Single Steam Recycling

Image from: johnsrefuse.com

Your topic is Single Stream Recycling

Your committee will present last. Please read through the steps carefully.

Remember, your ultimate goal is to reduce waste.

Product: A PowerPoint Presentation

- **Each committee will present their findings using PowerPoint and YouTube video(s). If you need more than one video to tell your stories, insert a new slide and add the video to the new slide.**
- **The PowerPoint slides have been prepared for you. You need to fill in the information. Everything in *italics* is to be replaced by your committee.**
- **You need to know the information on the slides. Use an index card so you face the Summit audience, not the screen.**
- **You will include bullet points on a few of the slides; bullet points should be a few words about your topic. (Insert a new slide if you need more room).**
- **The Single Stream Recycling presentation will be no longer than 20 minutes and no less than 10 minutes.**

1. Elect a Chairman of your committee. Your Chairman will be in charge of the group's presentation to the rest of the class. This will include delegating parts of the presentation.

Successful Chairing for a Successful Committee

Chairs must be good listeners, good communicators, and good organizers.

Successful Chairs:

✔ Successful group discussions require planning and participation by all:

- The Chair asks questions and gets help from their committee.

✔ The Chair's job is to keep all committee members involved by making sure each member:

- has a country/topic
- has filled in all of his or her slides
- listens to the other members' findings
- joins in on the final committee opinions and solutions (Remember, the 6th grade is focusing on how to reduce, or create less, trash)

✔ Praise members' good work in writing and verbally

✔ Maintain a sense of humor

✔ Communicate often. Few people respond to a general invitation; a personal request usually brings faster results.

✔ Check in with members until tasks are accomplished; then praise committee member(s) (privately and publicly) for a job well done.

✔Document all your sources as required by your teacher.

2. Target learning standard: How do biases interfere with critical thinking? Be aware assumptions shape people's thinking.

Understanding the problem on a global scale requires an understanding of differences in cultures around the globe. You must understand community values before you can suggest community solutions.

Be aware that assumptions shape people's thinking. Look at your research as facts and try not to develop a conclusion until you are finished researching. How do biases (assumptions) interfere with critical thinking?

PowerPoint directions

The slides have been prepared for you. You will need to adapt and provide details for each slide. One of your presentation objectives will be to apply a Transition Effect to the PowerPoint presentation. You can do this by clicking on the Transitions Tab at the top of the PowerPoint window. A new toolbar will open that allows you to preview the transition effects, which occur between slides and/or between bullets on one slide. When you have chosen your effect, you may apply the effect to all slides or just one at a time. Try to make your effects engaging for your audience and not distracting. Add in extra slides as needed. If needed, ask your teacher for help. Have fun!

Title (Slide #1)

This slide introduces the committee members and chairperson. The directions are on the slide. Type in the information needed, and then erase the *italic* directions.

What is Single Stream Recycling? (Slide #2)

This slide answers the question "What is Single Stream Recycling?" Provide a narrative to describe what Single Stream Recycling is and how it works. Find and insert an image of Single Stream Recycling in the slide to replace the kittens. You may search for an appropriate picture with Google or another online search engine, but please give credit for an image as dictated by your teacher. Add an extra slide if you need more room.

So What Exactly is Single Stream Recycling?

Single Stream Recycling refers to the process of combining all recyclable materials in one collection system. This method is much more convenient for people because they no longer have to separate their recyclables into various types, such as cardboard, paper, glass, plastic, and metal. Some municipalities (cities) that have moved to single stream now report recycling rates as high as 80% of all solid waste, significantly reducing the amount of material that ends up in the landfill. Convenience and simplicity usually lead to higher rates of participation.

Not only does this make it easier for the consumer to recycle because they don't have to sort the various materials, it also saves space because only one large container is needed rather than multiple smaller recycling bins. Haulers also benefit by not having to run multiple routes to pick up the different types of materials, or because they can use single-compartment trucks, which are cheaper and simpler to use. Running multiple routes can be one of the most expensive parts of the process, requiring extra trucks, crews, and fuel.

The final destination for comingled (mixed) recycled items is the Material Recovery Facility (MRF). The MRF is where items are separated, purified, and concentrated into bundles to be sold to companies who buy the recycled materials and turn them into post-consumer (after

being used) products. At these facilities a combination of machines and people work to separate the recyclables into their various forms. After the recyclables are delivered to the plant, bulldozers load the material onto conveyor belts. A variety of machines work to separate the flats (paper and cardboard) from the rounds (plastic, glass and metal) using the properties of shape, size, weight, and material. Then people usually work to discard any trash from the stream. The process continues until all materials are separated and ready for compacting into bundles. It is a complex process using conveyors, drums, belts, grates, blowers, magnets, and people to very carefully sort the different recyclables for compaction and sale.

The final bundles are sold as commodities to end-users (manufacturers) for processing into recycled products. Once a commodity is sold, it can be converted into a variety of post-consumer products. Metals and glass can be recycled an infinite number of times, and so are extremely valuable. Paper and cardboard can be recycled several times – the paper fibers get shorter each time and are less useful. Plastic can usually only be recycled once before its composition changes too much to be used again.

Readings: These readings are full of valuable information. Click on related links on these sites to learn more.

***** Eco-Cycle – Building Zero Waste Communities
http://ecocycle.org/recycle-compost-reuse/singlestream

***** Connecticut Resources Recovery Authority
http://www.crra.org/pages/single-stream_recycling.htm

***** Resourceful Schools Project
http://www.resourcefulschools.org/fun-recycling-facts/how-single-stream-recycling-works/single-stream-recycling-tour#7

***** How Many Times Can These Common Materials be Recycled?
http://earth911.com/news/2012/11/12/how-many-times-can-materials-be-recycled/

Pros and Cons

Read the following two short articles for perspectives on the positive and negative aspects of Single Stream Recycling.

**** Wikipedia
http://en.wikipedia.org/wiki/Single-stream_recycling

*** Ogle County Solid Waste
http://www.oglecountysolidwaste.org/single_stream_recycling__changes.htm

Potential Benefits (Slide #3)

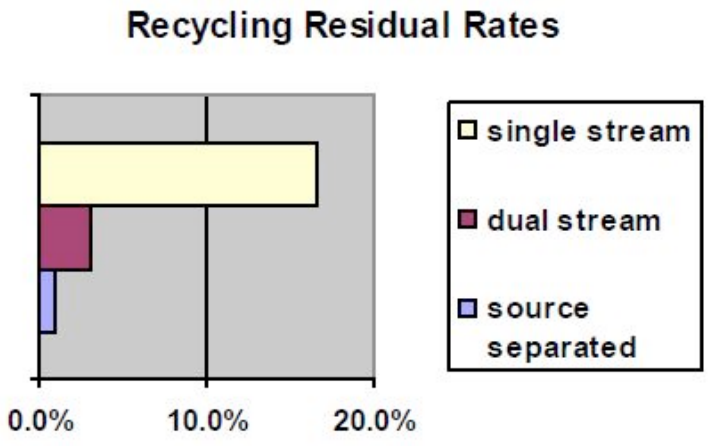
Insert bullet points and brief explanations into this slide regarding the potential benefits of Single Stream Recycling. Here are some samples:

- Convenience – It is much easier for consumers to put recyclables into one container than to separate them
- Participation – convenience means greater numbers of consumers will participate
- Less containers – not having to separate means less containers
- Less transport – combining trips means fewer vehicles, crews and fuel
- Less waste – Greater recycling rates = less waste going to landfills
- Employment – Workers at MRF's are positive for employment
- Economy – Reduced need for new resources lowers manufacturing expenses, plus increased desire for "green" products by consumers = higher revenue

Disadvantages (Slide #4)

Downsides to single stream include:

- Contamination – the end product is lower quality due to incomplete separation (for example, plastic and glass can get mixed in with paper)
- Increase in residuals – these are recyclables that don't get separated and end up in the landfill. The rate of residuals goes up from 1% when source separated (by you) to about 17% in Single Stream Recycling. See chart below.
- High start-up costs – for processing facilities, collection vehicles and carts
- High operational costs – for labor, energy and maintenance of facilities
- Lower commodity price (due to contamination)
- Potential lower consumer confidence in the process and/or output



From: http://www4.uwm.edu/shwec/publications/cabinet/recycling/Single%20Stream%205-24a.pdf

Single Stream Recycling Practices (Slide #5)

For this slide you will insert YouTube video(s). Your intent here is to provide a thorough, yet concise video describing the process of Single Stream Recycling. Remember you have a time limit of approximately 6 min. If you know how to use parts of a video, do so, if not choose the best one(s) that fits your message. The videos can be found below. Remember, the authors of these videos have a bias - they are promoting their product or their opinion.

***** 2:10 Science Channel - Single Stream Recycling MRF
http://www.youtube.com/watch?v=Ls_Y7cadISc&feature=related

***** 7:13 Waste Management Single-Stream Recycling: Take a tour of our Philadelphia MRF
http://www.youtube.com/watch?v=_GP3JuiX5BY&feature=related

***** 1:49 Here's NBC-Connecticut's Ryan Hanrahan on single-stream recycling
http://www.crra.org/pages/single-stream_recycling.htm

**** 4:26 Single Stream Recycling – How it Works
http://www.youtube.com/watch?v=J_RWqgXcP_k

**** 2:51 How does a Material Recovery Facility (MRF) work?
http://www.youtube.com/watch?v=7CFE5tD1CCI&feature=related

Committee Opinions (Slide #6)

Use this slide to summarize your committee's opinions about Single Stream Recycling. Please consider all previous readings before drawing your conclusion(s). Are there negative consequences to this type of recycling? Do the pros outweigh the cons? Remember your learning objectives**: how do biases interfere with critical thinking? And be aware that assumptions shape peoples thinking.** Do the authors of the articles have an agenda that influences their stance?

Solutions (Slide #7)

Today For this slide, first determine what recycling method your community uses now. Material Recovery Facilities are expensive to build and run, so Single Stream Recycling is not available everywhere. Some municipalities may collect single stream and transport it to a facility in another region. How can we, and other regions, encourage our leaders to move towards a more responsible method of waste recovery?

Tomorrow The amount of waste that ends up in landfills or incinerators represents only a small portion of the resources needed to produce that waste in the first place. While Single Stream Recycling is a positive way to deal with much of that trash, consider alternative solutions for minimizing the amount of products we toss in the first place. Can you, your family, your classroom or even your school commit to purchasing products with no or less packaging? How about buying recycled products?

Strategies for lowering waste production start with the three R's + COMPOST. REDUCING the amount of products used (and therefore waste created) in the first place has the greatest impact. REUSING is the second most effective way of eliminating material that would otherwise go into our waste stream. RECYCLING materials such as paper, plastics, metals and glass can eliminate as much as 75% of the remaining volume of trash. Lastly, COMPOSTING any organic (from something living or once living) waste reduces trash volume and converts it to an environmentally friendly form that can be used to fertilize crops and gardens, enriching the earth rather than polluting it.

Vocabulary

- Comingled: Mixed or blended together.
- Commodity: Something useful that can be turned into something with commercial or other advantages
- Compost: A mixture of decaying organic matter, as from leaves and manure, used to improve soil structure and provide nutrients
- Landfill: A system of trash and garbage disposal in which the waste is buried between layers of earth to build up low-lying land
- Materials Recovery Facility (MRF - pronounced "murf") is a specialized plant that receives, separates and prepares recyclable materials for marketing to end-user manufacturers.
- Municipal: Of or pertaining to a town or city or its local government
- Organic: Of, relating to, or derived from living organisms (such as yard waste, kitchen scraps, paper, leather and textiles).
- Post-consumer: Having been used and recycled for reuse in another consumer product