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Title: Reclamation and Recycling

Level: Secondary

Day/Time: 3 Activities, 1 class period each

KERA Goals: 2.2, 2.3,

Objectives:

1. Students learn the importance of plants and animals, ecosystems and habitats... and see how these factors guide mining reclamation projects.
2. Students learn the importance of recycling, and the difference between manufacturing with recycled materials and newly extracted materials.

Each activity is designed to be completed in 1-2 classroom periods.

Background Information:

1. Since minerals are a natural resource, it's important that miners use the land responsibly, and that consumers use mineral products wisely.
2. The price that consumers pay for mineral products is directly related to the cost of mining the ore.
3. Reclamation is returning land that has been mined to a useful condition.
4. Recycling is using materials over and over, to reduce waste and the amount of new resources that must be mined.

Operating a mine is a lengthy and expensive process. The property chosen for a mine site must have a deposit rich enough to offer profit to the miners. Expenses include testing and permitting, equipment purchases, operating personnel, and reclamation management.

Through reclamation projects, modern miners return mined land to a useful or better condition. They replace mine sites with wildlife habitats, recreation areas and other developments. When the land is reclaimed, it's hard to tell the mine site ever existed. Reclamation specialists work with state and federal agencies to plan the projects.

Recycling is another key to better managing our mineral resources. Because of the rising price of gold and silver, it is now economical to go back and re-mine some old mining areas. Miners also reuse many of the solutions used in processing minerals and constantly recycle water used in their operations. All of us, as consumers, can help conserve our mineral resources by recycling and reusing the many mineral products that we use each day.

Activity 1: My Habitat is Your Habitat

Materials:

My Habitat Is Your Habitat Student Handout

1. Discuss in class that after minerals are extracted, modern miners are faced with the task of reclaiming the mined land. Many times the reclamation project returns the land to its previous state, a habitat for native plants and animals.
2. Copy and distribute the student handout My Habitat Is Your Habitat. Although most of us live in developed areas and neighborhoods, the land we live on was once the natural habitat of certain types of plants and animals. Go through the handout with the class, and see if you can decide what type of habitat used to exist where you now live. Some areas will cross over, actually part of two of the habitats described. This lesson shows that human beings often change a natural community to suit their needs. What are the concessions we have to make when we do this? What are the dangers of this in the modern world?

Activity 2 Everything Old Is New Again (2 class periods)

Materials:

Everything Old Is New Again student handouts

Use It Today... Reuse it Tomorrow student worksheets

1. In class discuss that the average person throws away 3.5 pounds of garbage every day. By recycling and reusing, we can reduce the amount of garbage that goes to the landfills. At the same time, recycling helps us to reduce the amount of new minerals that need to be mined.
2. Copy and distribute Everything Old Is New Again handouts, comparing the cycles of mining and manufacturing new materials for aluminum, paper, glass and plastic with the cycles of recycling each product. Talk about what recycling saves us in natural resources that we mine, electricity and transportation costs, etc. If we throw something away, where does it go? When we recycle it, where does it go?
3. As a lesson in the importance of recycling, copy and pass out the student log, Use It Today...Reuse It Tomorrow. They should list everything that they throw away until the next time the class meets, and mark if it was recyclable or reusable, and if it was a mineral product.
4. Review the worksheets in the next class period. Could they have recycled or reused some of the things they threw away? What is the recycling situation where they live and at the school, and does their family separate trash for recycling?

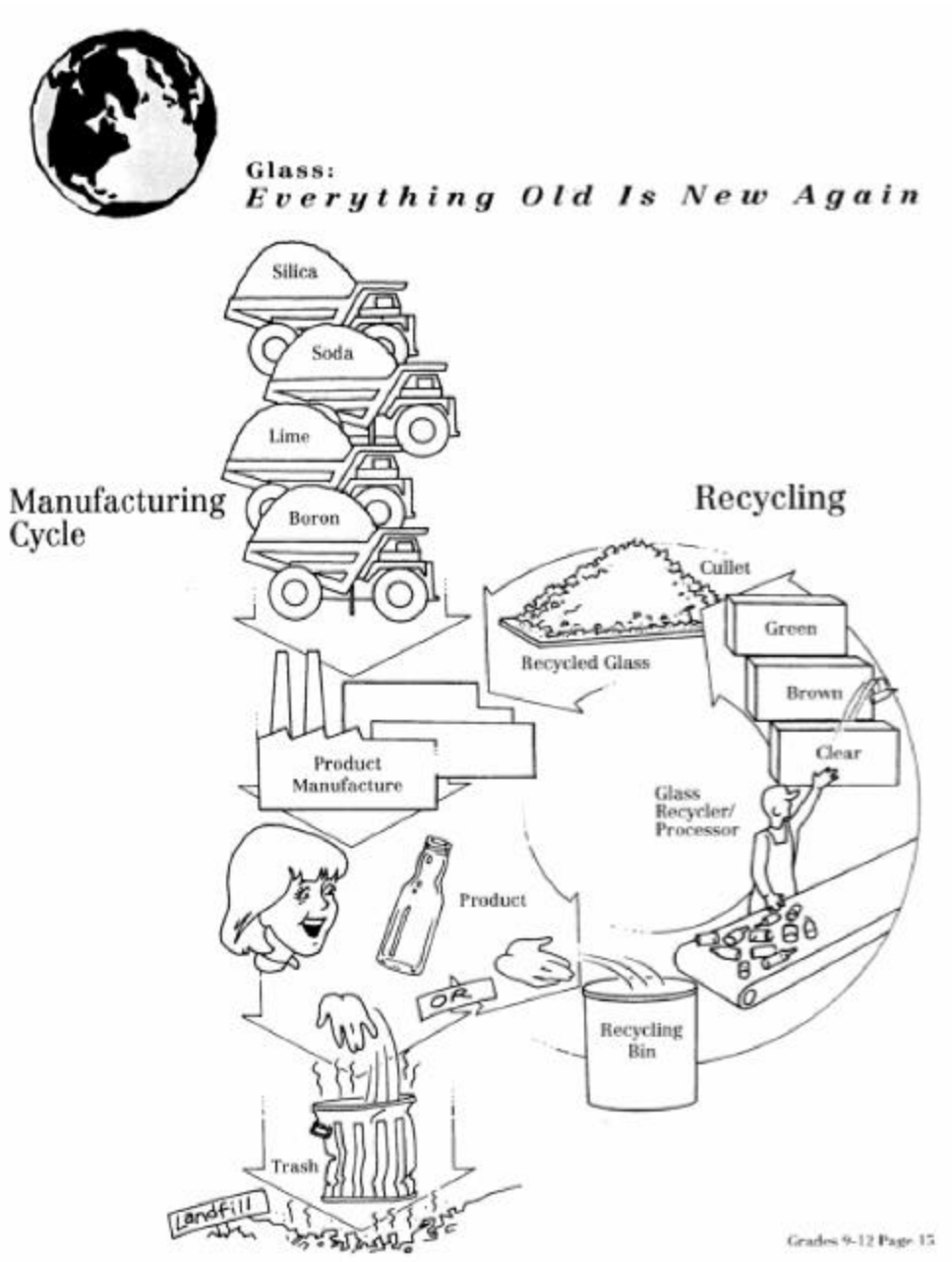
Activity 3: Reclamation

Reclaim your own area of the school. Is there an unsightly area on the playground or school yard that could be reclaimed? Maybe it's a hole where a piece of playground equipment used to stand, or barren dirt where grass could grow. Your reclamation project could be as

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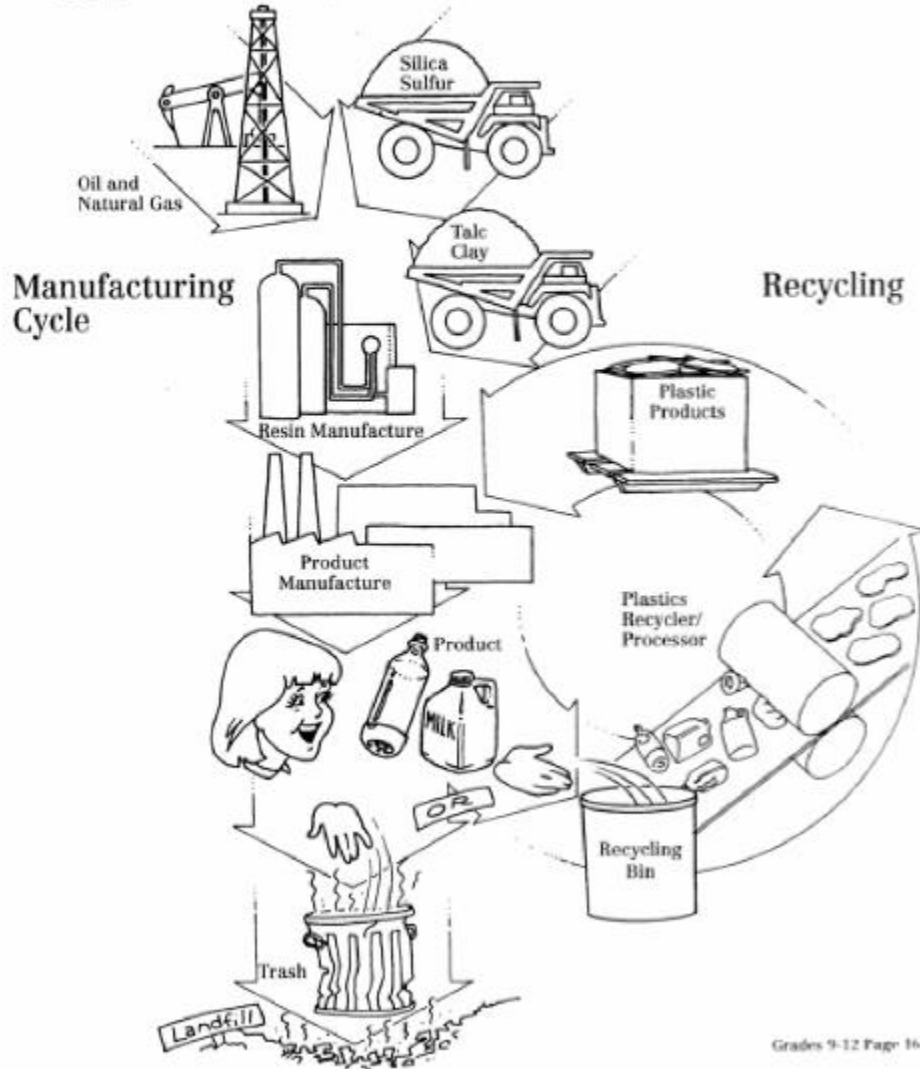
simple as planting grass seeds and putting a fence around the area, or maybe the class could pitch in and plant a tree or some flowers. Just like on real reclamation sites, this task will require some planning. If you are planting, make sure the species is native to the area and that you plant and fertilize it properly.

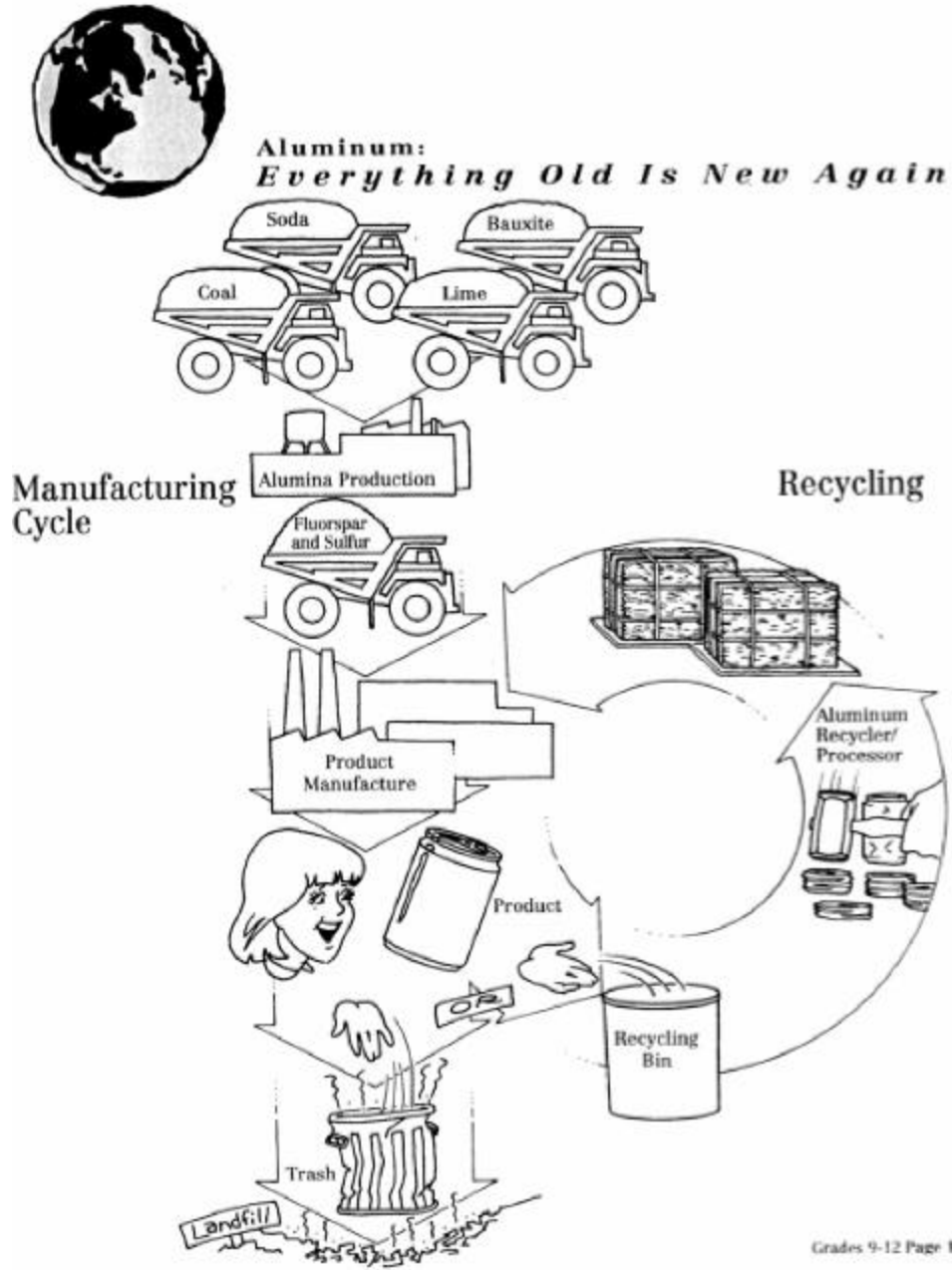
Recycling: Use It Today...Reuse It Tomorrow Worksheet

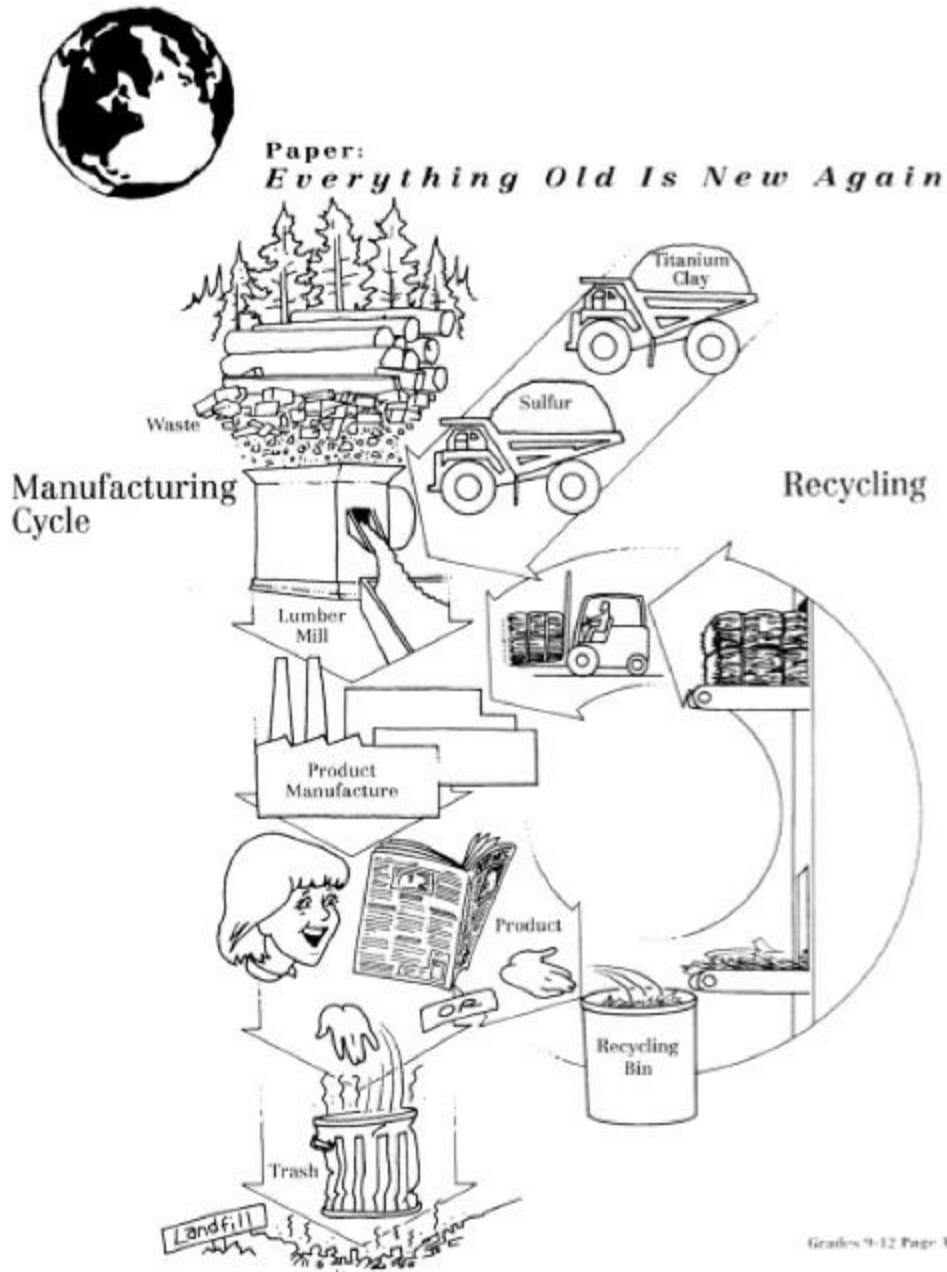




Plastics:
Everything Old Is New Again







Recycling: Use It Today... Reuse It Tomorrow

Whether your family drops it off or has it picked up at the curb, many of us are now separating our garbage and recycling it. But sometimes we forget that things we throw away could be reused. Like a piece of paper. Did you write on both sides of it before throwing it away? How about your sandwich? Did you toss out leftover bread crumbs for hungry birds? Make a list of everything you throw away in one day, and then note if it could be recycled or reused. Your garbage might be worth something after all!

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Item	Recyclable	Reusable	Mineral?

Example:

Item	Recyclable	Reusable	Mineral?
Soda Can	X		X
Paper	X	X	X
Candy Wrapper		X	

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