

TEACHER DEBRIEFING SHEET (PAGE 1 OF 3)

Student groups are engaged in one of four different activities. Each activity has the same activity card, discussion questions, and resource cards; the same extension questions can be used for each. The task and task evaluation criteria are different for each of the four activities.

DISCUSSION QUESTIONS:

1. What is the dilemma presented in *The Lorax*? Why did it occur?
2. What is sustainable development and what can it look like?
3. What are our human, economic, technological, and environmental needs today? Have you listed any needs that conflict with one another? If so, which would you choose and how would you make your decision?
4. How do we decide whose needs are met? Poor or rich people? Citizens or immigrants? People living in the cities or the countryside? People in one country or another? You or your neighbor? The environment or the corporation? This generation or the next generation? When there has to be a trade-off, whose needs should go first? Justify your position.
5. How could the economic needs of the Once-ler and the environmental and social needs of the other beings in *The Lorax* be met simultaneously?

EXTENSION QUESTIONS:

1. Please explain sustainable development in your own words.
2. What is the difference between a **need** and a **want**? What are our human **needs**?
3. How are our needs today different from and similar to the needs of people who lived hundreds of years ago?
4. If you could say anything to the Once-ler, what would you say and why?
5. What is **development**? Is development necessary? Why or why not? How is sustainable development different from development?
6. In what ways did the Once-ler change the world he entered into? What were some of the positive changes he brought? What were some of the negative changes?
7. What technology would the Once-ler have needed in order to practice sustainable development?
8. Is the development taking place in your community sustainable or not? Explain.
9. What are some of the advantages and disadvantages for corporations who practice sustainable development?
10. What are some of the short-term and long-term consequences of engaging in development without regard for sustainability?
11. Was the Once-ler's factory a problem, progress, or a promise? Explain.
12. What methods did the Lorax use to try to convince the Once-ler to stop what he was doing? Were those methods effective? Why or why not? What additional methods would you suggest that the Lorax could have used to argue his case? Why?
13. How are the communities discussed in your resource cards addressing the issue of sustainability? Do you think they are doing so effectively? Why or why not?
14. Predict some additional effects of the Once-ler's actions; do not discuss effects that were made clear in the video/book.
15. How can you avoid being a Once-ler?

TEACHER DEBRIEFING SHEET (PAGE 2 OF 3)**ACTIVITY ONE TASK:**

Now it is your turn to help the Once-ler. Imagine how the story of *The Lorax* would have been different had the Once-ler's corporation practiced sustainable development from the beginning. Rewrite this new version of the story. Your plan for the manufacture of Thneeds should be one that will eliminate the negative social and environmental effects described in the story. Your plan should attempt to include the four parts of sustainable development, meeting the following needs: human, economic, technological, and environmental.

ACTIVITY ONE TASK EVALUATION CRITERIA:

- Storybook makes use of relevant color, visuals, and symbols; storybook contains no more than four pages.
- Presentation identifies the negative social and environmental effects created by the Once-ler's factory.
- Story includes a clear plan for sustainable development, one that would prevent the negative social and environmental effects present in the original version of the story.
- Story includes a plan that is sustainable, meeting human, economic, technological, and environmental needs.
- Presentation addresses whether industrialization represents a problem, progress, or a promise.

ACTIVITY TWO TASK:

Now it is your turn to help the Once-ler. You have inherited the Once-ler's corporation and the last Truffula Tree seed. A group of investors is willing to invest in (put money into) your venture if the corporation practices sustainable development. Prepare a presentation to demonstrate to the investors how you will address their concerns. Your proposal for the manufacture of Thneeds should be one that will eliminate the negative social and environmental effects described in the story. Your plan should attempt to include the four parts of sustainable development, meeting the following needs: human, economic, technological, and environmental.

ACTIVITY TWO TASK EVALUATION CRITERIA:

- Presentation includes at least two visuals in support of your proposal; visuals makes use of relevant color, visuals, and symbols.
- Presentation identifies the negative social and environmental effects created by the Once-ler's factory.
- Business plan includes a clear plan for sustainable development; one that would prevent the negative social and environmental effects present in the original version of the story.
- Business plan is sustainable, meeting human, economic, technological, and environmental needs.
- Presentation addresses whether industrialization represents a problem, progress, or a promise.

TEACHER DEBRIEFING SHEET (PAGE 3 OF 3)**ACTIVITY THREE TASK:**

Now it is your turn to help the inhabitants in the story of *The Lorax*. Interview the different character groups from the story (Brown Bar-ba-loots, Humming-Fish, Swomee-Swans, Once-ler) who were negatively affected by the existence of the Thneed factory. Each character group wants to simultaneously sustain their environment and allow the Thneed factory to exist and make a profit. Each character group should express how they were affected and propose a solution that would both reverse the negative effects that have impacted them and their immediate environment and allow the factory to continue production. Each character group's proposed solution should include a plan for the manufacture of Thneeds that will eliminate the negative social and environmental effects directly related to them in the story. Each character group should attempt to include the four parts of sustainable development, meeting the following needs: human, economic, technological, and environmental.

ACTIVITY THREE TASK EVALUATION CRITERIA:

- Interview makes use of relevant speech, props, and other visuals.
- Presentation identifies the negative social and environmental effects created by the Once-ler's factory.
- Each interviewee presents a clear plan for sustainable development; one that would prevent the negative social and environmental effects present in the original version of the story; each plan addresses the immediate environment of the interviewee.
- Plans are sustainable, meeting human, economic, technological, and environmental needs.
- Presentation addresses whether industrialization represents a problem, progress, or a promise.

ACTIVITY FOUR TASK:

Now it is your turn to help the Once-ler. Build a three dimensional (3D), sustainable Thneed factory and the environment around it. Your Thneed factory design should be one that will eliminate the negative social and environmental effects described in the story. Your model should attempt to include the four parts of sustainable development, meeting the following needs: human, economic, technological, and environmental.

ACTIVITY FOUR TASK EVALUATION CRITERIA:

- Three dimensional (3D) model makes use of relevant color, visuals, and symbols.
- Presentation identifies the negative social and environmental effects created by the Once-ler's factory.
- Model demonstrates a clear plan for sustainable development; one that would prevent the negative social and environmental effects present in the original version of the story.
- Model includes a sustainable plan that will meet human, economic, technological, and environmental needs.
- Presentation addresses whether industrialization represents a problem, progress, or a promise

Activity Card One



The Lorax is a fictional story about a man whose activities abused the environment and about what he learned from the experience. The story contains many common environmental problems and issues facing humans around the world. Further, *The Lorax* also contains many of the ideas associated with sustainable development.

Sustainable development is an important idea for all human beings to understand. Sustainable development is the current worldwide attempt by planners, leaders, and scientists to conduct human activities in such a way that the environment is preserved.

Our environment is fragile -- it needs to be looked after. The problem is that there are over 6 billion people on the Earth, and they all need shelter, fuel, food, clothing, and water. The environment can provide all these things if we look after it.

Directions: Read the resource cards and analyze the visuals. Discuss the following questions in your group:

1. What is the dilemma presented in *The Lorax*? Why did it occur?
2. What is sustainable development and what can it look like?
3. What are our human, economic, technological, and environmental needs today? Have you listed any needs that conflict with one another? If so, which would you choose and how would you make your decision?
4. How do we decide whose needs are met? Poor or rich people? Citizens or immigrants? People living in the cities or the countryside? People in one country or another? You or your neighbor? The environment or the corporation? This generation or the next generation? When there has to be a trade-off, whose needs should go first? Justify your position.
5. How could the economic needs of the Once-ler and the environmental and social needs of the other beings in *The Lorax* be met simultaneously?

Task:

Now it is your turn to help the Once-ler. Imagine how the story of *The Lorax* would have been different had the Once-ler's corporation practiced sustainable development from the beginning. Rewrite this new version of the story. Your plan for the manufacture of Thneeds should be one that will eliminate the negative social and environmental effects described in the story. Your plan should attempt to include the four parts of sustainable development, meeting the following needs: human, economic, technological, and environmental.

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Activity Card Two



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TASK EVALUATION CRITERIA ACTIVITY TWO

- Presentation includes at least two visuals in support of your proposal; visuals makes use of relevant color, visuals, and symbols.
- Presentation identifies the negative social and environmental effects created by the Once-ler's factory.
- Business plan includes a clear plan for sustainable development; one that would prevent the negative social and environmental effects present in the original version of the story.
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TASK EVALUATION CRITERIA ACTIVITY THREE

- Interview makes use of relevant speech, props, and other visuals.
- Presentation identifies the negative social and environmental effects created by the Once-ler's factory.
- Each interviewee presents a clear plan for sustainable development; one that would prevent the negative social and environmental effects present in the original version of the story; each plan addresses the immediate environment of the interviewee.
- Plans are sustainable, meeting human, economic, technological, and environmental needs.
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Activity Card Four



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Directions: Read the resource cards and analyze the visuals. Discuss the following questions in your group:

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2. What is sustainable development and what can it look like?
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TASK EVALUATION CRITERIA ACTIVITY FOUR

- Three dimensional (3D) model makes use of relevant color, visuals, and symbols.
- Presentation identifies the negative social and environmental effects created by the Once-ler's factory.
- Model demonstrates a clear plan for sustainable development; one that would prevent the negative social and environmental effects present in the original version of the story.
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Resource Card One

"HOW CAN WE MAKE THE WORLD WORK FOR 100% OF HUMANITY IN THE SHORTEST POSSIBLE TIME THROUGH SPONTANEOUS COOPERATION WITHOUT ECOLOGICAL DAMAGE OR DISADVANTAGE TO ANYONE."

-Dr. R Buckminster Fuller

Sustainable Development: development that meets the needs of the present without compromising the ability of the future generations to meet their own needs.

"Our Common Future", Report from the UN World Commission on Environment and Development, 1987

Sustainable Development: development that does not cause degradation of the environment and uses renewable resources to the maximum extent possible.

The International Conference on Sustainable Village Based Development, 1993

Sustainable Development: the on-going process of human adaptation to a planetary environment, that incorporates the following rules:

1. Substances and materials from the planetary crust are not removed at a rate greater than they are replaced by planetary, natural processes, or the rate of substitution of a renewable alternative.
2. Substances produced by humans are, when no longer used by humans, not accumulating in the environment. Any substances or materials released into the environment can break down into non-toxic components. Non-toxic means that it can be metabolized by a plant or animal cell or a bacterium without disruption of its nominal functions.
3. The productive capacity of natural systems is not degraded by human processes. This includes but is not limited to harvesting of living materials at a rate no greater than their rate of regeneration in a biologically diverse manner at the site of harvesting...
5. Recycle left over materials to make other things.
6. Use non-toxic products...
9. Human economic processes should be fair.
10. Strong local control and authority, intense planetary cooperation and information sharing.

Resource Card Two

Grassroots-Chemical-Free Farming

By Don De Silva

The Polonnaruwa district, in the North Central Province, is one of the best areas for crops in Sri Lanka. It has a favorable climate and good soil, backed by a network of irrigation canals providing a regular supply of water. But 30 of its small farmers committed suicide in 1995.

Using high-yielding varieties of seeds, fertilizers, and chemicals, the farmers had been able to produce a reasonable yield from their paddy each year. But after years of heavy fertilizer and pesticide use, their soil degraded and their harvests dwindled. They struggled in vain to get the minimum needed to keep their heads above water. They had borrowed heavily to buy chemicals and fertilizers and hire tractors and were now unable to pay back the debts. The only way out, they thought, was to end their lives.

In Sri Lanka, and around the world, modern agricultural methods have eroded fertile land, marginalized poor farmers, swept away indigenous farming knowledge in the name of scientific progress, and ousted local food varieties and farming systems.

Yet some rural communities in Sri Lanka are developing viable alternatives. At Nawalapitiya, some 40 kilometers from Kandy, the country's central hill capital, a retired school headmaster, G. K. Upawansa, is rediscovering and promoting indigenous farming systems that operate in harmony with the environment.



Working together with a group of non-governmental organizations in Sri Lanka, G. K. Upawansa developed an alternative process of agriculture consisting of:

- An agricultural system, based on the needs of communities and local methods of cultivation
- Recycling farm wastes, making compost from organic wastes
- Producing biological pesticides from local plant extracts and using natural predators to control pests
- A cropping pattern that follows local weather patterns and climatic rhythms
- Minimal tillage: the soil is never turned but loosened with village implements like country ploughs
- Mixed cropping
- Rekindling cultural and religious practices when harvesting and planting crops.

Working in rural schools, Upawansa came into contact with the problems faced by poor farmers through his students, and decided to set up a program to ease their burdens. Immediately after retirement, he bought some land and started experimenting with eco-friendly agricultural practices. Eventually he began to achieve higher crop yields and news about his methods spread from village to village. People came to learn from him, demanding information and training. He established a modest training center that, each year, trains about 100 young men and women from rural communities with hands-on experience in ecological farming.

Upawansa believes that modern farming practices damage ecosystems. Intensive tillage, he says, slowly degrades the land, while chemical fertilizers kill microbes in the soil and affect its ability to fix nitrogen. The fertilizers also destroy insects and animals that maintain a check on pests, while pesticides wipe out insect predators. After a couple of years, the pests develop resistance and multiply rapidly.

He also takes issue with conventional agricultural wisdom on weeds. Agricultural experts advise farmers to keep their plots free of them, saying they compete with crops for nutrients and harbor pests. In fact, says Upawansa, the so-called 'weeds' harbor predators of crop pests and enrich and conserve the soil. Experts also advise farmers to remove trees to allow more sunlight, but Upawansa retorts that this also harms soil fertility.

Resource Card Three

Curitiba's "Voluntary Sustainability"

Sustainability in Action: Profiles of Community Initiatives Across the United States-- American Forum for Global Education. 1995

Large urban areas throughout the world are increasingly faced with environmental degradation as well as economic and social problems, such as unemployment, violence, and a lack of community. Curitiba, Brazil, a city, which grew from half a million residents in 1965 to 1.5 million inhabitants today, was no exception to these typical urban problems.

Over the past ten years, however, Curitiba has been undergoing a replanning and redesigning process that has had unprecedented success and has come to serve as a model of sustainable urban planning. Curitiba has come to be known as the "ecological capital of Brazil." This reputation was initiated primarily by the vision and efforts of the city's Mayor, Jaime Lerner, who firmly believes that "cities needed to be rediscovered as instruments of change".



+ Curitiba

Lerner began the process of redesigning Curitiba by addressing the transportation system in the city. He viewed transportation as the key to successful integration of Curitiba's residents and attributes. A complete overhaul of transportation in the city has produced: express bus lanes for faster service; access to buses through the city, with buses running the complete length of the city streets; and a special rapid boarding system that has cut boarding time in half. The city buses are privately owned with no direct financial subsidy. Two thirds of Curitibaans now use public transportation, and there is 25% less congestion in Curitiba than in cities of similar size, which has led to noticeably cleaner air.

Retired buses are either used as mobile training centers or as free transportation to parks and open spaces. These mobile training centers serve as education facilities for Curitibaans, who pay \$1.00 to take courses in auto mechanics, electricity, typing, hair dressing, artisan work or the like. At the end of these training courses the students are placed in jobs throughout the city or they often start their own businesses. Furthermore, a 24 hour street has been established which serves as a town center as well increases the city's economic development.

The park and open space situation in Curitiba has drastically improved over the past 25 years. In 1970 only 5 square feet of open space per resident existed. Today there are 559 square feet per resident. 1.3 million trees have been planted, 16 parks have been developed, and 1000 plazas were established throughout the city. Newspapers are posted in these plazas for public reading, and day care centers have been strategically placed throughout the city for parents who are shopping or doing errands.

One key aspect of the revitalization of Curitiba has been the participatory and voluntary nature under which these changes throughout the city have been implemented. For example, recycling was introduced in Curitiba's schools, and children quickly caught on and convinced their parents to sort their garbage at home and to recycle. Today, two thirds of the city's daily garbage (100 tons) is recycled. Recovering alcoholics and homeless people are actively employed in the recycling program, and proceeds earned from the recycling go back into social services provided by the city for its residents. The recycling program is voluntary, not mandatory, and awards participants with food and transportation vouchers. Over 22,000 families throughout the city now participate in the recycling program.

The success of recycling has produced less environmental damage citywide, which has, in turn, reduced the infant mortality rate and disease rate, particularly in impoverished areas of Curitiba. Serious environmental problems do remain, however, as parts of the city are not connected to the sewer system and still suffer from extreme environmental damage.

Curitibaans need to play an integral part in the planning process because they are the ones who will determine the success or failure of a program and adjustments often need to be made in projects that don't work as planned. As Lerner states, the city has become "more intelligent and more humane".

Individual Report

Imagine that you are the Once-ler at the end of the story of The Lorax. Write a diary entry describing how you would have run your business differently given your current knowledge about the ways things turned out. As the Once-ler, do you think industrialization is a problem, progress, or a promise?

Evaluation Criteria

- Diary entry is written from the point of view of the Once-ler.
- Diary entry identifies at least three negative social and environmental effects created by the Once-ler's factory.
- Diary entry presents a clear plan for sustainable development; one that would prevent the negative social and environmental effects present in the original version of the story.
- Diary entry includes a sustainable plan that will meet human, economic, technological, and environmental needs.
- Diary entry discusses whether industrialization is a problem, progress, or a promise.