scientist to trace the human history apart from fossil evidences. • Revise: Each team will present their research task and followed by open ended questions by other team members. • Apply: Comparing these evidences discussed above, to find the most suitable and latest techniques in context of Biotechnology.

Sustainable Development Goals

Culminating Task/Assessment

Learners will identify different methods to trace the human history and compare these to find the most suitable and latest techniques in context of Biotechnology.

Textbook Chapter

This topic is covered in NCERT Grade 12 chapter Evolution in Unit-2. Also it covers some aspects of human evolution in chapter Heredity and evolution.

Engage (20 minutes)

1. Session begins with the recaptulation of terms like genus, species.
2. Inquiring them about the characteristics of species- that they can interbreed, asking them the scientific name of humans.
3. Learners will be shown a video on human evolution https://www.youtube.com/watch?v=ehV-MmuvVMU and https://www.youtube.com/watch?v=DZv8VyIQ7YU.
4. Students will be subjected to questions like-
5. Q1. Humans , as we see ourselves, have we existed like this since beginning of our evolution?
6. Q2. So how did we become as we are?
7. Q3. Where did we originate and what factors changed us to present forms?
8. Q4. Are apes our ancestors
9. They will discuss these questions in their small crews and jot down their points.

Explore (50 minutes)

10. Teacher will display the Google Earth story of human evolution showing the location of different regions thought to be the point of origin of different Homimins. https://earth.google.com/web/@0.1809025,37.499098,1779.73434172a,3366208.59584796d,30y,0h,0t,0r/data=MicKJQojCiExWTM5aEY2RDAycE9wd1lQb3E0ZnhwN2RjbFBpSU5oa1c?EarthFeedSuffix=ttubi
11. Students record observations and form a hypothesis of their own story of human evolution, and discuss their points in their small crews to be presented class wide.

Explain (20 minutes)
1. Learners will present their hyposthesis of theory formulated to the class and other crews will ask them questions, just like open ended forum for them to defend their thesis. 2. Learners will now explore different evidences that were used in classifying homimins like cranial size, bipedality, bone shape and length and molecular evidences, as clear from the video- https://www.youtube.com/watch?v=lIEoO5KdPvg 3. They will again jot down the various the evidences used by scientists to formulate the theories of evolution. 4. This followed by an open session on voting for the best method they feel for studying the fossils giving its advantages and disadvantages. 5. For eg. One team can nominate the comparing the morphology to be the best method, giving its advantages. Then other team can tell since complete fossils are missing therefore its not the best method. Other teams can nominate Molecular evidences which will have almost all advantages.

Revise (10 minutes)
Students will begin a relay race, with each student vocalizing any one concept learned in this lesson plan, turning to second one, third one and so on…….

Apply (40 minutes)

1. Students will now have known that man existed in jungles and has been living in harmony with other creatures on Earth and the environment.
2. Therefore we the Homo sapiens should learn to live sustainably with the planet, following sustainable developmental goals 13, 15 and 16 i.e Life on land, Climate action and Peace and justice.
3. Students use findings to draw conclusions on measure to reduce the impacts of human from the environment.

Evaluate (40 mins)

- Quiz with Multiple Choice Questions will be taken which will score the students progress on the topic
- Students can begin the play of quiz by clicking at the following link
- https://quizizz.com/join/game/U2FsdGVkX1%252B01OemXiGa%252BCONCMH8DtlnP60TyV17uaN8qL0Sfhvww4L8jd02DsTvner58OBTRoKGrNZERQTiAA%253D%253D?gameType=solo
- Also the presentation by each team will be evaluated on the basis of following rubrics

1.	Content	5 marks
2.	Clarity of concepts	5 marks
3.	Presentation skills	5 marks
4.	Ability of answers questions by other teams	5 marks

Additional Resources

- https://www.youtube.com/watch?v=StqZI9pMq0U
- https://www.youtube.com/watch?v=RQ7VUZHwbEk
- https://www.britannica.com/science/human-evolution
- https://humanorigins.si.edu/education/introduction-human-evolution

Options for Differentiation

- Proving the guidelines to the students for making presentations and making them aware about the rubrics.
- Helping them in exploring the Google Earth Voyager stories.

Credits

Written by SHRUTI SETH