

Natural Resources

TIME [in minutes]

OVERVIEW [One sentence describing how teachers will use Google Earth to add engaging, real world connections to an inquiry based lesson.]

Teacher will introduce the topic with the google earth , by exploring the sites on forests(amazon), countries with rich mineral deposits including India and its natural resources. (Israel's drip irrigation system, East Kolkata wetlands as Ramsar site, etc), Through google earth teacher will take them to western Ghats of India and tell the story of 'Uttara Kannada' and Chandrapur mining .

SUBJECT/TOPIC : Natural resources and their sustainable usages.

AGE LEVEL: 16 to 18 years

Learning Objectives [Content specific learning objectives addressed in this lesson plan.]

Students will be able to :



- Explore different types of natural resources, understand the interdependence and interrelatedness of all living things and life support system.
- Collect the information on conservation of natural resources.

Inquiry [The essential question that will guide the lesson.]



- **Equitable use of resources for sustainable life style is hampered as over population in poor countries and over consumption of resources by the rich countries. Justify.**
- **What are the major reasons of land degradation?**
- **Suggest conservation practices for mineral resources.**
- **What are the environmental and social life impacts on mining activities ?**
- **Food security does not depend on food production but on equal food distribution, comment.**

Materials Needed [List of all the materials and resources needed for the lesson.]

PPT

Case study – Text book (Environmental Education XI- MHSBE) (Case study Uttara Kannada attached to google earth creation- Conservation of natural resources)

SDGs

Google Earth

Google earth:

https://earth.google.com/earth/rpc/cc/drive?state=%7B%22ids%22%3A%5B%2216KKKYTOGBRT07QI_s4THOhFJziGggyLa%22%5D%2C%22action%22%3A%22open%22%2C%22userId%22%3A%22108068699685067292884%22%7D&usp=sharing





Google form :

<https://forms.gle/yu2C8xq8e7zeevB6A>



Lesson Summary [Brief description of each part of the lesson.]

- Engage: Teacher will start the lesson with a case study 'Uttara Kannada, western ghats. Teacher will help students to identify two actions by which people made an attempt to solve the problem but which had unanticipated and undesirable consequences that led to further problems.
- Explore: Students will relate the above case study and compare it with another place which is also under stress.
- Explain: Students will be able to explain and co-relate –'What are the consequences of this stragging number of human beings on earth which has finite space and more or less finite resources?'
- Revise: Students will play the game 'Web of Life'. Find out the following:
What did you experience?
How do you relate this game with your real life situation?

	<p>Who is responsible for the situation, kept on changing in the game?</p> <ul style="list-style-type: none"> • Apply: Prepare Google earth creation on any two countries or cities , practicing sustainable development. Refer SDG index, • India is also progressing towards sustainability practices, find few examples and explain with the help of google earth.
<p>Sustainable Development Goals [One or more Sustainable Development Goals addressed in this lesson.]  SDGs 1, 2, 11,12, 15</p>	<p>Culminating Task/Assessment [One sentence describing how student mastery of learning objectives will be assessed.]</p> <ul style="list-style-type: none"> • Project on Sustainable and non-sustainable use of biological populations, Sustainable agriculture.(use google earth to show a place practices sustainable agriculture) • Project on the Impact of Genetically Modified Organisms, Deforestation, overgrazing, over fishing, etc on human health and environment.(use google earth to show a place with massive land degradation or deforestation) • Project -Analyse the present condition of India, as a mega diversity nation, on the basis of Economic potential of biodiversity, Loss of biodiversity - threatened, endangered and extinct species.(use google earth to indicate places of importance) • Use google earth to show countries practices sustainable development and with high SDG index and discuss the practices, compare whether it can be applicable to our country. 

 <p>Textbook Chapter [How is this lesson plan related to the student’s textbook? Which chapter and which lesson is covered here?] Environmental Education, Chapter- Sustainable use of natural resources. (MHSBE)</p>
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Engage (5 minutes)

Livelihoods /employment/ income generation activities suitable for environment and natural resource conservation are taken up by using environment related information under the MGNREGA.

Explore (25 minutes)

Students will take a virtual trip of voyager- ‘Explore Earth’s Ecosystem’, ‘Reducing extinction of plant’, ‘Natural treasure jungles’.

Explain (20 minutes)

Hypothesis : (People purchase environment-friendly products by seeing the advertisement of such products)(People purchase environment-friendly products by seeing the advertisement of such products.)(By using public transport, it is possible to reduce the expenses on transportation and purchase of fuel.)(It is possible to reduce the use of electricity by using more efficient appliances.)(It is possible to reduce the use of grid connected electricity by using solar or wind energy.)(It is possible to reduce the use of electricity by switching off appliances like lights, fans, computers etc when not in use, at home and the workplace or office.)

The survey will be conducted by several groups.

Students share first “hypothesis” with small group or a partner. The results will be discussed.

Teachers facilitate whole group discussion in which students share their hypotheses and evidence. The result will be analysed .

Students test hypotheses and record findings (for science/math based inquiries). Based on the collected data,

Revise (10 minutes)

1. Students will make adjustments to their hypothesis based on information gained in discussion or test findings. Based on the result the hypothesis will be justified. (approved or disproved)

Next, repeat the process with a second source of information.

Explore (25 minutes)

Continued:-

Hypothesis : (People purchase environment-friendly products by seeing the advertisement of such products)(People purchase environment-friendly products by seeing the advertisement of such products.)(By using public transport, it is possible to reduce the expenses on transportation and purchase of fuel.)(It is possible to reduce the use of electricity by using more efficient appliances.)(It is possible to reduce the use of grid connected electricity by using solar or wind energy.)(It is possible to reduce the use of electricity by switching off appliances like lights, fans, computers etc when not in use, at home and the workplace or office.)

The survey will be conducted by several groups.

Students share first “hypothesis” with small group or a partner. The results will be discussed.

Teachers facilitate whole group discussion in which students share their hypotheses and evidence. The result will be analysed .

Students test hypotheses and record findings (for science/math based inquiries). Based on the collected data,

Explain (20 minutes)

Now, Students will work on the hypothesis and project topics.

Students will create a project on google earth locating the area they are covering during their research work, it may be local or global.

Revise (10 minutes)

1. Students will make adjustments to their hypothesis based on information gained in discussion or test findings.

(Option to repeat this process with additional sources of information, each time resulting in an updated hypothesis.)

Apply (80 minutes)

All the groups will present their work in a seminar.

Evaluate: Exemplar Response and/or Rubric

- Tools for assessing mastery of learning objectives to be used by teachers or students for self or peer assessment.

Additional Resources

- Links to texts or websites that relate to the topic and/or lesson.

Options for Differentiation

- Possible modifications, adaptations or extension activities specific to this lesson.

Credits

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