



# GREENIFICATION OF TEMPLES OF INDIA TOPIC: POLLUTION

135 mins

## GREENIFICATION OF TEMPLES OF INDIA

**TIME 135 minutes**

### OVERVIEW

There are many temples in India that help conserve natural resources and reduce their wastage in all possible ways. This lesson plan will introduce students to the principles of waste management. Through a reflection of what they used and the waste they created, the lesson plan will enable students to rethink prior to creating waste. It looks at providing a hands-on experience to students in data collection through surveys. It also encourages students to interpret and represent the data. The learning processes include hands on engagement, classroom interaction, group work, analysis of responses and communicating about the topic through an article.

### SUBJECT/TOPIC SCIENCE

### AGE LEVEL 13-14 years



#### Learning Objectives

- Students will be able to
1. explain what constitutes waste.
  2. identify ways to handle the problem of waste.
  3. realize the importance of managing waste.
  4. How the temples are being eco-friendly?
  5. How the temples are also helping conserve natural resources.
  6. Undertake surveys to gather data pertaining to waste management and disposal practices followed by individuals and households.
  7. Analyse and interpret the data collected; represent and display the same.
  8. Students will develop a mini-PR campaign promoting the advantages of recycling in our communities.



#### Inquiry

What methods and processes are being implemented to maintain the environment inside and around temple?



#### Materials Needed

Google Earth  
Google Voyager  
Notebook and pen  
Internet








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


**Engage:** Students to classify different things they use and then introduce the concept of waste. Further introduce students to the concept of R's = Refuse, Rethink, Reduce, Reuse and Recycle.  
**Explore:** Students will work in groups and research on green temples of India and how their plan to can be implemented to other temples of India.

**Explain:** How the temples achieve the environment friendly initiative

**Revise:** Students will brainstorm whether all the green initiatives can be implemented on other temples or not?

**Apply:** Create a project / presentation on Green temples of India.

<p>Sustainable Development Goals</p>     	<p>Culminating Task/Assessment</p> <p>Students will be able to ● undertake an audit to gather data pertaining to different types of waste generated in school. ● record data and find out the quantity of waste generated over a period of time. ● analyze, interpret and represent the data. ● prepare a plan and establish a waste management system.</p>

 Textbook Chapter NCERT Std VIII L 18-Pollution of Air and Water
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### Engage (15 minutes)

Teacher will ask the students to make an individual list of all the things they used on the previous day.

1. The list should include everything including toys, food, paper napkin, plates, notebook, clothes, pencil, etc.
2. Ask the students to categorize these things and tabulate them into things that can be used again or were disposed.
3. Discuss with students that once we find no ‘use’ for any particular “thing” it tends to become ‘Waste’. Introduce the concept of what is waste and highlight to students what might be waste for one person may not necessary be waste for another person.
4. Introduce students to the concept of Refuse, Rethink, Reduce, Reuse and Recycle.
5. Ask students to go through the list of things under “was disposed” and see if they can categorize them into one of the following Refuse, Rethink, Reduce, Reuse and Recycle using the table in resource 1 (Understanding Waste Management Principles).
6. Emphasize to students that by doing this, they are helping reduce the “waste” generated.
7. Randomly ask some students to read out their individual list and discuss

### Explore (25 minutes)

Teachers introduce the first source of information using an Earth story or Voyager Story on waste

1. Students record observations or evidence as it relates to the inquiry.
2. Initiate a background discussion to (this could be done as a quiz to understand if students know what types of waste is found in different temples of India) - set the context for understanding different types of waste generated, particularly nearby temple. - the importance of undertaking surveys with regards to the waste generated.

3. Divide the class into groups of 3-4 members.
4. Guide students to read Resources
5. Temple Area and Type of waste generated) and (Type and Quantity of waste generated).
6. Discuss the resources. The students will make predictions and or referencing on different types of human pollution and why and how species and ecosystems are slowly disappearing.
7. The students will then research about species/ecosystem endangerment (trying to answer their own questions and curiosity) and record their findings in their science journals.

#### Explain (20 minutes)

Teachers organize students into small groups or partners.

1. A reflection with students on the findings of the survey could help understand whether students have understood the source of the different types of waste.
2. Data collected as part of the environmental review can be represented in the form of bar graphs, fractions, percentage, etc.
3. Students will be able to apply mathematics concepts they study.
4. Data collected when interpreted well, will help put in place a stronger action plan for implementation at the school level.
5. Data can also be collected subsequent to the implementation of the action plan. The comparison of the data prior to and after the implementation of the action plan will help in evaluating the success of the action plan.

#### Revise (10 minutes)

1. Initiate a background discussion to - Explain to students the importance of collecting information through surveys and then representing the data collected in different ways with regards to the waste generated.
2. Divide the class into groups of 3-4 members for conducting the survey.
3. Discuss the survey format given as resource.

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

#### Explore (25 minutes)

1. Students to find out composting of flowers and leafs in temples and investigate decomposition rates
2. Students guess how long it takes for the following items to degrade in the environment (days, weeks, months, years). The groups can investigate how long it ACTUALLY takes for things to degrade or it can be assigned .

#### Explain (20 minutes)

1. Having new insights into the problems of waste managements in temples and ecosystems face because of human carelessness, the students will become aware of real world problems, even though the damage is not always locally visible.
2. Ask the students to plan and implement a handprint action related to waste management that they can implement in their class/ school.
3. Get students to frame a pamphlet which addresses waste management through a handprint action approach.
4. Allow students to research, observe, record data, isolate variables, design and plan experiments, create graphs, interpret results, develop hypotheses, and organize their findings to share in groups.

#### Revise (10 minutes)

Students answer these questions 1.

1. Were your estimates close to the actual time taken for some items to degrade?
2. What most surprised you about the results?
3. What are the advantages and disadvantages of biodegradable materials?
4. What are the advantages and disadvantages of non-biodegradable materials?
5. What non-biodegradable items could we get rid in temples?
6. What non-biodegradable items that you use could be replaced with biodegradable ones?

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

Apply (30 minutes)

Create a media project displaying how temples in your community can become more sustainable. This could include making a pamphlet for distribution at the grocery store, a poster for display at public place.

### Evaluate: **Group Presentation Rubric**

The teacher will use this rubric to evaluate each group's presentation. Students can look at this rubric so they may understand what they are being graded on. The Group Presentation Rubric will be combine with the Teammate Participation Rubric to determine your final grade for the project.

Trait	Criteria				Points
	1	2	3	4	
<b>Content</b> Did the presentation have valuable material?	Presentation contained little to no valuable material on green temples of India.	Presentation had moments where valuable material on waste, waste management was present but as a whole content was lacking.	Presentation had a good amount of material on sustainable practices apart from waste management and benefited the class.	Presentation had an exceptional amount of valuable material on sustainable development goals, climate change, waste management and green initiatives in temples and was extremely beneficial to the class.	_____
<b>Collaboration</b> <i>Did everyone contribute to the presentation?</i> Did everyone seem well versed in the material?	The teammates never worked from others' ideas. It seems as though only a few people worked on the presentation.	The teammates sometimes worked from others' ideas. However it seems as though certain people did not do as much work as others.	The teammates worked from others' ideas most of the time. And it seems like every did some work, but some people are carrying the presentation.	The teammates always worked from others' ideas. It was evident that all of the group members contributed equally to the presentation.	_____
<b>Organization</b> Was the presentation well organized and easy to follow?	The presentation lacked organization and had little evidence of preparation.	There were minimal signs of organization or preparation.	The presentation had organizing ideas but could have been much stronger with better preparation.	The presentation was well organized, well prepared and easy to follow.	_____

**Presentation**

*Did the presenters speak clearly?*  
Did the audience engage the audience?  
Was it obvious the material had been rehearsed?

Presenters were unconfident and demonstrated little evidence of planning prior to presentation.

Presenters were not consistent with the level of confidence/preparedness they showed the classroom but had some strong moments.

Presenters were occasionally confident with their presentation however the presentation was not as engaging as it could have been for the class.

Presenters were all very confident in delivery and they did an excellent job of engaging the class.  
Preparation is very evident.

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**Additional Resources**

(<http://worldwildlife.org/>, <http://www.nationalgeographic.com/>, <http://www.sheppardsoftware.com/content>  
The Hindu Newspaper <http://www.thehindu.com/news/cities/bangalore/plate-banks-try-to-reduce-disposables-by-lending-utensils/article22454225.ece> 4. <http://www.bakeys.com/india-innovates-episode-4-edible-cutlery/>

**Credits**

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